

Integration of Physical Education and Psychological Resilience in Children Development

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Abstract

In recent years, with the extensive exposure of psychological diseases among children and adolescents by Chinese media, the effective integration of physical education and psychological resilience in the physical education teaching process has become a hot topic among school physical education researchers. This study adopts systematic literature review research method to deeply analyze the relevant research on physical education and psychological resilience in the process of children's development in China. The results show that: (a) Physical education goals and content are rich, but there is a lack of integration of psychological resilience training goals and content, (b) the design of psychological resilience training content is seriously unbalanced in the implementation of physical education courses; (c) there are no clear quantitative indicators for psychological resilience training content in a single physical education course, (d) the intervention time and cycle for promoting children's psychological resilience level through physical education activities are limited, (e) there is a lack of implementation methods for psychological resilience training in physical education courses. Based on the results of the systematic literature review analysis, this paper proposes an effective integration model of physical education and resilience in children's development, in order to provide thoughtful suggestions for the further research of subsequent researchers related to children's physical and mental development, and provide theoretical reference for the reform of physical education curriculum design in schools.

Keywords: Physical Education, Psychological Resilience, Children Development.

Introduction

In recent years, the extensive exposure of psychological problems among children and adolescents by the Chinese media has prompted related researchers to think deeply about how to effectively promote the psychological health development of Chinese children.

First, China has never stopped paying attention to the physical health and psychological health during the development of children in national policies. The Outline of the National Medium- and Long-Term Education Reform and Development Plan (2010-2020) states that physical health is the starting point for children's development. While achieving children's physical health, we should also pay more attention to and cultivate children's psychological health, so as to achieve the goal of achieving common and harmonious development of the physical and psychological health of Chinese children. The 2020 "Healthy China Action" proposes that comprehensive psychological health promotion actions should be carried out for all age groups from children to the elderly (Xinyu, Sui Yuhao & Wang Yihao. 2024). The Outline for the Development of Chinese Children (2021-2030) clearly proposes to adhere to the principle of promoting the all-round development of children in terms of "Morality, Intelligence, Physical, Aesthetics and Labor", and proposes to improve the service capabilities of families, schools and communities for children's psychological health and effectively promote children's psychological health (He Fang, 2023). However, despite the country's high attention, the psychological health problems of Chinese children and adolescents are still serious and cannot be ignored. In the 4th issue of 2023, China's "Mental Health Education in Primary and Secondary Schools" pointed out that the detection rates of anxiety, depression, and sleep problems caused by unhealthy psychological development among primary school students, junior high school students, and high school students have reached more than 10%. Among them, the detection rate of sleep problems caused by unhealthy psychological development in primary school students has even reached more than 25%, and the detection rate of suicidal ideation among high school students is 17.1% (Yu Guoliang & He Yan. 2024). As a result of the high level of attention paid by national policies, it is critical to create effective means and strategies to enhance children's psychological health development, and this must begin with children, the earlier the better.

Secondly, the important value of physical education in developing children's psychological health has been widely and highly recognized. Since the 18th National Congress of the Communist Party of China, General Secretary Xi Jinping has repeatedly emphasized the important value of physical education, pointing out that students should enjoy the fun of sports, improve their physical fitness, improve their personality, and temper their willpower through physical exercise. Among them, in addition to improving physical fitness, the other three aspects are all aimed at the psychological health of children and adolescents, further clarifying the important positive role of physical education in psychological health of children. In 2021, the "Guidelines for the Reform of Teaching Physical Education and Health (Trial)" emphasized that physical education teachers should "Comprehensively grasp the value of physical education in the education process of 'Cultivating the body, Cultivating the intellect, and cultivating the heart'" during the teaching process. In April 2022, the Ministry of Education released the "New Curriculum Standards" for compulsory education, among which the proportion of physical education and health classes in the total class hours surpassed foreign languages, becoming the "Third main subject", emphasizing through practical actions the importance of physical education to the physical and psychological health development of

children. In July 2024, the General Administration of Sport of China, the Ministry of Education and the National Development and Reform Commission jointly issued the "Notice on Improving the Level of After-School Sports Services to Promote the Healthy Growth of Primary and Secondary School Students", which pointed out the direction for social sports education professionals to participate in after-school sports services. The unique value of physical education in helping children and adolescents acquire a sound personality, a strong body and a healthy psychology in their early growth has been widely recognized and put into practice by families, schools and society. The positive role of physical education on children's psychological health has received unprecedented attention in China (Zhou, 2022).

Finally, in the face of the more challenging and complex information age, psychological resilience has become an important indicator of psychological health of children when facing complex social environments, adversity challenges, difficulties and setbacks (Harrison et.al,2021). Jiao Lihua pointed out that in modern times, due to the substantial reduction in physical labor and sports activities, people's psychological resilience level has dropped significantly, and the main goal of physical education is to improve students' psychological resilience level (Jiao Lihua, 2018). Physical education is an important means to promote children's psychological health Andermo (2021), and psychological resilience is an important indicator of contemporary children's mental health (Satapathy, 2022). How to effectively integrate physical education and psychological resilience in the process of physical education teaching has become an important topic for current physical education researchers. Chen Shengquan proposed that primary school children who participate in sports can develop their psychological resilience and learn how to take charge of their life by adopting a proactive and upbeat mindset that will help them deal with challenges and successes alike (Chen Shengquan, 2021). Bi Yongxing proposed that physical exercise can improve students' happiness, self-confidence, interpersonal skills, and emotional control, and emphasized that physical exercise is conducive to cultivating students' psychological resilience (Yongxing 2012). Wang Jiayu found that 12 weeks of sports scenario games can effectively improve children's psychological resilience and promote their mental health development (Jiayu, 2022). Chen Genyan proposed that sports interventions such as sports dance, basketball, and extracurricular sports games can effectively improve the psychological resilience of Chinese migrant children (Genyan, 2019). Wang Lei and other researchers emphasized that physical education can effectively intervene in the psychological resilience, psychological energy and psychological control of left-behind children (Lei et al., 2017). There are some researchers also proposed that track and field, ball games and outdoor sports can all help left-behind children develop their psychological resilience in a positive way (Sahlberg & Doyle, 2020). In addition, many researchers have suggested that special sports such as basketball, football, badminton, and table tennis can effectively promote children's level of psychological resilience, which is beneficial to the healthy development of children's psychology and improves children's ability to adapt to a complex society (Dongliang, 2017; Xianhua, 2019; Lang, 2023; Baoguo, 2024).

In the above studies on how physical education activities can improve children's psychological resilience, as regular physical education courses, only include physical education curriculum plans for individual physical activities or sports projects are proposed, lacking further guiding, and no models for the effective integration of physical education and psychological resilience in the physical education teaching process are proposed, in order to give an effectively guide of integration between physical education and psychological resilience in the process of

children's development, in the process of physical education teaching, and in many sports activities and sports projects. This study will make a further model suggestions and reflections on this research gap.

Methodology

This study uses a systematic literature review method to conduct an in-depth analysis and study of the elements and models of the integration of physical education and psychological resilience in children's development. A systematic literature review is a method of collecting, analyzing and summarizing existing research on a specific topic (Shaffril, 2021). It includes a comprehensive search of various databases to identify relevant research, a critical assessment of the quality of the literature, and a synthesis of research results to draw meaningful conclusions and targeted recommendations. The primary focus of this article's analysis is on relevant Chinese research. The literature comes from "China National Knowledge Infrastructure". According to the keywords "physical education & resilience" in the articles, an advanced search found that the literature resources are relatively less, so there is no restriction on the publication time of the literature. A total of 54 highly relevant documents were retrieved, of which 10 articles conform to the following criterias (A, the research participants are children aged 5-15 years old. B, the article contains the impact of physical education activities on resilience. C, literature review is excluded). According to the screening results, the integration elements and models of physical education and resilience in children's development are further analyzed and studied through systematic literature review analysis method.

Results

Through systematic literature review and analysis, it was found that the intervention research on physical education activities on children's psychological resilience includes the following contents (Table 1).

Table 1

Analysis of key points of research on the intervention of physical education on children's psychological resilience

N o.	Author (year)	Title	PE interventi on content	PE Interven tion setting	PR interven tion content	PR Intervent ion setting	PR Assessme nt	Element s of PR assessm ent
1	Zheng (2023)	Lang. Research on the intervention of badminton on the physical fitness and social adaptability of left-behind children	Badminton combined with regular PE classes for intervention.	12 weeks, 2 lessons per week, 24 lessons in total, 40 minutes per lesson.	NO	Not mentioned. Only emotional goals are set in the objective s: to cultivate students' self- confidence, courage, unity and	"The Youth Psychological Resilience Scale "compiled by Hu Yueqin and Gan Yiqun from Peking University	Goal focus, emotional control, positive cognition, interpersonal assistance , and family support.

No.	Author (year)	Title	PE interventi on content	PE Interve ntion setting	PR interven tion content	PR Intervent ion setting	PR Assessme nt	Element s of PR assessm ent
2	Zou Liang & Liu Xianfa. (2023)	in Guizhou Province				love. The principle of coordinat ed develop ment of body and mind is proposed in the teaching principles . It cannot be quantifie d. Not mentione d. But it is suggeste d that		
		Construc tion and applicati on of evaluatio n index system for middle school students' physical literacy - based on big data of compreh ensive evaluatio n of educatio n quality in City A	No interventio n program.S tudents were grouped according to their individual daily physical exercise habits and frequency.	Differen tiated data for differen t exercise frequen cies were propose d, such as twice a day, once a day, to almost no exercise habits.	NO	good physical exercise habits and parent- child exercise have a positive effect on students' mental health and psycholo gical resilience . It has importan t reference value. It cannot be quantifie d.	Self- compiled question naire "Psychol ogical Resilienc e Question naire"	Not explicitly mentione d. A correlatio n model between exercise habits, emotion regulation ability, willpower, psycholog ical resilience and learning confidenc e was proposed.

No.	Author (year)	Title	PE interventi on content	PE Interve ntion setting	PR interven tion content	PR Intervent ion setting	PR Assessme nt	Element s of PR assessm ent
3	Wang (2022)	Jiayu. Research on the impact of situational sports games on the social skills and psychological resilience of 5-6 year old children	The scenario game mainly includes four scenarios: military and police, patriotism, society, and environmental protection .	12 weeks, 2 lessons per week, 24 lessons in total, 30 minutes per lesson.	Yes, each lesson optionally includes psychological resilience goals: self-discipline, perseverance, and mental recovery .	Language guidance: Use the content of the situational game and the character's qualities to guide the language of psychological resilience goals. It cannot be quantified.	The "Children's Social Skills and Psychological Resilience Scale" compiled by Gao Jian, a teacher at Tianjin Normal University	Mental recovery, self-discipline and perseverance.
4	Chen (2019)	Genyan. The impact of sports intervention on the psychological resilience and social adaptability of children of migrant population in Fuzhou	Intervention: sports (sport dance, basketball, track and field), development training, sports games.	12 weeks, 4 lessons per week. 3 lessons are for sports, 1 lesson is for development training and sports games. A total of 48 lessons. Each lesson for sports is 45 minutes , and each lesson for develop	Yes, mainly integrate the content of psychological resilience training into the development training and sports games courses. The goals of integration are: unity and cooperation, win-win cooperation,	Language guidance, using thematic development training or sports games, language guidance during class and question-and-answer discussions related to psychological resilience after class. Cannot be quantified.	"The Youth Psychological Resilience Scale" compiled by Hu Yueqin and Gan Yiqun	Goal focus, emotional control, positive cognition, interpersonal assistance , and family support.

N o.	Author (year)	Title	PE interventi on content	PE Interve ntion setting	PR interven tion content	PR Intervent ion setting	PR Assessme nt	Element s of PR assessm ent
				ment training and sports games is 1 hour.	opsitive social interacti on, competit ion and cooperat ion, etc.			
5	Meng (2019)	Xianhua. Research on the influence of football activities on the physical and mental development of 6-year-old children	Children's football activities , it can be understood as football-themed sports games.	12 weeks, 5 lessons per week, 60 lessons in total, 30 minutes per lesson.	NO	No, only the co-develop ment of skills and emotions is mentione d in the curriculu m design principles . Cannot be quantifie d.	The "Childre n's Social Skills and Psycholo gical Resilienc e Scale" compiled by Gao Jian, a teacher at Tianjin Normal Universit y	Mental recovery, self-discipline and persevera nce.
6	Wang Lei, et.al. (2017)	Research on the influence of physical education on the social adaptabil ity of left-behind children. Contemporary Sports Science and Technology	Physical education content in middle school physical education textbooks: Track and field events (sandbag throwing and 60m round-trip relay race, ball games), ball games (basketball , football), and developm ent training (blind square	9 weeks, includin g 3 weeks for track and field sports, 3 weeks for ball games, and 3 weeks for develop ment training. There is no mention of how many lessons there are per week and the duration	NO	NO. The research er believe that the impleme ntation process of the selected project content contains the necessar y psycholo gical resilience training goals for students. Unable to quantify.	Chen Jianwen' s "Social Adaptati on Scale for Middle School Students "	Inhibition, optimism, aggressive ness, flexibility, and challenge.

No.	Author (year)	Title	PE interventi on content	PE Interve ntion setting	PR interven tion content	PR Intervent ion setting	PR Assessme nt	Element s of PR assessm ent
			formation, trust back throw).	of each lesson.				
7	He Dongliang. (2017)	Research on the influence of preschoo l basketba ll on the physical and mental develop ment of 6-year- old children	Basketball courses for children	12 weeks, 5 lessons per week, 60 lessons in total, 30 minutes per lesson.	NO	No, not mentione d. Not quantifia ble.	The "Childre n's Social Skills and Psycholo gical Resilienc e Scale" compiled by Gao Jian, a teacher at Tianjin Normal Universit y	Mental recovery, self- discipline and persevera nce.
8	Fan Zimin. (2015)	An empirical study on the penetrati on of psycholo gical intervent ion in primary school physical educatio n classes	Physical education teaching experimen t, integrating psychologi cal interventio n. That is, integrating psychologi cal interventio n content into regular physical education classes based on students' performan ce.	14 weeks, 3 lessons per week, 42 lessons in total, 40 minutes per lesson.	Yes, it incorpor ates specific psycholo gical resilienc e interven tion content and methods . It includes interven tion methods such as behavior reinforce ment, behavior shaping, punishm ent,	Yes, there are relatively detailed psycholo gical interventi on contents and methods, including clear psycholo gical interventi on goals, contents, methods, as well as the number and time of each lesson. And there	"The Mental Health Diagnost ic Test (MHT) " was revised by experts including Professo r Zhou Bucheng of the Departm ent of Psycholo gy at East China Normal Universit y.	Learning anxiety, anxiety towards people, loneliness tendency, self-blame tendency, allergy tendency, physical symptoms , phobia tendency, impulsive tendency.

No.	Author (year)	Title	PE interventi on content	PE Interve ntion setting	PR interven tion content	PR Intervent ion setting	PR Assessme nt	Element s of PR assessm ent
9	Li Shusheng. (2016)	Experimental study on the effect of martial arts exercises on the physical and mental development of 5-6 year old children	Self-compiled children's martial arts exercise "Nine Dragons Praise"	16 weeks, 5 lessons per week, 80 lessons in total, 20 minutes per lesson.	NO	NO	The "Children's Social Skills and Psychological Resilience Scale" compiled by Gao Jian, a teacher at Tianjin Normal University	Mental recovery, self-discipline and perseverance.
10	Liu Lihong. (2006)	Experimental study on the prevention and treatment of psychological disorders of primary school students using sports games	Specific sports games, it can be understood as psychological theme sports games, which include three major themes: emotional problems, cognitive problems, and social adaptation problems.	8 weeks, 2 lessons per week, a total of 16 lessons, each lesson is 40 minutes.	Yes, design and selection of sports games based on psychology-related issues.	No. It proposes the design and selection of corresponding sports games based on mental health issues, but does not mention a clear implementation method. It still emphasizes the execution content	Self-compiled "Questionnaire on Unhealthy Psychological Tendencies of Primary School Students"	Emotion regulation, cognitive ability, and social adaptation.

N o.	Author (year)	Title	PE interventi on content	PE Interve ntion setting	PR interven tion content	PR Intervent ion setting	PR Assessme nt	Element s of PR assessm ent
						of sports games.		

The Positive Impact of Physical Education on Children's Psychological Resilience Cannot be Ignored

In 2016, Dr. Abdullah Bora Ozkara proposed in his research that participation in sports activities can be a predictor of psychological resilience (Ozkara et al., 2016). Sports activities have an important beneficial impact on the development of psychological health, including psychological resilience and social adaptability. In the above experimental research results on the impact of physical education on children's psychological resilience in China, it can be found that the positive impact of active physical education activities on the level of children's psychological resilience cannot be ignored, and it is also positively correlated. A 12-week physical education course (badminton, basketball, football and other sports) can effectively improve children's psychological resilience, enhance children's goal focus and emotional control ability, and promote children to learn to actively deal with interpersonal relationships (Lang, 2023; Genyan, 2019; Dongliang, 2017; Xianhua, 2019). The impact of quality development sports education activities on children's psychological resilience is mainly reflected in helping children face success and failure positively, shaping the quality of self-discipline and restraint, and establishing positive cognition (Lei, 201; Genyan, 2019). As children's favorite sports education content, sports game-based sports education activities have a very positive effect on helping children regulate their emotions (Jiali, 2022; Lihong, 2006). And through specific sports games, it can effectively help children improve their psychological resilience in all aspects (Lihong, 2006). In addition, in daily life, children who have the habit of physical exercise have a higher level of psychological resilience than children who do not have the habit of physical exercise. When facing setbacks and difficulties, they have a more positive attitude and challenging spirit, and have stronger social adaptability (Liang, 2023). It can be seen that physical education has an important positive impact on children's psychological resilience. However, from the above analysis results, it can also be found that the integration of physical education and psychological resilience in promoting the all-round development of children has the following problems, which require further consideration by researchers.

Physical Education has Rich Goals and Content, but Lacks Integration of Goals and Content in Cultivating Psychological Resilience

From Table 1, it stated that among the 10 studies on intervention-type physical education for children's psychological resilience, 9 studies included clear physical education teaching objectives and content. Among them, 6 studies included teaching objectives and content of sports projects, such as badminton, sports dance, basketball, track and field, football, martial arts and other rich sports special sports teaching content (Lang, 2023; Genyan, 2019; Xianhua, 2019; Lei, 2017; Dongliang, 2017; Shusheng, 2016). In addition, 4 articles proposed sports

games (including expansion training, situational games, theme games, etc.) (Jiali, 2022; Genyan, 2019; Lei, 2017; Lihong, 2006). In these studies, there are relatively clear descriptions of the goals and content of sports projects and sports games, but there are almost no goals and content for the cultivation of mental health or psychological resilience. Among them, only one article proposed a content plan for psychological intervention through children's performance in physical education courses, but it lacked clear training goals (Zimin, 2015). Therefore, subsequent researchers should focus on in-depth thinking and integrating psychological intervention content and goals into the goals and content of physical education.

In the Implementation of Physical Education Courses, the Design of Psychological Resilience Training Content is Seriously Unbalanced

In all the above intervention studies, physical education teaching content occupies the main position in the implementation of a single class, and few researchers have specifically implemented the content of psychological resilience training throughout the entire cycle. Among them, only Fan Zimin proposed in his study that psychological intervention should be carried out for less than 5 minutes before, during, and after the implementation of physical education classes, including the reinforcement and shaping of students' good behaviors in physical education courses, and the punishment and weakening of bad behaviors (Zimin, 2015). The cultivation of mental health and psychological resilience should be carried out in the same way as sports projects. Sufficient intensive exercises and sufficient time for consolidation should be given to achieve the purpose of promoting children's mental health (Fusar-Poli et al., 2021). Therefore, if we hope to achieve the goal of improving children's psychological resilience through physical education, we must reduce this imbalance in content and achieve a balance between physical education content and psychological resilience training content through scientific and granular course content design to produce the best results.

In a Single Physical Education Course, there are no clear quantitative Indicators for the Content of Psychological Resilience Training

This subtitle may confuse readers, but imagine that if teachers or researchers hope to achieve the goal of cultivating children's psychological resilience through physical education courses, but there is no goal of cultivating psychological resilience in a single course, then how to implement it in a standard way and how to effectively evaluate its effect and value. In the above studies, we can see that there are no clear quantitative indicators in a single physical education class that expects to achieve the goal of cultivating psychological resilience. There are clear settings for the number and time of physical activities (including all kinds of sports and sports games, etc.) in the course plan. But, there are no clear indicators for training tasks in the content of psychological resilience. Two of the articles clearly proposed to integrate the psychological resilience goal into the course content when setting up the intervention course, but the quantitative indicators of the practice of this goal were not mentioned in the course implementation lesson plan (Jiali, 2022; Genyan, 2019). In addition, two articles proposed that the principle of physical and mental development should always be followed in the design process of sports intervention content, but under the guidance of this principle, these two articles did not design and implement the corresponding training indicators (Xianhua, 2019; Lei, 2017).

The Intervention Time and Period for Promoting Children's Psychological Resilience through Physical Education Activities are Limited

Among the above 10 related studies, 5 of them had an intervention period of 12 weeks, and 1 each had an intervention period of 8 weeks, 9 weeks, 14 weeks, and 16 weeks. Another study chose to study the impact of students' own exercise habits on mental health (Liang, 2023). These studies have well proved that short-term physical education-related interventions can well improve children's psychological resilience level. However, they ignore the fact that children's body and mind are in a rapid growth and development process. Just like physical fitness, use it or lose it, and the level of children's psychological resilience is also likely to be the same. Therefore, the integration of physical education and psychological resilience in children's development should be phased, long-term, and lifelong. Physical education courses in China have never been absent from kindergarten to university, so the cultivation of psychological resilience should also become a long-term training goal accompanied by physical education courses.

The Implementation Methods of Cultivating Psychological Resilience in Physical Education Courses are Lacking

Due to the unclear goals of cultivating psychological resilience and the lack of training content, there is a lack of implementation methods for cultivating psychological resilience in physical education courses. In the above studies, two researchers proposed the introduction and strengthening of psychological resilience training goals in sports games and expansion training through language guidance in teaching (Jiali, 2022; Genyan, 2019). Among them, Fan Zimin specifically proposed in the study that before intervening in students, teachers should be trained in theories and practical skills related to psychological intervention, so as to promote teachers to effectively implement psychological intervention in the course (Fan Zimin, 2015). This has important reference value for guiding how to effectively implement the cultivation of psychological resilience in physical education in the future, and it is very worthy of in-depth study and thinking by relevant researchers.

Model for Integrating Physical Education and Psychological Resilience in Children's Development

In the process of children's development, in order to promote the harmonious development of children's physical and psychological health, researchers need to make full use of the important value of physical education in "educating the body" and "educating the mind" to comprehensively educate people, coordinate the elements of children's psychological resilience (emotional control, goal focus, positive cognition, interpersonal communication, mental recovery, self-discipline, and perseverance), and effectively integrate physical education and psychological resilience in the teaching process. Combined with the analysis of the above research, this paper proposes (Figure 1) a integration model of physical education and psychological resilience in children's development. The model suggests that in order to effectively promote the harmonious development of children's physical and psychological health, the teaching content of physical education program and the elements of psychological resilience program should be combined, and the teaching objectives, teaching content, teaching methods, and teaching implementation cycles should be fully integrated in the design of physical education courses.

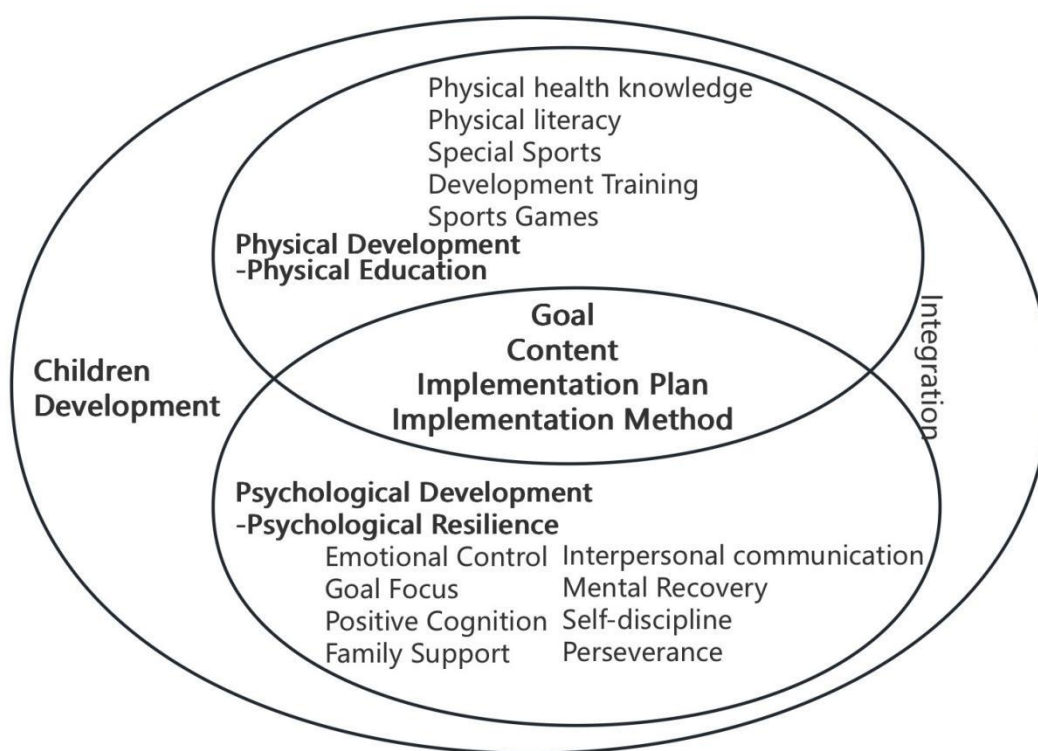


Figure 1: Integration model of physical education and psychological resilience in children's development

Research Conclusions and Contribution

In summary, the healthy development of children's physical and psychological health cannot be separated from the coordinated cultivation of physical education and psychological resilience. However, in China, relevant research on integrating the goals and content of "cultivating the mind" with physical education is relatively limited. Based on a systematic analysis of previous studies, this paper found that (a) Physical education goals and content are rich, but there is a lack of integration of psychological resilience training goals and content, (b) the design of psychological resilience training content is seriously unbalanced in the implementation of physical education courses; (c) there are no clear quantitative indicators for psychological resilience training content in a single physical education course, (d) the intervention time and cycle for promoting children's psychological resilience level through physical education activities are limited, (e) there is a lack of implementation methods for psychological resilience training in physical education courses. Based on the results of the systematic analysis, an effective integration model of physical education and psychological resilience in children's development is proposed, in order to provide thoughtful suggestions for further research by subsequent researchers related to children's physical and psychological development, and to provide theoretical reference for the reform of school physical education curriculum design.

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