

A Study on the Promoting Effect of Sports on Middle School Students' Mental Health - Taking a Middle School in Liuzhou City as an Example

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Abstract: This paper is mainly based on psychological theory, physical education theory, the use of questionnaire survey method, field survey method on a middle school students' physical exercise and mental health status to investigate the psychological problems relying on physical education class as a form of psychological education and physical education, aimed at the study of the role of physical education and sports on the psychological impact of a middle school students, and the use of physical education classroom as a vehicle for physical education and psychological education integration, in order to effectively and efficiently improve the psychological health of middle school students, enhance the psychological health of middle school students. the purpose is to study the effect of physical education on the psychology of students in a middle school, and to use the physical education classroom as a vehicle to integrate physical education and psychological education, to change the traditional mode of psychological education in middle schools, so as to effectively and efficiently improve the psychological health of middle school students and enhance the psychological health of middle school students. The questionnaire adopts the Chinese Middle School Mental Health Scale (MSSMHS) to rate the experimental subjects' 10 factors of obsessive-compulsive disorder, paranoia, hostility, interpersonal tension and sensitivity, depression, anxiety, learning pressure, maladaptation, emotional imbalance, and psychological imbalance, and adopts the Physical Education and Sports Questionnaire of a Middle School to investigate the experimental subjects' sports, and to follow up on the experimental data obtained to Correlation analysis was carried

out. the specific conclusions are as follows. (1) The number of students in a secondary school whose psychological condition is healthy is in the majority, 82%, but 18% of them have psychological problems, and the school should pay attention to psychological education. (2) Students who have a preference for sports and take the initiative to participate in sports have better mental health, and sports have a significant effect on promoting the mental health of secondary school students. (3) Combine physical education with psychological education, give play to the positive influence of sports on mental health, change the traditional way of psychological education, enrich the content and methods of psychological education, so that secondary school students can promote mental health in sports.

Keywords: Secondary School Students; Mental Health; Physical Activity

1. Preface

1.1 Background to the Selection of the Topic

Junior high school is a more important transitional stage of life, junior high school students lively mind, rich in psychological activities, in this stage to give the correct psychological guidance, if the neglect of mental health education will have an important impact on students, students are not conducive to the formation of a good three views on the physical and mental development as well as the learning path is unfavorable.

1.1.1 The social environment is an important factor influencing the psychological changes of secondary school students.

Nowadays, the social environment is an important factor affecting the mental health of

junior high school students. On the one hand, the positive factors of the social environment push young people to transform their strengths into space for development. In recent years, with the awakening of people's thinking, the whole social environment has become more and more tolerant, and the different personalities of young people have been developed in a harmonious way; while on the other hand, the high-speed development of the society brings more and more changes and challenges in life, and these changes have burdened the children's mental health. Intense competition makes children feel anxious, disappointed and helpless.

1.1.2 Family factors

The family environment is also particularly important for children's mental health, as domestic violence, parental separation, abuse or neglect can lead to anxiety, depression, insomnia, etc. In 2022, China's divorce rate will be 43.53%, and in 2020, Guangxi's crude divorce rate will be 2.74 per thousand, with Liuzhou being the city with the highest divorce rate in Guangxi. Along with the high divorce rate, more and more adolescents from divorced families develop problems related to interpersonal disorders. the lack of family structure has caused them to develop cognitive barriers to interpersonal interaction, which has become an important factor affecting the mental health of adolescents.

1.1.3 School environment

According to a survey, the vast majority of secondary schools in the Guangxi region are boarding schools, which are conducive to the integration of resources and the universalization of basic education. However, the boarding system has certain negative effects on children's growth. Children leaving their families too early is unfavorable to their psychological development. For example, most of the children who grow up in orphanages have psychological problems, which are usually manifested in the lack of self-consciousness and the lack of cooperation. According to studies by brain neurologists, poor emotional development at an early age can cause direct damage to the development of the brain, resulting in irreversible pathological changes. Leaving home too early, children lack parental guidance during adolescence and do not feel the warmth of the family, making them insecure and prone to rebelliousness. the

boarding system is the necessary way of compulsory education in the western region, which is in line with the trend of Guangxi's economy and is an unchangeable reality. So secondary schools in Guangxi should pay attention to the psychological education of students[1].

1.1.4 Future trends favoring the development of adolescent mental health education

The Opinions on Further Reducing the Burden of Homework for Students in Compulsory Education and the Burden of Out-of-School Training (hereinafter referred to as the "Double Reduction") proposes to: comprehensively improve quality education, reduce the excessive educational burden of subject-type curricula, build a high-quality education system, deepen the governance of out-of-school training institutions, reduce the length of subject-type training, and carry out appropriate cultural and physical activities, and give play to the after-school services of youth sports organizations. exercise activities, and give play to the after-school services of youth sports organizations [8] With the implementation of the double-decrease policy, the academic burden of students in the compulsory education stage is reduced, and more and more parents and children's attention is gradually tilted to sports, which greatly improves the enthusiasm of young people to participate in sports. As a big change in school sports, the double-reduced policy will promote the high-quality development of the physical education classroom and provide a guarantee for the development of adolescents' mental health.

1.1.5 Psycho-pedagogical applications of physical education and sport

Psychological ideas related to sports activities have been produced in ancient China, and these ideas have had an important influence on the development of sports psychology in China. in the 1990s, the National Sports Science Conference was held several times, and the conference concluded that the focus of sports disciplines in China is mainly cross-referenced from the contents of school sports science, sports humanities and sports psychology. Therefore, the development of psychology in school sports in China's scholars and experts attention, because at that time more and more students' learning and psychological aspects of different degrees of distress, will be developed

in psychology in sports science, and embodied in the environment of quality education, in line with the times Sol tendency, for China's school sports psychology development has laid a good foundation.

In foreign countries, sports as a means of maintaining mental state, by the psychiatrist's light put application. kyan (1983) on 1750 psychiatrists survey shows that: 60% of the doctors think that physical exercise should be used as a means of treatment to eliminate anxiety disorders. That is, with the help of physical exercise to make anxiety, tension, depression and other bad emotions can be cathartic. To adjust the psychological balance; 80% of doctors believe that physical exercise is an effective means of treatment of depression. Therefore, the role of physical exercise applied to psychoeducation impact is with experiments for theoretical support.

1.2 Significance of the Selection

1.2.1 Theoretical implications

Through field research, enrich, expand and supplement the original theories and methods of the role of physical education on the mental health of secondary school students, find new ways suitable for infiltrating psychoeducation into physical education classes, and bring into play the positive influence of physical education on secondary school students. To provide theoretical basis and solution ideas for other schools on the ways and means of psychological education in school sports.

1.2.2 Relevance

A middle school is a high school located in the forefront of Liuzhou City, and the school as well as parents have high expectations and strict requirements for the children. For example, the tight schedule and strict discipline make children feel depressed, and many of them have many psychological problems; e. g. selfishness, arrogance, narrow-mindedness, indifference, etc. Although the school provides psycho-educational programs and psychological teachers, they are still not effective. Although schools offer psychoeducation courses and have psychoeducation teachers, due to various factors, they still can't effectively solve the psychological problems of the majority of students. Therefore, the use of physical education and integration of psychological education can play the role of physical

education classroom, change the traditional psychological classroom teaching method, through physical exercise, sports games, stimulate students' activity, students in the participation of physical exercise, is conducive to the cultivation of its tenacity and courage, perseverance, overcoming the difficulties of the qualities, so that the students' resistance to frustration, the formation of positive and optimistic mentality, and better to face the adolescent stage of learning and life difficulties. They will be better able to face the difficulties in learning and life during puberty.

2. Literature Review

This paper on the impact of sports on the mental health of secondary school students was conducted on the basis of previous research, in the course of which Chinese and foreign literature related to sports and mental health was reviewed and summarized as follows:

2.1 National Studies

Li Jiayu (2021) based on the study of adolescent mental health and school interpersonal relationships in East China, to understand the Qing through stratified cluster random sampling to understand the status of adolescent mental health and the current situation of the school interpersonal environment, to analyze the factors affecting it, to explore the impact of school interpersonal relationships on adolescent mental health, and to provide scientific reference for the development of preventive interventions for the relevant departments.

Zhou Fanfan (2018) selected adolescents from four regions, namely, Northeast, East China, Southwest, and Central and South China, to analyze adolescents' mental subhealth and physical fitness from the perspective of mental health, and explored the physical fitness of adolescents in different mental health states, and analyzed the factors affecting adolescents' mental subhealth, which enriched the existing research affecting adolescents' mental subhealth and provided a certain scientific basis for the future improvement of the psychological subhealth problems and the enhancement of healthy physical fitness[1] . This study will enrich the existing research on adolescent mental sub-health and provide a scientific basis for improving adolescent

mental sub-health and physical fitness in the future.

Based on the relevant theories of psychology, statistics and sociology, Sun Xiaoyun (2017) researched the influencing factors of adolescents' mental health, concluded that family and school play a vital role in adolescents' mental health growth, and put forward relevant opinions and suggestions from four perspectives: relevant government departments, schools, families and adolescents, with a view to improving the level of adolescents' mental health in general.

Cao Zhirong (2006) expanded the scope of psychological research on adolescents from being limited to describing the current situation to the levels of government, school, community and civil society, and provided a reference for the promotion of adolescent mental health in China by drawing on the Western adolescent heart promotion methods and comparing the psychological promotion methods of adolescents under China and the West.

Wei Yino (2022) affirmed the direct influence of physical activity on mental health from the study of physical exercise and college students' human-computer interaction ability, which provides an empirical reference for the teaching methods of psychological education at the secondary school level.

2.2 Overseas research

Wei Mei, Liu Zhen. (2023) Based on a comparative study of the psychological effects of 6-week exercise among Chinese college students, exploring the correlation mechanism between exercise interventions and mental health, it is concluded that exercise interventions have a limiting effect on lowering the level of anxiety and depression among college students, and that colleges and universities should actively guide college students to participate in physical exercise.

Phrathep Davy, Donohue Brad, Renn Brenna N., Mercer John, Allen Daniel N. (2023) argued that the Sports Optimal Performance Program, a multiple-component sport-specific family home-based behavioral therapy, was successfully implemented with an athlete with a mental health diagnosis, and the results suggest that it is possible to optimize mental health through athletic performance[2].

Xiaoqing Hu, Yan Tang, 12. (2022) This

scholar, in order to explore the relationship between sports attendance and mental health indicators, utilized the Global Student Health Survey questionnaire to assess sports attendance, suicide-related indicators, loneliness, bullying, and anxiety in the study. Multivariate logistic regression was used to estimate the associations between sports attendance and mental health-related indicators[3]. The results showed that participation in physical activity may not be effective in reducing mental health disorders in children and adolescents and encourages future research to confirm their findings and improve research design through better in-depth studies. Jaeho Kim, Kyu Sung Sung. (2013) In order to confirm the positive effects of physical education and sports on mental health, thus making the quality of physical education improved. Therefore, the study conducted a questionnaire survey among 650 middle school students in a city in South Korea, and the authors modified the original questionnaire, and after collecting the questionnaires, it was concluded that: 1. In terms of school form, boys' sports and arts festival is higher, in terms of gender, boys' sports awareness is higher, and in terms of grade, first grade sports awareness is higher. 2. the correlation coefficient between psychological anxiety and psychological and psychiatric disorders is high, and the correlation coefficient between class the lowest correlation coefficient.

3. Research Ideas and Methods

3.1 Basic Idea

3.1.1 Formulation of the problem

(1) the psychological characteristics of middle school students and the importance of mental health to the development of middle school students.

(2) the role of traditional psychoeducation for middle school students.

(3) the feasibility of integrating physical education with psychoeducation, a case study.

3.1.2 Pre-preparation

(1) By finding the literature to understand the psychological characteristics of junior high school students, determine the research object for the first, second- and third-year students, design the questionnaire and complete the distribution of the questionnaire.

(2) Collect questionnaires, enter the collected

paper questionnaires, and create a pivot table for the data and analyze the data.

(3) Organize practical activities to bring psychoeducation into the physical education classroom and obtain classroom feedback based on students' classroom performance.

3.1.3 Analysis of information

(1) Combined with the retrieved data, the students' mental health status scale form and sports information form were compared and tested to analyze the frequency and type of sports corresponding to their personality traits, and to analyze the positive impact of sports on the mental health of junior high school students.

(2) Argue the operability of psychoeducation integration into the physical education classroom through their own experiments as examples and through students' feedback. And summarize their own lessons learned and propose better solutions.

3.2 Research Methodology

3.2.1 Documentation method

All data used in this article were obtained from China Knowledge Network (CNKI). the keywords "secondary school students", "mental health", "sports", "sports and mental health" were searched respectively. the keywords "secondary school students", "mental health", "sports" and "sports and mental health" were searched, which provided more authoritative theoretical support for the research of this paper[4].

3.2.2 Questionnaire method

In this paper, the Chinese Middle School Mental Health Scale (MSSMHS) and the Questionnaire on the Psychological Impact of Sports in a Middle School were designed to better understand the psychological status of students in a middle school and the impact of sports on middle school students, and the questionnaires were filled out by a sampling of students from three grades: the first year, the second year, and the third year. the Chinese Middle School Mental Health Scale (MSSMHS) was derived from "The Development and Standardization of the Chinese Middle School Mental Health Scale" written by Professor Wang Jisheng (1997). the scale consists of 60 items including 10 subscales[5]. They are obsessive-compulsive symptoms, paranoia, hostility, interpersonal sensitivity, depression, anxiety, sense of

learning pressure, maladjustment, emotional instability, and psychological imbalance. That is to say, it can measure the mental health status of the subjects in terms of the overall rating, and also can be evaluated according to the average score of each scale [6].

3.2.3 Practical Approach

In order to prove the possibility of integrating psycho-pedagogical education in physical education classes, psycho-pedagogical aspects were added to the design of physical education classes, such as the successful implementation of the games "The Heart Has a Thousand Knot" and "A Piece of Fifty Cents", which exercise the mental will of the children and develop their spirit of cooperation while practicing physical education with them. This practice confirms the practicability and proves the significance of "integrating physical education and psychoeducation".

3.2.4 Interview method

Ask students how they feel about the class by summarizing it at the end of the class. Communicate with students one-on-one to further understand the psychological needs of middle school students, so as to design sports that students are interested in according to their needs when designing instruction.

4. Findings and Analysis

4.1 Objects of Study

The students of a secondary school were used as the population for the study and stratified sampling method was used to select any class from each grade level for sampling. From them, 150 students were selected to participate in this questionnaire survey and 148 questionnaires were recovered. Those with incomplete basic information, with omitted questions, and checking the same option all together were regarded as invalid questionnaires. By excluding 28 invalid questionnaires, a total of 120 valid questionnaires were obtained, and the validity rate of the questionnaire was 81%. the proportion of male students in the study was 42% and the proportion of female students was 58%, which is in line with the ratio of the number of male and female students in the school. the three grades were 48 students in the first year, 32 students in the second year and 40 students in the third year.

4.2 Analysis of the Mental Health Situation

in a Secondary School

As shown in Table 1, the scale was rated overall using a total mean score. the total mean score is calculated as follows: the sum of the scores of each of the 60 items of the scale is divided by 60, and the resulting score is the subject's total mental health score. the status of secondary school students' mental health was categorized into four grades based on the scores: 2 to 2.99 indicates mild psychological problems; 3 to 3.99 indicates the presence of

Table 1. Overall Assessment of Mental Health Status

mental health concordance	well-being	mildly	moderately	Comparatively severe	severe	add up the total
number of people	98	16	5	1	0	120
Percentage (%)	82%	13%	4.2%	0.8%	0	100

Table 2. Means and Standard Deviations for Each Factor of Mental Health

(math.) factor	average value	(statistics) standard deviation
obsessive-compulsive disorder (OCD)	2.04	. 622
paranoia	1.70	. 717
combative	1.70	. 788
Interpersonal tension and sensitivity	1.76	. 692
despondent	1.89	. 908
pressure to study	2.04	. 971
feel unbalanced	1.51	. 576
apprehensive	2.05	1.040
maladaptation	1.57	. 680
emotional imbalance	2.01	. 827

Table 2 shows the mean and standard deviation of the dimensions of mental health, the students of this school have mild psychological problems in the three dimensions of obsessive-compulsive disorder, learning stress and anxiety, and the school can carry out psychoeducation in the following three areas.

Table 3. Psychometric Table

degree (level or extent)	7th grade	8th grade	9th grade	Total/person
not have	31	19	25	75
medium level	1	3	6	10
more serious	1	2	0	3
mildly	14	7	8	29
severity	1	1	1	3
Total/person	48	32	40	120

In a survey of a stratified sample of students from a secondary school in three grades, it can be concluded from the psychometric table collected that the learning stress factor, which consists of six items, 34, 36, 39, 41, 43, and 58,

mild psychological problems; 4 to 4.99 indicates the presence of moderate psychological problems; and if the score is 5, it indicates the presence of serious mental health problems. According to the information in the table, a secondary school is a healthy mental state of the majority, but the presentation of mild and moderate mental health should not be ignored, some experts suggest that when the total average score of the subjects more than 2 points, should find a psychiatrist to consult.

which reflects the subjects' concerns about the heavy burden of learning, fear of teacher's questioning, hating to do homework, hating to go to school, and fearing and hating to take exams. Among the collected data, 29 people thought that they had mild stress, 10 people thought that they had moderate stress, and 3 people thought that they had severe stress, as shown in Table3, as the grade level rises, the stress of learning increases, the option of "no" stress level becomes less and less, and the higher grades are more stressful than the lower grades.

4.3 Participation of Students in Sports and Physical Education in a Secondary School

The study found that the willingness to exercise is usually influenced by gender, and that in general, males are more willing to exercise than females. Thirty-one male students, or 62% of the total, chose "very much like physical exercise", while 36 female students, or 51.4% of the total, chose "generally like it". This is because men are more likely to vent their stress on their bodies, and they usually prefer exercises with a high concentration of energy, whereas women are more concerned about the health of their bodies and choose softer exercises. However, this difference is not very significant, as shown in Table4, the minimum expected count is 0.63, and men and women's preferences for sports are basically the same. With the change of social concepts, coupled with the implementation of the policy of the physical education secondary school examination, more and more women have begun to pay attention to sports.

Table 4. Cross-Sectional Chi-Square Test of Exercise Willingness and Gender

family name		Do you enjoy physical activity				(grand) total
		favorite	troublesome	cannot be said be	General preference	
male	Count as a percentage of gender	31	1	2	16	50
		62.0%	2.0%	4.0%	32.0%	100%
women	Count as a percentage of gender	9	13	12	36	70
		12.9%	18.6%	17.1%	51.4%	100%
aggregate	Count as a percentage of gender	40	14	14	52	120
		31.0%	10.9%	10.9%	40.3%	100%

4.4 Correlation Analysis Between Sports Participation and Psychological Dimensions

In order to confirm the correlation between "frequency of exercise" and the factors of the psychometric scale obtained. the 10 variables of obsessive-compulsive disorder, paranoia, hostility, interpersonal tension and sensitivity, depression, anxiety, maladjustment, emotional imbalance, psychological imbalance, and academic stress were entered one by one and tested for their significance. As shown in Table5 after ANOVA analysis, the significance of the 2 stepwise regression

models is 0.00, which is less than 0.05, which means that there is a 95% probability of rejecting the original hypothesis, that is to say, there is a significant correlation between the independent variables and the dependent variables between the equations. Regular participation in sports can reduce anxiety and depression, exercise promotes the body to entangle dopamine and endorphins, these substances can help regulate emotions and reduce anxiety and depression; regular exercise can also improve brain function, memory and learning ability; improve sleep quality, promote physical health and other functions.

Table 5. ANOVA Model

mould	square sum (e. g. equation of squares)	(number of) degrees of freedom (physics)	mean square	F	significance	
1	regression (statistics)	16.483	1	16.483	16.095	.000a
	residual	120.842	118	1.024		
	(grand) total	137.325	119			
2	regression (statistics)	21.437	2	10.718	10.821	.000b
	residual	115.888	117	.990		
	overall amount	137.325	119			

5. Utilizing the Psychological Effects of Sport and Physical Education

As sports have their own unique educational, synergistic, competitive and communicative characteristics, they are of great practical significance for with the cultivation of youth's sense of participation, competition, will quality, teamwork, self-control, and the improvement of youth's mental health. [4] . So in order to improve the mental health of junior high school students, the role of sports can be played, the psychological classroom moved to the outdoors, to realize the integration of physical education and psychological education.

5.1 The Role of Psychoeducation and Physical Education in Middle Schools

5.1.1 Contributing to the development of a healthy mindset among students
Secondary school students are prone to many

psychological problems at the stage of adolescence, but due to the limitations of their own understanding[7] , it is difficult to recognize their own psychological problems, so it is easier to expose some psychological problems. In the overall assessment of the psychological status of the school's students, 82% of the subjects mental health status is "healthy", the remaining 18% of the subjects have some psychological problems, which is a secondary school must pay attention to. It is easier for students to accept group counseling and replacing one-on-one lectures with sports games.

5.1.2 Contribute to the improvement of the quality of teaching and learning in physical education classes

In this paper, on the basis of a comprehensive understanding of the structure of the healthy mental quality of junior high school students, it is of positive practical significance to explore and summarize the basic principles and key

points of the integration of junior high school physical education and mental health education, and to promote the organic integration of the two[8]. The integration of physical education and psychological education, which is the optimization and innovation of the traditional physical education class, makes the content of physical education class more diversified, and the way of integrating psychological education into physical education class is more likely to improve students' motivation, so that students not only exercise their bodies in physical education class[9], but also form good qualities and emotional experiences during the process of exercise, so that students' body and mind can be developed in an all-round way. The combination of physical education and psychoeducation makes the physical education classroom gradually realize the requirements of the new curriculum.

5.2 Countermeasures

5.2.1 Enhance the healthy mental temperament of physical education teachers so that they always maintain good mental qualities

Physical education teachers, as the main body of the psychological teaching of sports integration, should have good psychological quality and personality qualities, the school should pay attention to the cultivation of physical education teachers, psychological training for physical education teachers, so that they can master certain psychological knowledge. Long-term psychological counseling for physical education teachers to ensure that physical education teachers maintain a healthy state of mind[10].

5.2.2 Scientific design of physical education objectives centered on mental health education
Teachers should consider the psychological characteristics of junior high school students when designing curriculum content, and dig deeper into the curriculum content to include mental health based on physical exercise as the carrier of the curriculum.

5.2.3 New ways to innovate psychoeducation based on traditional physical education classes
The traditional physical education teaching mode has been unable to meet the needs of the integration of physical education and psychological education, so the classroom content can be innovated in the physical education class, and psychological games can be added to the classroom to cultivate the

students' cognitive ability, creativity, and healthy mental quality. Starting from students' hobbies, designing challenging ones and guiding students to realize the cultivation of healthy mental qualities in the process of playing games[11].

5.2.4 Establishment of sound psychological counseling institutions

Educational authorities at all levels and leaders of secondary schools should attach great importance to mental health education, so that mental health education in schools can be gradually standardized. Schools should have leaders in charge, earmark funds for the purpose, and strengthen the psychological counseling room with special rooms, professional materials, special teaching materials, and full-time teachers to ensure that the work is carried out effectively. And strengthen the evaluation and inspection of the work of psychological counseling room[12].

5.2.5 Emphasis on psychological testing

Schools regularly organize mental health tests to visualize the effects of combining mental health education and physical education. Based on the data obtained from the psychological tests, students are screened in a timely manner for emerging psychological conditions, and students detected with psychological problems are counseled in a timely manner; targeted design of physical education classes is also developed based on the psychological problems that arise in the majority of the population.

6. Conclusion

Teenagers are the future of the country, care for young people should not only pay attention to their physical quality, but also recognize the importance of paying attention to the mental health of adolescents, secondary schools recognize the importance of physical education and sports for mental health, to achieve the dual role of the sports classroom, to protect the mental health of adolescents.

References

- [1] LI Weixiang, GAN Yu, LU Wenfang et al. A survey on the current situation of mental health education in primary and secondary schools in Guangxi [J]. *Western Quality Education*, 2022, 8(24):120-123. DOI:10.16681/j.cnki.wcqe.202224030.
- [2] General Office of the CPC Central

- Committee General Office of the State Council. Opinions on Further Reducing the Burden of Homework and Out-of-School Training for Students in Compulsory Education. [EB/OL]. (2021-05-21) [2021-10-26]. http://www.moe.gov.cn/jyb_xgk/moe_1777/moe_1778/202107/t20210724_546576.html
- [3] Li Hui. Preparation and Application of the Manual of Group Counseling for Joint Sports Games in Emotion-Centered Therapy [D]. Yunnan Normal University, 2016.
- [4] Chen Yujia. Exploring the relationship between secondary school students' sports participation and mental health [J]. Hubei Sports Science and Technology, 2019, 38(01):53-56.
- [5] Zhu Caixiu. Reflections on the Integration of Physical Education and Mental Health Education in Middle School [J]. Western Quality Education, 2023, 9(02):102-105. DOI:10.16681/j.cnki.wcqe.202302025.
- [6] Liu Yuehong. Survey on the Current Situation and Countermeasure Research on the Construction of Secondary School Counseling Room [J]. Shanxi Education (Management), 2011, No. 694(12):42-44.
- [7] LIU Chang, ZHANG Jianxin, SHI Xiangyu. the integration path and effect of physical education and mental health education in colleges and universities [J]. China School Health, 2025, 46(01):153-154.
- [8] Gao Fei, Su Yanchao. Mode and path of physical education to promote students' mental health [J]. Sports Style, 2025, (02):41-43.
- [9] Wan Yuting. Mode and path of physical education to promote students' mental health - A strategic study of physical education health and mental teaching for secondary school students [C]//Beijing Society of Sports Science, Tianjin Society of Sports Science, Hebei Society of Sports Science. Proceedings of the Beijing-Tianjin-Hebei academic symposium on school physical education. Affiliated High School of Tianjin University, 2024:168. DOI:10.26914/c.cnkihy.2024.063022.
- [10] Li YJ. Physical education and sports: the power to shape middle school students' mental health and personality integrity [J]. Second Classroom(D), 2024, (07):93.
- [11] Guo Ruisan. the relationship between physical education and middle school students' mental health: the mediating role of emotion regulation [D]. Southwest University, 2024. DOI:10.27684/d.cnki.gxndx.2024.000238.
- [12] JIANG Yunqiao, WANG Yaning, LI Hang. A review of research on the effects of physical activity on adolescents' mental health [C]//China Bandi Association, Macau Physical Fitness Association, Guangdong Physical Fitness Association. Proceedings of the 11th China Physical Training Science Conference (below). School of Physical Education, Central University for Nationalities, 2024:178-180. DOI:10.26914/c.cnkihy.2024.002121.