

# The Impact of Sports Games on the Psychological Health of Middle School Students

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**Abstract:** This study conducted a 16-week comparative experiment with 160 students from Jinan No. 5 Middle School in Shandong Province as the experimental subjects. During the implementation of the experiment, the subjects were divided into two groups: an experimental group and a control group. The experimental group was subjected to physical exercise interventions using sports game teaching methods during physical education class, while the control group followed traditional physical education teaching methods. The results showed that the psychological health status of the students in the experimental group was significantly better than that of the control group after the experiment. The application of sports games helps to improve the psychological health of middle school students in the course of physical education, promoting a positive and forward direction in student psychology and is an effective means to enhance the psychological health level of middle school students.

**Keywords:** Sports games; Physical education; Middle school students; Psychological health

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## 1. Introduction

In recent years, the expanded understanding of health to encompass biological, psychological, and social dimensions has underscored the importance of psychological well-being alongside physical health. This holistic view has brought the psychological health of students into sharper focus, challenging the traditional notion that health merely means the absence of illness<sup>[1]</sup>. In this context, sports games emerge as a potent tool within physical education, aimed not only at improving physical health but also at enhancing students' psychological well-being.

## 2. Literature review

### 2.1. The relationship between physical activity and psychological health in adolescents

Guddal *et al.*<sup>[2]</sup> conducted a population-based study in the Nord-Trøndelag region of Norway, involving 7,619 adolescents aged 13–19 years. They discovered significant links between physical activity levels, sports

participation, and various aspects of mental health. Findings revealed that adolescents involved in team sports and those with higher physical activity levels reported greater self-esteem and life satisfaction.

Kim and Park <sup>[3]</sup> conducted an intervention study targeting female adolescents, integrating physical activity and psychological modification strategies over 12 weeks. The intervention aimed at enhancing physical fitness, activity levels, and psychological factors associated with physical activity. Results demonstrated significant enhancements in the physical activity stage, psychological variables, and physical fitness components among the experimental group, highlighting the feasibility and effectiveness of such interventions in improving both physical and psychological health among female adolescents.

Hale *et al.* <sup>[4]</sup> conducted a systematic review synthesizing evidence from 28 physical activity interventions focusing on the mental health and well-being of young people aged 11–19 years. These interventions were categorized into quality of life (QOL), self-esteem, psychological well-being, and psychological ill-being. This review underscored the potential of physical activity interventions in bolstering mental health among adolescents but also emphasized the necessity for more targeted interventions addressing specific psychological outcomes.

## **2.2. Current trends in physical education teaching methods through sports games**

Wang's research <sup>[5]</sup> underscored the increasing integration of sports games in physical education (PE) teaching, highlighting their efficacy in actively engaging students in the learning process. By incorporating elements of fun, entertainment, and education, sports games have become a preferred approach among students, significantly enhancing their participation and learning outcomes in PE classes.

Khlibkevych's study <sup>[6]</sup> examined the methodological aspects of teaching motion games in sports, stressing the significance of this specialization for future PE educators. The research advocated for a comprehensive training program encompassing theoretical knowledge and practical skills in motion games, emphasizing their role in cultivating competencies in physical culture and sports among future specialists.

Ferraz *et al.* <sup>[7]</sup> offered a critical appraisal of teaching paradigms in PE, highlighting the imperative of innovation to counteract declining sports participation trends. The study calls for a closer alignment between pedagogical theory and practice, proposing that experimentation with new models, strategies, and curriculum content is vital for revitalizing PE as a more effective and engaging discipline.

## **2.3. Preliminary studies on the correlation between sports games and psychological health development in middle school students**

A study by Kim and Ham <sup>[8]</sup> examined the impact of after-school sports participation on the psychological well-being of middle school students. The research revealed that students involved in after-school sports demonstrated higher levels of self-acceptance, positive interpersonal relationships, autonomy, and personal growth. These findings highlighted the crucial role of after-school sports activities in nurturing a positive psychological environment for middle school students.

Choi's study <sup>[9]</sup> investigated the relationship between enjoyment of sports participation, self-management, and health among middle school students. The research concluded that enjoyment directly influenced self-management, subsequently benefiting overall health. This underscored the significance of incorporating enjoyable sports activities to enhance self-management skills and promote both psychological and physical well-being among middle school students.

Xie's research <sup>[10]</sup> examined the influence of sports attitudes and behaviors on the psychological health of middle school students. The study found that positive sports attitudes and regular physical activity were associated with better psychological health outcomes. This underscored the importance of sports in fostering

mental well-being and suggested that physical education programs should prioritize cultivating positive attitudes towards sports and encouraging consistent participation.

The literature review emphasizes the significant role of physical activity in improving the psychological health of adolescents. As this research advances into the experimental phase, further exploration will focus on optimizing sports games to support adolescent psychological health, with the goal of providing actionable insights for educational and sports programming.

### **3. Methods**

#### **3.1. Participants**

The subjects selected for this study were 160 students from four ninth-grade classes at Jinan No. 5 Middle School in Shandong Province, including 64 males and 96 females. The students' ages ranged from 14 to 15 years, with an average age of  $14.45 \pm 1.01$  years. The students were randomly divided into an experimental group and a control group by class, with each group consisting of 80 students. All students were free from serious or unsuitable conditions for participating in physical activities.

#### **3.2. Research design**

During the experiment, a sports game teaching plan was formulated for the experimental group, taking into account the physical and psychological characteristics and interests of middle school students. The program was divided into four phases, each lasting for four weeks, with three sessions per week (each session lasting for 45 minutes). The specific teaching contents are as follows:

- (1) Phase 1: Fancy rope skipping (individual), fun sports games (without equipment), ball sports (such as elastic ball, dodgeball, etc.)
- (2) Phase 2: Physical fitness exercises, orienteering, ball sports (such as basketball, football, badminton, etc.)
- (3) Phase 3: Fancy rope skipping (group), orienteering, comprehensive physical training, rope ladder training, obstacle running
- (4) Phase 4: Physical fitness exercises, fun sports competitions, ball sports (such as basketball, football, badminton, etc.)

The scientific validity and practicality of this teaching plan were ensured through expert questionnaire surveys.

The control group was subjected to physical exercise through traditional teaching methods without additional instructional guidance. The experiment lasted for 16 weeks. Before and after the experiment, the "Middle School Students' Psychological Health Scale" was used as an evaluation tool to assess the psychological health levels of the two groups of students. SPSS24.0 was used to compare and analyze the data obtained during the experiment.

#### **3.3. Instrument**

The "Middle School Students' Psychological Health Scale," revised by Professor Bucheng Zhou from the Department of Psychology at East China Normal University, is based on the Japanese "Anxiety Tendency Diagnostic Test." This survey scale was utilized to assess the psychological health levels of middle school students. With its incorporation of Chinese norms, the scale demonstrated high reliability and validity, making it a scientifically sound tool for evaluating the psychological health status of Chinese middle school students.

The "Middle School Students' Psychological Health Scale" comprises one validity scale and eight content

scales. The validity scale serves as a lie scale to gauge the credibility of responses. Meanwhile, the eight content scales correspond to specific dimensions of middle school students' psychological health, providing evaluations across these dimensions. In terms of scoring, each question offers "yes" and "no" options, with "yes" scoring 1 point and "no" scoring 0 points. A higher score within a particular psychological health dimension suggests more pronounced issues in that area. Furthermore, a higher total score across the eight content scales indicates more severe psychological health concerns. If the total score exceeds 65, it suggests the presence of certain psychological health barriers, necessitating targeted intervention and guidance.

## 4. Results and discussion

### 4.1. Comparison and analysis of the psychological health evaluation results of the two groups of students

This study conducted pre-experimental tests on two groups of students, revealing no significant differences in specific scores across the eight dimensions of psychological health between the two groups (**Table 1**).

**Table 1.** Psychological health evaluation data of the two groups of students

Health dimension	Experimental group (n = 80)	Control group (n = 80)	<i>P</i>
Learning anxiety	6.2 ± 1.61	7.7 ± 1.12	< 0.05
Social anxiety	4.8 ± 1.42	5.9 ± 1.73	< 0.05
Loneliness	5.3 ± 1.49	6.3 ± 1.73	< 0.05
Self-blame	4.0 ± 1.07	5.7 ± 1.18	< 0.05
Sensitivity	7.0 ± 1.60	8.4 ± 1.69	< 0.05
Somatic symptoms	3.7 ± 1.32	4.5 ± 1.37	> 0.05
Phobias	3.6 ± 1.42	4.1 ± 1.21	> 0.05
Impulsiveness	6.2 ± 1.52	7.6 ± 1.75	< 0.05
Total score	40.8 ± 5.63	50.2 ± 5.22	< 0.05

Upon observation of the statistical data in **Table 1**, it is evident that following the experiment, the experimental group exhibited a significant decrease in scores across the eight psychological health dimensions and the total evaluation score compared to pre-experiment levels. Additionally, post-experiment scores of the experimental group were notably lower than those of the control group. Furthermore, statistical analysis using SPSS24.0 revealed significant differences in scores across six psychological health dimensions (learning anxiety, social anxiety, loneliness, self-blame, sensitivity, and impulsiveness) between the two groups ( $P < 0.05$ ). This indicates that following the experiment, the psychological health assessment results of the experimental group were markedly superior to those of the control group. This underscores the beneficial impact of physical exercise in enhancing students' psychological well-being, promoting a positive trajectory in student psychology.

### 4.2. Discussion

The analysis of experimental results revealed that incorporating sports games can enhance middle school students' psychological health, fostering positive psychological development. This approach proves effective in several ways.

Sports games not only boost students' learning enthusiasm but also provide positive emotional experiences, crucial for adolescents navigating through identity formation and academic pressures. The interactive and

enjoyable nature of sports games releases endorphins, reducing stress and negative emotions. Consequently, after a 16-week intervention, the experimental group exhibited significantly lower levels of learning anxiety, social anxiety, and self-blame compared to the control group.

Sports games offer both enjoyment and competitiveness, contributing to a clearer and more objective self-concept among middle school students. Improved physical fitness and appearance resulting from physical activity enhance confidence, body image, and self-esteem, leading to a more positive self-concept and reduced feelings of insecurity and depression.

Participation in collective sports games facilitates the formation of harmonious interpersonal relationships. Collaboration and communication during gameplay foster social connections, reduce anxiety, and improve mood, ultimately promoting healthier interpersonal dynamics among students.

## 5. Conclusion

Research indicates that incorporating sports games into regular physical education activities for middle school students can improve their psychological status and encourage positive psychological development, proving to be an effective means of enhancing middle school students' psychological health levels. Schools should prioritize the cultivation of students' psychological health, incorporating it into the comprehensive evaluation standards of middle school students' academics, and pay more attention to the application of sports games in physical education, organizing regular learning sessions for physical education teachers. Moreover, relying solely on physical education classes to implement sports education is insufficient. Relevant workers should actively develop extracurricular physical activity resources, innovate forms of extracurricular physical activities, enrich the content of extracurricular physical activities, and develop a second classroom to promote the comprehensive development of students' physical fitness and mental health.

## Disclosure statement

The authors declare no conflict of interest.

## References

- [1] Yoo J, Kim K, 2014, The Effect of Physical Activities on the Mental Health in Korean Middle School Adolescents: Based on the Web-Based Survey on Adolescents Health Behavior from 2013. *Journal of Digital Convergence*, 12(11): 395–403. <http://doi.org/10.14400/JDC.2014.12.11.395>
- [2] Guddal MH, Stensland S, Småstuen MB, et al., 2019, Physical Activity and Sport Participation Among Adolescents: Associations with Mental Health in Different Age Groups. Results from the Young-HUNT Study: A Cross-Sectional Survey. *BMJ Open*, 9(9): 1–10. <http://doi.org/10.1136/bmjopen-2018-028555>
- [3] Kim Y, Park I, 2021, Effects of Physical Activity and Psychological Modification-Based Intervention on Physical Fitness, Physical Activity and Its Related Psychological Variables in Female Adolescents. *International Journal of Environmental Research and Public Health*, 18(18): 1–10. <http://doi.org/10.3390/ijerph18189510>
- [4] Hale GE, Colquhoun L, Lancaster D, et al., 2021, Review: Physical Activity Interventions for the Mental Health and Well-Being of Adolescents - A Systematic Review. *Child and Adolescent Mental Health*, 26(4): 357–368. <http://doi.org/10.1111/camh.12485>
- [5] Wang J, 2024, Research on the Application of Sports Games in Physical Education Teaching in General Colleges and Universities. *Journal of Education and Educational Research*, 7(1): 23–25. <https://doi.org/10.54097/mcxqk480>

- [6] Khliblevych S, 2022, Future Specialist in Physical Education and Sports Training in Using Motion Games in Professional Activities. *Problems, Acquisition and Prospects of Domestic and Foreign Vocational Education*, 2022(12): 104–112. <http://doi.org/10.33989/2519-8254.2022.12.279016>
- [7] Ferraz R, Branquinho L, Sortwell A, et al., 2023, Teaching Models in Physical Education: Current and Future Perspectives. *Montenegrin Journal of Sports Science and Medicine*, 12(1): 53–60. <http://doi.org/10.26773/mjssm.230307>
- [8] Kim K, Ham H, 2020, The Effects of Middle School Students' Participation in After-School Sports Activities on Psychological Well-being. *Journal of the Korea Academia-Industrial Cooperation Society*, 21(3): 469–480. <http://doi.org/10.5762/KAIS.2020.21.3.469>
- [9] Choi S, 2023, The Relationship Among Sports Activity Participation Enjoyment, Self-Management and Health for The Middle School Students. *Holistic Convergence Education Research*, 27(2): 109–123. <http://doi.org/10.35184/kshce.2023.27.2.109>
- [10] Xie L, 2011, The Influence of Middle School Students' Sports Attitudes and Behaviors of Nanchang on Psychological Health - the Apocalypse for the Physical Education Teaching. 2011 Third Pacific-Asia Conference on Circuits, Communications and System (PACCS), Wuhan, China, 1–4. <http://doi.org/10.1109/PACCS.2011.5990347>

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