Effects of a 12-Week Football Intervention on Mental Health and Psychological Resilience in Secondary School Students

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ABSTRACT

This study examines the effect of football participation on the mental health of secondary school students and provides empirical evidence for integrating physical education into school-based mental health intervention. A total of 80 students from No.2 middle school in Nanchang, Jiangxi Province, were randomly assigned to an experimental group (n = 40) and a control group (n = 40). The experimental group participated in a 12-week football training program (three sessions per week, 60–80 minutes each), while the control group received regular physical education classes. Mental health status was assessed using the Symptom Checklist-90 (SCL-90) before and after the intervention. Paired-sample t-tests and independent-sample t-tests were used for statistical analysis. The results indicated no significant differences between the groups prior to intervention ($P > 0.05$). However, post-intervention results showed that the experimental group demonstrated significantly lower scores in obsessive-compulsive symptoms, depression, anxiety, interpersonal sensitivity, hostility, phobic anxiety, and total SCL-90 score compared to the control group ($P < 0.05$ or $P < 0.01$). No significant changes were found in the control group. These findings suggest that football, as a socially interactive and emotionally engaging team sport, effectively promotes mental well-being by enhancing self-esteem, emotional regulation, peer support, and psychological resilience. This study highlights the value of football-based interventions in school mental health education and offers a feasible model for the integration of "physical activity + psychological support".

Keywords: Football; Adolescents; Mental health; Intervention; Psychological resilience

INTRODUCTION

Middle schoolers constitute a unique demographic, navigating a pivotal phase of physical and psychological development while confronting diverse pressures such as academic demands and family dynamics[1,2]. Mental health challenges have emerged as a critical factor influencing their comprehensive growth[3–5]. As an aerobic activity, soccer offers stress relief and enhances psychological resilience[3,4]. Through participation in soccer, secondary students can enhance self-confidence, cultivate perseverance and willpower, and improve self-control and self-regulation abilities, thereby improving their mental health status[5,6]. Furthermore, soccer promotes communication and cooperation among students, strengthens team spirit, and fosters a sense of collective honor and responsibility[7]. Therefore, researching the positive impact of soccer on secondary students' mental health not only helps understand the current state of mental health issues but also contributes to advancing the comprehensive development of secondary students and promoting social harmony and stability[8,9].

Bajwa HA demonstrated that physical exercise and leisure activities exert a positive influence on adolescent mental health. They found that through participation in physical exercise and leisure pursuits, adolescents can reduce anxiety and depressive symptoms, enhance self-esteem and self-confidence, and improve their overall mental wellbeing[10]. Das JK conducted a review study focusing primarily on positive psychological intervention methods for adolescent mental health. He summarised multiple intervention strategies, including cognitive behavioural therapy, emotion regulation training, and social skills training. These approaches can assist adolescents in actively coping with stress, improving emotional states, and enhancing mental wellbeing[11]. Jacob US examined factors influencing the mental health of secondary school pupils and proposed educational countermeasures. He contends that football positively promotes mental wellbeing among secondary school pupils, enhancing self-confidence, stamina, and resilience to pressure whilst improving psychological health[12].

McGrane A investigated the effects of football participation on university students' mental health and positive affect towards sport. Findings revealed that football effectively alleviates psychological stress among university students, improves their mental health status, and simultaneously enhances athletes' positive affect towards sport, thereby promoting their physical and mental wellbeing[13].

Plizga J focused on the effects of high-intensity interval training on athletic performance and health. Findings indicated that high-intensity interval training significantly enhances athletes' endurance and athletic performance, while also improving metabolic status and reducing disease risk, thereby exerting positive effects on physical health[14]. The research conducted by these scholars has highlighted the significance of physical exercise, leisure activities, and positive psychological interventions for adolescent mental health[15,16]. Their perspectives collectively support the role of football in promoting mental wellbeing, providing a theoretical foundation for further exploration and application of relevant strategies.

METHODOLOGY

Experimental Subjects

Eighty secondary school students from Nanchang City, Jiangxi Province, China, were randomly selected as experimental subjects. They were randomly divided into an experimental group and a control group, each comprising 40 participants. Both groups completed questionnaires detailing their physical exercise habits. Results indicated no significant differences between the two groups in terms of age, height, weight, or other demographic information ($P > 0.05$). Both groups met the fundamental experimental criteria. Prior to implementation, participants were informed of the study's objectives and procedures, and all subjects expressed willingness to participate. Both groups signed accident liability agreements before the experiment commenced. Basic participant characteristics are detailed in Table 1.

Table 1. Basic Characteristics of Experimental Subjects (n=80)

Group	Gender	Number (n)	Age（y）	Height（m）	Weight（kg）
Experimental group	Male	28	15.78±0.89	1.58±0.48	56.78±4.90
Control group		28	15.71±0.61	1.57±0.41	56.57±5.27
Experimental group	Female	12	15.50±1.05	1.49±0.05	43.00±5.32
Control group		12	15.67±1.03	1.48±0.04	42.83±5.07

Experimental Time and Location

The experimental period and location for this study were determined based on the school's teaching schedule. A 12-week teaching experiment was conducted, with the experimental group receiving 12 weeks of football training intervention, while the control group maintained regular physical education teaching. The intervention period lasted for 12 weeks, with 3 classes per week, each lasting 60-80 minutes, totaling 36 class hours. The experimental location was selected at the Nanchang Bayi Sports Field. During the experiment, attendance records were made according to the teaching progress and content to monitor the students' attendance.

Experimental Implementation and Management

During the intervention implementation process, the research team carried out systematic design and guarantee in four aspects: organizational management, psychological counseling, assessment feedback, and safety control. Firstly, in the organizational management aspect, both physical education teachers and researchers jointly undertook teaching and guidance tasks, ensuring that each course was fully observed and detailedly recorded to ensure the standardization and scientific nature of the intervention process. Secondly, in the psychological counseling aspect, a 10-15-minute psychological reflection session was set up every week. Students expressed their sports experiences and emotional changes by writing "emotional diaries", thereby promoting self-awareness and psychological adjustment. Thirdly, in the assessment and feedback aspect, process evaluation was conducted through skill tests, teacher observation records, and student feedback forms, to dynamically grasp the students' learning progress and psychological changes. Finally, in the safety control aspect, warm-up exercises before activities and relaxation training after classes were strictly implemented to prevent sports injuries and ensure the safety and effective implementation of the intervention.

Intervention Structure and Teaching Content

The intervention content of football includes three aspects, basic skills training, team cooperation training, and competition and psychological counseling. The intervention of football is systematically presented in three stages, foundation, development, and consolidation. The key teaching points and mental health promotion goals for each stage are clarified, providing a logical framework for the overall design of the intervention plan.

Table 2. Phases of Football Intervention and Directions of Mental Health Promotion

Stage	Weeks	Teaching Focus	Mental Health Promotion
Basic stage	Week 1 - 4	Basic football skills training (passing, dribbling, shooting), interest stimulation and rule comprehension	Enhance the interest in sports, build self-confidence, and develop a sense of teamwork
Development stage	Week 5 - 8	Offensive and defensive coordination, tactical training, team matches, role rotation	Developing cooperative skills, enhancing responsibility, and improving emotional regulation abilities
Consolidation stage	Week 9 - 12	Class League, Skill Demonstration, Reflection Sharing and Psychological Summary	Promote the experience of achievement, enhance psychological resilience and sense of belonging

Specific intervention arrangements

To ensure systematicity and operability, this study has formulated a detailed 12-week teaching intervention plan. This table 3 specifically presents the teaching themes, main teaching contents, mental health orientation, and teaching forms for the 12-week intervention, serving as an operational blueprint for the implementation of the intervention.

Table 3 Twelve-Week Teaching Schedule for Football Intervention Program

Weeks	Teaching Topic	Primary Teaching Content	Health Psychology Orientation	Teaching Method
Week 1–2	Introduction to Football and Sparking Interest	Introduction to basic football rules, fun warm-up exercises, and basic passing and receiving ball practice	Stimulate the interest in sports and build team identity	Game-based teaching, group collaboration
Week 3–4	Formation of basic skills	Dribbling, shooting, short pass combination, small-sided games	Enhance self-confidence, cultivate communication and cooperation	Demonstration teaching, competitive training
Week 5–6	Enhancement of teamwork coordination	Offensive and defensive transition training, passing and cutting coordination, team competitions	Enhance the sense of cooperation and team cohesion	Situational teaching, group competitions
Week 7–8	Emotional and Responsibility Cultivation	Role rotation (captain, referee), adversity game simulation, tactical discussion	Cultivate responsibility and learn emotional regulation	Role experience, psychological counseling
Week 9–10	Class League Competition	Self-determined rules and tactics, formal leagues	Enhancing organizational capabilities and goal persistence	Inquiry-based learning, competition experience
Week11–12	Outcome Presentation and Psychological Reflection	Skill Challenge Competition, Growth Sharing Session, Psychological Assessment and Summary	Strengthening sense of achievement and self-efficacy	Exhibition activities, reflection and exchange

Structure design of a single class

This table 4 presents the time allocation for each class of the football intervention course, the teaching content,

and the mental health promotion goals, demonstrating the systematic nature and psychological orientation of the course. Each intervention class lasts for 60 to 80 minutes and consists of four sections.

Table 4. Structure and Objectives of a Single Football Intervention Session

Teaching	Time	Teaching Content	Objective
Warm-up and emotional introduction	10 minutes	Jogging, dynamic stretching, fun games	Stimulate positive emotions and prevent injuries
Skill training	25 minutes	Basic technical or specialized tactical training	Improve physical fitness and skill level
Competition and cooperative tasks	25 minutes	Team competition, situational contest, role experience	Developing the abilities of cooperation, communication and stress resistance
Relaxation and psychological reflection	10 minutes	Stretching relaxation, sharing emotions, summary feedback	Promote self-awareness and emotion regulation

Mechanisms for Promoting Mental Health

This study constructed a multi-dimensional mechanism for promoting the mental health of middle school students through systematic football teaching intervention. Firstly, the self-esteem enhancement mechanism, through hierarchical goal setting and positive feedback from teachers, enables students to continuously gain successful experiences during the sports activities, thereby enhancing their sense of self-worth. Secondly, the emotion regulation mechanism helps students identify, express, and effectively regulate their emotional responses through competitive and cooperative coexisting game-based competitions. Thirdly, the interpersonal relationship improvement mechanism relies on teamwork and role rotation to enhance students' communication and understanding skills, promoting support and trust among peers. Fourthly, the self-efficacy enhancement mechanism strengthens students' belief in and sense of achievement regarding their own abilities through the gradual improvement of sports skills and role experiences. Finally, the psychological resilience cultivation mechanism helps students form positive psychological coping strategies when facing failures and pressures through adversity situation training and school league competitions, cultivating resilient and optimistic psychological qualities. In summary, this intervention uses football as a carrier and aims to promote the comprehensive mental health development of middle school students in all aspects.

Psychological Testing

For the use of the Symptom Checklist 90 (SCL-90), it is an effective tool for measuring mental health, capable of comprehensively assessing the psychological condition of the subjects. This checklist includes ten mental health factors such as somatization, interpersonal sensitivity, psychosis, obsession, depression, anxiety, hostility, terror, paranoia, and others. By evaluating these factors, the mental health status of the subjects can be determined. After filling out the checklist, the mental health status of the subjects can be assessed based on the scores. Lower scores indicate better mental health, while higher scores indicate poorer mental health. The SCL-90 can be used for both self-assessment and peer assessment of the subjects. This checklist is widely used internationally and is one of the few scales currently used in China for assessing psychological states. Regarding retest reliability (repeated measurement reliability), this is an important indicator for evaluating psychological

measurement tools. It refers to the probability of obtaining similar results when measuring the same subject at different time points. In other words, retest reliability can reflect the stability and consistency of the measurement tool. For the SCL-90, its retest reliability should be within a reasonable range, typically between 0.77 and 0.90. This indicates that the measurement results of this scale at different time points have a high consistency and stability, and can accurately reflect the mental health status of the subjects.

RESULTS

Comparison of Mental Health between the Experimental Group and the Control Group before the Experiment

Table 5 shows the comparison results of the experimental group and the control group before the experiment on the promoting effect of football on the mental health of middle school students. The experimental group included 40 students, and the control group also included 40 students. The study examined the scores of the two groups of students under different factor items and conducted a T-test to compare the differences between them. The following is an analysis of the table data and the conclusion drawn. From the scores of each factor item, the differences in scores between the experimental group and the control group were not significant in most factor items. Specifically, the score differences in somatization, obsession, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoia, psychosis, and other factor items were within a certain range and were not statistically significant ($P > 0.05$). This indicates that in the pre-experimental stage, the impact of football on these psychological factors was not obvious. It should be noted that the total score of the experimental group was slightly higher than that of the control group (144.75 vs. 139.55), but the difference was not significant ($P > 0.05$). Although the total score was slightly higher, from a statistical perspective, this difference was not significant. Based on the comprehensive analysis of the table data, it can be concluded that in the pre-experimental stage, the impact of football on various aspects of the mental health of middle school students was not obvious. Although the total score of the experimental group was slightly higher than that of the control group, this difference was not significant, and it cannot be concluded that football can significantly promote the mental health of middle school students. Longer-term experimental observation or the use of other methods may be needed to verify the impact of football on mental health.

Table 5. Differences before the experiment (n = 80)

Factor item	Experimental group (n=40)	Control group (n=40)	T	P
Somatic symptoms	1.36±0.37	1.42±0.49	-0.654	0.605
Obsession	1.98±0.48	1.94±0.45	0.235	0.815
Socially anxious Depression	1.61±0.50	1.51±0.39	0.669	0.489
Anxiety	1.74±0.51	1.63±0.41	0.738	0.465
Hostile	1.67±0.41	1.56±0.42	0.829	0.412
Horror	1.61±0.49	1.59±0.50	0.152	0.88
Paranoia	1.45±0.47	1.37±0.34	0.603	0.55

Psychotic	1.51±0.52	1.45±0.23	0.531	0.60
Somatic symptoms	1.44±0.39	1.33±0.28	0.96	0.343
Others	1.63±0.61	1.58±0.36	0.291	0.772
Total score	144.75±33.02	139.55±26.09	0.553	0.584

Comparison of mental health before and after the experiment in the experimental group

Table 6 shows the comparison results of the numerical differences in each factor item of mental health of the experimental group before and after the football exercise experiment. 40 students participated in the experiment both before and after. The data lists the average values and standard deviations of each factor item before and after the experiment, and through T-tests, the differences between the two were compared to evaluate the impact of football exercise on students' mental health.

The scores of factors such as obsession, depression, anxiety, hostility, terror, and psychosis decreased significantly after the experiment. The students in the experimental group had a general reduction in the scores of these mental health factors after the football exercise experiment. Specifically, the reduction in factors such as obsession, depression, and anxiety was statistically significant ($P < 0.05$), indicating that football exercise has a positive effect on alleviating these psychological problems.

The scores of factors such as interpersonal sensitivity and paranoia also decreased after the experiment. Although the reduction was not as significant as the aforementioned factors, it also showed a statistically significant decrease in the scores after the experiment compared to before ($P < 0.05$). This indicates that football exercise may have a positive impact on improving students' interpersonal sensitivity and paranoid tendencies.

The total score decreased significantly after the experiment. The students in the experimental group had a significant decrease in the total score after the football exercise experiment ($P < 0.01$). This indicates that football exercise has a positive effect on the overall mental health level of the students, alleviating their mental health problems to a certain extent.

Based on the above analysis, it can be concluded that football exercise has a positive impact on the mental health of the students in the experimental group. After the experiment, the students' negative psychological factors such as obsession, depression, and anxiety were significantly improved, and the overall mental health level was improved. However, the improvement of factors such as interpersonal sensitivity and paranoia still requires further observation and research. Therefore, football exercise can be regarded as an effective way to promote mental health, and it has certain reference significance in the mental health education and intervention of middle school students.

Table 6. Comparison of differences before and after the experiment in the experimental group (n = 80)

Factor item	**Before the experiment (n=40)**	**After the experiment (n=40)**	**T**	**P**
Somatic symptoms	1.36±0.37	1.23±0.24	1.673	0.111
Obsession	1.98±0.48	1.26±0.45	4.942	0.001
Socially anxious Depression	1.61±0.50	1.27±0.32	2.826	0.011

Anxiety	1.74±0.51	1.30±0.32	3.322	0.004
Hostile	1.67±0.41	1.27±0.34	3.426	0.003
Horror	1.61±0.49	1.25±0.32	2.823	0.011
Paranoia	1.45±0.47	1.18±0.22	2.508	0.021
Psychotic	1.51±0.52	1.35±0.43	1.105	0.283
Somatic symptoms	1.44±0.39	1.33±0.28	0.96	0.343
Others	1.63±0.61	1.58±0.36	0.291	0.772
Total score	144.75±33.02	139.55±26.09	0.553	0.584

Comparison of mental health before and after the experiment in the control group

Table 7 shows the comparison results of the numerical differences in each factor item of mental health of the control group before and after the experiment. The average values and standard deviations of each factor item before and after the experiment are listed in the table. The T-test was used to compare the differences before and after the experiment, and the corresponding P-values were given to evaluate their statistical significance.

The scores of factors such as somatization, obsession, depression, anxiety, phobia, paranoia, and psychosis did not show significant changes before and after the experiment. In the control group, the scores of these mental health factors did not show significant changes before and after the experiment. Specifically, the changes in factors such as somatization, obsession, depression, anxiety, phobia, paranoia, and psychosis were not statistically significant ($P > 0.05$).

The scores of the interpersonal sensitivity and hostility factor items changed slightly before and after the experiment. The score of the interpersonal sensitivity factor item increased slightly after the experiment, but the increase was not statistically significant, while the score of the hostility factor item decreased slightly after the experiment, but this decrease was also not statistically significant. The total score did not show significant changes before and after the experiment. There was no significant difference in the total score of the control group before and after the experiment, indicating that the overall mental health level of the control group remained stable before and after the experiment.

Based on the above analysis, it can be concluded that the mental health level of the control group did not change significantly before and after the experiment. In contrast, the experimental group showed some positive mental health changes after the football exercise experiment, such as significant decreases in factors such as depression and anxiety. This indicates that football exercise may have a certain promoting effect on mental health. However, further research is needed to determine the mechanism and persistence of this effect. For mental health education and intervention, these findings provide some reference, but more research is needed to confirm their effectiveness and applicability.

Table 7. Comparison of differences before and after the experiment in the control group (n = 80)

Factor item	**Before the experiment (n=40)**	**After the experiment (n=40)**	**T**	**P**
Somatic symptoms	1.42±0.49	1.44±0.42	-0.11	0.913

Obsession	1.94±0.45	1.88±0.45	0.428	0.673
Socially anxious Depression	1.51±0.39	1.62±0.41	-0.987	0.336
Anxiety	1.63±0.41	1.64±0.46	-0.104	0.918
Hostile	1.56±0.42	1.52±0.38	0.308	0.762
Horror	1.59±0.50	1.36±0.38	1.542	0.14
Paranoia	1.37±0.34	1.39±0.34	-0.193	0.849
Psychotic	1.45±0.23	1.55±0.41	-1.081	0.293
Somatic symptoms	1.33±0.28	1.35±0.31	-0.297	0.77
Others	1.58±0.36	1.65±0.41	-0.531	0.602
Total score	139.55±26.09	141.00±29.08	-0.173	0.865

Comparison of mental health between the experimental group and the control group after the experiment

According to the data provided in Table 8, the changes in the mental health factor items of the control group before and after the experiment were compared. These factor items include somatization, obsession, interpersonal sensitivity, depression, anxiety, hostility, terror, paranoia, psychosis, and other factor items, and the total score changes were also considered.

By conducting a T-test to compare the score changes before and after the experiment, it was found that the score changes of most factor items before and after the experiment were not significant ($P > 0.05$). Specifically, the changes in somatization, obsession, depression, anxiety, terror, paranoia, psychosis, and other factor items did not show significant differences, indicating that the mental health level of the control group in these factors remained relatively stable before and after the experiment.

The score of the interpersonal sensitivity factor item slightly increased after the experiment, while the score of the hostility factor item slightly decreased, but these changes did not have statistically significant differences. This indicates that in terms of interpersonal sensitivity and hostility, the mental health level of the control group did not undergo significant changes before and after the experiment. In terms of the total score, the score changes before and after the experiment also did not show significant differences, indicating that the overall mental health level of the control group remained stable before and after the experiment.

Based on the above analysis, the mental health level of the control group did not show significant changes before and after the experiment. In contrast, the experimental group showed some positive mental health changes after the football exercise experiment, such as significant reductions in factor items like depression and anxiety. This indicates that football exercise may have a certain promoting effect on mental health. However, further research is needed to determine the mechanism and sustainability of this effect. For mental health education and intervention, these findings provide some reference, but more research is needed to confirm their effectiveness and applicability.

Table 8. Comparison of differences between the experimental group and the control group after the experiment (n = 80)

Factor item	Experimental group (n=40)	Control group (n=40)	T	P
Somatic symptoms	1.23±0.24	1.44±0.42	-1.844	0.073
Obsession	1.26±0.45	1.88±0.45	-3.906	0.001
Socially anxious Depression	1.27±0.32	1.62±0.41	-3.308	0.004
Anxiety	1.30±0.32	1.64±0.46	-2.705	0.010
Hostile	1.27±0.34	1.52±0.38	-2.716	0.036
Horror	1.25±0.32	1.36±0.38	-1.002	0.323
Paranoia	1.18±0.22	1.39±0.34	-2.345	0.024
Psychotic	1.35±0.43	1.55±0.41	-1.505	0.140
Somatic symptoms	1.17±0.35	1.35±0.31	-1.727	0.093
Others	1.18±0.29	1.65±0.41	-4.054	0.001
Total score	115.9±22.32	141.00±29.08	-3.062	0.004

DISCUSSION

This study, through a 12-week football intervention program, verified the positive impact of systematic physical activities on the mental health of middle school students. The experimental results showed that football could significantly reduce the scores of factors such as obsession, depression, anxiety, and interpersonal sensitivity in the SCL-90 scale of middle school students, and promote the overall improvement of their mental health level. This result is basically consistent with the conclusions of related studies, further proving the important role of physical exercise in adolescent psychological intervention[17–19].

From the perspective of psychological mechanisms, football, as a high-intensity team sport, not only provides the physiological regulatory effects brought by aerobic exercise, but also promotes the formation of individual self-esteem, self-efficacy, and social support through teamwork, role rotation, and competitive situations[20,21]. The positive sports experience can trigger the internal "positive emotion - resource accumulation" cycle, enabling students to have stronger psychological resilience and emotional regulation ability when facing academic and life pressures. This process conforms to Fredrickson's "Positive Emotion Expansion and Construction Theory" (Broaden-and-Build Theory)[22]. Indicating that the psychological benefits of sports exercise not only manifest in immediate emotional improvement, but also in the long-term accumulation of psychological resources and personality growth[23].

From the perspective of social interaction and team interaction, football provides middle school students with a social situation that combines equality, cooperation, and competition[24]. Through cooperation and competition, students can experience trust, collaboration, and a sense of responsibility, promoting positive peer relationships and social adaptability[25,26]. This is consistent with the conclusion of Schüttoff U on "Team sports can effectively

promote the social development of adolescents". Team sports not only enhance students' interpersonal communication skills, but also help reduce loneliness and interpersonal sensitivity, thereby indirectly improving mental health levels[27].

From the perspective of emotional regulation and cognition, football helps students release anxiety and tension during the activity process through exercise load and body feedback, and strengthens positive cognitive patterns in the process of setting goals and receiving performance feedback. Through continuous successful experiences, students' self-efficacy and self-worth increase, thereby forming a stable positive psychological state. This is in line with Bandura's self-efficacy theory, indicating that sports exercise can promote mental health by enhancing individuals' sense of control and achievement.

This study also has certain limitations. Firstly, the experimental sample comes from a single school in the same region, and the sample representativeness is relatively limited; secondly, the intervention period is only 12 weeks, and the long-term maintenance of the intervention effect has not been examined; finally, the mental health measurement mainly relies on the self-assessment results of the SCL-90 scale, which may be affected by subjective factors. Future research can expand the sample size, extend the intervention period, and combine multi-dimensional measurement tools (such as physiological indicators, teacher and parent evaluations) to improve the reliability and validity of the research.

CONCLUSION

Football has a significant positive effect on the mental health of middle school students. After 12 weeks of intervention, the experimental group showed significant improvements in psychological indicators such as anxiety, depression, obsessive-compulsive disorder, and interpersonal sensitivity. The total mental health score of the experimental group was significantly lower than that of the control group, indicating that football can help alleviate negative emotions and promote the formation of positive psychological states.

Football can effectively enhance the self-esteem and self-efficacy of middle school students. Team cooperation and role rotation enable students to gain diverse successful experiences, strengthening self-identity and goal persistence, thereby forming stronger intrinsic motivation and positive psychological qualities.

Football helps promote the social development and psychological resilience of students. In a cooperative and competitive sports environment, students improve their social adaptability and emotional regulation through communication, collaboration, and conflict management, demonstrating higher psychological flexibility and stress resistance.

In conclusion, football is not only an effective way to promote physical health, but also an important method to improve the mental health and social adaptability of middle school students. Schools should incorporate football into the campus mental health education system, establish an education model that integrates sports and psychology, and promote the coordinated development of students' physical and mental health. In the future, it can be further verified in larger samples and in multiple regions to test its long-term effects and mechanism differences, providing more empirical support for sports-based intervention paths in middle school students' mental health education.

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