

The Role of Building a Strong Sports Country in Improving the Psychological Health of Adolescents from the Perspective of Marxism

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Abstract

In order to understand the role of building a strong sports country in improving the mental health of adolescents, a study on the role of building a strong sports country in improving the mental health of adolescents from a Marxist perspective has been proposed. In this study, 436 college students were selected and divided into the Dance sport exercise group and the sedentary group. The participants were measured using the "Physical Exercise Level Scale", the "Multi-dimensional Assessment Questionnaire for Adolescent Health", and the "Coping Style Scale for College Students". Covariance analysis was used to test the difference between groups, and structural equation model and Sobel test were used to analyse the Mesomeric effect. The results showed that there were significant differences in the scores of question orientation, emotional orientation and avoidance orientation between the Dance sport group and the sedentary group ($P < 0.05$). In the dimensions of mental Suboptimal health emotional problems and social adaptation problems, the scores of the Dance sport group and the sedentary group were also statistically significant ($P < 0.05$). The dimension of problem orientation in coping style acts as a mediating variable between whether to participate in Dance sport exercise and the dimension of mental suboptimal health emotional problems and shows a partial mediating role. Participation in Dancesport exercise can enable college students to adopt more positive coping styles and have better mental health. Through systematic Dance sport training, college students can take a positive way to deal with problems, thus promoting them to have a more positive emotional experience.

Keywords: Sports Powerhouse, Mental Health, Marxismg.

Introduction

The Marxist view on sports is mainly reflected in three aspects. The first aspect is the existence of humans. Mainly lies in affirming the objective social value of human beings. Secondly, labor creates people themselves. Human subjectivity is reflected in labor, Sports are embedded in labor. Finally, Marx's most view on sports is reflected in his perspective on comprehensive human development. Marx once proposed "The so-called fully developed person refers to someone who has achieved full and free development of intelligence and physical strength". President of the people's Republic of China Jinping Xi also once proposed a leading sporting nation. "Sports are an important symbol of social development and human progress, and an important manifestation of comprehensive national strength and social civilization". Sports carry the dream of national prosperity and national rejuvenation. If sports are strong, China will be strong, and if national sports are prosperous, sports will be prosperous. The construction of a strong sports country aims to achieve national health as the direction of progress. We should focus on people's

health, improve people's health levels, and achieve national health as the starting point and goal orientation of the construction of a strong sports country (Kohl et al., 2012). To achieve national health, it is necessary to achieve national fitness. National fitness is a fundamental element and important way to promote national health (Tolley et al., 2016). Without national fitness, there would be no national health. The most important goal in achieving universal health is to improve the physical and mental health of adolescents (Skeen et al., 2010a; Skeen et al., 2010b). To improve the physical and mental health level of teenagers, it is necessary to continuously strengthen their physical exercise. Strengthening physical exercise is beneficial for the physical and mental health of teenagers, helping them improve their physical fitness, willpower, and ability to overcome difficulties (Ivanovna, Abidovich, & Yakubovna, 2021). The results of sports are all obtained by people through long-term exercise, and good willpower is the prerequisite for people to achieve excellent sports results, firm willpower is always related to overcoming difficulties, on the one hand, it is reflected in overcoming difficulties, and on the other hand, it is also exercised and

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improved in overcoming difficulties. Teenagers must do their best to complete one difficulty and obstacle after another in sports, and every progress must have great willpower and effort, acquiring tenacious and firm willpower through long-term systematic training. Only with good physical fitness and a healthy physical level can one have sufficient physical strength and positive beliefs to face various competitive pressures (Sarkar & Fletcher, 2014). Even under the pressure of further education, one can still successfully complete intense academic tasks, and excellent academic performance can promote the healthy development of adolescent psychological qualities. School physical education has the characteristics of rich content and diverse forms, creating conditions for cultivating fair competition, active progress, and unity and cooperation among young people, therefore, schools should vigorously carry out various sports activities and various forms of sports competitions, allowing students to fully immerse themselves in sports and competitions, while experiencing the joy brought by sports competitions, it cultivates teenagers' awareness of hard work and competition, teamwork, proactive spirit, and a sense of collective honor. Only in this way can we "grasp with both hands and make both hands hard".

The construction of a sports powerhouse refers to the process of a country achieving outstanding achievements, possessing strong sports strength, and comprehensive competitiveness in the field of sports (Park & Lim, 2015). From the perspective of Marxism, sports are regarded as an important component of social life, with important social functions and significance. Sports are not only a form of physical exercise and competitive activity, but also a social and cultural phenomenon that involves multiple aspects such as the physical, psychological, moral, and social development of individuals and groups. Adolescent mental health issues are becoming increasingly prominent in today's society, facing challenges such as academic pressure, interpersonal relationships, and emotional fluctuations. If psychological health issues during adolescence are not addressed in a timely and effective manner, they may have a negative impact on their growth and development, and even lead to long-term mental health disorders. The construction of a sports powerhouse plays an important role in improving the mental health of young people (Nie, 2022; Zhou, 2019). Firstly, sports activities can provide teenagers with a positive way of leisure after school, helping them release academic and emotional pressure, and alleviate anxiety and depression. Secondly, participating in physical exercise can promote the improvement of teenagers' physical fitness, enhance self-confidence and self-esteem, and cultivate a positive attitude and mind-set towards life. In addition, sports activities can also provide opportunities for social interaction, help teenagers establish good interpersonal relationships and teamwork awareness, and enhance their

social adaptability (Kahle & Homer, 1985). Teenagers are in a critical period of growth and development, mainly characterized by liveliness, difficulty concentrating, and poor coordination of movements, this is mainly due to the instability of its neural processes and the dominance of the excitation process, previous studies have shown that, various forms of sports can stimulate the cerebral cortex repeatedly, so that the excitation and inhibition process of the cerebral cortex can be coordinated, so as to achieve the balance and accuracy of the central nervous system, research aim was to check the role of building a strong sports country in improving the psychological health of adolescents from the perspective of Marxism.

The study findings significantly lies in shedding light on the positive impact of sports dance training on college students' coping styles and mental health (Josefsson, Lindwall, & Broberg, 2014). The study revealed that students who frequently practiced sports dance exhibited more positive coping styles, particularly problem-solving approaches, when dealing with stress and pressure. This indicates that sports dance can be a beneficial tool in equipping individuals with effective strategies to manage challenges in their lives. Moreover, the research highlighted that sports dance training led to better mental health outcomes, including improved emotional experiences and social adaptation. These findings have important implications for promoting mental health among college students and demonstrate the potential benefits of incorporating sports dance as a form of physical activity in mental health interventions. The study has main five integral parts, introduction, literature review, research methodology, data analysis, and discussion and future recommendations.

Literature Review

The course "Sports and Health" clearly states that the curriculum should be beneficial in stimulating students' interest in sports, cultivating habits of maintaining sports methods, forming a brave, strong, and unwavering willpower, and promoting students' physical, psychological, and social adaptability, thus, it plays a primary role in improving the overall health level of citizens (Malm, Jakobsson, & Isaksson, 2019a, 2019b). Therefore, sports bear a very prominent obligation of psychological health education (Wann, 2006). The author believes that with the continuous changes in the objective environment, the pressure of further education and competition has increased, and the number of only children has increased, which has led to negative psychological problems such as aversion to learning, interpersonal communication barriers, selfishness, and withdrawn personality among teenagers who are growing up, organizing students to participate in healthy sports activities is the primary way to provide psychological health education for students, regular participation in sports has a profound impact on the formation

of correct values and personality development among adolescents, teenagers participating in various sports activities will promote the formation of their unique personality traits, such as being hardworking, brave and decisive, resilient, and surpassing themselves, giving them a positive and energetic spiritual power, thereby improving their ability to adapt to society. Sports themselves can create a good and stable psychological state, maintain a positive and upward attitude towards life, and an orderly pace of life can effectively prevent physiological and psychological diseases, improve physiological functions, and enhance physical fitness (Fox & Magnus, 2014). For example, popular square dancing, swimming, and brisk walking are all low-intensity and long-lasting activities, its balanced psychological load and coordinated actions can effectively alleviate negative emotions such as anxiety and depression caused by academic pressure in teenagers. The participation in sports can inspire people's spirit and vitality, thus forming a positive attitude towards life. Wynters, R. and others learned about the experience of young men participating in the help out a Mate based on sports, and their views on the effectiveness and implementation of the program. Method: 33 male adolescents (aged 12-15) who recently participated in the "Help Companion" activity participated in six key groups. The summary of Thematic analysis is used to analyze Focus group data, and a series of strategies have been adopted to improve the credibility of the account, including peer reporting, case basis and long-term participation. Results These data show that these adolescent men have a wide range of positive experiences in helping their partners, and report that the plan is effective in the aspect of mental Health literacy, including increasing the understanding of mental health, increasing the confidence and willingness to seek and provide help (Wynters et al., 2021). Additionally, a number of empirical studies have looked at how becoming a great sports nation might help teenagers' mental health (Stuart JH Biddle et al., 2019; Stuart J. H. Biddle et al., 2019; Bonhauser et al., 2005). Stewart A Vella et al. (2018) performed studies to examine the impact of a national sports promotion program on teenagers' mental health. Using conventional psychological instruments, the researchers gathered data from a sizable sample of teenagers and evaluated their mental health (Hodges, 2014). According to the findings, the sports promotion program's enhanced sports engagement was linked to better psychological health, lower levels of stress and anxiety, and higher levels of self-esteem (Donaldson & Ronan, 2006). The socialist concept of supporting a strong sports nation under Marxism, according to the authors, develops a culture of physical fitness and well-being among teenagers, which has a good impact on their mental health. In a similar way, Zhao, Liu, and Zhang (2022) Zhao et al. (2022) studied the effect of school-based sports activities on young people's psychological health in a rural Chinese region. The children were encouraged to participate in regular physical

activity and sporting events when the researchers conducted a sports intervention in particular schools. The study assessed the participants' psychological health through self-report measures and found that those who actively participated in the sports program reported lower levels of depression and higher levels of life satisfaction compared to the control group. The authors emphasized that the collective emphasis on sports and physical education in the context of building a strong sports country, as advocated by Marxist principles, plays a significant role in fostering positive mental health outcomes among adolescents. The previous empirical literature supports the idea that building a strong sports country, in line with the principles of Marxism, has a positive impact on the psychological health of adolescents.

Research Methods

Research Objects and Methods

This study focuses on the impact of more than 3 months of sports dance practice on the mental health of college students, normal university students in a certain city were selected as research participants, who voluntarily participated in psychological tests and filled out questionnaires. One group consists of 200 college students who have participated in sports dance exercises for 3 months or more (offering two public elective courses per week, each lasting 80 minutes, taught by professional dance teachers), due to illness or personal leave, the final number of people filling out a valid questionnaire was 190, including 40 males and 150 females, aged (20.53 ± 1.268) years old; A group of 300 ordinary college students who are relatively sedentary and sedentary (individuals with a high level of total physical activity were determined through the "Physical Exercise Level Scale-3", and individuals who reported a high level of physical activity or above were excluded), the final effective number is 246, including 103 males and 143 females, aged (19.40 ± 1.221) years old (Ayodeji et al., 2021).

Research Tools

Psychological health was measured by the Multidimensional Assessment Questionnaire for Adolescent Subhealth (MSQA) developed by scholars. This scale includes both physical and mental health, this study used the mental health section to investigate the actual psychological discomfort symptoms experienced by individuals over the past 3 months, with a total of 39 items, including three dimensions: Emotional issues, conduct issues, and social adaptation issues, each item has 6 rating levels, which are: 1=none or lasting for less than 1 week, 2=lasting for more than 1 week, 3=lasting for more than 2 weeks, 4=lasting for more than 1 month, 5=lasting for more than 2 months, and 6=lasting for more than 3 months, the higher the level, the more

severe the sub health symptoms are. The evaluation indicator uses the number of mental health symptoms, which means that if there is more than one item with duration of mental health symptoms exceeding one month, it is considered a symptom of mental health. The internal consistency coefficients of the three dimensions are 0.82, 0.84, and 0.78, respectively. The coping style was measured by the 'Adolescent Coping Style Scale'. This scale includes 60 questions and uses Likert's self-assessment based 5-level scoring, ranging from "1 point - basically using this method" to "5 points - not using this method". It consists of three dimensions: problem oriented approach, emotional oriented approach, and avoidance approach. In terms of a certain dimension, a high score indicates less use of this coping style, while a low score indicates more use of this style. The internal consistency coefficients of the three dimensions are 0.83, 0.87, and 0.78, respectively. A total of 500 survey questionnaires were distributed in the study, with 68 questionnaires excluding missed, incorrect, regular, and biased responses, a total of 430 valid questionnaires were collected, with a recovery rate of 87% (Hyde & Pearson, 2021).

Statistical Methods

The mathematical statistics method adopts ANOVA and structural formula model, the data of two groups of college students are analysed by analysis of covariance, the mesomeric effect is tested by structural equation model and sobel test program (Singh et al., 2021).

In order to conduct in-depth research on the role of building a strong sports country in improving the mental health of adolescents, mathematical statistical methods were used for data analysis from the perspective of Marxism. The study selected two groups of college students, namely, the Dancesport exercise group and the sedentary group, with a total of 436 subjects. Firstly, use analysis of variance to

compare the differences between the two groups. By using the Physical Exercise Rating Scale, the Adolescent Health Multidimensional Assessment Questionnaire and the College Students Coping Style Scale to measure the subjects, the researchers calculated the scores of different groups in the dimensions of problem orientation, emotional orientation, avoidance orientation, and psychological Suboptimal health emotional problems and social adaptation problems. Using covariance analysis, the researchers examined the differences in these indicators between groups and determined whether the differences were statistically significant ($P < 0.05$). Next, structural equation model (SEM) and Sobel test procedure are used to analyze the Mesomeric effect. The researchers established a structural equation model to investigate the relationship between participation in Dancesport exercise and mental Suboptimal health emotional problems, and through Sobel test to verify whether there is a Mesomeric effect in this relationship. In combination with the above analysis methods, the research results reveal in more detail the differences in various indicators between the Dancesport exercise group and the sedentary and sedentary group, and explore whether participation in Dancesport exercise can fill the mediators through the problem orientation dimension through the structural equation model and Sobel test procedure, thus affecting mental Suboptimal health emotional problems. These analytical methods provide a more in-depth and comprehensive interpretation of data, providing a scientific basis for understanding the role of building a strong sports country in improving the mental health of adolescents.

Research Results and Analysis

Differences in Scores Between Two Groups in Coping Styles and Various Dimensions of Mental Health

Table 1

Mean and Standard Deviation of Each Variable in Two Groups (n=434).

variable	Problem orientation (coping style)	Emotional orientation (coping style)	Avoidance orientation (coping style)	Emotional issues (mental sub health)	Conduct issues (mental sub health)	Social adaptation issues (mental sub health)	amount of exercise
Sports Dance Group	45 8.92	49 5.36	79 7.12	26 11	11 5.36	19 9	58 30
Sedentary and less active group	65 9.98	39 6.71	63 11	31 14	12 5.7	22 12	16 16

The results showed that the average exercise volume of the sports dance group was 57.66 (≥ 43), which was at a high

level of exercise volume; The average amount of exercise in the sedentary and sedentary group was 15.44, which was at

a low level (≤ 19) (see Table 1). There are differences in the average dimensions of coping style and mental health between the sports dance group and the sedentary and sedentary group, due to the potential impact of gender and individual source of students on individual coping style and mental health, it is necessary to use gender and source of students as covariates to exclude the influence of these two variables on the dependent variable. Therefore, analysis of covariance analysis is required for the differences of each dimension.

Some studies suggest that gender variables and an individual's native environment (i.e., place of origin, rural or urban) may have a certain impact on exercise patterns, mental health, coping styles, stress responses, and feelings of inferiority, this study does not take this impact as the main exploration direction, therefore, gender and student

origin are used as covariates for control.

A type III analysis of variance was conducted using various dimensions of coping style as the dependent variable, different types of exercise as the independent variable, and gender and place of origin as covariates, the results showed that, the Main effect of gender and place of origin on coping style was not significant, the difference in scores of each dimension of coping style between the sports dance group and the sedentary and sedentary group was statistically significant, the three dimensions of problem orientation ($F=425.137$, $P<0.05$, biased $n_2=0.499$), emotional orientation ($F=267.736$, $P<0.05$, $n_2=0.385$), and avoidance orientation ($F=322.498$, $P<0.6$, biased $n_2=0.432$) all had higher effectiveness, and the sports dance group was significantly better than the sedentary and sedentary group (see Table 2) (Uglanova & Dettmers, 2022).

Table 2

Differences in Coping Styles Between the Sports Dance Group and the Sedentary and Sedentary Group.

Source	Coping Style	Sum Of Squares	Df	Mean Square	F	P	Biased N2
Corrected Model	Problem orientation	40113.25	4	13569.23	154.36	0.000	0.526
	Emotional orientation	10438.36	4	3759.26	98.56	0.000	0.463
	Avoidance orientation	29438.45	4	98263.25	180.36	0.000	0.248
intercept	Problem orientation	62315.14	2	13558.23	720.36	0.000	0.369
	Emotional orientation	42369.45	2	3745.26	960.35	0.000	0.458
	Avoidance orientation	37145.25	2	982563.25	4560.21	0.000	0.423
gender	Problem orientation	240.26	4	205.36	2.364	0.263	0.364
	Emotional orientation	0.074	4	0.369	0.354	0.456	0.125
	Avoidance orientation	0.742	4	0.569	0.248	0.236	0.456
Of student	Problem orientation	13.263	2	16.369	0.126	0.39	0.789
	Emotional orientation	14.263	2	18.569	0.459	0.456	0.159
	Avoidance orientation	120.35	2	1230.56	1.269	0.789	0.258
Motion type	Problem orientation	36236.45	4	35693.23	4536.26	0.000	0.368
	Emotional orientation	4567.36	4	56936.21	369.26	0.000	0.452
	Avoidance orientation	27.3691	4	56324.45	260.34	0.000	0.489
error	Problem orientation	36305.252	430				
	Emotional orientation	15387.0333	430				
	Avoidance orientation	6835.983	430				
total	Problem orientation	1438	432				
	Emotional orientation	962.003	432				
	Avoidance orientation	983.000	432				
Corrected total	Problem orientation	220.000	436				
	Emotional orientation	76356.23	436				
	Avoidance orientation	25369.42	436				
		59235.23	436				

Using various dimensions of mental health as dependent variables, different types of exercise as independent variables, and gender and place of origin as covariates, a type III analysis of variance was conducted, the results showed that, only gender has a significant Main effect on conduct problems and social adaptation problems in the

mental health scale, while others are not significant; After excluding the influence of gender, there was a statistically significant difference in scores between the sports dance group and the sedentary and sedentary group in terms of mental health, emotional issues, and social adaptation issues, the effects of emotional problems ($F=14.465$,

$P < 0.06$, biased $n_2 = 0.034$) and social adaptation problems ($F = 5.895$, $P < 0.05$, biased $n_2 = 0.016$) are relatively small, the sports dance group is better than the sedentary and less

active group; The difference in scores between the two groups on the dimension of conduct issues is not significant (see Table 3) (McEwan, Dunn, & Harvey, 2021).

Table 3

Differences in Mental Health Between the Sports Dance Group and The Sedentary and Sedentary Group.

Source	Mental Health	Sum of Squares	Df	Mean Square	F	P	Biased N2
Corrected Model	Emotional issues	40145.25	3	12669.23	7.094	0.000	0.436
	conduct problems	10447.36	3	3759.26	2.888	0.032	0.443
	Social adaptation issues	29436.45	3	99263.25	9.360	0.000	0.348
intercept	Emotional issues	72315.54	1	14558.25	130.36	0.000	0.268
	conduct problems	42369.4	1	3845.27	980.35	0.000	0.551
	Social adaptation issues	37145.455	1	992563.25	4565.21	0.000	0.523
Gender	Emotional issues	340.26	4	206.36	2.365	0.203	0.464
	conduct problems	0.074	4	0.368	0.355	0.458	0.224
	Social adaptation issues	0.542	4	0.5459	0.243	0.237	0.446
Of student	Emotional issues	15.264	2	18.369	0.128	0.451	0.689
	conduct problems	16.262	2	12.569	0.469	0.432	0.249
	Social adaptation issues	125.45	2	142360.56	1.369	0.771	0.630
Motion type	Emotional issues	26235.45	3	39693.24	4256.26	0.000	0.321
	conduct problems	4667.39	3	58936.27	370.26	0.000	0.443
	Social adaptation issues	28.3691	3	620324.47	265.35	0.000	0.384
error	Emotional issues	37305.251	410				
	conduct problems	16387.0333	410				
	Social adaptation issues	6935.984	410				
total	Emotional issues	1538	424				
	conduct problems	966.004	424				
	Social adaptation issues	958.000	424				
Corrected total	Emotional issues	210.000	424				
	conduct problems	73696.21	438				
	Social adaptation issues	28369.42	438				
		62235.23	438				

The above results indicate that after excluding the influence of covariates, the sports dance group scored better in all dimensions of coping styles than the sedentary and sedentary group, indicating that individuals who frequently practice sports dance, when facing stress, they tend to adopt more positive coping styles of problem-solving, and less negative coping styles of emotional and avoidance coping; The sports dance group scored better in terms of mental health, emotional issues, and social adaptation issues compared to the sedentary and sedentary group, indicating that frequent participation in sports dance training leads to more positive emotional experiences and good social adaptation; In terms of the dimension of conduct issues, there was no significant difference between the two groups, which may indicate that although conduct issues are a manifestation of mental health, however, whether or not to participate in sports dance exercises does not significantly alter an individual's character. The above results partially support research hypothesis 1 (Malhotra et al., 2021).

Mesomeric Effect Test of Coping Style

The test of mesomeric effect can clarify the influence intensity of mediation variables in the relationship between independent variables and dependent variables, therefore, it is of great significance to explore mesomeric effect for both independent variables and dependent variables, in the absence of intervention in independent variables, intervention in intermediate variables can lead to changes in dependent variables.

The psychological mechanism that sports dance can improve college students' mental health may be due to the mediating effect of coping styles, the structural formula model is used to test the mediating effect of coping styles, the test procedure is based on Wen Zhonglin's mesomeric effect test procedure. The conditions for the mesomeric effect are: the path coefficient c , a are significant; if the path coefficient b is also significant, then there is a mesomeric effect; If the path coefficient c is significant, it is a partial mediation; if c is not significant, it is a complete mediation;

If the path coefficients c and a are not significant, stop the mesomeric effect test; If the path coefficient b is not significant, then the sobel test needs to be continued, and the formula for the test statistic is Equation (1) :

$$z = ab / \sqrt{a^2 s_b^2 + b^2 s_a^2} \quad (1)$$

In the equation: s_a by a Standard error of; The standard error for b is s_b .

Firstly, set the type of exercise as the dummy variable 'whether to participate in sports dance exercise': 1 for the sports dance group and 0 for the sedentary and sedentary group. The mesomeric effect of the three dimensions of the coping style scale between sports types and mental health emotional problems shows that:(1)The problem orientation dimension of the coping style scale acts as a mediating variable between the sports type "whether to participate in sports dance exercise" and the emotional problem dimension of mental health, and is a partial mediating relationship, the mediating strength is 0.08 (ab), and the ratio of mesomeric effect to the total effect is 46.9% (ab/c); The predictive coefficients of emotional orientation and avoidance orientation dimensions, as well as emotional issues related to mental health, are significant, with path coefficients a and c being significant, however, the predictive path coefficient of emotional orientation and avoidance orientation on emotional problems is not significant, that is, the path coefficient b is not significant, so whether there is a mesomeric effect needs to be tested by so bel (see Figure 1).

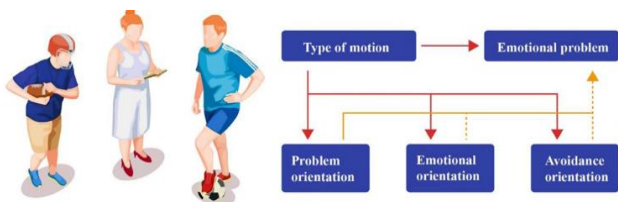


Figure .1: Mediating Effect of Coping Style on Emotional Problems.

In the mesomeric effect of emotional orientation, the result of sobel test was $z=1.06$, $P>0.05$; In the mesomeric effect of avoidance orientation, the result of sobel test was $z=0.135$, $P>0.05$. It shows that the mesomeric effect of coping style emotional orientation and avoidance orientation between exercise type and emotional problem dimension of mental health is not significant. The mesomeric effect of the three dimensions of the coping style scale between the sports type and the dimension of mental health and conduct problems shows that, there is no mesomeric effect between the emotional orientation of sports type "whether to participate in sports dance exercise" and the dimension of moral problems of mental health; The type of exercise 'whether to participate in sports dance exercise' cannot directly predict moral issues related to mental health (see Figure 2).

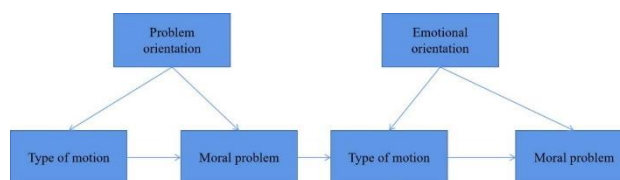


Figure.2: Mediating Effect.

The mesomeric effect of the three dimensions of the coping style scale between sports types and the dimensions of mental health and social adaptation problems shows that, the prediction coefficients of the three dimensions of the coping style scale and social adaptation problems for the type of exercise "whether to participate in sports dance exercise" are significant, that is, the path coefficients a and c 'are significant, hhowever, the path coefficients of the three dimensions of the coping style scale on the social adaptation dimension of mental health are not significant, that is, the path coefficient b is not significant. Therefore, whether there is a mesomeric effect needs to do sobel test. In the mesomeric effect of problem orientation, the result of sobel test was $z=0.076$, $P>0.05$; In the mesomeric effect of emotional orientation, the result of sobel test is $z=0.764$, $P>0.06$; In the mesomeric effect of avoidance orientation, the result of sober test was $z=0.735$, $P>0.05$. It shows that there is no mesomeric effect between the three dimensions of coping style and the dimensions of social adaptation of mental health (Foulkes & Blakemore, 2021).

The above results indicate that the problem orientation dimension of coping styles serves as a mediating variable between the type of exercise "whether to participate in sports dance exercise" and the dimension of mental health and emotional problems, and is a partial mediator. Explanation: Sports dance exercise can not only directly improve the emotional problems of college students, allowing them to experience more positive emotions, thereby slowing down the level of mental health, but also enable them to adopt more problem-solving methods when facing pressure, iindirectly improving the level of mental health, especially emotional issues. This result may be related to the characteristics of sports dance projects, as the fun and entertainment, as well as the cooperation between groups, determine that sports dance training directly or indirectly improves the emotional problems of college students.

The emotional orientation and avoidance orientation dimensions of coping styles did not play a mediating role between any dimension of exercise type 'participation in sports dance exercise' and mental health. The above results partially support research hypothesis 2.

Although the mesomeric effect of coping style is not significant, the direct effect of sports type "whether to participate in sports dance training" on coping style, mental

health emotional problems and social adaptation problems is significant, which indicates that college students' participation in sports dance training can improve their coping style and mental health (Le Feuvre & Dey, 2022).

Discussion

This study not only compared and examined the differences in coping styles and mental health status between college students who practiced sports dance and those who were sedentary and sedentary, further in-depth exploration was conducted on the psychological mechanism of sports dance in improving the mental health status of college students (Koch et al., 2019). The results indicate that, sports dance training can encourage college students to adopt more positive coping styles when facing stress or pressure, and can also weaken their mental health status (Keating et al., 2005). The mesomeric effect test shows that dance sports training can help college students to adopt more problem-solving methods, thus, improving the individual's own emotional problems. The above results partially support research hypothesis 1 and hypothesis 2. Conducting systematic sports dance training can improve the mental health status of college students to a certain extent, and also make their coping styles more proactive, especially enabling them to adopt positive problem-solving methods. There is research supporting the positive effects of sports on mental health and coping styles (Schäfer, Pels, & Kleinert, 2020).

However, it is undeniable that there is no significant difference in the dimensions of mental sub-health behavior between the sports dance training group and the sedentary and sedentary group, research hypothesis 1 has not received complete support, indicating that a person's conduct issue is a variable with strong traits and is relatively stable, it may also be that sports dance is only a single sport, although it has certain project characteristics, it still has certain limitations in comprehensively improving individual mental sub health.

As for the discussion of psychological mechanism, the results of the mesomeric effect test do not fully support hypothesis 2. Mesomeric effect is one of the main contents of this study, but the results are not satisfactory. The research results show that only the problem orientation dimension of coping style has a partial mesomeric effect between the sports type "whether to participate in sports dance exercise" and the dimension of mental health and emotional problems, the result did not meet expectations. The reasons for the above results may include: (1) The independent variables of the study were only set with 2 dummy variables (practicing sports dance and not practicing sports dance), there are various types of aerobic exercise, and a single physical dance exercise may not be enough to cause rich changes in coping styles; (2) This

study did not achieve strict intervention research, but only conducted a "retrospective" empirical survey on the research subjects within a certain period, which may also be the reason for the relatively single research results.

The causes of mental health are relatively complex, and currently there is a consensus that stress caused by stress is the main cause of mental health, the assessment of stress by individuals is their coping style, where problem-solving is a positive coping style, while avoidance or emotional coping is a negative coping style, different coping styles may lead to different mental health states (Lee, Jeong, & Yim, 2020). This study found that the psychological mechanism by which sports dance training improves the mental health of college students is due to a period of sports dance training, individuals adopt problem-solving methods to face the pressure caused by external stress, thereby improving their mental health status. Regarding the exploration of psychological mechanisms, scholars such as (Zhang & Xu, 2022) Zhang and Xu (2022) and Nabkasorn et al. (2005) have shown that physical exercise can significantly improve the depressive state of female college students, and can indirectly affect their depression levels through two pathways: Subjective support and problem-solving, moreover, subjective support and problem-solving serve as parallel and multiple mediators between physical exercise and depression. The mesomeric effect of coping style is that individual physiological indicators are improved and psychological pressure is transferred or released through a period of physical exercise, individuals adopt a relatively rational and objective proactive approach to problem-solving, thereby improving their mental health status. The results of this study are a useful supplement to previous research. The research findings do not fully support the research hypothesis, indicating that the path from physical activity to mental health may be complex or influenced by stable variables, if personality traits are difficult to intervene in, there may also be more variables that affect the relationship between the two. And for the intervention methods for mental health, in addition to sports, there are also cognitive interventions and other methods, the combination of multiple intervention methods may have better intervention effects (Mansfield et al., 2021).

Conclusion

Systematically conducting sports dance training can make college students' coping styles more positive and have a healthier psychological state. The reason why the mental health status of college students in the sports dance group is better than that in the sedentary and sedentary group may be that students in the sports dance group receive long-term and systematic training, adopting a problem-oriented coping style when facing pressure aims to adjust one's

mental health status, especially emotional issues. It is recommended that future research adopt multiple physical exercise programs and establish longitudinal experimental studies to compare with cross-sectional studies, in order to enhance the explanatory power of the results, the reliability and validity of research tools should be tested multiple times in terms of consideration. From our research, we have found that physical exercise is related to physical and mental health, and also to the comprehensive development of individuals. A strong youth makes a strong country. The physical and mental health of teenagers is the key to building a leading sporting nation. Similarly, strengthening physical exercise, improving the health level of the entire population, and building a strong sports country are also key links in promoting the healthy growth of young people. The construction of a strong sports country and the mutual promotion of physical and mental health among young people. This is in line with the Marxist theory of comprehensive human development. Teenagers improve their physical and mental health levels through physical exercise and achieve their comprehensive development.

Implications and Recommendations

The research results have integral contributions for promoting college students' mental health and understanding the role of sports dance in coping styles. The results suggest that sports dance training can lead to improved coping styles, with individuals adopting more positive problem-solving approaches when facing stress. This positive coping style, in turn, contributes to better mental health outcomes, particularly in terms of emotional well-being and social adaptation. However, it is noteworthy that the sports dance training did not show significant effects on conduct issues, indicating that improving certain aspects of mental health may require more comprehensive interventions or consideration of individual traits. The study highlights the potential benefits of incorporating sports dance as a complementary intervention for enhancing mental health among college students. This research could also explore a broader range of physical activities and a more comprehensive intervention approach to explore the complex interplay

between physical exercise, coping styles, and mental health. Additionally, integrating cognitive interventions alongside physical activities might further enhance the overall effectiveness of mental health interventions.

Keeping in view significant contributions in terms of findings, study have still some limitations that could be addressed in future research. At first, research only focused on a specific type of physical activity, namely sports dance training, which may not fully capture the broader impact of various exercise modalities on mental health and coping styles. Future research could include a more diverse range of physical activities to gain a comprehensive understanding of their effects on mental health in college students. Second, the study's geographical confinement and limited sample size restrict the findings' applicability to other cities. A bigger and more varied sample from various geographic locations and cultural backgrounds could yield more reliable findings. Furthermore, the study's primary data collection method was self-report questionnaires, which might be biased and have social desirability effects. Future research might use longitudinal designs and objective metrics to improve the validity and dependability of the results. Further study might be done in other countries to see whether the results vary as the research was done in a particular nation where the working environment is distinct from that of other nations.

The study's conclusions include some recommendations as well. In order to guarantee that every teenager has an equal opportunity to participate in sports activities, it is suggested, for instance, that the government should provide comprehensive physical education in schools and communities. In order to address the different interests and requirements of young people, this entails investing more time and resources in physical education courses, nurturing excellent physical education instructors, and offering a variety of sports activities and facilities. In addition, government could encourage and support various forms of sports participation, such as sports clubs, community sports organizations, and on campus and off campus competitions. This can provide more choices and enable teenagers to participate in sports activities that are suitable for them based on their interests and abilities.

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