PHYSICAL EXERCISE AND EMOTIONAL MANAGEMENT COLLEGE STUDENTS

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ABSTRACT

In order to study the correlation between emotion management ability and physical activity, and the role of physical activity on emotion management ability, this paper used gray correlation analysis to establish a correlation model. The sequence of features is represented by the degree of association between the factors in the gray system, and the similarity of the spatial and temporal evolution of the data is measured by using the horizontal distance, incremental distance, and variance distance. The correlation coefficient between physical exercise and emotion management ability was calculated according to the integrated correlation distance, and the correlation degree was realized according to the coefficient matrix. The results showed that the correlation coefficient between college students' emotion management ability and physical exercise was 0.378, the number of people who used psychological adjustment as the motivation for exercise occupied 52.0%, and the difference between different amounts of exercise in emotion management ability was relatively significant with P-value <0.01. It shows that through physical exercise can escape from the low mood and regain positive emotions, is conducive to improve the emotion management ability of contemporary college students.

KEYWORDS

Emotion management ability; physical exercise; gray correlation analysis; correlation coefficient; exercise motivation

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1. INTRODUCTION

College students are the backbone and cornerstone of the future development of Chinese society, and they bear the great responsibility of promoting the development of society and building the great motherland, and they are a social group that attracts much attention [1]. In modern society, the pressure of competition is becoming more and more intense, rich knowledge and advanced theories are necessary for contemporary college students to master, in addition to having a healthy body and good mental quality. Research on the emotional management of college students shows that there are certain hidden dangers in the emotional management of college students, which hinders the establishment of good interpersonal relationships and the ability to communicate with others [2]. Emotion is a comprehensive physiological and psychological state that exists as a special factor in various cognitions, sensations and behaviors of human beings, and it is the corresponding psychological and physiological special reaction produced in response to external stimuli, and emotion has an important driving effect on human behavior, and it is an important factor that influences the formation and development of human behavior, cognition, and psychology [3-4]. The youthfulness of juvenile delinquency and the suicides of a few college students call for people to pay attention to emotion management, in short, the various emotional problems presented call for us to pay close attention to the emotional needs of college students at different stages, and to control and regulate the emotional mechanism of students [5]. Therefore, the current situation of physical exercise and emotional management ability of contemporary college students can be improved through the study of the relevant aspects of physical exercise and emotional management ability of contemporary college students [6]. It serves to improve the quality of life for the majority of students, serves for the future college students to better adapt to the social status quo and rapid employment, provides a reference for the development of more reasonable theories on cultivating college students' mental health and moral education, and provides some theoretical references for enriching the psychology of college students' exercise and the development of college students' mental health education programs.

This paper constructs an association model based on gray correlation analysis, in order to analyze the relationship between physical exercise and emotion management. Firstly, the sequence of features was established to indicate the degree of association between individual factors, and then in order to accurately portray the spatial and temporal characteristics of the data, the horizontal distance, incremental distance, and variation distance between columns were utilized to portray the trend differences in the changes in the value added of each index between the evaluation objects. And the stem correlation coefficient was calculated according to the comprehensive distance, which was used to construct the body of indicators of the psychological effect of physical exercise. Finally, in the correlation analysis, the reasonableness of this paper's model is verified through validity test, basic situation analysis, significance analysis and regression analysis, which illustrates that there is an interaction between physical exercise and emotion management ability, i.e., the emotion management ability can improve the level of physical exercise, and physical

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exercise in turn can improve the emotion management ability. Exercise emotional benefit has a better prediction effect on college students' emotional management ability, and college students' good experience of exercise emotion will be more helpful to the cultivation of emotional management ability, which in turn will enhance the overall psychological quality of college students.

2. LITERATURE REVIEW

Long, Z et al. designed a 20-minute moderate-intensity cycling experiment and an EEG data acquisition experiment based on an image-evoked mood assessment protocol. The experimental procedure included two mood assessment sessions, each containing 24 images. It was shown that moderate-intensity physical activity can reduce negative emotional experiences and support the hypothesis that moderate-intensity physical activity is beneficial for improving emotional responses to negative stimuli [7]. Liu, Y. W et al. were exploring the effects of self-representation and psychological needs on exercise dependence to provide necessary references for preventing and inhibiting the emergence of exercise dependence in overweight college students. They also conducted physical fitness tests on freshmen of two comprehensive universities and analyzed the related data by using multiple regression, exploratory factor and validation factor analysis, and found that self-representation of overweight male and female college students had a significant positive effect on psychological needs and exercise dependence [8]. Meidut, V took elderly people over 60 years old as the research subjects. Subjects were assessed before and after the physical activity intervention using the Hospital Anxiety and Depression Scale method, and the percentage change in physical functioning after the exercise intervention was better in those who were in poorer physical health before exercise. Subjects who rated their mental health better prior to the physical activity intervention showed better percentage changes in anxiety and overall psychoemotional state than those who rated it worse [9]. Khan, M investigated whether these social changes in Western college students were consistent with changes in trait emotional intelligence. The methodology used was a meta-analysis across time. The results were that there were no significant changes in the overall trait emotional intelligence but that the domains of trait emotional intelligence of well-being, self-control, and emotionality declined significantly over time after controlling for differences in gender composition and between countries [10].

Ji, C. explored the effects of exercise intensity and frequency on anxiety, depression, and sleep quality in college students. Participants' exercise intensity was monitored using a Polar H10 HR sensor and the Borg RPE scale. The experiment was conducted for a total of 6 weeks. Exercise intensity was found to improve anxiety and depression symptoms better than exercise frequency, and sleep quality was more closely related to exercise intensity [11]. Yu, Y. et al. used artificial intelligence recognition algorithms to identify college students' extracurricular physical activity behaviors, and UHF RFID technology was used to design a student information collection system. The collected information and data were processed to get the

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individual positioning of students, and combined with student behavior identification for student positioning and behavior identification management, which can help teachers to improve the efficiency of extracurricular management, student safety and physical exercise efficiency [12]. Lacount, P. A. et al. elucidated the acute effects of high-intensity interval training on college students with and without attention deficit hyperactivity disorder. High-intensity interval training was found to be a useful adjunct to psychosocial or pharmacological treatments for college students with ADHD, as it can produce immediate immediate and acute improvements in executive functioning and promote improved physical and mental health [13]. Song, C conducted a survey on the current status of physical activity among primary and secondary school students to analyze the factors affecting the physical activity of primary and secondary school students with the aim of assisting primary and secondary school students to develop a good habit of physical activity. The results found that most of the primary and secondary school students' awareness of physical exercise is correct. Most students are able to participate in physical exercise, but few of them are able to participate regularly. Parental support, parents' exercise habits, and family expenditures on physical activity have a significant impact on developing students' exercise habits [14].

3. CONSTRUCTING A GRAY CORRELATION ANALYSIS MODEL OF PHYSICAL EXERCISE AND EMOTION MANAGEMENT

3.1. CONSTRUCTION OF THE MODEL

Emotion management refers to the ability of an individual to actively search for emotional strategies to resolve emotional discomfort in an effective way when encountering emotions that are unfavorable to the development of the individual [15]. It has become an indisputable fact that physical exercise will have a certain impact on the physical and mental state of a person, and as one of the psychological indicators, emotion will naturally have a certain connection with physical exercise [16]. This paper establishes the relationship model between physical exercise and emotion management based on gray correlation analysis.

Gray correlation analysis method is an important part of gray system theory, which is an effective means of information system analysis [17]. Gray correlation is a scale that characterizes the degree of association between factors within a gray system, let the sample feature sequence is $X_0 = (x_0(1), x_0(2), \cdots, x_0(n)$ and $x_i(k) > 0, i = 1, 2 \cdots m; k = 1, 2 \cdots n,$ then the related factor feature sequence can be expressed as:

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$$\begin{aligned} X_1 &= \left(x_1(1), x_1(2), \cdots, x_1(n)\right) \\ &\cdots \\ X_i &= \left(x_i(1), x_i(2), \cdots, x_i(n)\right) \\ &\cdots \\ X_m &= \left(x_m(1), x_m(2), \cdots, x_m(n)\right) \end{aligned} \tag{1}$$

Given the real number $\gamma\left(x_0, x_i\right)$, thus the gray correlation calculation model is obtained as:

$$\gamma^*\left(X_0 X_i\right) = \frac{\gamma\left(X_0, X_i\right)}{1 + S\left(\gamma_{0,j}\right)} \tag{2}$$

The gray correlation of X_i with X_0 is represented by $.\gamma\left(X_0, X_i\right)$ The stability of the sequence of point correlation coefficients of sequence X_i with X_0 is represented by $S\left(\gamma_{0_i}\right)$. A larger value of $S\left(\gamma_{0_i}\right)$ indicates a less stable sequence of point correlation coefficients.

3.2. CORRELATION DISTANCE

In the gray correlation analysis model to reflect the spatio-temporal characteristics of the sequence, in order to be able to accurately portray the spatio-temporal characteristics of the data, the similarity of the spatio-temporal evolution of the data can be measured by using the horizontal distance, incremental distance, and variance distance [18]. Let the horizontal distance between evaluation object k' and evaluation object k be:

$$d_1^i = \| X_{k'}^i - X_k^i \|_2 \tag{3}$$

where $\| X_{k^i}^i - X_k^i \|_2$ denotes the Euclidean paradigm of the sequence $X_{k'}^i - X_k^i$, and d^1 can reflect the absolute distance between the evaluating object k' and the evaluating object k at the i moment, which is called the horizontal distance between the sequences.

Notation $\nabla x_k^i(j) = \begin{cases} x_k^i(j) - x_k^{i-1}(j), i = 2, 3, \cdots, m \\ 0, i = 1 \end{cases}$, denotes the increment of the jrd indicator of evaluation object k on $[i-1, i]$. The sequence of increments of indicators of evaluation object k at the moment of i is $\nabla X_k^i = \left(\nabla x_k^i(1), \nabla x_k^i(2), \cdots, \nabla x_k^i(n)\right), i = 1, 2, \cdots, m$, and the incremental distance between evaluation object k' and evaluation object k is:

$$d_2^i = \| \nabla X_{k'}^i - \nabla X_k^i \|_2 \tag{4}$$

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Where $\| \nabla X_{k'}^i - \nabla X_k^i \|_2$ represents the Euclidean parameter of vector $\nabla X_{k'}^i - \nabla X_k^i$, and d_2^idepicts the difference in the trend of the change in the value added of each indicator between the evaluation objects. If the indicators of the two evaluation objects are changing in the same direction, the more coordinated the change is, the more similar is the trend of the change in the two evaluation objects, and the distance is also smaller. If they change in the opposite direction, the distance is generally larger and the similarity between them is less. The variation distance between evaluation object k' and evaluation object k is:

$$d_3^i = \left[\sum_{t=1}^{n} \left(\frac{\bar{x}_{k'}^i}{\sigma_{k'}^i} - \frac{\bar{x}_k^i}{\sigma_k^i} \right)^2 \right]^{\frac{1}{2}} \tag{5}$$

Where $\bar{x}_k^i = \frac{1}{n} \sum_{j=1}^{n} x_k^j(j)$, $\sigma_k^{i2} = \frac{1}{n-1} \sum_{j=1}^{n} \left(x_k^i(j) - \bar{x}_k^i \right)^2$, $\bar{x}_k^i$ represents the mean value of the variable standardized for n indicators of the k th evaluation object at the moment of i, and i represents the standard deviation standardized for n indicators of the k th evaluation object at the moment of i. d_3^i characterizes the similarity of the degree of fluctuation of the indicator values of the evaluation objects, if the degree of fluctuation of the indicators between the evaluation objects is close, the distance is smaller, and vice versa, the distance is larger.

3.3. CORRELATION COEFFICIENTS

Using the correlation distance, calculate the horizontal distance d_1^i, incremental distance d_2^i, and variation distance d_3^i between each object and the ideal object and negative ideal object at time i. Then, determine the comprehensive distance d_3^i between each evaluation object and the ideal object and negative ideal object based on factors d_1^i, d_2^i, and d_3^i. Next, calculate the gray correlation coefficient of each evaluation object and the ideal object and negative ideal object at time i using the comprehensive distance $\gamma\left(X_+^i, X_k^i\right), \gamma\left(X_-^i, X_k^i\right)$. Finally, calculate the weight of each time point $\lambda_i (i = 1, 2, \cdots, m)$ based on the matrix of decision-making coefficients. Use these weights to calculate the comprehensive correlation degree.

$$\gamma\left(X_+, X_k\right) = \sum_{i=1}^{m} \lambda_i \gamma\left(X_+^i, X_k^i\right) \tag{6}$$

$$\gamma\left(X_+, X_k\right) = \sum_{i=1}^{m} \lambda_i \gamma\left(X_+^i, X_k^i\right) \tag{7}$$

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4. ESTABLISHMENT OF INDICATOR DATA

Individual emotional states mark the individual's response to the environment and to the biologically motivated state when adapting to changes in the environment [19]. The emotion behind the behavior is not only an expression of the outcome of the behavior, but also represents some kind of adaptive motivational factors [20]. Whether adolescents can achieve healthy psychological benefits after participating in physical exercise and whether physical exercise can promote adolescents to achieve psychological health can be constructed as a reasonable index system for the psychological effects of physical exercise. This paper proposes the gray correlation degree and tries to construct the physical exercise psychological effect index system through it. Figure 1 shows the index relationship structure between physical exercise and emotion management. Adolescents are in the transition period of physical and mental development, and have their own psychological characteristics, such as the rapid development of self-consciousness, emotionally rich but easy to be impulsive and so on. The indicator system is based on the psychological needs of adolescents' independent physical exercise, self-determination motivation, exercise satisfaction, happiness and pleasure and other four variables to construct a structural relationship, in order to effectively promote adolescents to actively participate in sports and develop independent exercise habits to provide reference. Exercise satisfaction is the positive perception or feeling that adolescents have when engaging in physical exercise, and both exercise satisfaction and motivation are based on psychological needs as a starting point.

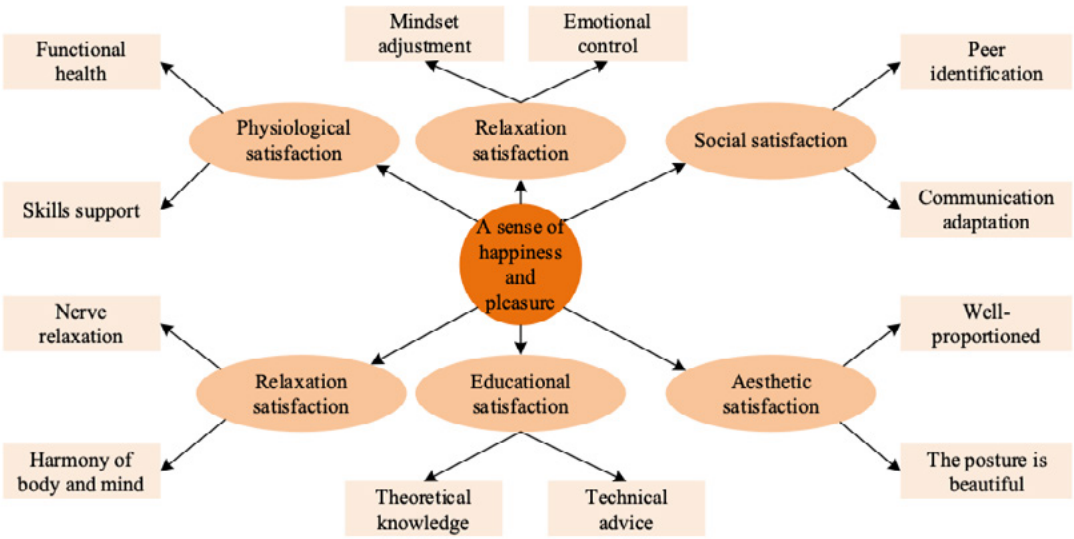

Figure 1. Structure of indicator relationship

Let the time sample point of the dynamic multi-indicator evaluation problem be $T_i(i=1,2,\cdots,m)$, and its corresponding weight be $\lambda_i(i=1,2,\cdots,m)$. The indicator be $P_j(j=1,2,\cdots,n)$, and its corresponding weight be $\omega_j(j=1,2,\cdots,n)$, and the object of evaluation be $S_k(k=1,2,\cdots,q)$. Let the sequence of indicators of the object of evaluation at the moment i be:

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$$\begin{aligned} X_1^i &= \left(x_1^i(1), x_1^i(2), \ldots, x_1^i(n)\right) \\ X_2^i &= \left(x_2^i(1), x_2^i(2), \ldots, x_2^i(n)\right); i = 1, 2, \cdots, m \\ &\cdots\cdots\cdots\cdots\cdots\cdots \\ X_q^i &= \left(x_q^i(1), x_q^i(2), \ldots, x_q^i(n)\right) \end{aligned} \tag{8}$$

Where $x_k^i(j)$ denotes the jth indicator value of the krd object at the i nd moment, it is said that $X_k^i(j)$ denotes the sequence of characteristic behaviors consisting of each indicator value of the th object at the i moment.

Since different evaluation objects are meaningful only when compared at the same point in time and on the same indicator, and different magnitudes of the indicators will have an impact on the quality of the modeling and the results of the systematic analysis, it is necessary to carry out a dimensionless processing of the evaluation matrix in order to eliminate the influence of the magnitude.

Let the observed value of the j nd indicator of the k st object in the evaluation matrix at the moment of i be $.X_k^i(j)$ If $X_k^i(j)$ is a benefit indicator, i.e., the larger the value of the indicator, the better, then the following transformation is applied:

$$x_k^i(j)D_1 = \frac{x_k^i(j) - \min_k x_k^i(j)}{\max_k x_k^i(j) - \min_k x_k^i(j)} \tag{9}$$

5. ANALYSIS OF THE CORRELATION BETWEEN PHYSICAL EXERCISE AND EMOTIONAL MANAGEMENT

5.1. VALIDITY TESTS

The basic factors of physical health, one is the physical aspect of physical exercise, such as external sports and fitness, etc.; the other psychological aspect of emotional management, such as the regulation and control of bad emotions. Combining the two organically for research will be a better help to the physical and mental health of contemporary college students. For this reason, this paper selects a college to collect data information on college students' physical exercise, emotional management, mental health and psychology. In order to verify the reliability of the relevant scales studied in this paper, the test is carried out through the correlation coefficient. The test results are shown in Table 1, which provides an overall scientific analysis of the validity of the scales to be studied in this thesis; the correlation coefficient between physical exercise and physical activity level is 0.235, the correlation coefficient between college students' emotional management ability and physical exercise is 0.378, and the correlation coefficient between college students' emotional management ability and physical activity level is 0.183, which is in conformity with the

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test standard. It indicates that when the interaction between emotion management ability and physical exercise is included in the equation, it has the same significant effect on the exercise emotion, which means that there is an interaction between physical exercise and emotion management ability, i.e., the emotion management ability can improve the level of physical exercise, and physical exercise in turn can improve the emotion management ability. Therefore, there is a positive mediating effect of physical exercise in emotion management ability.

Table 1. Results of validity test

Option	Physical exercise	Level of physical activity	Ability to manage emotions
Physical exercise	1.000	0.235***	0.378***
Level of physical activity	0.235***	1.000	0.183***
Ability to manage emotions	0.378***	0.183***	1.000

5.2. BASIC SITUATION ANALYSIS

In order to understand the basic situation of contemporary college students' physical exercise and emotion management, this paper takes the second-year college students in this higher education school as the main survey sample, randomly selects 1,000 of them for physical training, and analyzes them from two aspects. Table 2 shows the analysis table of college students' motivation for physical exercise. The personal motivation of college students to participate in physical exercise mainly focuses on the main purposes of physical fitness, recreation and psychological adjustment. In addition to the above three, the motives for choosing to exercise also include improving socialization, feeling insufficient for sports, being fit, mastering skills and taking part in competitions. A comprehensive analysis shows that in addition to the purpose of physical exercise, recreation and psychological adjustment are also important motives for young college students at the turning point of their lives and psychological age transition, with the proportion of 55.9% and 52.0% respectively. Physical exercise for college students has been gradually accepted and recognized by the society, and the fitness and recreation way of enhancing communication as physical exercise has become the mainstream way of physical exercise for contemporary college students, and has become an essential fitness demand in the daily fitness life of college students.

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Table 2. Analysis of physical exercise motivation

Exercise motivation	General situation		Boys		Girls	
	N	%	N	%	N	%
Increase communication	309	39.2	233	50.0	76	23.7
Keep fit	661	83.7	419	89.3	242	75.4
Psychological adjustment	411	52.0	232	50.0	179	55.8
Feel under-exercised	150	19.0	98	21.0	52	16.2
Recreation	442	55.9	230	49.0	212	66.0
Body Building	265	33.5	115	24.5	150	46.7
Acquire skills	160	20.3	111	23.7	49	15.3
Enter the contest	85	10.8	73	15.6	12	3.7

Table 3 shows the results of the analysis of the overall situation of emotion management ability, in the dimension of the ability to control negative venting, the highest mean score of T is 4.21, which shows that the university students have a strong ability to control the negative venting of emotion management, but in the dimension of the ability to positively remediate the lowest mean score of the questions, which shows that the university students have a poor ability to positively remediate the problem, which requires teachers and parents to give the necessary attention to the various dimensions The order of mean scores in descending order of magnitude is the ability to control emotional outbursts, the ability to rationally regulate, the ability to control negative cues, the ability to seek external support, and the ability to positively remedy. The data can be used to analyze the psychological factors of college students. With the rapid development of modern society, some contemporary college students, under the pressure of academics, employment, feelings and other pressures, the psychological condition of the development of the adverse direction, prone to loneliness, bitterness, anxiety, confusion and other bad emotions. Therefore, for school sports, in the design of curriculum content and teaching methods, firstly, we should pay attention to the auxiliary improvement and enhancement of the mental health level of adolescents by physical exercise, and fully integrate the game and fun into the sports program. Secondly, we should pay attention to the development of adolescents' social interaction ability through teamwork sports activities. Finally, based on the natural laws of physical development for adolescents, the intensity, frequency and duration of exercise are scientifically and reasonably arranged in sports activities.

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Table 3. The results of general situation analysis of emotion management ability

Project	Valid	Missing	Variance
Ability of rational control	790	0	4.92
Control negative venting	790	0	7.31
Ability to seek outside support	790	0	3.78
Control negative suggestibility	790	0	4.96
Ability to actively remedy	790	0	4.53
Overall analysis	790	0	17.20

5.3. SIGNIFICANCE ANALYSIS

After moderate physical exercise, it tends to eliminate the psychological state brought about by various negative emotions, making it physically and mentally comfortable, energized, and with an enhanced sense of meaning in life, which is just enough to make up for the spiritual emptiness of college students, and to alleviate all kinds of negative influences through physical exercise. By participating in physical exercise, each dimension of college students' emotion management ability is analyzed in terms of the control of emotion management. In order to understand the problems related to college students' participation in physical exercise and emotion management ability, the author conducted a correlation analysis of the differences, and the T-test of independent samples for different exercise amounts of college students' physical exercise and emotion management ability, and the results of the test are shown in Table 4. $p=0.002<0.01$, which means that overall, the differences between different amounts of exercise are more significant in terms of the ability to manage their emotions. On the ability to control negative emotional outbursts and the ability to control negative cues $P=0.000<0.001$ indicates that the difference is significant and that exercise intensity is one of the factors that make up the amount of exercise. On the ability to regulate reasoning $P=0.001<0.01$ indicates that the difference between different amount of exercise and the ability to regulate reasoning is more significant. The highest scores were obtained when exercising at moderate intensity, indicating that emotional sanity regulation ability is best with moderate exercise volume, and that too much or too little reduces college students' ability to manage their emotions. Therefore, it is possible to determine and choose the moderate amount of physical exercise according to the differences in individual physical fitness and exercise ability, which is conducive to improving the emotion management ability of contemporary college students.

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Table 4. Analysis of differences in emotion management ability

Variable dimension	Small amount of exercise	A lot of exercise	F value	P
Ability of rational control	27.09±4.914	26.75±4.725	5.645	1
Control negative venting	46.20±7.295	49.01±7.138	7.894	0
Ability to seek outside support	17.07±4.251	17.21±4.111	2.154	9
Control negative suggestibility	19.29±4.692	20.10±4.595	7.742	0
Ability to actively remedy	21.53±4.324	21.63±4.318	1.071	361
Ability to manage emotions	131.1±15.233	134.70±15.801	3.725	2

Table 5 shows the results of the significance analysis of the correlation between physical exercise and emotion management ability, from the perspective of exercise time, college students' emotion management ability in general has a significant correlation with exercise time, with a correlation coefficient of 0.880. In particular, college students' emotion management ability to seek external support ability, the ability to control the negative implication ability, and the ability to rationally regulate the emotion has a significant correlation with exercise time. There is a very significant correlation between students' emotional ability and exercise intensity in general, with a correlation coefficient of 0.880.

The correlation coefficient is 0.165, and there is a very significant correlation between college students' emotion management ability and exercise intensity in all dimensions except for the ability to seek external support and the ability to control negative suggestion. From the perspective of exercise frequency, there is a very significant correlation between college students' emotion management ability and exercise frequency in general, with a correlation coefficient of 0.193, and there is a very significant correlation between the dimensions of emotion management ability and exercise frequency. Suggesting that escaping from such depressed emotions and regaining positive emotions through physical exercise, which is the process of emotion management that

It is an instinctive directional tendency, a psychological tendency to react instinctively, and a value reference system that exists in people's own relationship with the treatment and understanding of external things. Even if an individual participates in exercise without caring about the exercise itself and its results or is constrained by external factors, along with the accumulation of opportunities and frequency of such exercise, even though external motivation and lack of motivation are not as high as internal motivation in triggering exercise satisfaction, exercisers can still experience a portion of the health benefits from exercise from physical activity without negatively affecting exercise satisfaction.

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Table 5. Results of correlation significance analysis

Variable dimension	Exercise time	Exercise intensity	Exercise frequency
Ability of rational control	0.087*	0.104*	0.108*
Control negative venting	2	0.118**	0.195***
Ability to seek outside support	0.115**	15	1
Control negative suggestibility	0.082*	23	0.125**
Ability to actively remedy	3	0.094*	0.081*
Ability to manage emotions	0.880*	0.165*	0.193***

5.4. REGRESSION ANALYSIS

The results of physical activity mood scores were used as the dependent variable in the stratified multiple regression analysis, and the physical activity mood scores and emotion management ability scores were centered and transformed into standard scores before being included in the analysis. Table 6 shows the results of the regression analysis, and the regression results show that gender has a negative regression relationship with exercise mood scores, and the regression coefficient changes from -0.089 to 0.464 after the inclusion of the emotion management ability scores, which changes the regression relationship from negative to positive, suggesting that the emotion management ability can regulate the influence of gender on exercise mood to a certain extent. The positive regression relationship between grade and exercise mood and the small change in the regression equation results may be related to the influence of family, social, and school environments, the concern for physical fitness and health, and the more in-depth knowledge of the benefits of exercise as age increases. Emotional management ability included in the regression analysis showed a positive regression relationship with exercise mood scores, with the smallest P value, indicating that physical activity has a significant positive effect on emotional management ability, showing that there is a significant moderating effect of physical activity in emotional management ability.

Table 6. Results of regression analysis

Variable	Ability to manage emotions		Physical Activity Score	
	(1)	(2)	(3)	(4)
Gender	-3.174	-89	464	13
Grade	2.446	65	2.225	95
Ability to manage emotions			3.791	516
Physical Activity Score	6.588	375		

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6. CONCLUSION

This paper takes the relationship between physical exercise and emotion management as the research direction, and uses gray correlation analysis method to construct the relevant model, and analyzes the rationality of the model. The conclusions are as follows.

1. In the validity test, the correlation coefficient between college students' emotion management ability and physical exercise is 0.378, and the correlation coefficient between college students' emotion management ability and physical activity level is 0.183. It indicates that when the interaction between emotion management ability and physical exercise is included in the equation, it has the same significant effect on the emotion of exercise, which means that there is an interaction between physical exercise and emotion management ability.

2. In the significance analysis, P=0.000<0.001 on the ability to control negative emotional outbursts and the ability to control negative cues indicate significant differences. The overall correlation coefficient between students' emotional ability and exercise intensity is 0.165, which is a very significant correlation. It indicates that can college students can determine and choose the moderate exercise intensity of physical exercise according to the differences in individual physical fitness and exercise ability, which is conducive to improving the emotional management ability of contemporary college students.

3. After the inclusion of emotion management ability score, the regression coefficient changed from -0.089 to 0.464, the regression relationship changed from negative to positive, indicating that the emotion management ability can regulate the influence of gender on the exercise emotion to a certain extent.

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