

A Study on the Effects of Physical Exercise Attitudes on Exercise Behavior of Chinese College Students

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Abstract: Physical exercises not only enhances physical health but also plays a positive role in promoting psychological well-being. This study aims to explore the specific impact of college students' physical exercise attitude on their exercise behavior. Using SPSS 25.0 statistical software, to analyze the relationship between the physical exercise attitudes and behaviors of 572 college students. The results show that there is a significant positive correlation between physical exercise attitudes and behaviors, and the various dimensions of college students' physical exercise attitudes have a predictive effect on exercise behavior. Universities should take corresponding measures to increase publicity on physical exercise among college students, improve their physical exercise attitudes, strengthen their physical literacy, and promote the all-round development of college students.

Keywords: College Students; Physical Exercise Attitude; Exercise Behavior; Correlation Relations

1. Introduction

1.1 Research Necessity

With the progress of modern science and technology, people's lifestyles have changed. Science and technology have brought convenience to people but have also led to a lack of physical exercise. A survey by the World Health Organization shows that a sedentary lifestyle due to lack of physical exercise is one of the top ten causes of death and disability worldwide, with about 20 million deaths attributed to lack of physical exercise annually. As the prevalence of lifestyle diseases and medical expenses increase, people are turning to lifestyle changes as a primary intervention for

health, making physical exercise and other activities key to improving quality of life^[1].

Studies indicate that physical exercises not only enhance physical health but also have a positive impact on mental health. Physical exercise is one of the key factors influencing mental health^[2]. With the rise of nationwide fitness movements, active participation in physical exercises for a healthy lifestyle is increasingly emphasized. University students are a special group for physical exercise, having ample free time and good exercise conditions. Their participation in physical exercise is not only related to external factors but also closely linked to their own physical exercise attitudes. Physical exercise attitude is a relatively stable cognitive, emotional, and behavioral tendency that individuals maintain towards physical activities, with behavioral attitudes and target attitudes together forming physical exercise attitudes^[3]. Exercise behavior is a purposeful and conscious activity that acts on the body through scientific forms of exercise to enhance physical fitness, improve health, and meet personal exercise needs. Many studies have shown that physical exercise attitude influences exercise behavior^[4].

The university period is a crucial time for developing a positive physical exercise attitude, establishing the right values towards physical exercise and forming lifelong exercise behaviors. Psychological factors are identified as significant elements affecting exercise behavior^[5]. Therefore, analyzing and discussing the attitudes and behaviors of university students towards physical exercise is beneficial for guiding them to cultivate the right attitudes and develop good exercise behaviors.

Although there are numerous studies on the attitudes and behaviors of university students towards physical exercise in China, most focus on demographic variables such as gender, grade

level, and major. However, there is limited research on the relationship between university students' physical exercise attitudes and their exercise behaviors. Therefore, this study targets university students to explore the relevant relationship between their physical exercise attitudes and exercise behaviors, aiming to help students recognize the importance of physical exercise, positively influence children, improve students' physical exercise attitudes, cultivate good exercise behaviors, enhance physical health, and provide theoretical and practical reference for future research on physical exercise.

1.2 Research Purpose and Questions

The purpose of this study is to focus on college students as research subjects, using quantitative analysis methods to observe the differences between the physical exercise attitudes and exercise behaviors among different demographic variables. It aims to explore the predictive role and correlation of college students' physical exercise attitudes on exercise behavior through regression analysis, and then propose targeted solutions to the problems. Additionally, it will suggest some countermeasures and recommendations to assist decision-making for school physical exercise authorities and provide references for school physical exercise work. Simultaneously, it will guide college students to establish the correct physical exercise attitude and cultivate good habits of exercise behaviors.

Based on the research purpose, the following research questions are proposed:

- 1) What is the current status of college students' physical exercise attitudes and exercise behaviors?
- 2) How are the general situation of college students' physical exercise attitudes and exercise behaviors, and the differences of demographic variables (gender, major, grade level, and place of origin)?
- 3) Is there a correlation between college students' physical exercise attitudes and exercise behaviors?
- 4) Which dimensions of college students' physical exercise attitudes can predict exercise behavior?

2. Theoretical Background

2.1 Physical Exercise Attitude

2.1.1 Concept of Physical Exercise Attitude

Physical exercise attitude refers to the comprehensive manifestation of individuals' cognitive perception, emotional experiences, and behavioral intentions towards physical exercise activities, which includes attitudes towards physical exercise behavior and physical exercise targets^[6]. Liu et al. believe that physical exercise attitude is the comprehensive manifestation of individuals' evaluation, experiences, and behavioral tendencies towards physical activities^[7]. Physical exercise attitude regulates individuals' choices and responses to physical exercise projects or participation, and influences the effectiveness of individuals' physical exercise learning and exercise. Physical exercise attitude is an important factor affecting individuals' physical exercise learning and exercise.

Based on previous research, this study considers that college students' physical exercise attitude refers to the psychological willingness of college students to participate in physical exercises. It is a prerequisite and foundation for college students to engage in physical exercise, and the formation of exercise attitude requires long-term accumulation.

2.1.2 Factors Influencing Physical Exercise Attitude

Physical exercise attitude is a gradual process that requires long-term accumulation and is influenced by various factors such as the physical exercise atmosphere in which individuals are located and individual cognition. Studies have shown that individuals' family, school, social environment, and social cultural values can positively or negatively influence the formation of their physical exercise attitudes. For example, attitudes of family members such as parents, siblings, attitudes of others in personal social networks, physical exercise clubs, physical exercise organizations, and activities and experiences of physical exercise in personal social networks can all influence the formation of an individual's physical exercise attitude. Additionally, individual cognition, experiences, and personality traits are also important factors in the formation of an individual's physical exercise attitude. Physical exercise behavior refers to physical activities performed outside of physical education classes, mainly for fitness purposes, with a certain intensity, frequency, and exercise time.

Most scholars have a basic consensus on the

understanding of physical exercise attitude, but in empirical research, there are different views on factors reflecting physical exercise attitude. One view is that from a psychological perspective, exercise attitude is a relatively stable and enduring personal internal structure composed of three factors: cognition, emotion, and behavioral intention. It is an intermediate factor between external stimuli and individual responses, and individual responses to external stimuli are regulated by their own attitudes^[8]. Wang, Lin, and He emphasize that apart from cognition, emotion, and behavioral intentions, a significant factor in physical exercise attitude is the manifestation of target value, which influences both the target orientation of physical exercises and behavioral tendencies^[9]. Researchers have also conducted investigations and analyses from social, emotional, pursuit of stimulation, aesthetic, spiritual release, and self-discipline aspects^[10]. Physical exercise attitude is a relatively stable and enduring understanding, emotional, behavioral, and target orientation of college students physical exercise attitudes, influencing the behavior of physical exercise learning and exercise and their physical and mental effects on exercisers.

Qu also pointed out in their research that physical exercise attitude plays a very important role in promoting physical exercise participation behavior^[11]. Individuals with a positive physical exercise attitude have good behavioral intervention capabilities, and efficient, high-quality physical exercise can promote individuals' physical and mental health.

2.2 Exercise Behavior

2.2.1 Definition of Exercise Behavior

Physical exercise behavior is the purposeful and conscious activity carried out through scientific forms of exercise on the human body to enhance physical fitness, promote health, meet personal exercise needs. Hou studied physical exercise behavior as the purposeful and conscious use of physical exercise methods and means by humans to achieve physical exercise targets^[12]. Liu proposed that exercise behavior refers to the conscious use of various physical exercise methods and means by humans to meet certain exercise needs^[8]. Physical exercise behavior represents the specific manifestation of people engaging in sports and physical activities, reflecting sports culture directly in human behavior^[13]. It is the specific manifestation of

individuals engaging in physical exercise activities, involving beneficial physical activities that promote health within the interaction of internal motives and the environment.

This study defines the exercise behavior of college students as physical activities carried out outside of physical education classes, primarily for fitness purposes, with a certain intensity, frequency, and exercise duration.

2.2.2 Previous Research on Exercise Behavior

The field of psychology has extensively studied exercise behavior, considering behavioral and psychological activities inseparable. Researchers focus on individuals' spontaneous psychological changes during exercise to understand the relationships between exercise behavior, attitudes, and psychological activities^[9]. These studies not only deepen our understanding of the connection between human behavior and psychological activities but also provide more effective guidance and assistance for promoting healthy lifestyles.

Li suggested strategies to enhance students' exercise behavior by improving their exercise attitudes, increasing self-efficacy, and encouraging students to establish self-regulating behaviors^[14]. Additionally, individuals' preference for physical exercises can promote their exercise behavior, and preferences for physical exercises and interest in physical exercise studies influence individual exercise behavior^[15]. Some studies have shown that physical exercise helps improve individuals' emotional experience, where even engaging in moderate-intensity physical exercise can alleviate depressive moods without affecting recovery time. Wang stated that physical behavior involves specific manifestations of individuals engaging in physical exercises and activities with a certain intensity, frequency, and exercise duration^[16]. The college years are a critical period for developing positive exercise attitudes, establishing correct physical exercise values, and forming lifelong exercise behaviors. Research indicates that psychological factors are significant influences on exercise behavior. Therefore, studying college students' exercise attitudes and exercise behavior can help alleviate psychological issues among students.

2.3 Research on the Relationship between Exercise Attitudes and Exercise Behavior of College Students

Mao suggest that exercise attitudes play a significant predictive role in students' exercise behavior, showing consistency with behavior^[17]. Chen found high consistency between physical exercise attitudes and exercise behavior in terms of physical exercise participation time, indicating enduring consistency between physical exercise attitudes and exercise behavior^[18]. Liu and Li argued that college students' exercise attitudes can effectively predict the intensity of student physical exercise participation^[4]. This may be because students with better exercise attitudes exhibit higher motivation for exercise, better cognitive perception of exercise, derive more pleasure from exercise, hence experience less fatigue during exercise and can endure higher exercise intensities.

In conclusion, exercise attitudes and exercise behavior significantly impact the effectiveness of college students' physical exercises and play a crucial role in their physical and psychological well-being.

3. Research Method

3.1 Research Subject

This study aims to explore the relationship between the attitude of Chinese college students towards physical exercise and their exercise behavior. The survey subjects are college students currently enrolled in 5 universities in Guangdong province, China. A total of 600 students were randomly selected as participants, and 600 questionnaires were distributed. After eliminating invalid questionnaires, 572 valid responses were collected, resulting in a questionnaire validity rate of 95.33%. Among the respondents, there were 319 male students (55.77%) and 253 female students (44.23%); 282 (49.30%) Physical Education (PE) major and 290 (50.70%) Non-PE major, 139 freshmen (24.30%), 137 sophomores (23.95%), 153 juniors (26.75%), and 143 seniors (25.0%) were included in the study, 278 (48.60%) are from urban areas and 294 (51.40%) are from rural areas; Demographic variables are shown in the results of the population statistics in Table 1.

Table 1. The Statistical Table of Demographic Variables (N=572)

Demographic variables	Type	Quantity (N)	Percentage (%)
Gender	Male	319	55.77
	Female	253	44.23
Major	PE major	282	49.30
	Non-PE major	290	50.70
Grade level	Freshman	139	24.30
	Sophomore	137	23.95
	Junior	153	26.75
	Senior	143	25.0
Place of origin	Urban	278	48.60
	Rural	294	51.40

3.2 Research Tools

3.2.1 Scale for Physical Exercise Attitude

The exercise attitude scale used in this study is based on the exercise attitude scale compiled by Mao^[17]. It is formulated by combining the current mindset changes and ideas of college students regarding physical exercise. The questionnaire consists of 20 items, including 4 dimensions: cognitive perception (5 items), emotional experience (5 items), behavioral intention (5 items), and target value (5 items). The scale is based on a 5-point system, where responses from "1-5" represent "completely inconsistent," "inconsistent," "relatively consistent," "consistent," and "completely consistent." The higher the score, the stronger

the college students' physical exercise attitude. After two rounds of pre-surveys, the questionnaire's reliability was tested, and the reliability of the exercise attitude scale for this study was .977, indicating that the scale has good reliability and validity.

3.2.2 Exercise Behavior Scale

The survey questionnaire for exercise behavior adopts the physical exercise level scale developed by Liang^[19], which is suitable for adolescent students and widely used by Chinese scholars to measure the exercise behavior of Chinese college students. The survey assesses exercise intensity, exercise duration, and exercise frequency. Each item is rated on a Likert scale of 5 points, with higher scores indicating higher exercise behavior. Through

the pre-test of the questionnaire, the overall reliability of the exercise behavior scale in this study was .963, indicating high reliability and

demonstrating good validity of the questionnaire. The results are shown in Table 2.

Table 2. Reliability Coefficients for the Exercise Attitude and Exercise Behavior Scales

Scale	Variables	N	Cronbach's Alpha
Exercise Attitude Scale	Cognitive perception	5	.972
	Emotional experience	5	.971
	Behavioral intention	5	.977
	Target value	5	.977
	Overall Exercise Attitudes	20	.969
Exercise Behavior Scale		3	.973

3.3 Research Process

3.3.1 Information Collection Stage

The specific implementation plan of this study includes literature review, questionnaire survey, data organization and analysis of questionnaires, conclusion, and recommendations. In the literature review stage, research on the emotional labor, psychological resilience, and occupational burnout of university teachers was conducted through professional academic websites such as Google Scholar, Riss, ARIC, and other websites for the collection, organization, and study of relevant literature.

3.3.2 Research and Implementation Stage

Firstly, based on previous mature theories and scales and in conjunction with the research objectives of this study, the target population was determined through discussions with an expert team. Research tools for emotional labor, occupational burnout, and psychological resilience of university teachers were developed. Pre-testing of the scales was carried out, analyzing the reliability and validity of the research tools used, developing suitable research tools for this study, establishing the research model, and formulating research hypotheses. Secondly, the survey questionnaires were officially distributed. The data collection on emotional labor, occupational burnout, and psychological resilience of university teachers took place from 8 date to 15 date in month April of 2024.

3.3.3 Results Analysis Stage

Data analysis and validation of research hypotheses were conducted. The collected data were statistically analyzed using SPSS 25.0, leading to valuable research conclusions and reasonable recommendations.

3.4 Statistical Methods

In this study, SPSS 25.0 statistical software was

used to analyze 572 questionnaire responses. Descriptive analysis, independent sample t-tests, and one-way ANOVA were employed to compare differences in attitudes and behaviors towards physical exercise among different genders, majors, grade levels, and places of origin. Pearson correlation analysis was used to explore the relationship between college students' physical exercise attitudes and their exercise behaviors. Regression analysis was used to investigate whether college students' physical exercise attitudes help predict their exercise behaviors.

4. Research Results

4.1 Analysis of the Current Situation of College Students' Attitudes and Behaviors towards Physical Exercise

By using descriptive statistical analysis, the overall situation of employment pressure and career anxiety among Chinese normal college graduates was analyzed. The results are shown in Table 3.

From Table 3, it can be seen that the average score of overall exercise attitude is 3.14, which is at a medium to upper level, indicating that the current college students have a relatively strong physical exercise attitude. Among the four dimensions of exercise attitude, the average score of emotional experience is the highest at 3.20, above the average level, indicating that college students' performance in emotional experience dimension of exercise attitude is relatively significant, while the average score for cognitive perception is the lowest at 3.08, and the average scores for behavior consciousness and target value are 3.11 and 3.17 respectively. The average value of college students' exercise behavior is 3.17, indicating that the intensity and frequency of exercise are relatively high among college students. The data

shows that the skewness values (Ssk) of exercise attitudes and their dimensions are within 3, and the kurtosis values are within 3, indicating a normal distribution of the data. The skewness value (Ssk) of exercise behavior is -.288, the kurtosis value is -1.298, and both absolute

values are within 3. Lei and Lomax pointed out that if the absolute value of skewness is less than 3.0 and the absolute value of kurtosis is less than 10.00, it indicates that the data conforms to a normal distribution, suggesting that this data follows a normal distribution^[20].

Table 3. Descriptive Statistics of the Overall Status of College Students' Physical Exercise Attitudes and Exercise Behavior (N=572)

Dimension	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>	<i>Ssk</i>	<i>Sku</i>
Cognitive perception	1.00	5.00	3.08	1.28	-.139	-1.376
Emotional experience	1.00	5.00	3.20	1.23	-.332	-1.101
Behavioral intention	1.00	5.00	3.11	1.22	-.208	-1.174
Target value	1.00	5.00	3.17	1.23	-.413	-1.078
Overall Exercise Attitudes	1.00	5.00	3.14	1.09	-.293	-.951
Exercise Behavior	1.00	5.00	3.17	1.31	-.288	-1.298

4.2 Analysis of the Differences in College Students' Attitudes and Behaviors towards Physical Exercise Based on Demographic Variables

4.2.1 Analysis of differences in college students' physical exercise attitudes on demographic variables

This study used *t*-tests and ANOVA single-factor variance analysis to compare the differences in college students' physical exercise attitudes, occupational identity, and their various dimensions among different genders, majors, grade levels, and places of origin. The detailed research results are shown in Table 4.

Firstly, in terms of gender variables, *t*-tests were used to compare the differences in college students' physical exercise attitudes based on gender. The results revealed significant differences between genders in overall exercise attitude and in the dimensions of cognitive perception, emotional experience, behavioral intention, and target value ($p < .001$). Male college students scored higher on average in overall exercise attitude and the four dimensions mentioned above than female college students, indicating that male college students have significantly higher levels of physical exercise attitude than female college students.

Secondly, in terms of majors, this study compared the differences in physical exercise attitudes between students majoring in PE and those in non-PE majors. The results showed that students majoring in PE scored significantly higher on average in overall exercise attitude

and in the dimensions of cognitive perception, emotional experience, behavioral intention, and target value compared to students in non-PE majors, indicating that students majoring in PE have higher physical exercise attitudes than non-PE major students.

Thirdly, in terms of grade levels, ANOVA analysis was used to compare the differences in college students' physical exercise attitudes. The results indicated significant differences among students in different grade levels in exercise attitude and its dimensions of cognitive perception, emotional experience, behavioral intention, and target value. Scheffé test results showed that freshmen scored the highest on average in exercise attitude and its dimensions, followed by juniors and sophomores, while seniors scored the lowest. This suggests that lower-grade college students have stronger physical exercise attitudes compared to higher-grade students.

Fourthly, *t*-tests were used to compare the differences in physical exercise among students from different places of origin. The results showed significant differences in overall physical exercise attitude and its dimensions of cognitive perception, emotional experience, behavioral intention, and target value among students from different places of origin. Students from rural areas scored higher on average in overall physical exercise attitude and its dimensions compared to students from urban areas, indicating that students from rural areas have higher overall and dimensional physical exercise attitudes than students from urban areas.

Table 4. The Comparative Analysis of the Differences in Physical Exercise Attitudes Among Normal University Students with Different Demographic Variables ($M \pm SD$)

Variables	Level	Cognitive perception	Emotional experience	Behavioral intention	Target value	Exercise Attitudes
Gender	Female (N=253)	3.25 ± 1.24	3.36 ± 1.19	3.29 ± 1.19	3.37 ± 1.18	3.32 ± 1.03
	Male (N=319)	2.87 ± 1.29	2.98 ± 1.25	2.89 ± 1.23	2.92 ± 1.26	2.91 ± 1.26
	<i>t</i>	3.576***	3.684**	3.954***	4.376***	4.429***
Major	PE major (N=282)	3.23 ± 1.33	3.35 ± 1.32	3.26 ± 1.27	3.31 ± 1.27	3.29 ± 1.16
	Non-PE major (N=290)	2.93 ± 1.21	3.04 ± 1.12	2.97 ± 1.16	3.03 ± 1.18	2.99 ± 1.00
	<i>t</i>	2.760***	3.018**	2.901***	2.780***	3.269***
Grade level	Freshman (N=139)	3.36 ± 1.15	3.45 ± 1.13	3.30 ± 1.14	3.37 ± 1.13	3.37 ± .96
	Sophomore (N=137)	3.33 ± 1.22	3.35 ± 1.15	3.37 ± 1.15	3.36 ± 1.16	3.35 ± 1.04
	Junior (N=153)	2.92 ± 1.29	3.02 ± 1.29	2.98 ± 1.24	3.02 ± 1.27	2.99 ± 1.12
	Senior (N=143)	2.74 ± 1.34	2.97 ± 1.27	2.81 ± 1.28	2.95 ± 1.30	2.87 ± 1.13
	<i>F</i>	8.402***	5.403**	6.823***	4.779***	8.110***
	<i>Scheffé</i>	1,2>4	1>4	1,2>4	1,2>4	1,2>4
Place of origin	Urban (N=278)	2.94 ± 1.27	3.04 ± 1.22	3.00 ± 1.22	3.03 ± 1.22	3.00 ± 1.07
	Rural (N=294)	3.21 ± 1.27	3.33 ± 1.22	3.21 ± 1.21	3.30 ± 1.23	3.26 ± 1.09
	<i>t</i>	-2.609**	-2.770**	-2.062*	-2.616**	-2.871**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

4.2.2 Analysis of differences in college students' exercise behavior on demographic variables

The study used t-tests and ANOVA analysis to explore the variations in students' exercise behavior, occupational identity, and its dimensions based on gender, major, grade level, and place of origin. Detailed research results are shown in Table 5.

Firstly, in terms of gender, a t-test was used to compare the differences in physical exercise behavior among different genders. Results indicated a significant difference in physical exercise behavior between male and female college students ($p < .05$). Male students showed significantly higher engagement in physical exercise compared to female students, suggesting that male students are more proactive in exercising.

Secondly, in terms of major, this study compared the exercise behaviors of students majoring in PE with those in non-PE majors. The results revealed a significantly higher average score in exercise behavior among PE majors compared to non-PE majors ($p < .05$), indicating that students majoring in PE are more

active in exercising.

Table 5. The Comparative Analysis of the Differences in Exercise Behavior Among Normal University Students with Different Demographic Variables ($M \pm SD$)

Variables	Level	Exercise behavior
Gender	Female (N=253)	3.28 ± 1.28
	Male (N=319)	3.03 ± 1.34
	<i>t</i>	2.223*
Major	PE major (N=282)	3.30 ± 1.40
	Non-PE major (N=290)	3.04 ± 1.21
	<i>t</i>	2.374*
Grade level	Freshman (N=139)	3.31 ± 1.22
	Sophomore (N=137)	3.48 ± 1.22
	Junior (N=153)	3.02 ± 1.32
	Senior (N=143)	2.90 ± 1.41
	<i>F (Scheffé)</i>	5.956** (1>4)
Place of origin	Urban (N=278)	3.04 ± 1.322

	Rural (N=294)	3.30 ± 1.30
	<i>t</i>	-2.398*
<i>Note.</i> * $p < .05$, ** $p < .01$, *** $p < .001$		

Thirdly, in terms of grade level, an ANOVA analysis was used to compare differences in students' exercise behavior. The results showed significant differences in exercise behavior among students in different grade levels. Scheffé test indicated that freshmen had the highest average score in exercise behavior, significantly higher than seniors; sophomores ranked next, while seniors had the lowest average score in exercise behavior.

Lastly, in terms of places of origin, a t-test was used to compare the differences in exercise behavior among students from different origins. The results demonstrated significant differences in exercise behavior among students from different places of origin ($p < .05$), with rural students scoring significantly higher in exercise behavior than urban students, indicating that rural students are more enthusiastic about exercising than their urban counterparts.

4.3 Correlation Analysis of College Students' Physical Exercise Attitude and Exercise Behavior

This study used correlation analysis to analyze the relationship between college students' physical exercise and exercise behavior. The results, as shown in Table 6, indicate a significant positive correlation between college students' physical exercise attitudes and their exercise behavior ($r = .618$, $p < .01$). The more positive the physical exercise attitude, the more proactive the exercise behavior, with higher intensity, duration, and frequency of exercise. The study also found that there is a significant positive correlation ($p < .01$) between the various dimensions of physical exercise attitudes and exercise behavior, indicating a close relationship between cognitive perceptions, emotional experiences, behavioral intentions, and target values related to exercise behavior. The higher the cognitive perceptions, emotional experiences, behavioral intentions, and target values, the stronger the exercise behavior. Conversely, the positivity of exercise behavior will decrease.

Table 6. Correlation Analysis of Physical Exercise Attitude and Exercise Behavior of College Students

	1	2	3	4	5	6
1. Cognitive perception	1					
2. Emotional experience	.645**	1				
3. Behavioral intention	.714**	.679**	1			
3. Target value	.688**	.697**	.738**	1		
4. Overall exercise attitudes	.871**	.860**	.891**	.889**	1	
6. Exercise behaviors	.584**	.515**	.546**	.523**	.618**	1

Note. ** $p < .01$

4.4 Regression Analysis of College Students' Physical Exercise Attitude and Exercise Behavior

This study takes the cognitive perception, emotional experience, behavioral intention, and target value in college students' physical exercise attitudes as independent variables, and the exercise behavior of college students as the dependent variable. The study uses multicollinearity and regression analysis to test the predictive effect of college students' physical exercise attitudes on exercise behavior, and the results are shown in Table 7 and Figure 1.

Looking at the multicollinearity results in Table 7, the VIF values of the four dimensions of college students' physical exercise attitudes -

cognitive perception, emotional experience, behavioral intention, and target value - are 2.410, 2.296, 2.839, and 2.775 respectively. The VIF values of each dimension are all less than 5, indicating that there is no multicollinearity issue between the dimensions.

The regression analysis reveals that all four dimensions of physical exercise attitude significantly positively predict college students' exercise behavior. Cognitive perception positively predicts exercise behavior, with an adjusted R^2 of .339 after quadratic regression analysis, explaining 33.9% of the variance in the dependent variable. Emotional experience also significantly positively predicts exercise behavior, with an adjusted R^2 of .263, explaining 26.3% of the variance. Behavioral intention positively predicts exercise behavior

as well, with an adjusted R^2 of .296, explaining 29.6% of the variance. Target value positively predicts exercise behavior, with an adjusted R^2 of .272, explaining 27.2% of the variance.

As shown in Figure 1, the linear plot shows that X=cognitive perception, X=emotional experience, X=behavioral intention, and X=target value have a linear relationship on

college students' Y=exercise behavior.

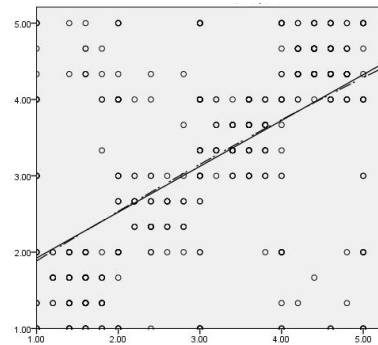
The results of the curvilinear regression of the four dimensions indicated that the higher the scores of X=cognitive perception, X=emotional experience, X=behavioral intentions, and X=target values, the more positive Y=exercise behaviors of college students. Conversely, college students' Y=exercise behavior decreases.

Table 7. Regression Analysis of College Students' Physical Exercise Attitude Dimensions on Exercise Behavior

	VIF	Equation	B	SE	Beta	t	R^2	Adj. R^2	F
Cognitive perception	2.410	LIN	.601	.035	.584	17.164	.341	.340	294.597***
		QUA	.698	.214	.678	3.263	.341	.339	147.201***
Emotional experience	2.296	LIN	.550	.038	.515	14.339	.265	.264	205.612***
		QUA	.668	.213	.626	3.128	.266	.263	102.841***
Behavioral intention	2.839	LIN	.586	.038	.546	15.540	.298	.296	241.502***
		QUA	.771	.212	.717	3.636	.299	.296	121.095***
Target value	2.775	LIN	.557	.038	.523	14.652	.274	.272	214.680***
		QUA	.723	.211	.679	3.423	.274	.272	107.592***

Note. *** $p < .01$

Exercise behavior

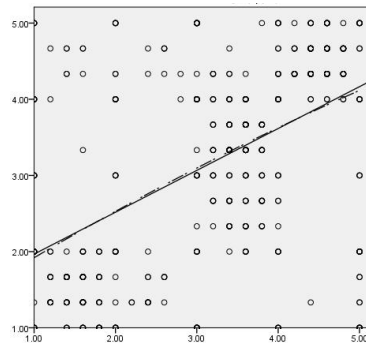


Cognitive perception

$Y = .601X + 1.322$, $Y = -.016X^2 + .698X + 1.204$

a Curvilinear regression analysis of cognitive perception on exercise behavior

Exercise behavior

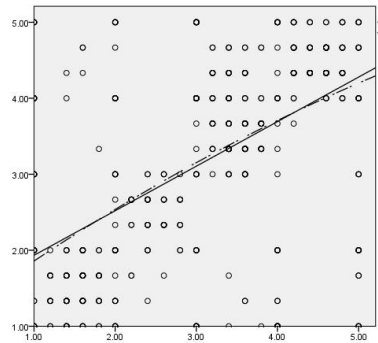


Emotional experience

$Y = .550X + 1.417$, $Y = -.020X^2 + .668X + 1.271$

b Curvilinear regression analysis of emotional experience on exercise behavior

Exercise behavior

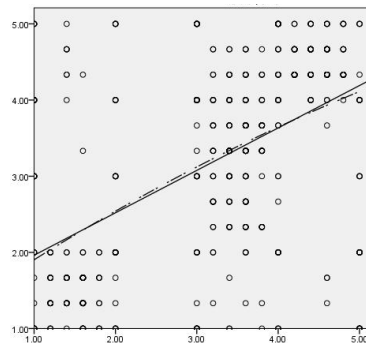


Behavioral intention

$Y = .586X + 1.347$, $Y = -.031X^2 + .771X + 1.118$

c Curvilinear regression analysis of behavioral intention on exercise behavior

Exercise behavior



Target value

$Y = .557X + 1.405$, $Y = -.029X^2 + .723X + 1.208$

d Curvilinear regression analysis of target value on exercise behavior

○ : Observed — : Linear - - - : Quadratic

Figure 1. Curvilinear Regression

5. Conclusions and Recommendations

5.1 Conclusions

5.1.1 Analysis of the current situation of college students' attitudes and behaviors towards physical exercise

Generally speaking, the average score for the overall attitude of college students towards physical exercise is 3.14, ranging from 3.0 to 3.20, at a moderately high level, indicating that the current attitudes of college students towards physical exercise are relatively strong. The average score for college students' exercise behavior is 3.17, indicating that college students have relatively high intensity and frequency in terms of exercise.

5.1.2 Demographic analysis of college students' attitudes and behaviors towards physical exercise

The research results indicate significant differences in college students' physical exercise attitudes based on gender, major, grade level, and place of origin. Male students have a stronger physical exercise attitude compared to female students; students majoring in PE have a more positive physical exercise attitude than non-PE major students; freshmen show a stronger physical exercise attitude than students in other years; students from rural areas have a higher exercise attitude than urban students.

Similarly, there are significant differences in college students' exercise behavior based on gender, major, grade level, and places of origin. Male students are more active in exercising than female students; students majoring in PE have higher exercise behavior than non-PE major students; freshmen show higher exercise behavior than students in other years; students from rural areas are more proactive in exercise behavior than urban students.

5.1.3 Study on the correlation between college students' attitudes and behaviors towards physical exercise

From the research results, it is evident that there is a significant positive correlation between college students' physical exercise attitudes and their exercise behavior and its various dimensions. The stronger the physical exercise attitude among college students, the more positive their exercise behavior will be.

5.1.4 Regression study on psychological capital and academic performance of college students

Through regression analysis, it is found that

various dimensions of college students' physical exercise attitudes can significantly predict the level of career decision anxiety and have a positive predictive effect on exercise behavior. Therefore, based on the regression analysis results, the physical exercise attitude is one of the important variables that influence college students' exercise behavior.

5.2 Suggestions

Colleges shall use effective systems and methods to help students correct their physical exercise attitudes, encouraging them to participate more through various activities. This will spark their interest in physical exercise, develop good habits of regular exercise, and allow students to experience the joy and sense of achievement that physical exercises bring. Additionally, college students shall have their own perspectives on physical exercises, cultivate the right physical exercise attitude, establish a habit of lifelong exercise, manage their time effectively for both studying and exercising, actively engage in school and community physical exercises, and enhance their physical literacy.

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