



RESEARCH ARTICLE

The Effect of Sports Health Awareness on College Students' Planned Sports Participation

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ABSTRACT

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This study aims to explore the impact of college students' sports health awareness on their planned sports participation behavior. Through questionnaire surveys and data analysis, this study collected sample data of college students from different colleges and universities to examine their cognitive level of sports health knowledge, health awareness and planned sports activities, as well as their actual participation. The results show that a high level of sports health awareness can significantly improve the willingness and frequency of college students' planned participation in sports activities. At the same time, factors such as self-efficacy, time management and social support play a moderating role in this. Specifically, students with higher sports health awareness are more inclined to make clear exercise plans and actively participate in various sports activities, which helps to form lifelong sports habits. Based on this, this study further proposed targeted suggestions such as strengthening sports health education in colleges and universities, optimizing sports plan guidance and improving sports facilities, in order to promote college students to comprehensively improve their sports participation level and physical and mental health.

INTRODUCTION

Good sports participation behavior can fundamentally improve students' awareness of sports participation, have a positive impact on students' physical fitness, and can also relieve the psychological pressure of those youth groups that are prone to change and lack effective regulation, and promote positive emotional effects. Research by Coalter, Bailey and others shows that sports can provide individuals with different cultural backgrounds with a gathering communication platform, helping them build social networks that span economic, religious, and racial aspects, thereby improving the social relationships of the group, the sense of belonging, cohesion of the team, and the competitiveness of the individual, thereby improving the overall quality and social skills of the individual, and promoting social adaptation and integration.

College sports is the final stage of school sports, and it is also the link between school sports and social sports. College sports is an important guarantee for the individual health of college students. It is also an effective means to reduce and prevent chronic diseases. It can not only improve the physical health level of college students during their school years, but also lay a solid foundation for college students' sports participation and the development of lifelong physical exercise habits after work. However, at present, college students generally have low physical fitness when participating in sports activities. College students often faint during military training, "high-risk projects" in sports competitions are gradually cancelled, and accidents in sports tests occur from time to time. College students resist and evade this, and even exemption agreements have caused public controversy. Sports tests are becoming more and more stringent, while college students' physical fitness is getting worse and worse. The "problem" in sports tests has become a "crisis", and managers and executors are confused. Primary and secondary schools do not master good sports project techniques, and it is difficult to effectively improve them in college. The small number of college students participating in sports, low quality, and irregular participation have put college sports in a dilemma, and the promotion effect of college sports on college students' physical fitness is difficult to achieve. Through

research, it is found that after entering college, the frequency of college students' participation in sports activities has significantly decreased, and their physical fitness has declined more seriously. This phenomenon has a lot to do with the diversification of the Internet and leisure and entertainment methods. With the continuous development of the Internet, various forms of entertainment such as social media, games and videos have continued to emerge, attracting more and more college students, but at the same time, they have also squeezed out the time that should have been used for exercise. Due to the gradual increase of these negative factors, the current situation of college students' participation in physical exercise is not optimistic. Therefore, how to improve the physical fitness of college students through sports participation is a very urgent task.

1.2 Overview of national policies to encourage students to participate in sports

With the development of society and the improvement of people's living standards, students' poor physical fitness and lack of exercise have received more and more attention. In particular, the fast pace and high pressure of modern society in today's era make many college students feel tired and depressed, and the proportion of college students addicted to the Internet or staying at home is increasing. In order to promote the physical and mental health of college students, China has promulgated a series of policies.

The National Medium- and Long-Term Education Reform and Development Plan was released in 2011, which clearly pointed out that it was necessary to "improve students' physical literacy and enhance their physical fitness." Similarly, the plan proposed a number of policy measures to achieve this goal, including improving the quality of physical education courses in universities, primary and secondary schools, strengthening the training and assessment of physical education teachers, and enriching after-school sports activities.

In September 2018, the Party Central Committee held a national education conference, where General Secretary Xi Jinping made an important speech and put forward his own views on this basis. General Secretary Xi Jinping has paid great attention to the healthy growth and all-round development of young students. His important speech has pointed out a new direction for the development of school sports. He pointed out that we should strive to establish an education system that can develop morality, intelligence, physical fitness, aesthetics and labor in an all-round way, so as to achieve a higher-level talent training system. We should establish the educational thought of "health first" and offer enough physical education classes so that students can enjoy fun in physical exercise, strengthen their physical fitness, improve their personality and temper their will. General Secretary Xi Jinping's important exposition on establishing a new goal of "four-in-one" school sports work has important practical significance.

In April 2021, with the goal of strengthening the "five managements", the General Office of the Ministry of Education issued the "Notice on Further Strengthening the Physical Health Management of Primary and Secondary School Students". Make full use of sports and health resources. Primary and secondary schools must strictly implement the physical education and health courses prescribed by the state, with four classes per week for grades one to two in elementary school, three classes per week for grades three to six in elementary school, and three classes per week for junior high school. In high school, two classes per week, and one physical education class per day if conditions permit, to ensure that physical education and health courses will not be squeezed out for various reasons, and that students' physical activities on campus will not be squeezed out. Ensure time for physical exercise.

In April 2022, the Ministry of Education announced the "Compulsory Education Physical Education and Health Curriculum Standards". The curriculum standard version first strengthened the guiding significance of education and teaching; third, it formulated the quality standards for students' learning; fourth, it strengthened guidance; and fifth, it strengthened the connection between learning stages.

1.3 Subjective factors in sports participation

By analyzing the factors affecting college students' sports participation, the enthusiasm of college students' sports participation can be improved. According to the attributes of the influencing factors, they can be divided into two categories: subjective and objective. When foreign scholars analyze multiple variables such as individuals, society, environment, and policies, they use behavioral

theories and models to analyze multiple variables such as individuals, society, environment, and policies (Adrian, 2012).

Individual factors that affect the sports lifestyle of college students in China include college students' sports self-efficacy and college students' sports values. College students value their own life satisfaction and care about whether sports can promote their physical and mental health and their social adaptation (Huang Meirong, Zhang Yanping, 2020).

The factors that affect college students' participation in physical exercise were analyzed, and their internal motivations (happiness, health, escape, etc.) were obtained (Alejandro, 2017). The four motivational factors for college students to participate in physical exercise were explained, and they were divided into two external influencing factors (disease prevention and fitness) and two internal influencing factors (happiness, comfort and stress control) (Ha, 2020). The definition and description of a healthy and positive behavior is a complex, multi-factorial, and depends on both internal and external factors. There are many factors that affect college students' participation in sports activities, mainly at three levels: psychological level, cognitive level and emotional level. Another survey showed that the biggest motivation for college students to participate in sports is "good for physical health" (45.8%) and "good for physical health" (32%). Girls participate in sports mainly to maintain or improve their figure. Both boys and girls pay more attention to physical health. Among those who do not participate (or do not participate) in sports, 61.5% of them said that "laziness" is the biggest reason.

A survey and analysis of the current status of physical exercise among college students in 10 universities in Guangdong University City showed that the main motivation for participating in physical exercise is to keep fit and promote health, accounting for as high as 78.29%, followed by a love of physical exercise (Li Jueze, Lu Fengping, 2021). In terms of health motivation, appearance motivation, fun motivation, ability motivation, and social motivation, girls' exercise motivation is significantly lower than that of boys. The fun motivation, ability motivation, and social motivation of college students in urban areas are better than those in cities and rural areas, but the intensity and time of exercise are lower (Liu Jingyu, Li Chenglong, 2018). The individual factors that affect young people's participation in physical exercise are: first, the concept of "schoolwork first" is deeply rooted in the hearts of college students; second, the enthusiasm for actively participating in sports activities is not high (Huang Liping, 2020).

1.4 Problem Statement

At present, there are problems such as small number of participants, low quality, and low standardization in the sports participation of college students in China, and there is a lack of relevant theoretical and empirical research. Sports health awareness has an important impact on college students' sports participation, but existing research has not been in-depth enough on the interactive relationship between college sports environment and college students' sports participation. It is of great value to use the "teaching ecology" theory to study college sports participation. This study aims to deeply explore the factors that affect college students' sports participation and provide theoretical and practical basis for solving the above problems.

1.5 Research objectives

The literature method was used to investigate the motivation factors of participating in physical exercise mentioned by students, and the factors of sports health awareness of college students participating in physical exercise were studied. The opinions and suggestions of experts were sorted out, and a relatively comprehensive index analysis was conducted. On this basis, the questionnaires issued were improved, and the results of the survey were analyzed, so as to find the main motivation of college students to participate in physical exercise, and to effectively organize and manage the work of college sports managers and relevant persons in charge of college students to participate in physical exercise, and provide a theoretical basis for the scientific and rational participation of college students.

This study analyzed the motivation of college students to participate in sports activities, and based on the actual situation of universities in China, proposed some targeted development strategies. It advocated the implementation of a new "student-centered" teaching method under the concept of "health first" and "lifelong benefits", focusing on the emotional experience and gains of college

students in participating in sports activities, improving their physical fitness, and enabling them to establish and maintain the concept and habit of lifelong sports.

At the national and individual levels, people's emphasis on health and the role of sports in promoting health have highlighted the importance of sports participation. At present, there are problems in the sports participation practice of college students in my country, such as small number of participants, low quality, low standardization, and insufficient theoretical and empirical research on promoting college students' sports participation, which urgently need to be solved. The sports environment of colleges and universities has important "protective barrier" and "promoting barrier" functions for college students' sports participation. Its inherent plasticity makes the study of the interactive relationship between college sports environment and college students' sports participation particularly important, highlighting the value of using the "teaching ecology" of the relationship between "people" and "environment" to study college sports participation.

1.6 Research Questions

The main purpose of this study is to find out the factors that affect college students' sports participation, so as to change the current situation of college students' sports participation and promote college students to develop good sports behavior literacy. Therefore, the main issue of this study is to explore the specific influencing factors of college students' sports participation and explore the relationship between the following factors and college students' sports participation.

- 1 . What is the relationship between individual factors and college students' sports participation?
- 2 . What is the relationship between exercise motivation and sports participation among college students?

1.7 Definition of concepts

1.7.1 Sports Participation

Sports participation refers to the use of sports methods and means to achieve sports goals and the behaviors and consciousness during the activities. It includes both sports exercises with sports participation as the main content and sports organization, management, publicity, and viewing activities. It reflects the investment of individuals or groups in sports consciousness, emotions, and behaviors. Sports participation is affected by one's own participation experience and external environmental conditions. The gains after sports participation reflect the quality of sports participation and are also an important indicator for evaluating sports participation. There is no consensus on the definition of the operability of sports participation in the world. There are mainly "one-dimensional theory" and "multidimensional theory". It is a multidimensional operational structure with characteristics such as important significance, pleasure value, symbolic value, risk probability, and risk consequences (Kerstetter and Kovich, 1997). According to Alport's participation structure concept, "sports participation is a core part of lifestyle" (Anthony A. Beaton et al, 2011), it covers the sports cognitive level, emotional tendency level, direct participation level and indirect participation level, and is affected and influenced by external environments such as social culture, sports policies and sports resources. It is reflected in sports actions in sports interaction - the frequency, quality and type of competition, sports rules and sports cultural exchanges. Indicators such as the frequency, form and content of sports actions, sports rules and sports cultural exchanges in sports interactions all reflect the degree of participation (G. S Kenyon, 1969). Sports participation refers to activities that use sports methods and means to achieve sports goals, including sports participation, as well as sports organization, management, publicity, and viewing activities (Liu Yimin, 1993)

Sports participation can provide participants with a variety of symbolic value connotations, including entertainment, self-expression, social identity, etc. Centrality, hedonic value, and symbolic value constitute the operational dimensions of sports participation. Based on the above operational definition of sports participation, as well as the level, quality, and type characteristics of participation, the sports participation of college students is defined as: the time and energy invested in sports activities by college students under certain school environment conditions, specifically including behavioral participation, emotional participation, and cognitive participation. The quality of participation will have an impact on the development of ability. The study of sports participation

must start from multiple aspects of sports participation itself, and use the idea of social-ecological synergy to conduct a comprehensive and systematic analysis from the aspects of environmental support for sports participation and the results and benefits after sports participation.

Sports behavior is an important manifestation of sports participation, which is closely related to the mode, method, input status, and results of sports participation. According to the concept proposed by American psychologist Woodworth that "behavior is the physiological and psychological response of organisms to external stimuli", sports behavior is defined as: through sports as a medium or channel, people's various responses to the body during exercise. Sports behavior indicators specifically include sports participation, exercise tendency and sports morality, which are influenced by sports rules and regulations, and social relationships between individuals and groups, peers or opponents. The acquisition of sports behavior is a process from intention formation to the occurrence, development, and stable maintenance of behavior, which involves individuals' cognition of the role and value of sports behavior. The habit of sports behavior reflects the individual's behavioral intention and is affected by the external environment.

1.7.2 Sports Motivation

Sports motivation is an internal psychological force that can inspire and maintain college students to participate in sports. Sports activities are inspired by students' internal motivation and determine their learning and exercise tendencies, intensity and endurance. It plays a role in orientation, initiation, adjustment, reinforcement and maintenance in physical exercise, and directly affects the effect of physical exercise.

Sports motivation is formed based on the students' personal needs for sports activities. It is also affected by external stimuli and inducements, and often appears in people's internal psychological activities in the form of intentions, wishes and requirements. Internal weak physical motivation behavior is difficult to be discovered by the outside world, but in a certain direction, this weak physical motivation behavior will cause changes in the individual's physiology, psychology and behavior. The diligence and perseverance shown by college students in sports are the external manifestations of their sports motivation .

A major point in motivation research is that motivation can be divided into internal motivation and external motivation according to its source. Classic psychological literature defines internal motivation as an inherent human tendency to pursue novelty and challenges, develop and improve one's own abilities, and be brave to explore and learn. It is closely related to individual psychological factors (such as interest, satisfaction, etc.) and is a highly autonomous type of motivation. External motivation is defined as a tendency for people to participate in an activity not out of interest but to obtain a certain result, such as to get a high score or avoid punishment (Pyan, 2020).

An important conclusion of motivation research is that motivation can be divided into internal and external motivation according to its source. Classic psychological literature defines internal motivation as a tendency of human beings to pursue novelty and challenges, develop and improve their own abilities, and dare to explore and learn. It is closely related to individual psychological factors (such as interest, satisfaction, etc.) and belongs to a highly autonomous motivation type. External motivation is defined as the tendency of people to participate in an activity not out of interest, but to obtain a certain result, such as to get a high score or avoid punishment (Pyan, 2020). In terms of the relationship between external motivation and internal motivation, one view is that external motivation and internal motivation are two extremes, contradictory and contradictory (Lepper, 2000); another view is that external motivation and internal motivation are symbiotic (Lepper, 1997).

1.7.3 Sports health awareness

Sports health awareness refers to an individual's cognition, attitude, and behavioral tendency toward the relationship between physical exercise and health. This awareness includes the understanding of the benefits of exercise on physical, mental, and social health, as well as the willingness and ability to take the initiative to engage in physical exercise to promote health (Chen & Sun, 2021).

1.8 Research significance

1.8.1 Theoretical significance

(1) Enrich and improve the relevant theories of college students' participation in sports activities. There is a close connection between sports participation and environmental support. Based on the social ecology theory that focuses on the balance and coordination of human and environmental systems and the dynamic development, the relationship between college students' sports participation and their perception of the university sports environment is analyzed and studied. This is of great significance for combining theoretical research on college students' sports participation with practice and enriching and improving theoretical research on college students' sports participation. (2) Expand the scope of college students' participation in sports. Under the current circumstances, starting from the perspectives of the venue, method, depth, breadth, role, and influencing factors of college students' sports participation, only from the perspective of sports participation, the framework system of sports participation is studied, and the environmental conditions that affect college students' sports participation, the process experience of sports participation, and the results of sports participation are organically combined. The overall study of college students' sports participation is carried out to achieve the purpose of system optimization and expand the research field of college students' sports participation.

1.8.2 Practical value

At the level of practical activities, we provide methodology and tools for participants in college sports. We attach importance to the implementation and results of the behavior of college students participating in sports. In the "cultivation of sports behavior", we educate college students on the "life sports values" and cultivate their subjectivity, so that college students' sports participation can be reasonable, standardized, and unified with purpose and regularity according to their own innate physical conditions and the environmental conditions of university sports, thereby improving the individual's physical and mental health and social adaptability.

CHAPTER 2 LITERATURE REVIEW

2.1 introduce

This chapter first introduces relevant theories, which lay the theoretical foundation for analyzing the factors affecting college students' sports participation. These theories include the theory of planned behavior, motivational tendency theory, self-determination theory, behavioral intention theory, etc. By analyzing domestic and foreign literature, a theoretical review is conducted on the influence of teacher factors, school factors, social factors, individual factors, family factors and exercise motivation on college students' sports participation. Finally, a summary is made to understand the factors affecting college students' sports participation, so that relevant policy makers can better change the current situation of college students' sports participation and improve the enthusiasm and frequency of college students' physical exercise.

2.2 Theoretical Overview

2.2.1 Behavioral Intention Theory

The term "behavioral intention" originated from the tendency of psychologists to choose specific behaviors, and to some extent, it played a role in predicting individual behavior. Fishbein (1975) and others derived the theory of rational behavior and applied it to predict certain human behaviors. He believed that behavioral intention is the possibility of a certain behavior from people's subjective consciousness. In the same year, Fishbein (1975) and others concluded that before humans perform a certain behavior, they must have their own clear intentions. This is a thinking instinct before behavioral decision-making, which can be used to predict their behavioral intentions, and the most effective prediction of behavior is behavioral intention.

Eagly and Chaiken (1992) believe that behavioral intention belongs to the category of psychology. It is a personal motivation and the subjective effort that an individual is willing to make when implementing a specific planned behavior. Engel (1995) believes that consumption intention refers to a certain subjective behavioral intention that consumers have after consumption. Woodside (1989) and others define tourism behavioral intention as the probability of tourists visiting a place within a specific time period and predict the actual choice behavior of tourists. Fishbein (1980) and others pointed out that before humans take a certain action, they will definitely be disturbed by the

factor of behavioral intention. For example, the stronger people's behavioral intention is for a certain behavior, the more obvious the behavior will be.

In terms of motivation, scholars from various countries divide motivation into multiple types according to their respective research fields. In the field of tourism, Endah (2017) and others proposed the willingness to revisit a destination and the willingness to recommend a destination. In Chen's (2001) study, tourists' behavioral intentions were divided into two types, one is the willingness to revisit and the other is the willingness to recommend. This shows that when tourists go to a new tourist destination, they go with a sense of freshness. For places they have visited before, if they go to a farther tourist destination, even if tourists are satisfied with this trip, they will not go again. In the field of consumer services, Bloulding and Kalra (1993) and others studied the consumption behavior of the actors and divided the behavioral intention into six dimensions, namely: purchase, consumption, search, purchase, repurchase and consumption. Based on the dynamic processing model of service quality, Parasuraman (1985) and others divided the behavioral intention into five dimensions, namely: behavioral conversion, willingness to pay, loyalty, internal response and external response. In terms of sports, Yang Xiaopei (2016) believes that when residents participate in leisure sports, they perceive the condition of sports venues and facilities, their own expectations, and make a comprehensive evaluation of this, including the willingness to recommend and the willingness to repeat. Zhang Liwei (2018) and others believe that behavioral intention refers to whether the individual who attempts to start or maintain sports activities under certain conditions, how much energy he is willing to spend on sports activities, and the possibility of dividing behavioral intention into two types: behavioral intention and behavioral possibility.

2.2.2 Self-determination theory

Self-determination theory is a theory that was first proposed by American psychologists Deci Edward L. and Ryan Richard M. in the 1980s to study the motivational process of people's autonomous decision-making behavior.

The theory of self-determination cognitive motivation is a relatively complete theoretical framework. It includes many types of motivation. It can observe different types of motivation dynamically and effectively evaluate learners' learning motivation, which provides a new direction for motivation research. So far, foreign language researchers in my country have not applied this theory to the language learning of Chinese English learners. Therefore, researchers can apply this theory to various fields of English learning in China.

Self-determination theory is a new type of motivation theory. It emphasizes the degree of self-determination of human behavior and regards motivation as a continuum according to the degree of self-determination. The basis of this theory is the organic dialectical meta-theory, which believes that the social environment can strengthen human internal motivation, promote the internalization of external motivation, and ensure the healthy development of human beings by supporting the satisfaction of the three basic psychological needs of autonomy, competence and relationship. Although self-determination theory has some defects, it reflects the trend of motivation research and provides a basis for the integration of many motivation theories.

According to the self-determination theory, motivation is divided into three categories: external motivation, internal motivation and amotivation. External motivation refers to the tendency of people to engage in a certain behavior not because they are interested in a certain behavior itself, but to obtain a separable result. For example, to get high scores or avoid punishment. Intrinsic motivation is a natural tendency of people to seek new things and challenges, develop and exercise their own abilities, dare to explore and learn, and is closely related to personal internal factors such as interest and satisfaction. Amotivation lacks self-determination. It is characterized by the fact that individuals cannot realize the relationship between their actions and their results, are not interested in ongoing activities, and cannot ensure the correctness of their actions through external or internal norms. Amotivated exercisers feel that their exercise is meaningless and a waste of time, or feel that they are incapable of doing well, or have no desire to succeed. As long as the root of the problem is found, it is not difficult to increase the level of participation in sports exercise. On the other hand, sports are also affected by the environment and society, but more psychologically.

At the beginning of the 21st century, the theory of self-determination was widely promoted in China. In the early stage of the development of the theory, some domestic scholars focused on the research, discussion and study of the concept of "self-determination", and explained and popularized it; however, some researchers also explored the theoretical knowledge in practice, and developed rapidly in the process, making it widely used in many fields such as "psychology, education, medicine, sports", etc.

Wang Liqin (2014) used the motivation scale under the guidance of self-determination theory in sports teaching and believed that the "self-determination" theory is the fastest-developing "self-determination" theory in the new cognitive theory and is quite different from other theories; however, many problems still arise in the development of self-determination theory. For example, although the name of the scale is the same, in the process of use, due to the deviation of the targeted population and region, some errors will occur in the process of interpretation and translation of the scale. Therefore, in the process of using the scale, more attention should be paid to the areas that are suitable for the Chinese population and a reasonable selection of the scale should be made.

Zhu Jiao and Yin Xiaochuan (2017) proposed a new research idea of "ability needs → relationship needs → ability needs → independence needs". The model of the influence of three dimensions of physical education teachers, parents and partners on adolescent sports behavior was fitted. The results showed that the sense of sports autonomy support provided by physical education teachers, parents and peers had a significant impact on adolescent sports activities. In sports, the autonomy of important others had no significant effect on sports behavior.

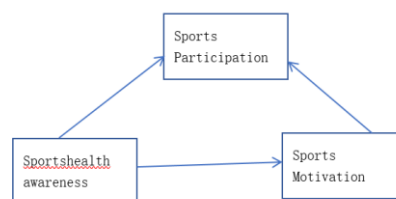
Yu Bo and Jing Wen (2019) found that the sports performance of college students in Jinan University was poor, and there were obvious differences in gender, major, grade, etc. Male students had significantly higher sports motivation than female students. As the grade increases, the intrinsic motivation will also increase. The intrinsic and extrinsic motivation of college students majoring in sports are higher than that of ordinary college students. The time and intensity of training are closely related to the motivation for training, and the frequency of training is closely related to the external motivation for training.

In summary, through the analysis of the current status of domestic research on the theory, self-determination theory has been widely used in various fields since its development. In my country's education, the theory's relatively complete motivational theory framework has been fully demonstrated, and the characteristics and differences of individual motivation can effectively evaluate the learning motivation of participants. In the field of sports, the focus of research is on the understanding of the theory. With the continuous deepening of research, self-determination theory has made relatively new developments in different periods of various industries, especially in education, teaching and management. It provides managers with many reasonable and effective methods. However, the accuracy, completeness and advancement of this theory need to be further verified.

CHAPTER 3 RESEARCH METHODS

This study aims to explore the influencing factors of college students' sports participation. It mainly includes the variables and research framework involved in the study, the research methods, the design principles of the initial measurement scale and the source of the items, and interprets the paper by testing the reliability and validity of the initial measurement data

3.1 Conceptual framework



3.2 Hypothesis and model building

3.2.1 The relationship between individual factors and sports participation

Among the many factors that affect college students' sports participation, most scholars say that personal factors are the most influential factors (Zhang Xuehan, Zhu Xuewen, 2020; Meng Yandi, Hai Bing, 2022). Among the personal influencing factors, some scholars believe that gender and age will also affect college students' sports participation. It is generally believed that male sports participation is higher than female (Pang Minhui, Wang Haiqing, 2016; Lu, 2017; Fan Huiying, 2020). In addition, some scholars believe that subjective exercise identification is significantly positively correlated with exercise investment (Tang Lei, Zhang Sha, 2022), and exercise awareness has a positive and significant impact on students' physical exercise participation (Hu Penghui, Yu Fuqiang, 2019; Ma Lijun, Liang Lizhen, 2023). Based on this, this paper proposes the following hypothesis:

H₁: Sports health awareness has a negative impact on sports participation

3.2.2 Relationship between exercise motivation and sports participation

There is a significant positive correlation between college students' physical exercise motivation and physical exercise behavior, indicating that college students with high physical exercise motivation tend to engage in more physical exercise behavior. Strong physical exercise motivation will produce more psychological motivation and intention for exercise, and then produce more physical exercise behavior (Xu Naiyuan, 2021). Both internal and external motivations for physical exercise have the effect of promoting physical exercise among college students, but the scope and intensity of internal motivation are greater. When the internal motivation of college students' physical exercise reaches a high intensity, the effect of external motivation is no longer obvious (Alejandro, 2018; Chen Shanping, Song Di, et al., 2023). Based on this, this paper proposes the following hypothesis:

H₂: Exercise motivation has a positive impact on sports participation

3.2.3 The relationship between individual factors and exercise motivation

At the individual factor level, some scholars believe that personality traits will have a certain impact on exercise motivation (Xing Naiyu, Liu Xuan, 2021). In addition, some scholars have proposed that men and women have different exercise motivations (Fan Huiying, 2020). By referring to the evidence provided by other researchers, hypothesis H₃ is proposed.

H₃: There is a certain relationship between sports health awareness factors and college students' exercise motivation.

3.2.4 The mediating role of exercise motivation

Based on the study of the relationship between individual factors and exercise motivation in Chapter 2, this study hypothesizes that college students' sports health awareness plays a mediating role in college students' sports participation. The following sub-hypotheses are expressed respectively:

H₄: Exercise motivation plays a mediating role between individual factors and college students' sports participation.

H₅: Sports health awareness plays a mediating role between exercise motivation and sports participation among college students.

3.3 RESEARCH METHODS

3.3.1 Documentation Method

This study consulted relevant literature on sports and teaching through academic websites such as China National Knowledge Infrastructure and Wanfang, as well as school and city libraries. It also searched the Web of Science academic website and retrieved many documents on student sports participation. The literature research involved data analysis and regression model construction, which provided a sufficient theoretical basis for the development of this study.

3.3.2 Questionnaire survey method

(1) Selection of survey subjects

This study selected college students from five universities in Chengdu for investigation, namely Chengdu Textile College, Chengdu Aviation Vocational and Technical College, Chengdu Vocational and Technical College, and Chengdu Electric Power Vocational and Technical College.

Sichuan Water Conservancy Vocational and Technical College used stratified random sampling to distribute questionnaires to college students in these five schools . Before the survey began, the physical education teaching and research departments of each university were consulted to learn about the physical education course schedule for each grade. Three physical education classes were randomly selected from the freshman, sophomore, and junior years of each university (that is, a total of 9 classes were selected from each university) to distribute questionnaires to students.

(2) Research tools

According to the theoretical framework, through the study of the motivation and characteristics of college students' sports participation, the content of the questionnaire was investigated, and the "College Students' Sports Participation Questionnaire" was preliminarily studied. The questionnaire content mainly includes the basic information of the surveyed students and the multiple factor scales of college students' participation in physical exercise. The scale adopts Likert's five levels, namely "strongly disagree", "disagree", "average", "agree" and "completely agree". The respondents are asked to answer questions at the corresponding level according to the degree of influence of different motivations on themselves, and finally give the corresponding score. The higher the score, the stronger the motivation, and vice versa, the weaker it is. Therefore, college students need to fill in a questionnaire based on their actual situation.

(3) Questionnaire survey process

This study adopted a random sampling method to distribute questionnaires on-site and online. During the survey, a total of 1,865 questionnaires were distributed, 1,847 questionnaires were collected, and 55 invalid questionnaires were eliminated. A total of 1,752 valid questionnaires were collected, with an effective recovery rate of 96.1%.

3.3.3 Mathematical Statistics

This study used SPSS24.0 statistical software, Excel2 020 and AMOS24.0 tools to organize and statistically analyze the valid data of each scale .

(1) Descriptive statistical analysis

Descriptive statistics of frequency and percentage are used to provide basic information about the overall sample, such as gender, grade, major, and college , and the mean is used to rank and distinguish the importance of each indicator.

(2) Correlation analysis

This study uses the Pearson correlation coefficient to determine the correlation between the independent variable and the dependent variable and the various factors of the intermediate variable .

3.4 Scale design and development

1. A high-quality scale can ensure the accuracy of data collection and is also an important part of the questionnaire survey. To establish a high-quality scale that is consistent with the content of this study, the following procedures should be strictly followed.

(1) Based on specific research questions, research objects, research content, and research objectives, we use methods such as literature review, qualitative research, and expert consultation to identify factors that affect college students' sports participation.

(2) Based on the literature and interview data with residents, the various factors that affect college students' participation in sports were analyzed, a corresponding theoretical model was established, and corresponding hypotheses were proposed.

(3) On this basis, we refer to relevant maturity scales at home and abroad and localize them. In the absence of a maturity scale for reference, we compile a preliminary scale of influencing factors of college students' sports participation.

(4) The preliminary survey intends to collect data through on-site surveys and online questionnaires, and conduct reliability and validity tests on the initial scale.

(5) On this basis, the existing scale is modified and repeatedly verified until a formal research scale is formed.

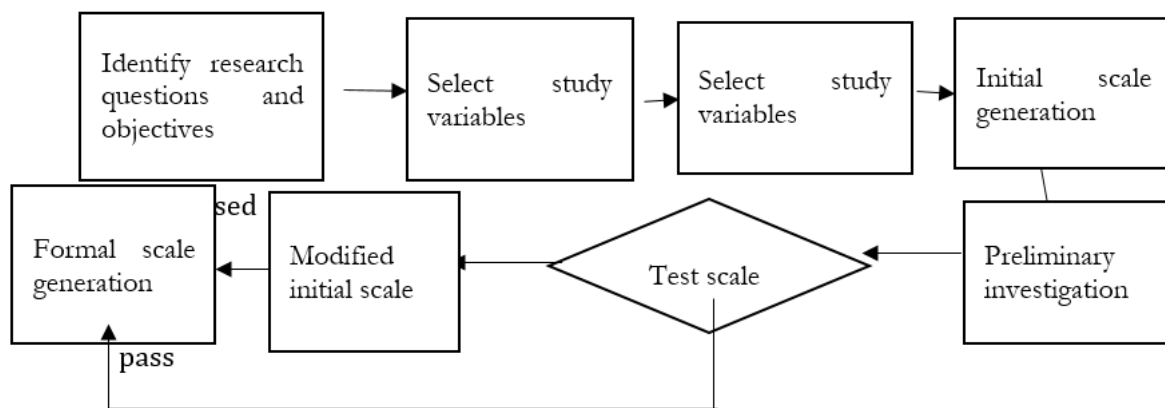


Figure 3-1 Scale development steps

2. The main sources of questionnaire items are: (1) A survey of college students' sports participation, exercise motivation, sports motivation and obstacles. (2) Face-to-face interviews were conducted with multiple college students who participated in physical exercise using the interview method, and students' answers were accurately recorded for future data collection. (3) Referring to the scales used in previous studies and combining them with the characteristics of physical exercise, a questionnaire survey on factors affecting college students' physical exercise participation was completed.

Through literature review and interviews, the initial test questionnaire was compiled. The sources of the items are summarized in Table 3-1.

Table 3- 1 Source of items in the initial questionnaire

Study Variables	factor	Corresponding item	Reference scale
Individual factors	Exercise awareness	QA1 , QA2 , QA3	Sabiston (2019) ^[62] ; Lin D. J. (2018) ^[149] ; Zhang Wentao (2022) ^[147] ; Liu Yao (2023); Partially developed
	Athletic ability	QA4 , QA5 , QA6	
	Sports Specialties	QA7 , QA8 , QA9	
	Personality and characteristics	Q A 10 , Q A 11 , Q A 12	
Exercise Motivation	healthy	Q B 1 , Q B 2 , Q B 3	Alejandro (2018) ^[83] ; Chen Shanping (2023) ^[71] ; Song Mengke (2022) ^[148] ; Liu Yao (2023) ^[146] ; Partially developed
	interest	Q B 4 , Q B 5 , Q B 6	
	social contact	Q B 7 , Q B 8 , Q B 9 Q B 10 , Q B 11 , Q B 12	

3.5 Reliability test

Reliability test is also called reliability test. There are mainly the following analysis methods: α coefficient method, test-retest reliability method, split-half reliability method and duplicate reliability method. This study adopted the Cronbach's α coefficient method, which is the most widely used in Likert scale, to test the reliability of the measurement results. The closer the Cronbach's α coefficient value is to 1, the higher the internal reliability level of the scale. Generally speaking, in the formal scale test, when Cronbach's α coefficient is greater than 0.7, it means that its reliability is the best, but for the pre-test scale, when Cronbach's α coefficient is greater than 0.5, its reliability is acceptable (Henson, 2001). This paper discusses the influencing factors from six aspects: teacher factors, school factors, social factors, individual factors, family factors, and motivation factors, and

conducts reliability analysis on the variables of these six dimensions respectively. The reliability test results of each variable of the initial scale of this study are shown in Table 3-2. It can be seen that the reliability test indicators of each subscale have reached an acceptable level, and the reliability level of some scales is good.

Table 3-2 Reliability of various scales for college students' physical exercise participation

Variable Dimensions	Individual factors	Family factors	Motivational factors
N	384	384	384
Cronbach ' α	0.901	0.745	0.896

3.6 Validity Test

Content validity test, criterion validity test, structural validity test, etc. are commonly used validity test methods. The scale developed by this research institute is based on the mature scales at home and abroad, and is based on extensive and in-depth interviews with college students. It has been process-controlled by several experts and scholars, so it can be said that this scale has relatively ideal content validity. In addition, the exploratory factor analysis method will be used to verify the construct validity of the initial questionnaire.

This study uses KMO and Bartlett sphericity to test and ensure the accuracy of the survey results. KMO represents the correlation between variables. The value range of KMO is 0~1:>0.9, indicating that the analysis results are very good; in the range of 0.8 to 0.9, the analysis results are good; in the range of 0.7-0.8, the effect is good; the results show that in the range of 0.5-0.6, the effect is weak; if it is less than 0.5, it means that the effectiveness of the method does not meet the requirements, and the index variables need to be redesigned. Bartlett sphericity is mainly used to judge whether the data between the sorted effective variables are correlated. If the Sig value is not obvious, it means that the indicator variables in the scale are independent of each other and are not suitable for factor analysis.

This study used principal component analysis to analyze the initial scale of factors affecting college students' sports participation, taking the standard eigenvalue greater than 1 as the extraction standard and using the variance maximization orthogonal rotation method.

Table 3-3 Questionnaire scale KMO and Bartlett's sphericity test

	KMO value	Approximate Chi-Square	df	Sig .
Individual factors	0.879	1567.217	89	0.000
Motivational factors	0.901	1109.456	115	0.000

From the data in the above table, we can see that the KMO values of each factor are greater than 0.8, and the Bartlett sphericity test results of each scale are all significant 0.000 . This shows that there is a significant correlation between the scales, and the verification results show that it is suitable for factor analysis. In addition, when designing the questionnaire and selecting the influencing factor indicators, this project referred to a lot of research literature, and repeatedly deliberated when designing the questions to ensure that the questions involved can measure the influencing factors of sports participation and are scientific in terms of content depth and breadth. In addition, during the questionnaire answering process, the respondents filled in the questionnaire in a good condition, so the validity of the questionnaire is good.

Exploratory factor analysis of personal factors

The four indicator variables of personal factors, namely, exercise awareness, athletic ability, sports expertise, and personality traits, a total of 12 items were subjected to exploratory factor analysis. The results are shown in Tables 3-4, 3-5.

Table 3- 4 The total variance explained by the personal factor variables

		1	2	3	4
Initial eigenvalues	total	5.124	1.843	1.202	1.011
	variance%	42.732	16.012	10.021	8.557
	Grand total%	42.732	58.744	68.765	77.322
Extract Sum of Squares Load	total	5.136	1.869	1.203	1.012
	variance%	43.732	16.015	10.031	8.775
	Grand total%	43.732	59.747	69.778	78.553
Rotating platform and loading	total	2.861	2.147	2.046	1.692
	variance%	25.632	19.257	17.861	16.422
	Grand total%	25.632	44.889	62.75	79.172

As shown in Table 3-4 above, a total of 4 common factors were extracted, which is consistent with the scale design of this paper. At the same time, the total variance explanation rate of the 4 common factors reached 79.172%, and the overall explanation rate reached an acceptable level.

Table 3- 5 Orthogonal rotation component matrix of initial items of personal factors

Question	Element			
	1	2	3	4
Q A 1	0.863			
Q A 11	0.845			
Q A 12	0.801			
Q A 4		0.870		
Q A 5		0.839		
Q A		0.772		
Q A 3			0.832	
Q A 2			0.821	
Q 7			0.702	
Q A				0.782
Q A 9				0.691
Q A 10				0.679

The factor loading results in Table 3-5 show that the 12 items of personal factors are well distributed in the four principal components, and the factor loadings of all items are more than 0.5. Therefore, the operation perception measurement scale has good validity. Therefore, the attitude, subjective norm and perceived behavior control scale design has high validity.

Exploratory Factor Analysis of Motivational Factors

An exploratory factor analysis was conducted on the four indicator variables of motivational factors, namely health, athletic ability, sports expertise, and personality traits, a total of 12 items. The results are shown in Tables 3-6 and 3-7.

Table 3- 6 Motivational factors explained total variance

		1	2	3	4
Initial eigenvalues	total	3.553	1.435	1.304	1.265
	variance%	32.450	15.911	10.542	7.895
	Grand total%	32.45	48.361	60.903	68.798
Extract Sum of Squares Load	total	4.057	1.756	1.415	1.273
	variance%	39.425	15.132	11.025	9.345
	Grand total%	39.425	54.557	65.582	74.927
Rotating platform and loading	total	3.214	2.132	1.978	1.954
	variance%	34.096	20.132	10.144	9.572
	Grand total%	34.096	54.228	64.372	73.944

As shown in Tables 3-6 above , a total of 3 common factors were extracted, which is consistent with the scale design of this article. At the same time, the total variance explanation rate of the 3 common factors reached 73.944%, and the overall explanation rate reached an acceptable level.

Table 3- 7 Orthogonal rotation component matrix of initial items of motivation factors

Question	Element			
	1	2	3	4
Q B 1	0.833			
Q B	0.826			
Q B 10	0.796			
Q B 4		0.864		
Q B 11		0.792		
Q B 12		0.776		
Q B			0.859	
Q B			0.845	
Q B			0.597	
Q B 2				0.832
Q B				0.827
Q B				0.680

The factor loading results in Table 3-7 show that the items of motivation factors 1 and 2 are well distributed in the four principal components, and the factor loadings of all items are more than 0.5. Therefore, the operation perception measurement scale has good validity . Therefore, the attitude, subjective norm and perceived behavior control scale design has high validity.

CHAPTER 4 CONCLUSION

This study focuses on college students' sports participation. It uses a variety of research methods to deeply analyze the factors that affect college students' sports participation. Combined with behavioral intention theory , the following core conclusions are drawn:

Various factors have significant and diverse impacts on college students' sports participation . Individual factors are the key internal factors affecting college students' sports participation. Personal exercise awareness, athletic ability, sports expertise and personality traits play an important role in sports participation. Students with strong exercise awareness, higher athletic ability and sports expertise tend to participate in sports activities more actively; students with cheerful personalities and a love of sociability are also more inclined to participate in team sports.

Exercise motivation plays a mediating role in sports participation , and exercise motivation plays a mediating role between individual factors and sports health awareness factors and college students' sports participation. Individual characteristics and needs affect exercise motivation, which in turn affects sports participation. For example, students who love sports have stronger exercise motivation, participate in sports activities more frequently, and have higher sports participation. This shows that sports health awareness factors affect college students' sports participation behavior by affecting exercise motivation.

situation of college students' sports participation needs to be improved and there are differences . The current situation of college students' sports participation is not optimistic. The frequency and duration of participation are generally low, and the participation events are more concentrated in ball games and track and field events. There are differences in sports participation among students of different genders, grades, and majors. Boys' overall sports participation is higher than that of girls. This may be related to the differences in sports interests, physical fitness, and social expectations of men and women for male and female sports; lower-grade students have higher participation than higher-grade students. As the grade increases, academic pressure and other affairs increase, and the time students spend participating in sports activities decreases; students majoring in sports have a higher participation rate than students majoring in non-sports. The differences in professional course settings and the degree of emphasis on sports are important reasons for the differences. Behavioral intention theory is applicable in the study of college students' sports participation

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