

The Influence of Physical Exercise on the Consumer Psychology and Behaviour of Different Economic Sports Audiences

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Abstract

In order to promote healthy economic growth and develop China's sports industry. Based on a cross theoretical model and a cognitive decision-making model for sports consumption, the author proposes a study on the impact of physical exercise on the consumption psychology and behaviour of different economic sports audiences. A comparative analysis was conducted on the sports consumption psychology at different stages of exercise behaviour using survey data from 587 intellectuals. In the pre intention action stage, the demand for sports consumption shows an upward trend; in the persistence stage, sports consumption needs to decrease slightly; As the stage of exercise behaviour progresses, the satisfaction of sports consumption shows a gradually increasing trend; Improving satisfaction is beneficial for exercisers to transition to a higher-level behavioural stage. Sports marketing regards the first three stages of exercise behaviour as the stages of cultivating sports consumers, promote more sports consumers to develop into the exercise behaviour persistence stage faster through low-priced products and satisfactory services, and pursue long-term sustainable development benefits generated during the exercise persistence stage. In addition, through recognizing the influence of physical exercise on consumer behaviour, businesses and policymakers can devise targeted strategies to promote sports participation and sports-related consumption, fostering a healthier and more engaged society.

Keywords: Exercise; Sports Consumption; Psychological Feature.

Introduction

With the arrival of the era of knowledge economy and the deepening role of knowledge in economic development, the traditional development model of labor-intensive and capital intensive industry has been difficult to meet the requirements of the development of the era of knowledge economy, actively adjusting industrial structure, promoting orderly and sustainable development of industries, has become an important direction for China's economic development direction adjustment and industrial transformation. In China's industrial transformation strategy, reducing the proportion of labor-intensive and capital intensive primary and secondary industries, and vigorously developing the tertiary industry with lower energy consumption and higher economic value added have become the key to China's industrial transformation and upgrading, actively promoting supply side structural reform, including sports products, and vigorously developing the tertiary industry have also become an important strategy in China's 13th Five Year Plan. The sports industry is a general term for industries that primarily focus on the production of sports material and spiritual products, it is an important component of the tertiary industry, the development of the sports economy is based on the improvement of the total amount of the

sports economy, the efficiency of the allocation of production factors in the sports industry, and the quality of the development of the sports industry (Luo & Chen, 2023; Lv, Wang, & Jin, 2022). In recent years, China's sports industry has achieved significant development, with over 3 million employees and an economic value added of over 150 billion yuan, significantly higher than the average growth rate of GDP. From the perspective of the sports industry and the development of the sports economy, the benign, healthy, and sustainable development of the sports economy relies more on reasonable development and guidance based on the behaviour of sports consumers, on the basis of establishing a good industrial ecological environment (Funk, Alexandris, & McDonald, 2008; Jiang et al., 2022). Therefore, from the perspective of influencing factors on sports consumer behaviour, the impact on the sports economy is studied, and formulating targeted strategies for the development of sports economy has significant theoretical and practical significance. From an economic perspective, the development of industries cannot be separated from specific regional ecological environments, and the development of the sports industry and sports economy is no exception (Wang, Yang, & Li, 2021). In summary, the regional ecological environmental factors for the development of the sports industry and sports economy mainly include rooted characteristics and

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the carrying capacity characteristics of regional economic development:

Rootedness: The rootedness of industrial development is manifested in cognitive rootedness, organizational rootedness, institutional rootedness, and social rootedness, the fundamental characteristics of industrial development aim to demonstrate that the development of any industry is constrained and motivated by regional cultural, political, and other regional ecological environments, economic behaviour itself is rooted in regional social relationships, and the rooted characteristics of industrial development can effectively explain the significant differences in development speed, quality, and benefits between industries located in different regional ecological environments (Chen & Gong, 2021).

Carrying capacity: The development of an industry requires specific inputs such as human and material resources, any region with a specific spatial range has various resources (material resources, energy resources, information resources, spatial resources, human resources, social resources, etc.) with upper limits, and can only bear a certain level of industrial development. Therefore, the regional development capacity that any specific spatial area can support correspondingly has an upper limit, its carrying capacity for industrial development also has an upper limit, and under certain conditions of regional spatial scope and total resources, the development of industries is bound by regional carrying capacity.

The relationship between industrial development and specific regional ecological environment indicates that, on the one hand, it is necessary to maintain a good regional ecological environment in the development of industries, in order to achieve coordinated development and promotion of industrial development and regional ecological environment; On the other hand, the formulation of industrial development plans must effectively take into account the characteristics of various regional resources. At the same time, under certain resource levels, establish an endogenous driving force mechanism for industrial development through the rational allocation of regional ecological resources (Yon et al., 2022).

With the rapid growth of the sports industry, there has been a large amount of research on sports consumption in recent years, and a cognitive decision-making model for sports consumers has been proposed (Kwak, Kim, & Hirt, 2011; Mirfallah-Nassiri, Tojari, & Zarei, 2018; Yim & Byon, 2020). Meanwhile, with the introduction of cross theoretical models by domestic scholars, research on the transition stage of exercise behaviour is gradually becoming a hot topic in the field of sports exercise

behaviour research in China. But currently, no scholars have been found to study the psychology of sports consumers based on different stages of exercise behaviour. Sports consumption is a consumption that occurs in sports activities and is closely related to the physical behaviour of the exerciser (Moran, 2013; Ntoumanis et al., 2017). Combining a cross theoretical model and a cognitive decision-making model for sports consumers, this study investigates the psychology of sports consumption at different stages of exercise behaviour, understanding the psychological characteristics and changes of sports consumers at different stages of exercise behaviour is beneficial for providing satisfactory sports products and services in a targeted manner, and cultivating the loyalty of sports consumers; It is also conducive to behavioural intervention from the perspective of sports consumption services, effectively promoting the transformation of exercisers' behaviour and adhering to exercise.

With the development of China's socialist economy and the flourishing of sports industry, the sports consumer group is rapidly growing in China (Yu et al., 2019). The rise of social leisure sports is cultivating the sports industry into the most promising sunshine industry, and the sports industry based on sports consumption demand has become a new economic growth point in China (Huang, 2011; Wang & Lv, 2019). However, compared to developed Western countries, China's sports industry started relatively late, and the sports economy is still in a low level of development period. There is still a huge gap compared to developed countries. At present, the main factor that restricts the development of China's sports economy is the weak awareness of sports consumption among the sports population. The over 400 million sports population has not formed effective economic sports needs, and the energy of sports consumption has not been fully released. Therefore, research on sports consumption psychology has important theoretical significance for the development of China's sports industry and the promotion of healthy economic growth (Tang et al., 2022; Zhang & Wang, 2022).

With the rapid growth of the sports industry, there has been a large amount of research on sports consumption in recent years, and a cognitive decision-making model for sports consumers has been proposed. Meanwhile, with the introduction of cross theoretical models by domestic scholars, research on the transition stage of exercise behaviour is gradually becoming a hot topic in the field of sports exercise behaviour research in China. But currently, no scholars have been found to study the psychology of sports consumers based on different stages of exercise behaviour. Sports consumption is a consumption that occurs in sports activities and is closely related to the

physical behaviour of the exerciser. By combining cross theoretical models and cognitive decision-making models of sports consumers, this study aims to investigate the psychological characteristics and changes of sports consumers at different stages of exercise behaviour, in order to provide targeted and satisfactory sports products and services, and cultivate the loyalty of sports consumers; It is also conducive to behavioural intervention from the perspective of sports consumption services, effectively promoting the transformation of exercisers' behaviour and adhering to exercise.

The research importance applies in the demanding application of a quantitative experimental research design to investigate the association among exercise behaviour stages and sports consumption behaviours and attitudes. By analysing data collected from individuals at different stages of exercise behaviour, the study provides valuable insights into the changes in sports consumption needs, satisfaction, and willingness to consume sports as individuals progress through different exercise behaviour stages. The results support the researchers' hypotheses by showing that as people progress through the stages of exercise behaviour (from pre-intention to intention to action to persistence), their demand for and satisfaction with sports consumption rise. They also show that people's willingness to spend money on sports and physical activity increases. This study contributes to our increasing awareness of psychological shifts in sports consumption brought on by the evolution of exercise behaviour stages and has significant ramifications for encouraging the transformation of exercise participants' behaviour stages and growing a base of sports consumers who are more engaged and content. Experts within the sports industry, suppliers of fitness services, and policymakers should pay close attention to the findings because they can use them to tailor their services and marketing plans to meet the changing needs and preferences of people at various stages of their exercise behaviour. The methodological rigor of the research also contributes to the reliability and validity of its findings by using validated measurement tools and confirmatory factor analysis, which raises credibility of outcomes and their potential influence on the area of sports and exercise psychological research. The research was divided into five chapters, introduction, literature review, research methodology, data analysis and results, and discussion and recommendations.

Literature Review

In recent years, with the establishment of people's concept of physical fitness and the promotion of

national fitness, sports consumption, as a fashionable social and cultural consumption phenomenon, has become increasingly prominent in terms of socialization and daily life, and is gradually integrating into people's daily lives. It is of great significance to carefully study the various factors that affect consumers' sports consumption psychology and behaviour, actively explore effective strategies, formulate effective marketing strategies for relevant government departments and enterprises, continuously improve the level of sports consumption, and accelerate the healthy development of sports consumption (Abdolmaleki, Mirzazadeh, & Ghahfarokhi, 2018).

Nowadays, due to individual Consumer behaviour, environmental problems are becoming increasingly serious, which needs to be paid attention to. Consumers gradually realize the impact of their Consumer behaviour on the environment and make changes (Gatersleben, Steg, & Vlek, 2002). Social media, especially Instagram, plays an important role in raising people's awareness and promoting environmental behaviour (Mavrodieva et al., 2019; Šikić, 2021). Therefore, it is crucial to study the impact of Instagram on green consumption willingness, which is the best predictor of behaviour (Jalali & Khalid, 2021). Jalali and Khalid (2021) reviewed existing literature and developed a conceptual model on the impact of Instagram influencers' green activities on followers' intentions. As proposed by the model, the green attention, green photo content, and green word-of-mouth of Instagram influencers form a green attitude and willingness to consume among followers (Jalali & Khalid, 2021). Outdoor sports can help people develop good living habits and improve their physical fitness (Caddick & Smith, 2014; Eigenschenk et al., 2019). Therefore, it is particularly important to cultivate interest in sports and analyse the factors that affect healthy sports. Objective: To understand the factors that affects the healthy sports behaviour of college students and provides reference for relevant departments and physical education teachers in schools. Chu and T methods used literature review, questionnaire survey, and mathematical statistics to analyze the influencing factors of sports among college students. The improvement of physical education teaching methods and facilities will affect students' interest in sports. Students from different family backgrounds have very different preferences for healthy exercise. Conclusion: The school environment and sports atmosphere are the main factors that constitute the school sports environment. College students' cognition and understanding of healthy sports can affect their physical fitness status (Chu, 2021).

The main purpose of this study is to compare and analyse the sports consumption needs, sports consumption satisfaction, and sports consumption willingness of different stages of exercise behaviour, verify the above assumptions, understand the changes in sports consumption psychology of exercise participants with the development of exercise behaviour stages, and provide reference for promoting the transformation of exercise participants' behaviour stages and cultivating sports consumers. For the research objective, the structural model of physical exercise history (Figure 1) is used to study the determining factors of individual exercise behaviour, it is believed that the determining factors of exercise behaviour exist in three transition stages: Habitual sedentary stage, exercise participation stage, maintenance or

withdrawal stage, and re participation stage, the motivation and influencing factors of different stages of exercise behaviour are different, and it is emphasized that research should focus on the three behavioural transformation processes during the exercise behaviour process. This theoretical model provides a detailed classification of behavioural stages and change processes, but neglects the process of individual behavioural motivation changes during the habitual sedentary phase. In comparison, the Transtheoretical Model (TTM) provides a more detailed division of the process before behaviour occurs (Calvo-Porral, Rivaroli, & Orosa-González, 2021). The research conducted in various stages model which is predicted in Figure 1 below.

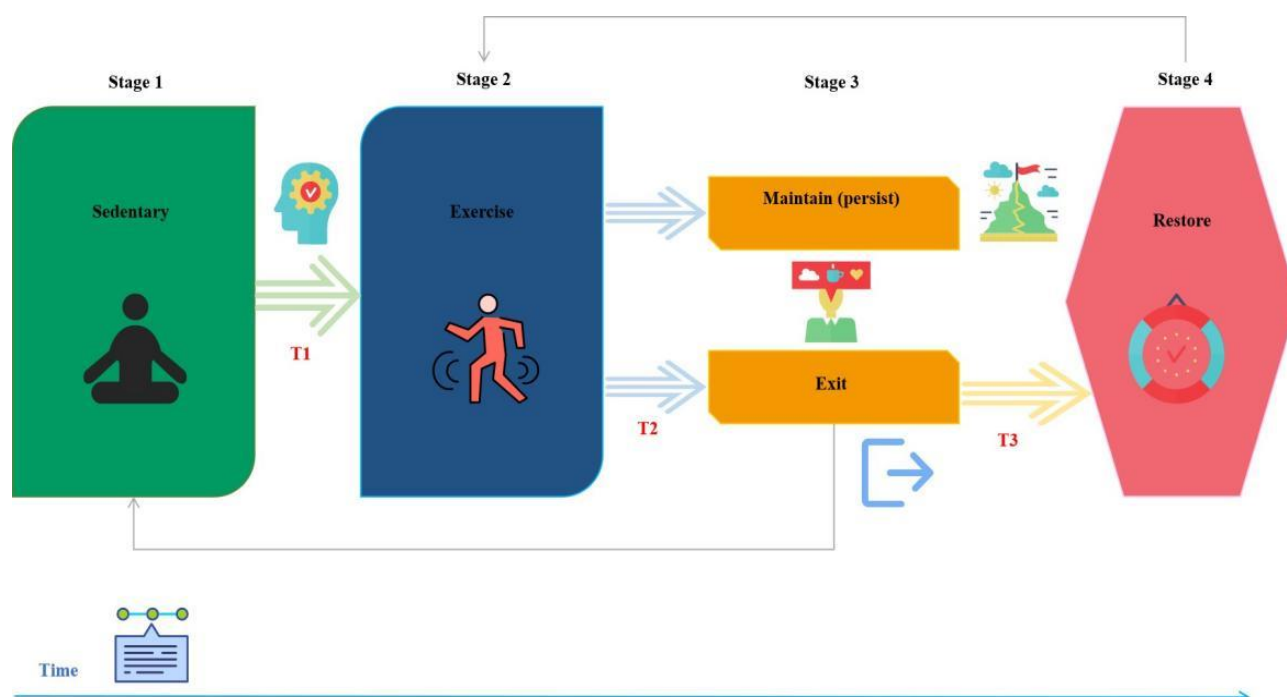


Figure 1. Schematic Diagram of the Four Main Stages in Physical Exercise.

Methodology and Hypothesis

The researchers applied the quantitative experimental research design where data was collected in various states. According to the stages of changes in sports behaviour and the cognitive decision-making model of sports consumption, the author believes that individuals at different stages of exercise behaviour have different exercise behaviours; Sports consumption is a consumption that occurs in sports activities and is closely related to the sports behaviour of the exerciser. Therefore, the sports consumption behaviour and psychology of individuals at different stages of exercise behaviour are different. As the stage of physical exercise behaviour progresses (pre intention → intention → action → persistence), individuals have a plan to exercise and develop regular exercise

behaviours and habits, the increase in participation in sports activities promotes an increase in the demand for sports consumption; In addition, the reason why exercisers adhere to physical exercise is largely because they have a high evaluation of the effectiveness of the physical exercise activities they participate in, good sports products and services can help generate good results of physical exercise activities. Therefore, individuals in a high stage of sports behaviour have higher satisfaction with sports consumption; The cognitive decision-making model of sports consumption indicates that the demand for sports consumption and satisfaction with sports consumption strengthen the willingness to consume sports. Therefore, individuals who are in a high stage of physical exercise behaviour have a stronger willingness to consume sports. Therefore, the author assumes the following:

Hypothesis 1: Physical exercise behaviour generates a demand for sports consumption, and as the stage of exercise behaviour progresses (pre intention → intention → action → persistence), the demand for sports consumption by exercisers increases.

Hypothesis 2: High satisfaction with sports consumption is beneficial for exercisers to transition to a higher level of exercise behaviour stage, as the stage of exercise behaviour progresses (pre intention → intention → action → persistence), the satisfaction of exercisers with sports consumption is increasing.

Hypothesis 3: As the stage of exercise behaviour progresses (pre intention → intention → action → persistence), the willingness to consume sports strengthens, and the exerciser is more willing to spend money on physical exercise.

The main purpose of this study is to verify the above hypothesis by comparing and analysing the sports consumption needs, sports consumption satisfaction, and sports consumption willingness of different stages of exercise behaviour, the understanding of the psychological changes in sports consumption of exercise participants with the development of exercise behaviour stages is as follows, in order to provide reference for promoting the transformation of exercise participants' behaviour stages and cultivating sports consumers. To test the above hypothesis, data collected from management personnel with associate high or higher professional titles in research institutes, enterprises and institutions in Region A, as well as young teachers and doctoral students with doctoral degrees or associate professors from universities, a total of 587 people, with an average age of 40.38 years (SD=10.098 years old), among them, teachers account for 36.6%, management personnel account for 23.4%, research personnel account for 18.8%, doctoral students account for 21.2%, 401 males and 186 females.

Research Variables and Measurement Tools

Measurement of Exercise Behaviour Stage: Exercise Stage Scale, according to the revised operational definition of this study, the scale is: Regular exercise refers to planned physical activities carried out to promote health, such as walking, jogging, ball games, etc. The effective exercise should be to persist in exercising 3-5 times a week for at least 20 minutes each time, which can make you sweat. Based on this definition, have you exercised regularly

1) Yes, I have been practicing this type of physical exercise for over 6 months. 2) Yes, I haven't been following this type of physical exercise for more than 6 months. 3) No, but I plan to start exercising like this. 4) No, and I have no intention of starting such exercise. The guiding language

of the Sports Consumption Needs Measurement Scale is: "Please determine your level of need for the following sports products," the questions include 10 common sports consumption items, such as "sports equipment," "sports books and newspapers," and "sports or fitness classes," the answers to the questions are measured at Likert level 5, ranging from "very needed" to "not needed" (Strauss et al., 2021).

Participatory sports consumption needs, physical sports consumption needs, and ornamental sports consumption needs were measured separately. The reliability coefficients of each subscale are 0.823, 0.848, and 0.816, the guiding language of the sports consumption satisfaction measurement scale is: Please determine your satisfaction level with the following sports products and services. The question includes 10 common products and service personnel in three types of sports consumption: Participatory, physical, and ornamental, for example, "organizers and managers of sports activities", "on-site sports competitions", and "sports clothing sold on the market", the answer to the question is measured on a Likert 5 scale, ranging from "satisfied" to "dissatisfied". The satisfaction level of individuals with three types of sports consumption was measured separately. The reliability coefficients of each subscale are 0.874, 0.821, and 0.826, the measurement of sports consumption intention includes 7 questions, such as: "Are you willing to participate in paid sports exercise activities? Are you willing to pay for learning and consulting on physical exercise methods? Are you willing to purchase sports books and sports audio-visual materials? The answer to the question is measured on a Likert 5 scale, ranging from 'willing' to 'unwilling'.

We measured individual willingness to consume in three types of sports consumption: participatory, physical, and ornamental. The reliability coefficients of each subscale are 0.859, 0.819, and 0.757. In the process of compiling the scale of sports consumption needs, sports consumption satisfaction, and sports consumption willingness, it has been carefully evaluated and revised by experts and scholars in sports, psychology, and sociology, they believe that the scale has good content validity and can comprehensively measure the three conceptual concepts of sports consumption needs, sports consumption satisfaction, and sports consumption willingness.

In order to test the structural validity of the scale, confirmatory factor analysis was conducted using the survey data. The fitting indices of the sports consumption measurement model are: NFI=0.92, NNFI=0.90, CFI=0.93,

and IFI=0.93, the factor load values representing the relationship between latent variables and indicators are all higher than 0.7, and the correlation coefficient between first-order and second-order factors is between 0.70 and 0.89, the correlation coefficient between the first order factors ranges from 0.53 to 0.67, the fitting index of the sports consumption satisfaction measurement model is: NFI=0.95, NFI=0.94, CFI=0.95, and IFI=0.95, the factor load values that represent the relationship between latent variables and indicators are all higher than 0.5, with correlation coefficients between first-order and second-order factors ranging from 0.68 to 0.91, and correlation coefficients between first-order factors ranging from 0.54 to 0.72.

The fitting index of the sports consumption satisfaction measurement model is: NFI=0.97, NNFI=0.95, CFI=0.98, and IFI=0.98, the factor load values representing the relationship between latent variables and indicators are all higher than 0.7, the correlation coefficient between first-order factors and second-order factors ranges from 0.83 to 0.95, and the correlation coefficient between first-order factors ranges from 0.74 to 0.87. The results of confirmatory factor analysis indicate that the measurement items of the subscale have good convergent validity. In order to test the discriminant validity of the scale, the hypothesis correlation between each two conceptual concepts was set to 1 and the hypothesis correlation was a free estimator. The results (omitted) show that the hypothesis of a free estimator with a correlation degree is significantly better than the hypothesis of a correlation degree of 1, indicating a good discriminant validity between the sports motivation and sports effectiveness scales (Behbehani & Steffens, 2021).

Data Analysis Methods

Data statistics were conducted using SPSS for Windows version 11.5 and LISREL version 8.53. Data analysis includes: 1) Preliminary analysis, using SPSS for data conversion, reliability analysis, and univariate descriptive statistics, and using LISREL for confirmatory factor analysis of the measurement model; 2) The one-way ANOVA of SPSS was used to compare the differences in sports consumption needs, sports consumption satisfaction, and sports consumption willingness among populations at four different stages of exercise behaviour.

Table 1

List of Variance Tests for Sports Consumption Needs at Different Stages of Exercise Behavior in This Study (One-way ANOVA)

	Previous Intention (P)	Intention C	Action A	Adhere To M	Total
Participation needs	3.80±0.89	3.25±1.00	3.19±1.01	3.22±1.02	3.30±1.01
Physical needs	3.70±0.79	3.27±0.90	3.05±0.90	3.19±0.92	3.26±0.91
Viewing needs	3.51±1.00	3.06±1.04	2.76±1.11	2.83±1.08	2.99±1.08
Total score required	3.67±0.64	3.20±0.80	3.00±0.86	3.08±0.83	3.18±0.83

Results and Analysis

The Distribution of Samples at Different Stages of Exercise Behaviour

587 respondents were unevenly distributed across the four stages of exercise behaviour transformation. In the pre intention stage (without regular physical exercise and no intention), there were 70 people, accounting for 11.9% of the total number; In the intention stage (without regular physical exercise, but planning to start), there were 214 people, accounting for 36.5% of the total number; During the action phase (regular physical exercise, but not more than 6 months), there were 91 people, accounting for 15.5% of the total number; There are 212 people in the persistence stage (who have been adhering to regular physical exercise for over 6 months), accounting for 36.1% of the total population. The subjects of this survey belong to intellectuals with senior professional titles or high education, among them, 51.6% of the total number (including the action stage and persistence stage) engage in regular physical exercise, which is much higher than the proportion of urban residents who engage in regular physical exercise (39.8%).

Comparative Analysis of Sports Consumption Needs at Different Stages of Exercise Behaviour

From Tables 1 and 2, it can be seen that the results of the variance test indicate significant differences in the three types of sports consumption needs at different stages of exercise behaviour ($P < 0.001$). In the pairwise comparison between adjacent stages (P-C, C-A, A-M), the biggest difference in the needs of the three types of sports consumption occurs during the transition from the pre intention stage to the intention stage. During the P-C transformation process, the demand for participatory sports consumption (PK0.001), physical sports consumption (PK0.01), and ornamental sports consumption (P0.05) all significantly increased. Overall, as the stage of exercise behaviour changes, the level of demand for sports consumption gradually increases in the P-C and C-A stages, and decreases in the A-M stage. The trend of changes in the P-C and C-A stages is consistent with theoretical hypothesis 1, while the changes in the A-M stage are somewhat different from theoretical hypothesis 1.

Table 2

Test of Variance for Sports Consumption Needs at Different Stages of Exercise Behaviour in This Study (One-wayANOVA)

PostHoc(Tukey)					
P-C	C-A	A-M	P-A	C-M	P-M
0.55	0.06	-0.02	0.61	0.03	0.59
0.42	0.23	-0.15	0.65	0.08	0.5
0.45	0.3	-0.07	0.75	0.23	0.67
0.47	0.19	-0.08	0.67	0.11	0.59

It is worth noting that: The ratio of changes in the needs of three types of sports consumption during adjacent exercise behaviour stages is different. Among them, the changes in the needs of participating sports consumption are almost entirely concentrated in the P-C transition stage, with an increase of 9 times in P-C (0.55) compared to C-A (0.06); The demand for physical sports consumption differs significantly from that for ornamental sports consumption during the P-C transformation stage, but the increase in C-A is relatively close to that in the P-C stage. The increase in demand for physical and ornamental sports consumption at C-A (0.23, 0.30) is 4 times and 5 times higher than that of participating sports consumption at C-A (0.06), respectively. The decrease in physical sports consumption during the A-M stage (0.15) is the largest among the three consumption needs during this stage.

Table 3

Satisfaction With Sports Consumption at Different Stages of Destruction Behaviour in This Study

	Previous Intention (P)	Intention C	Action A	Adhere to M	Total
Participation satisfaction	3.14±0.84	3.02±0.67	2.87±0.85	2.85±0.67	2.95±0.73
Physical satisfaction	3.09±0.78	2.97±0.73	3.01±0.92	2.80±0.78	2.93±0.79
Viewing satisfaction	3.19±0.70	2.88±0.63	2.87±0.78	2.75±0.70	2.87±0.70
Total score of satisfaction	3.14±0.64	2.95±0.54	2.92±0.71	2.80±0.60	2.91±0.61

Table 4

Variance Test of Sports Consumption Satisfaction at Different Stages of Destructive Behaviour in This Study (One-wayANOVA)

PostHoc(Tukey)					
P-C	C-A	A-M	P-A	C-M	P-M
0.12	0.15	0.02	0.27	0.17	0.29
0.12	-0.04	0.21	0.08	0.17	0.29
0.32	0.01	0.12	0.32	0.13	0.45
0.19	0.03	0.12	0.22	0.15	0.34

Comparative Analysis of Sports Consumption Satisfaction at Different Stages of Exercise Behaviour

From Tables 3 and 4, it can be seen that the results of the variance test indicate that, there is a significant difference in satisfaction with sports consumption at different stages of exercise behaviour (P total satisfaction score<0.001, P participation satisfaction<0.01, P physical avoidance<0.05, P viewing satisfaction<0.001). Overall, as the stage of exercise behaviour progresses (pre intention → intention → action → persistence), individual satisfaction with sports consumption shows a gradually increasing trend, and the whole process change (PM) is significant, consistent with theoretical hypothesis 2.

From the difference between adjacent stages (PC, C-A, A-M), it can be seen that the changes in satisfaction with participatory sports consumption are mainly distributed in the PC and C-A transition stages, with the largest change in C-A; The changes in satisfaction with physical sports consumption are mainly distributed in the transition stages of PC and A-M, with A-M experiencing the greatest change; The changes in satisfaction with ornamental sports consumption are mainly distributed in the P-C and A-M transition stages, with the P-C change (PK0.01) being the largest. In the P-C transformation stage, the satisfaction of ornamental sports consumption has the greatest change; In the C-A transformation stage, the change in satisfaction with participatory sports consumption is the greatest; In the A-M transformation stage, the satisfaction of physical sports consumption has the greatest change.

Comparative Analysis of Sports Consumption Intention at Different Stages of Exercise Behaviour

From Tables 5 and 6, it can be seen that the results of the variance test indicate significant differences in the willingness to consume three types of sports at different stages of exercise behaviour (P<0.001). Overall, as the stage of exercise behaviour transitions forward (pre intention → intention → action → persistence), the willingness of exercisers to consume sports gradually strengthens. The whole process change (PM) is significant and fully consistent with theoretical hypothesis 5.

Table 5*The Willingness to Consume Sports at Different Stages of Exercise Behaviour in This Study*

	Previous Intention (P)	Intention C	Action A	Adhere to M	Total
Willingness to participate	3.26±1.01	3.07±1.07	2.75±1.09	2.67±1.19	2.90±1.13
Physical willingness	3.18±0.91	2.73±0.90	2.60±0.94	2.43±1.02.	2.66±0.98
Appreciation intention	3.74±0.85	3.23±1.02	2.95±0.99	2.86±1.06	3.11±1.05
Total score of willingness	3.39±0.76	3.01±0.85	2.77±0.89	2.65±0.97	2.89±0.92

Table 6*Variance Test of Sports Consumption Intention at Different Stages of Exercise Behaviour in This Study (One-wayANOVA)*

PostHoc(Tukey)					
P-C	C-A	A-M	P-A	C-M	P-M
0.19	0.32	0.08	0.5	0.4	0.59
0.45	0.13	0.17	0.58	0.3	0.75
0.52	0.28	0.09	0.79	0.37	0.88
0.38	0.24	0.11	0.62	0.35	0.74

From the difference between adjacent stages (P-C, C-A, A-M), it can be seen that the change in willingness to participate in sports consumption is mainly distributed in the P-C and C-A transition stages, with the greatest change in C-A; The changes in the willingness to consume physical sports are mainly distributed in the P-C transition stage ($P < 0.01$), and there are also certain changes in the C-A and A-M transition stages; The changes in the willingness to consume ornamental sports are mainly distributed in the P-C and C-A transition stages, with the P-C change being the largest ($P < 0.01$). In the A-M transformation stage, the change in consumer willingness for physical sports is twice that of the other two types of consumer willingness.

Discussion and Future Recommendations

Overall, as we hypothesize, the survey results indicate that as individuals develop their exercise behaviour from the pre intention stage to the persistence stage, their psychological factors such as sports consumption needs, sports consumption satisfaction, and sports consumption intentions increase or increase, these three psychological factors have an important impact on sports consumption behaviour and consumption level. Therefore, promoting the development of individual exercise behaviour towards the persistence stage is beneficial for the development of the sports industry (Gill, Williams, & Reifsteck, 2017; Rohm, 2006). Like other psychological factors involved in the transformation of sports behaviour, consumer psychological factors do not have significant differences at every stage of behaviour transformation. This also

indirectly reflects that the division of stages of exercise behaviour change is not absolute, and the changes in exercise behaviour and psychology are a gradual trend.

There is a local inconsistency between the changing trend of sports consumption needs and theoretical assumptions during the development of exercise behaviour stages, which may be due to the fact that sports consumption needs are largely met during the exercise persistence stage. In the intention and action stages of physical exercise behaviour, individuals need to learn knowledge and skills related to physical exercise when preparing for and just participating in physical exercise, and the corresponding sports consumption needs to be significantly increased by adding necessary sports equipment and equipment, generated a peak in demand for sports consumption; As the period of participation in physical exercise continues, individuals enter the stage of persistence in exercise behaviour. Physical exercise behaviour forms habits, and individuals possess considerable knowledge, skills, and sports equipment, most of the sports consumption needs have been met, and the newly generated sports consumption needs are mostly for updating and maintaining, which is relatively less than the needs at the beginning of participating in physical exercise. Therefore, there needs to be a certain reduction in sports consumption during the persistence stage of exercise behaviour.

A slight decrease in sports consumption needs during the persistence stage of exercise behaviour does not necessarily lead to a decrease in individual sports consumption. According to the cognitive decision-making model of sports consumption, sports consumption is directly determined by sports consumption intention, which is the result of three cognitive processes: analysis, effect evaluation, and feasibility prediction. Therefore, sports consumption needs and sports consumption satisfaction are important antecedents of sports consumption intention. According to the research on the cognitive decision-making theory model of physical exercise persistence, effect evaluation has the greatest impact on behaviour determination during the behaviour persistence stage. Therefore, in this study, it emerged that during the persistence stage of exercise behaviour, the willingness to

consume sports did not weaken due to a decrease in the need for sports consumption, but showed a consistent trend with an increase in satisfaction with sports consumption, this to some extent indicates that during the persistence stage of physical exercise, sports consumption satisfaction plays a greater and more important role in sports consumption willingness (Pérez-Campdesuñer et al., 2021).

According to the definition of sports consumption, sports consumption refers to people's personal consumption expenses in sports activities, and sports consumption always accompanies sports activities. However, the phase transition of exercise behaviour can be either forward development or regression to the previous stage. The direction of changes in an individual's behaviour stage determines the type of sports consumption, if an individual's exercise behaviour develops to the action stage and exits, their sports consumption will exhibit a trial type, which is a short-term behaviour (as shown in Figure 2); If an individual develops a habit of persisting in stage exercise behaviour, then their sports consumption is stable (as shown in Figure 3), even if the consumption level is very low, they can form a stable consumer group in the sports industry, and marketing them can obtain long-term stable profits, such an industry is sustainable.

Implications and Recommendations

The findings of the research has several implications that could help to understand the relationship between stages of changes in sports behaviour and psychological factors of sports consumption. The study confirmed that as individuals progress through different stages of exercise behaviour (pre-intention → intention → action → persistence), their demands for sports consumption, satisfaction with sports consumption, and willingness to consume sports all show distinct patterns of change. These results highlight the importance of considering individuals' exercise behaviour stages when developing marketing strategies and interventions to promote sports consumption. For instance, during the transition from the pre-intention to the intention stage, there is a notable increase in demand for participatory, physical, and ornamental sports consumption, indicating a critical

window for targeted marketing efforts to attract potential consumers. Additionally, as individuals progress to higher exercise behaviour stages, their satisfaction with sports consumption increases, suggesting the need for continuously improving the quality and variety of sports products and services to retain consumers and foster loyalty. Moreover, the study reveals that individuals in higher stages of exercise behaviour exhibit stronger willingness to spend money on physical exercise, signalling the potential for the sports industry to tap into this consumer segment and offer attractive and tailored sports consumption options. The research could also help to increase the understanding of this topic to create a bridge between academicians and industry.

Keeping in view research results, various recommendations could be made to encourage the transformation of exercise participants' behaviour stages and cultivate sports consumers. Firstly, it is evident that as individuals progress through different stages of exercise behavior, their demand for sports consumption increases, particularly during the transition from the pre-intention to the intention stage. Therefore, sports organizations and businesses should focus on targeted marketing efforts and provide attractive sports products and services to capture the increasing demand during this critical stage. Secondly, the study shows that overall satisfaction with sports consumption increases as exercise behaviour progresses. To encourage exercisers to advance to higher stages, it is essential to provide high-quality sports products and services that meet their satisfaction levels, especially during the action and persistence stages. This can foster a positive feedback loop, motivating individuals to continue engaging in regular physical exercise. Lastly, the study highlights that the willingness to consume sports strengthens as individuals move through the stages of exercise behavior. To capitalize on this willingness, sports businesses should offer diverse and appealing sports consumption options, such as participatory, physical, and ornamental sports, to cater to the varying preferences and needs of exercisers at different stages. By implementing these recommendations, stakeholders in the sports industry can effectively nurture and retain sports consumers and contribute to a healthier and more active society.

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