Journal of Infrastructure, Policy and Development 2024, 8(15), 9042.
https://doi.org/10.24294/jipd9042

Article

The impact of social support on college students' sports competition behavior from the perspective of self-determination theory: A chain mediation model

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CITATION

Ma C, Zhou Y, Wang Y, Zhu C. (2024). The impact of social support on college students' sports competition behavior from the perspective of self-determination theory: A chain mediation model. Journal of Infrastructure, Policy and Development. 8(15): 9042. https://doi.org/10.24294/jipd9042

ARTICLE INFO

Received: 8 December 2023
Accepted: 9 September 2024
Available online: 16 December 2024

Abstract: Sports competition is one of the important contents and forms of sports activities and physical education. It plays a full range of valuable functions in promoting the all-round development of college students. Specifically, it can better help college students enjoy fun, enhance their physique, and improve their physical fitness during physical exercise. Personality and tempering the will. Countries around the world attach great importance to youth sports competitions, and use national strategies as the top-level design and sports events as activity carriers to create a series of youth sports competitions such as graded competitions, championships, and campus events, providing more opportunities for young people to watch and participate in sports. Opportunities and platforms for competition. College student sports competitions are an important part of youth sports competitions and shoulder multiple missions such as physical health promotion, competitive talent training, and sports industry development. In recent years, the development of college sports competitions around the world has achieved remarkable results, and the scale and quality of Chinese college sports competitions have also been significantly improved. However, compared with developed countries, overall, there is still a weak awareness of participation, poor competition experience, and competitive competition. Prominent problems such as low levels and high activity withdrawal rates have, to a certain extent, restricted the high-quality development of college student sports competitions. In fact, it is not as easy as imagined for college students to participate in sports competitions regularly for a long time. In addition to requiring college students to possess certain basic conditions such as time, energy, and skills, it also requires support and promotion from all walks of life, especially It is inseparable from the material, spiritual and technical support provided by family, friends, coaches and other important groups. Just as the social ecological model believes that individual physical activity behavior is closely related to social support at the interpersonal level, especially social support from important groups such as family and friends has a positive impact on individual physical activity behavior. At the same time, although social support is very important, not all social support received can promote college students to form good sports competition behaviors. Self-determination theory emphasizes that only effective social support can regulate and optimize individual sports motivation by meeting the individual's basic psychological needs, and ultimately promote the formation of positive, long-term sports behavior. However, most of the current sports academic circles continue the research context of traditional college student sports management, focusing on the contemporary value, practical issues, system construction, etc. of college student sports competitions. They are more subjective qualitative theoretical research and relatively lack the influence of social support. Empirical research on the sports competition behavior of college students, so that the internal mechanism of social support affecting the sports competition behavior of college

students is not clear enough and understood. Therefore, from the perspective of social ecology, this study explores the internal mechanism of social support affecting college students' sports competition behavior, in order to provide certain theoretical reference for improving the level of college students' sports competition behavior.

Keywords: sports competition; self-determination theory; social support

1. Literature review and research hypotheses

1.1. The connotation and role of social support

Social Support is an important concept put forward in the 1960s during the process of exploring the impact of social pressure on the physical and mental health of individuals, and usually refers to the material and spiritual help and support that individuals receive from others, social groups, organisations and various social relationships. By definition, social support can be broadly divided into two categories: first, actual and objective support, i.e., practical social support, which includes direct material and economic assistance and services, and actual participation in social networks and group relationships; and second, subjective perceived support, i.e., perceptual social support, which includes the individual's emotional experience of and satisfaction with the perceived respect, understanding, and support in the society. Among these, perceived social support may have better results than actual support in predicting individual health behaviours, and is more likely to show a gainful function on individual physical and mental health. With the wide application of social support theory in the field of sports, scholars at home and abroad have empirically demonstrated that there is a close relationship between social support and people's sports competition behaviour, and that social support is an important variable affecting people's sports competition behaviour. The social support that college students receive in the process of participating in sports competitions mainly comes from formal organisations such as the government and the community, as well as from family, friends and other important groups at the interpersonal level. Relevant studies have shown that social support from the interpersonal level is more likely to influence people's physical activity behaviours than social support from organisations such as government and community. For example, family support and friend support are important factors influencing people's participation in sports activities and competitions, especially parental support and friend support have a more positive influence on college students' sports as well as competition behaviour. Among them, Scarapicchia et al. (2017) conducted a questionnaire survey on the relationship between college students' social support and amateur sports competition activities, and the results showed that friends' support was more persuasive than family support in predicting college students' amateur sports competition, which also implied that friends' support might have a more positive impact on college students' amateur sports competition, which was also verified by domestic scholars. In addition, besides family and friend support, coach and teacher support are also influential factors that cannot be ignored. Yu et al. (2021) found that teacher support can not only have a significant positive influence on college students' physical activity behaviour, but also influence physical activity

behaviour through college students' physical activity cognition and attitude. From the above, it can be seen that social support from family, friends and other important groups has a positive influence on college students' physical activity and competition behaviour.

In the early literature, scholars' definitions of social support were relatively simple, such as Trickett (1973), who believed that supportive social competition refers to the care and help provided by teachers, friends and family members and so on, as perceived by students during their participation in competitions, and Fraser (1998), who believed that social support exists in social environments in the form of help, trust, friendship and interest. Into the 2000s, as self-determination theory became more mature and research on demand-supportive teaching and learning deepened, scholars expanded their definitions of socially supportive sport competitions. For example, Deci et al. (2000) defined demand-socially supported competition as an atmosphere in which the community gives college students a full sense of self-efficacy and self-determination through a series of supportive behaviours. Ntoumanis (2005), in order to explore whether situational and personal motivational variables predict students' cognitive and affective experiences in physical activity, used a short version of the 6-item Learning Climate A six-item Learning Climate Questionnaire with modified wording (e.g., My PE teacher encourages me to ask questions) was used to measure students' perceptions of teachers' autonomy-supportive behaviours during physical activity, and the results showed that the internal consistency coefficients of the shortened version of the Learning Climate Questionnaire were above 0.81, which is a good level of reliability.

Socially supportive teaching has a positive effect on the fulfilment of students' autonomy needs and healthy growth (Diseth and Samdal, 2014). Over the past three decades, researchers have conducted several studies to examine the interactions between social support and students' motivation for autonomy, competitive performance, and well-being. Findings suggest that competition environments that socially support student autonomy tend to meet students' basic psychological needs, foster their motivation for autonomy, and promote positive outcomes (Deci and Ryan, 1987). Research in the field of physical education also suggests that supportive competition activities have a facilitating effect on all aspects of students' physical education outcomes.

Accordingly, hypothesis 1 is put forward:H1: Social support has a significant positive impact on college students' sports competition behavior.

1.2. The connotation and function of basic psychological needs

Basic psychological needs (BPNs) are one of the key concepts in self-determination theory and are considered to be the central variable that connects the external environment to individual behaviour. Self-determined motivation theory suggests that all individuals strive to satisfy their basic psychological needs (competence, autonomy, and relational needs) and tend to gravitate toward social environments that satisfy these needs. Deci and Ryan, the founders of Self-Determination Theory, argued that specific behaviours exhibited by individuals are driven by internal psychological needs and that individuals' psychological needs are

not innate. A basic psychological need is an innate need for psychological development that exists in every individual and is universal in nature, acting as a psychological nutrient that is essential for healthy psychological growth, integration, and well-being (Deci and Ryan, 2000). The theory suggests that individuals have an innate tendency to grow psychologically healthy, and that when their basic psychological needs are met, they will have the necessary nutrients to grow psychologically, and thus realise their tendency to grow psychologically healthy, and that, conversely, when their basic psychological needs are thwarted, this can lead to negative outcomes. Currently, the academic community generally agrees with Deci and Ryan's definition of basic psychological needs, which refers to the existence of an innate need for psychological development, including the need for autonomy, competence, and emotional needs (Wu et al., 2018).

Relevant studies have shown that there is a close relationship between university students' physical activity and competition behaviour and the degree of satisfaction of basic psychological needs in sports, and that the basic psychological needs of university students in sports are profoundly affected by the social support provided by their families, friends, coaches and so on. For example, López-Walle et al. (2012) conducted a questionnaire survey of 669 young Mexican athletes and found that perceived coach autonomy support significantly predicted athletes' basic psychological needs satisfaction, and that basic psychological needs partially moderated the pathway from coach autonomy to psychological well-being in young Mexican athletes. Charbonneau (2019) conducted semi-structured interviews with eight Canadian parent-child dichotomies and found that there was a general belief that positive parental behaviour during athletic competition met the basic psychological needs of college athletes.

Deci and Ryan (Deci and Ryan, 1985; Deci and Ryan, 2000) argued that basic psychological needs determine an individual's motivation and provide a fundamental theoretical basis for motivating and guiding an individual's behaviour in different environments in society, and that the level of need satisfaction that people experience in a given environment influences their motivation in that environment.

Amado et al. (2019) argued that mutual support among groups of athletes can satisfy each other's basic psychological needs, which in turn reduces emergent sport anxiety and enhances athletic competitive performance. At the same time, the satisfaction of basic psychological needs of college students not only has a close relationship with social support, but also affects the behaviour of college students in sports activities. Relevant studies have shown that when the basic psychological needs of college students are satisfied during sports, they may form positive and long-term physical activity behaviours, and vice versa, they may trigger negative effects such as burnout and psychological distress, which may ultimately force college students to interrupt or withdraw from the corresponding sports activities. For example, Koka et al. (2013) found that basic psychological needs satisfaction mediated the effects of teacher support and peer support on college students' physical activity. The significant negative effect of basic psychological need satisfaction on athlete burnout and the significant positive effect of basic psychological need frustration on burnout suggests that basic psychological need satisfaction protects athletes from burnout. From the above study, it is clear that basic psychological

needs, i.e., they are influenced by social support and can affect physical activity behaviour, which suggests that there may be a mediating effect of basic psychological needs between social support and university students' sports competition behaviour.

The proposal of basic psychological needs provides us with a framework for motivating students' sport competition participation in sport activities. Therefore, understanding the pathways through which need satisfaction influences students' motivation to participate in sport competitions provides a theoretical and practical basis for creating an environment that is conducive to enhancing the motivation and effectiveness of college students' participation in competitions.

Accordingly, hypothesis 2 is put forward:H2 Basic psychological needs have a mediating effect between social support and sports competition behavior.

1.3. The connotation and role of autonomous motivation

Autonomous motivation (autonomous motivation) is the motivation of an individual to engage in a behaviour out of his or her own will and choices (interests, personal beliefs), which includes three dimensions: identity regulation, integrative regulation, and internal motivation autonomous motivation. Self-determined motivation theory divides motivation into two categories: controlling motivation and autonomous motivation, based on the degree of self-determination (autonomy) and the type of attribution of external motivation. In the field of sport, autonomous motivation not only directly stimulates and maintains individual's physical activity behaviour, but also has an indirect and long-term impact on individual's subjective experience, mental health, positive emotions, etc., whereas controlling motivation stimulates individual's participation in physical activity, but does not maintain the physical activity behaviour in the long term. Relevant studies have shown that effective social support can create a more autonomous physical activity environment that is more in line with the needs of college students, and has a positive impact on the formation of athletic autonomy motivation among college students. Hildingsson (2018) conducted semi-structured interviews with young athletes in the process of sports rehabilitation, and found that physiotherapists and coaches can improve athletic autonomy motivation in young athletes by increasing their autonomous motivation, thereby improving the speed and effectiveness of sport rehabilitation. Pingan Liang (2020) conducted a questionnaire survey with 567 college students and showed that parental support and friendship support both significantly and positively predicted college students' motivation for sport autonomy and physical activity levels. In addition, a large number of studies have shown that there is a close relationship between autonomy motivation and the elicitation and maintenance of college students' sports activities and competition behaviours. Those college athletes with higher autonomy motivation are more likely to develop spontaneous and autonomous physical activity behaviours. Stronger autonomy motivation was significantly higher than weaker autonomy motivation in predicting college students' physical activity behaviours, while integrative conditioning and identity conditioning were able to predict college athletes' exercise frequency and exercise intensity. Xiang et al. (2013) conducted a survey on a sample of 664 college students, and they

found that behavioural regulation (i.e., identity regulation and intrinsic regulation) with higher levels of autonomy positively predicted physical activity behaviours.

Intrinsic motivation is regarded as the cornerstone of human beings' ability to engage in specific behaviours, and refers to the internal drive that compels individuals to pursue an activity, not for the purpose of obtaining extrinsic rewards, but rather for the enjoyment that exists in the pursuit of the activity itself, as well as the natural gratification that is gained. According to self-determination theory, when an individual's self-determination is at a high level, his or her intrinsic motivation will increase accordingly. Students who are intrinsically motivated perform better in terms of academic performance, activity participation and behaviour, and tend to continue to participate in learning or activities because they derive enjoyment and satisfaction from them.

In the field of physical education, most studies have concluded that autonomous motivation (intrinsic motivation and identity regulation) produces more positive physical education learning outcomes. For example, Ntoumanis et al. (2001) found that intrinsic motivation had a significant positive predictive relationship on students' effort in PE lessons and willingness to participate in sport after graduation after a survey of 424 junior secondary school students aged 14–16 years old in the U.K. Mouratidis et al. (2008) found that autonomy motivation was a significant predictive effect. Bagøien et al. (2010) investigated the relationship between motivation for physical education classes, motivation for recreational physical activity, physical activity and mental health in 329 high school students based on self-determination theory. The results found that autonomous motivation in physical education classes was positively correlated with autonomous motivation for leisure time physical activity, and positively correlated with leisure time physical activity and mental health.

Zhang Huan et al. (2017) investigated 6744 students aged 12–22 and found that when sports friendship affects college students' persistence in sports activities, the mediating effect of autonomous motivation is significant. From the above research, it can be seen that autonomous motivation is not only significantly affected by social support, but also can promote college students' physical activity behavior, indicating that autonomous motivation may have a mediating effect between the two. Based on this, research hypothesis 3 is put forward:H3: Autonomous motivation has a mediating effect between social support and sports competition behavior.

1.4. The chain mediating role of basic psychological needs and autonomous motivation

According to the Hierarchical Model of Self-Determined Motivation, effective social support can play a direct role in satisfying basic psychological needs, which in turn triggers higher levels of autonomous motivation and ultimately promotes the formation of positive, long-term healthy behaviours in individuals. Basic psychological needs theory suggests that the key factor influencing the formation of intrinsic motivation and the enhancement of an individual's well-being is the degree to which the individual's basic psychological needs are satisfied. When the social environment supports and satisfies the three basic psychological needs of

individuals, the degree of intrinsic motivation and self-determination of individuals will be higher, and they will be more likely to experience physical and mental health, life satisfaction, and well-being as a result of active living. In this process, the satisfaction of basic psychological needs is an important prerequisite for the formation of autonomous motivation. Throughout the relevant studies in the field of sports at home and abroad, most scholars agree that there is a close relationship between the basic psychological needs of college students' sports and autonomy motivation, and that the basic psychological needs of college students' sports have a positive impact on autonomy motivation. For example, Ntoumanis (2012) took 424 British secondary school students as survey subjects and found that the satisfaction of competence needs can positively predict various forms of motivational regulation (except integrative regulation), while autonomy needs are significantly negatively correlated with extrinsic regulation and can achieve the effect of negative prediction, and at the same time, the satisfaction of relational needs can positively predict three kinds of motivational regulation (internal motivation, identity regulation and intrapersonal regulation). Ding et al. (2014) conducted a questionnaire survey on 371 high school students, and the results showed that basic psychological need satisfaction can effectively predict the autonomy motivation of college students in sports, but there are differences in the predictive ability of autonomy needs, competence needs and relationship needs. In addition, a number of studies have also demonstrated the chain mediating role of basic psychological needs and autonomous motivation. From the above studies, it can be seen that when college students receive effective social support in the process of participating in sports competitions, they can satisfy their competence, autonomy and relationship needs, and when the three basic psychological needs are satisfied, they can stimulate stronger autonomous motivation, and ultimately produce positive psychological and behavioural outcomes in sports.

Based on this, research hypothesis 4 is put forward:H4: Basic psychological needs and autonomous motivation have a chain mediating effect between social support and sports competition behavior (see **Figure 1**).

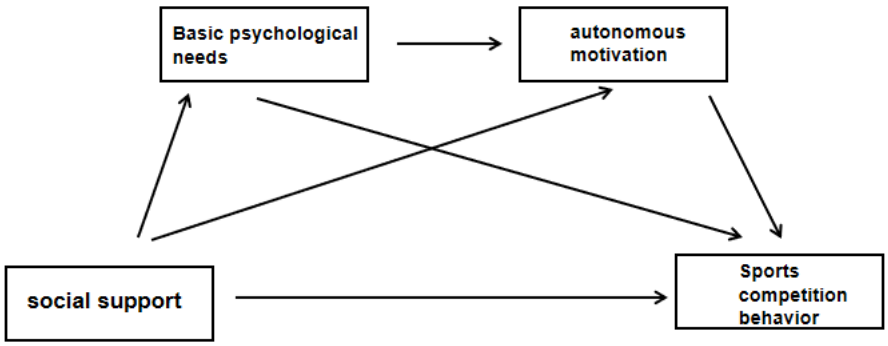

Figure 1. Research hypothesis model diagram based on SDT.

2. Research methods

2.1. Research objects

The data of this study comes from the questionnaire from September to October

2023. The survey was released through WeChat and used multi-stage cluster sampling to conduct a questionnaire survey on college student groups in various universities in various provinces. According to the actual needs of the research, after eliminating invalid samples such as incomplete basic information and incomplete answers, a total of 2650 sample questionnaires were finally obtained, including 1464 female resident questionnaire samples and 1186 male male resident questionnaire samples. The basic population distribution characteristics of the research sample are detailed in **Table 1**:

The age distribution is shown in **Table 1**.

Table 1. Age distribution of research samples.

Age	Percent/%
21	14.4
22	14.5
23	13.7
24	13.0
25	15.0
26	13.3
27	16.1

2.2. Research tools

1) Domain Social Support Scale (Jiang, 2001) This scale can be used to measure the degree of family support, friend support, and other support an individual feels, as well as the overall degree of individual social support. Among them, questions B3, B4, B8, and B11 belong to the family support dimension and are used to calculate the family support score. Questions B6, B7, B9, and B12 belong to the friend support dimension and are used to calculate the friend support score. Questions B1, B2, B5, and B10 belong to the friend support dimension. Other people's support dimension is used to calculate other support scores; statistical indicators: a total score between 12 and 36 is considered a low support state, between 37 and 60 is a medium support state, and between 61 and 84 is a high support state. The total score the higher the score, the higher the degree of social support, which is referred to as the social support scale.

2) Exercise Psychological Needs Satisfaction Scale (PNSES) Wilson (2006) was compiled based on the basic psychological needs scale compiled by Deci et al. The table has a total of 18 questions, including ability needs (D1, D4, D7, D10, D13, D16), autonomy needs (D2, D5, D8, D11, D14, D17) and relationship needs (D3, D6, D9, D12, D15, D18), 6 questions per dimension. The table is scored on a 5-point Likert scale, ranging from 1 to 5, where 1 represents completely inconsistent and 5 represents completely consistent. The higher the score of each dimension, the better the degree of satisfaction. Hereinafter referred to as the basic psychological needs scale.

3) Amotivation (E5, E9, E12, E18), external regulation (E1, E6, E11, E16), introjected regulation (E2, E7, E13), identification regulation (E3, E8, E14), internal regulation (E4, E10, E15, E17). Exercise motivation takes the form of an index, and

uses different weights to empower four forms of regulation except for no motivation to form a physical exercise autonomous motivation index: 2 × internal motivation + identification regulation − introjected regulation − 2 × external regulation, the higher the score, the higher the score. High represents more autonomy, hereafter referred to as the autonomous motivation scale.

4) F1-12 represents sports competition behavioral items. Sports competition behavior includes three dimensions: sports behavioral participation, sports emotional participation and sports cognitive participation. F1–F4 are sports behavioral participation; F5–F8 are sports emotional participation; F9–F12 are sports cognitive participation. The higher the total score, the higher the level of sports competition behavior, which is hereinafter referred to as the sports competition behavior scale (HOPPER et al., 2018).

2.3. Analysis of reliability and validity of research tools

In this study, the main factors were measured in the form of scales, so testing the data quality of the measurement results is an important prerequisite to ensure that subsequent analysis is meaningful. First, the internal consistency of each dimension was analyzed through the Cronbach's coefficient reliability test method, and the validity analysis was tested using the confirmatory factor analysis standard.

In this analysis, the reliability and validity analysis results are shown in **Table 1**. The results show that the four scales of social support, basic psychological needs, autonomous motivation for physical exercise and sports competition behavior have good reliability and validity (see **Table 2**).

Table 2. Reliability and validity analysis results.

	Social support scale	**Basic psychological needs scale**	**Autonomous motivation scale**	**Sport competitive behavior scale**
Cronbach's coefficient	0.902	0.978	0.924	0.933
Test-retest reliability	0.872	0.872	0.872	0.872
Number of items	12	18	18	12
χ^2	5.463	5.987	111.745	169.864
RMSEA	0.695	0.049	0.034	0.047
SRMR	0.957	0.012	0.026	0.036
TLI	0.946	0.987	0.965	0.939
CFI	0.982	0.995	0.939	0.917
IFT	0.972	0.933	0.947	0.987

Exploratory factor analysis showed that the KMO of the total scale was 0.863, χ^2 = 13479.44, df = 741, and Sig = 0.000, so the internal reliability of each scale met the requirements. The external reliability of the questionnaire was measured using the test-retest method. In this study, before the formal distribution of questionnaires, a class of college students from a certain school was randomly selected and 70 questionnaires were distributed. After the on-site responses were completed, the questionnaires were collected and distributed again to the same group of people 3 weeks later. After analysis, the test-retest reliability coefficient was obtained as 0.872

($P < 0.01$), indicating that the reliability of the questionnaire was within the acceptable range and met statistical requirements.

3. Theory construction

Based on the aforementioned analysis, we constructed a social support structural equation model (SEM) theoretical model to provide a theoretical reference for improving the level of college students' sports competition behavior and provide strong guidance for future practice. We used AMOS 26.0 software and structural equation modeling for data analysis and model validation. Initially, we conducted a confirmatory factor analysis on the scales, aiming to test the fit of the structural model.

The verification process includes two considerations:

(1) Delete all indicators with factor loadings less than 0.5 to improve the fit of the model;

Ensure that there is no correlation between all residuals, delete problematic factors, and further improve the fitness of the model (CURRAN et al., 1996).

Based on these two points, the factors we choose to retain will be introduced into the structural equation model for analysis. Next, we employed the maximum likelihood method to analyze the complete model, ensuring the data alignment with the multivariate normal distribution (BOLLEN and STINE, 1992). If the data in the entire model does not conform to the multivariate normal distribution (multivariate kurtosis value is greater than 5), we will use the Bollen-Stine Bootstrap method (n = 2000) proposed by Bollen and Stine to correct it and recalculate all fitness indicators. Although all model data conform to the univariate normal distribution, the overall model does not conform to the multivariate normal distribution, that is, the kurtosis value of the multivariate variable is 119 (should be less than 5). When the analyzed data does not conform to the multivariate normal distribution, it may cause the chi-square value to be inflated, so we use the Bollen-Stine Bootstrap method (n = 2000) for correction, use the Bollen-Stine corrected chi-square value and pass Bollen -Stine evaluation to determine if significant due to large sample size. All indicators of the modified model fit are within the standard range recommended by (HULT and BENTLER, 1998), that is, χ^2/df = 1.18, RMSEA = 0.01, TLI = 1, CFI = 1, IFI = 1, AGFI = 0.97, Hoelter's Critical N(CN) = 917.45, indicating that the fit of the model is very good.

The structure of the structural equation model between social support, basic psychological needs, autonomous motivation and sports competition behavior established using AMOS 26.0 software is shown in the figure:

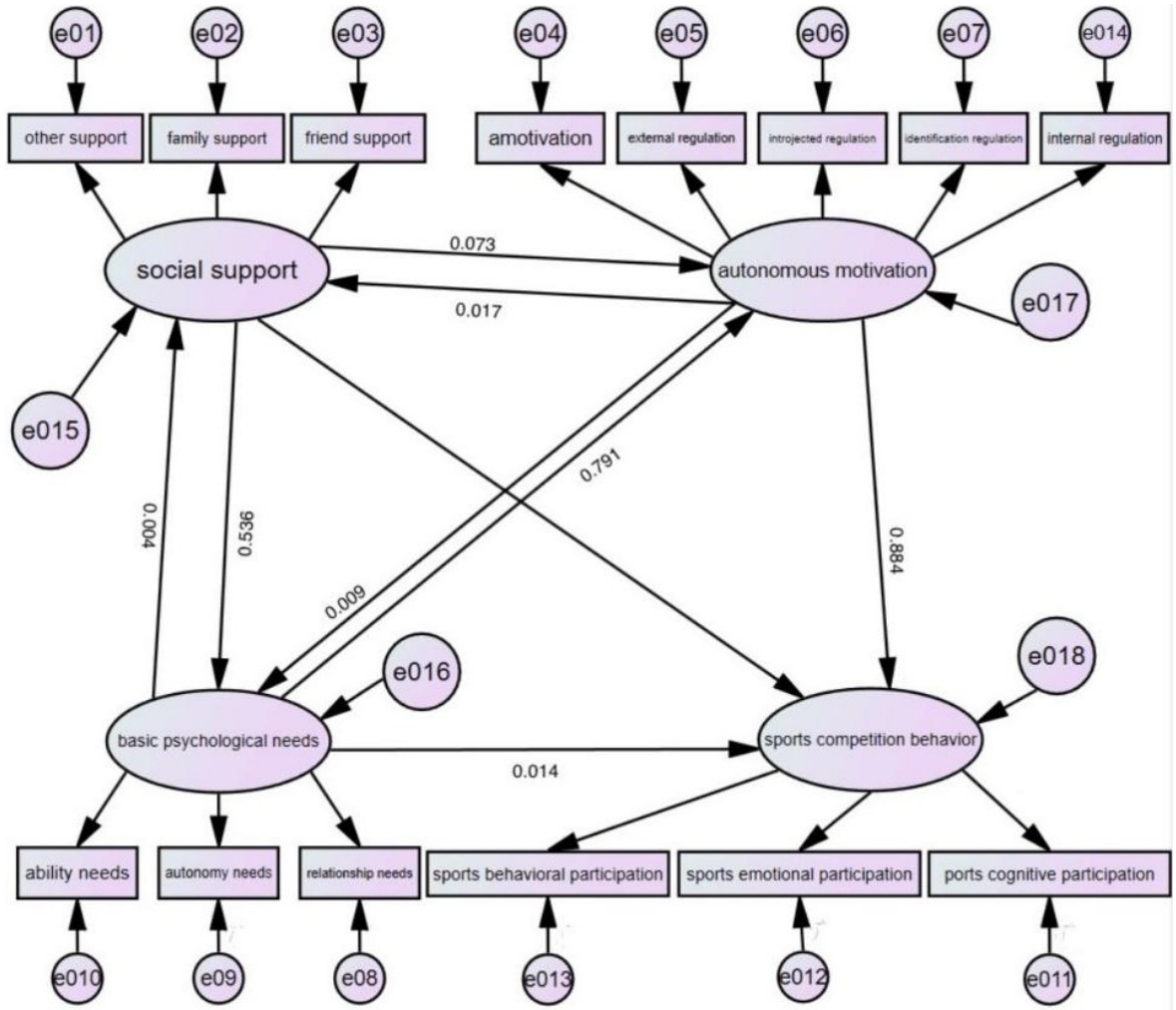

Figure 2. Structural equation model structure.

The path analysis results between each factor are shown in **Table 3**.

Table 3. Path relationship analysis results of each factor.

Path			Standardized regression coefficient	Standard error	Critical value	*P*
Social support	→	Sports competition behavior	0.024	0.021	3.281	0.001
Basic psychological needs	→	Sports competition behavior	0.014	0.032	0.542	0
Autonomous motivation	→	Sports competition behavior	0.884	0.047	4.055	0

The maximum likelihood method is used to estimate the value of each path coefficient. By analyzing the parameters in **Figure 2** and **Table 3**, three significant paths are generated. After eliminating the insignificant paths in the model, the influencing factors of sports competition behavior are obtained. Path and path effect value (see **Table 4**).

Table 4. Path effect values of each factor.

Path		Total effect	Direct effect	Indirect benefit
Social support	Sports competition behavior	0.463	0.024	0.439
Basic psychological needs	Sports competition behavior	0.713	0.014	0.699
Autonomous motivation	Sports competition behavior	0.884	0.884	0.000

It can be seen from **Table 4** that,

1) Social support has a significant positive impact on college students' sports competition behavior, mainly through indirect effects
2) Basic psychological needs and autonomous motivation have a mediating effect between social support and sports competition behavior. Social support passes through social support → basic psychological needs → autonomous motivation → sports competition behavior. This indirect path has an obvious effect.
3) Basic psychological needs and autonomous motivation have a chain mediating effect between social support and sports competition behavior. The mediating effect of basic psychological needs and autonomous motivation is consistent with the chain mediation model.

In summary, the analysis results of this survey questionnaire are consistent with the assumptions at the beginning.

According to different research objects, the differences in the impact of each variable on the group need to be considered when establishing the model. The study group is college students. Compared with primary and secondary school students, there are certain differences in the impact of different social relationships on their physical activities. In addition, college students usually live on campus and spend most of their time on campus, so environmental factors at the community level and organizational level (family) have less impact on their activities and behaviors. Chang et al. (Chang and Wu, 2008) and Wu et al. (Wu et al., 2007) have shown that there is a low negative correlation between parents' academic qualifications and college students' physical exercise behavior, and parents' attitudes towards their children's participation in physical exercise are not closely related to college students' participation in physical exercise. It can be seen that as age increases, college students' awareness of autonomy and independence continue to increase, and peers and teachers play a more important role in influencing factors of college students' physical exercise behavior. Therefore, parental influence was not included in this study.

4. Conclusion

Combining the above theory and research analysis, it is evident that social support plays a crucial and significant role in influencing college students' sports competition behavior. In order to promote and improve the level of college students' sports competitions, enhancing social support across various facets is essential to encourage active participation of college students in diverse sports competitions. The supportive competition atmosphere provided by the whole society can positively promote the satisfaction of basic psychological needs and the formation of autonomous motivation of college students in sports competitions. Students' satisfaction of basic psychological needs in sports competitions can have a positive impact on their autonomous motivation in the process of skill practice, and both of them can have an impact on students' enthusiasm for sports participation.

Although basic psychological needs and autonomous motivation also have a mediating role in promoting the level of college students' sports competition, these two factors cannot be easily enhanced by external cadres, so it is recommended to

increase social support.

However, there are still some limitations in this study: 1) In terms of sample selection, this paper only investigated the data from September–October 2023, and carried out questionnaire surveys on groups of college students in various universities in various provinces. According to the actual needs of the study, after eliminating the invalid samples such as incomplete basic information and incomplete answers, a total of 2650 sample questionnaires were obtained from 1464 samples of female residents and 1186 sample questionnaires of male residents. Due to the limited time and resources, the coverage of the students' grades as well as their majors was incomplete, and the sources of cross-sectional samples need to be further optimised; 2) In the measurement tools, although the study has not been conducted on three scales introduced from abroad, there are still some limitations in this study. 3) In terms of measurement tools, although this study conducted rigorous reliability and validity tests on the three scales introduced from abroad, its generalisability to all stages of the student population still needs to be improved as the survey target only focuses on the university student population.

Future research should reformulate the Chinese version of the scales for variables such as demand-supportive perception, basic psychological needs, and motivation to participate in sports according to the Chinese sports competition context, and increase and improve the sample diversity of the cross-sectional survey as much as possible to enrich the survey respondents and make the survey sample more representative and complete.

Author contributions: Conceptualization, CM and YZ; methodology, YZ; software, YW; validation, CZ, CM and YZ; formal analysis, CM; investigation, CZ; resources, YZ; data curation, CM; writing—original draft preparation, CM; writing—review and editing, YZ; visualization, CM; supervision, YZ; project administration, CM; funding acquisition, YW. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

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