

Sports motivation and sports success of college student-athletes in China

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Abstract

The role of sports in the lives of college students, particularly among Chinese students, is multifaceted, encompassing physical exercise, personal growth, social interaction, and skill development. This paper intended to assess the sports motivation and sports success of Physical Education majors in China, with a focus on exploring the problems and proposing sports programs to enhance the motivation and success of college students in sports. Utilizing a descriptive correlation and comparative research, data was collected from a diverse sample of 300 PE and non-PE major students. The results revealed that the respondents generally agreed on various dimensions of sports motivation and success, including amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation. Notably, no significant differences were observed in sports motivation and sports success across different demographic profiles, except for achievement and major. However, a significant relationship was found between sports motivation and sports success, highlighting the importance of fostering motivation to enhance sports performance. Recommendations for school administrators, physical education departments, teachers, and students were proposed to promote physical activity, elevate the importance of physical education, strengthen mental health promotion through sports, organize sports clinics, and encourage a balanced approach to academic and athletic pursuits. Future research directions were also suggested to explore best practices in sports motivation and sports success tailored to the needs of Physical Education majors in China. Overall, this study underscores the significance of sports in college life and the potential for targeted interventions to support students' holistic development and well-being.

Keywords: sports motivation, sports success, Chinese college students, PE majors

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1. Introduction

Sports play a vital role in the lives of college students worldwide, serving not only as a means of physical exercise but also as a platform for personal growth, social interaction, and skill development. Among Chinese college students, sports hold particular significance, reflecting a cultural emphasis on physical health and well-being. Engaging in sports activities not only fosters physical fitness but also cultivates valuable attributes such as teamwork, discipline, and resilience, which are highly valued in both academic and professional spheres. Within the realm of higher education in China, Physical Education (PE) courses represent a cohort deeply immersed in sports culture, with a keen interest in both the theoretical and practical aspects of physical activity among college students. Understanding the factors that drive their participation in sports and contribute to their success is essential for optimizing their educational experience and maximizing their potential as future educators and leaders in the field of physical education.

Sports motivation can be defined as the intrinsic motivation and motivation of individuals to participate in physical activity, which drives them to start, continue and persist in participating in physical activity or sports competitions, and shapes the development of the entire athletic motivation through personal achievement, external rewards and punishments, job satisfaction and overall well-being. Sports motivation likewise refers to the psychological processes that drive individuals to engage in sports activities and sustain their participation over time. At its core, sports motivation reflects the interplay between intrinsic desires, external pressures, and personal goals, shaping athletes' attitudes, behaviors, and performance outcomes (Ryan & Deci, 2020).

One of the foundational theories underpinning the study of sports motivation is Self-Determination Theory (SDT), proposed by Deci and Ryan (2013), which posits that individuals are motivated by three basic psychological needs: autonomy, competence, and relatedness. In the context of sports, autonomy refers to the sense of volition and choice in one's actions, competence pertains to the feeling of mastery and effectiveness in sports tasks, and relatedness involves the sense of connection and belongingness within the sporting community. These intrinsic motivational factors interact with extrinsic motivators, such as rewards, recognition, and social approval, as outlined in Achievement Goal Theory (AGT) proposed by Nicholls (1989); Roberts, and Nerstad, (2020), AGT emphasizes the importance of achievement goals, including mastery goals focused on personal improvement and performance-approach or performance-avoidance goals aimed at demonstrating competence relative to others or avoiding failure. Together, SDT and AGT provide a comprehensive framework for understanding the multifaceted nature of sports motivation, encompassing both internal drives and external influences that propel individuals towards engagement and achievement in sports pursuits.

Meanwhile, Duda & Nicholls (2022) asserted that success sports can be defined as achieving one's goals, achieving excellent results, improving physical fitness, and boosting self-confidence and perseverance. The definition of success varies from person to person, and success may have different connotations for different people. The most important thing is to enjoy the process of sports, growth and progress. Sports success can be conceptualized as the attainment of individual or team goals, achievement of outstanding results, improvement in physical performance, and enhancement of psychological attributes such as self-confidence and resilience. It encompasses both objective performance outcomes, such as winning competitions or achieving personal bests, and subjective measures, including satisfaction, fulfillment, and personal growth derived from participation in sports activities.

In addition, success in sports is influenced by a multitude of factors, including but not limited to, physical abilities, technical skills, tactical strategies, mental toughness, social support, and environmental conditions. When considering sports success among students, several unique factors come into play. Firstly, students often

have varying levels of experience, skill, and commitment to sports participation, which can impact their perceptions and experiences of success. Additionally, academic obligations, time constraints, and competing priorities may influence students' ability to fully dedicate themselves to athletic endeavors, potentially shaping their definitions and pursuit of success in sports (Gould et al., 2017). Moreover, the educational context adds another layer to the concept of sports success for students. Participation in sports can contribute to holistic development, fostering qualities such as teamwork, leadership, discipline, and resilience, which are valued in both academic and professional spheres. Therefore, success in sports for students may not only be measured by athletic achievements but also by its broader impact on their overall growth and well-being (Vella et al., 2018).

In China, sports among college students have become increasingly prominent due to various factors. Government initiatives play a significant role, with efforts aimed at promoting physical fitness and well-being among citizens, including college students. These initiatives often involve policies to increase sports participation and improve sports facilities on college campuses. The success of athletes on the global stage and increased media coverage of sporting events have fueled a growing interest in competitive sports among college students. However, this interest in sports must be understood within the broader context of academic pressure faced by Chinese college students. Academic excellence remains a priority, and students often encounter significant pressure to succeed academically. Balancing academic demands with sports participation can be challenging, potentially impacting students' motivations and commitments to sports activities. Moreover, traditional Chinese cultural attitudes towards sports also play a role, with sports valued primarily for their health benefits, while academic achievement takes precedence (Wang et al. 2020). These cultural norms may influence students' motivations and attitudes towards sports participation, shaping their experiences and perceptions of sports success. Therefore, understanding the interplay between government initiatives, academic pressures, cultural attitudes, and individual motivations is crucial for studying sports motivation and success among Chinese college students.

The importance of studying sports motivation and success among Chinese college students lies in its potential to inform interventions and policies aimed at promoting physical activity, enhancing academic performance, and improving overall well-being among this population. However, despite its significance, there are notable research gaps that need to be addressed to gain a more comprehensive understanding of these phenomena and their implications. Firstly, there is a scarcity of longitudinal studies examining the long-term effects of sports participation on academic achievement, career development, and overall well-being among Chinese college students. While existing research suggests positive associations between sports participation and various outcomes, such as cognitive functioning, time management skills, and self-esteem, longitudinal studies are needed to establish causality and explore potential mechanisms underlying these relationships.

Additionally, the role of cultural factors in shaping sports motivation and success among Chinese college students remains relatively understudied. Traditional Chinese cultural values, such as collectivism and academic achievement orientation, may influence students' attitudes towards sports participation and their perceptions of success in sports. Furthermore, there is limited research examining the effectiveness of interventions and strategies aimed at promoting sports motivation and success among Chinese college students. While some studies have explored the influence of intrinsic and extrinsic motivation on sports participation, more research is needed to develop and evaluate evidence-based interventions that effectively target these motivational factors and enhance students' engagement and success in sports.

Overall, addressing these research gaps is essential for advancing our understanding of sports motivation and success among Chinese college students and informing the development of tailored interventions and policies to promote physical activity, academic achievement, and overall well-being in these students. By bridging these gaps, researchers can contribute to the creation of a supportive and conducive environment through proposing programs that fosters students' holistic development and maximizes their potential for success in both academic and athletic endeavors.

Objectives of the study - The primary objective of this research was to explore the sports motivation and sports success levels of college students in China. Specifically, it aimed to outline the characteristics of the participants concerning gender, year level, and major. Furthermore, it sought to assess their sports motivation in terms of amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation. It also analyzed the respondents' sports success as to flow state, attention, technique, sensitivity to error, commitment, and achievement. The study also intended to analyze any significant difference in their responses in sports motivation and success based on participant profiles, and investigate correlations between the variables.

2. Methods

This study employed a descriptive research approach to examine the sports motivation and academic achievements of college students in China. Descriptive research is a methodology aimed at depicting characteristics, behaviors, or phenomena within their natural context. Unlike experimental research, which investigates cause-and-effect relationships, descriptive research endeavors to present an accurate depiction or snapshot of a situation without manipulating variables or introducing interventions. In this study, a stratified random sampling technique was employed to administer a questionnaire survey among 300 college students enrolled at the Vocational and Technical College of Guangzhou. The selection encompassed sports students from various academic standings and diverse backgrounds, ensuring a sufficiently robust sample size. With marginal error of 5 percent, determined using the Raosoft online calculator. Notably, the institution spans an expansive area of 1,200 acres, accommodating a student population of approximately 150,000.

This study used an adapted questionnaire. The questionnaire is divided into three parts: the first part is a brief introduction to the respondents. The second part is on sports motivation which was based on Brière, et al., (1995) and The third part was intended to measure sports success. It is adapted from Mousavi and Vaez Mousavi (2015) surveys on how sports success aids to change bad behaviors and improve quality of life. Reliability statistics of sports motivation and success, alongside their respective Cronbach Alpha values, which assess the internal consistency reliability of the measures. In terms of sports motivation, the Cronbach Alpha values for each indicator suggest generally good to excellent reliability. Amotivation, External Regulation, Integrated Regulation, and Intrinsic Motivation all exhibit strong internal consistency, with Cronbach Alpha values ranging from 0.884 to 0.938, indicating reliable measurement of these constructs. Notably, Introjected Regulation and Identified Regulation demonstrate excellent reliability with Cronbach Alpha values exceeding 0.9, indicating highly consistent measurement. On the other hand, the indicators of sports success also display acceptable levels of reliability, although slightly lower compared to motivation indicators. The Cronbach Alpha values for Flow State, Attention, Technique, Commitment, and Achievement fall within the range of 0.819 to 0.896, suggesting good internal consistency. Sensitivity to error stands out with an excellent Cronbach Alpha value of 0.903, indicating highly reliable measurement of this aspect. This means that the main data collection tools used are reliable and can be used for large -scale research.

Structured questionnaires, utilizing validated scales, were adapted to evaluate motivation for sports participation, encompassing factors such as social engagement, fitness, and competition, as well as the quality of work life, which includes aspects like job satisfaction, work-life balance, and stress levels. The participants in the study were representative physical education teachers. The distribution of the questionnaire was facilitated through WeChat, and the statistical analysis was conducted using the questionnaire star platforms.

For data analysis, several statistical tools were employed. Frequency and percentage distribution were utilized to outline the respondents' profiles concerning gender, age, and years of teaching experience. Weighted means and rankings were applied to assess their sports motivation in terms of motivation, dedication, and satisfaction, as well as to evaluate sports success factors including adequate and fair compensation, a safe and healthy environment, human capacity development, growth and security, constitutionalism, total life space, and social relevance. The results of the Shapiro-Wilk Test indicated that the p-values for the main variable were less

than 0.05, indicating a non-normal distribution of the dataset. Consequently, non-parametric tests such as Mann-Whitney U test and Kruskal-Wallis test were employed to assess significant differences. Additionally, Spearman's rho was utilized to examine the significant relationships among the variables under study. Furthermore, a post hoc test was conducted. All data were analyzed using statistical software known as PASW version 26, with an alpha level set at both 0.05 and 0.01 to provide a comprehensive interpretation of the study results.

The report maintained confidentiality by identifying interviewees as students and faculty members of the Sports Academy, ensuring privacy and anonymity. The researcher maintained objectivity, presenting information based on collected data. Ethical considerations were taken, including prior informed consent, data anonymization, and participant rights. Participants were assured of voluntary participation and the right to withdraw at any time. These ethical considerations ensured the integrity, validity, and well-being of the participants.

3. Results and discussion

Table 1 presents the demographic characteristics of the respondents who are college students of China. The data categorizes individuals based on sex, grade level and group of field study. In terms of sex distribution, the majority of the respondents are male population with frequency of 165 or 55.0% while female is 135 or 45.0%.

Table 1

Percentage Distribution of the Respondents Profile

Sex	Frequency	Percentage %
Male	165	55.0
Female	135	45.0
Grade level		
Freshman	75	25.0
Sophomore	95	31.7
Junior	89	29.7
Senior	41	13.7
Group		
PE major	213	71.0
Non-PE major	87	29.0

This shows a higher population goes to male yet it is very close in quantity with females having 10% variance. These results give significant relevance that lots of females are also engaging in PE major nursing the gap between male and female engagement to PE field of study. This indicates that sex is not an issue when boys and girls are grouped to similar ability levels.

In terms of grade level, the highest number of respondents are sophomore students with a frequency of 95 or 31.0% of the total population followed by junior levels with 89 in quantity or 29.7% of the total population. Freshman on the other hand is 75 in frequency or 25.0% of the total population while senior has the lowest quantity which is 41 or 13.7% of the total population. This shows that the majority of freshman students to junior students are engaged to PE major while there is a very limited quantity of engagement for senior students. Due to the large amount of time dedicated to schooling, students are influenced by many elements, including teachers, their peers, the programs provided and their co-curricular activities.

In terms of group of study, the majority of the respondents are PE majors with a quantity of 213 or 71.0% of the total population while the total population of non-PE majors is 71 in quantity or 29.0% of the total respondents. This entails a high quantity of respondents who are engaged in PE major as field of study. In middle school, physical education is viewed as time to have fun.

Table 2*Summary Table on Sport Motivation*

Indicators	Composite Mean	Verbal Interpretation	Rank
Amotivation	3.27	Agree	1
2. External Regulation	3.17	Agree	4
3. Introjected Regulation	3.26	Agree	2
4. Identified Regulation	3.21	Agree	3
5. Integrated regulation	3.11	Agree	6
6. Intrinsic Motivation	3.14	Agree	5
Average Composite Mean	3.19	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 2 presents a summary of sport motivation indicators among the respondents, including their weighted mean scores, verbal interpretation, and ranks. The highest composite mean score of 3.27 was observed for "Amotivation," it is notable that respondents generally agreed with statements indicating a lack of motivation towards sports activities. This suggests a concerning trend where individuals may feel disengaged or indifferent towards participating in sports. The prevalence of amotivation in this context could have several implications, including decreased participation rates, lower performance levels, and reduced overall well-being among individuals. This finding underscores the importance of identifying and addressing factors contributing to amotivation in sports, such as lack of interest, perceived incompetence, or negative past experiences. Strategies aimed at enhancing motivation and fostering a positive sports culture may be necessary to counteract the effects of amotivation and promote greater engagement and enjoyment in sports activities.

In addition, introjected regulation achieved the composite mean of 3.26 which ranked 2nd. The second rank indicates that respondents generally agreed with statements suggesting that internal pressures or feelings of guilt influence their motivation to engage in sports. Introjected regulation represents a form of internalized motivation, where individuals participate in sports to avoid feelings of guilt or to maintain self-esteem. While more internalized than external regulation, introjected regulation still reflects a somewhat controlled form of motivation, as individuals may feel compelled to participate in sports due to perceived social expectations or self-imposed pressures. The high agreement with introjected regulation underscores the importance of addressing internal barriers to sports participation, such as fear of failure or social comparison. Fostering a supportive and inclusive sports environment that values effort over outcome may help reduce feelings of guilt and promote intrinsic motivation among individuals.

The fifth rank was obtained by intrinsic motivation with the composite mean of 3.14. This rank suggests that respondents agreed with statements indicating that they engage in sports for the inherent enjoyment and satisfaction it brings. Intrinsic motivation represents the highest level of autonomous motivation, where individuals participate in sports for the sheer pleasure and enjoyment of the activity itself. The agreement with intrinsic motivation underscores the importance of fostering a positive and enjoyable sports experience that promotes intrinsic rewards such as mastery, challenge, and personal growth. Providing opportunities for autonomy, competence, and relatedness within the sports context can help enhance intrinsic motivation and promote long-term engagement and enjoyment in sports activities.

On the other hand, for the lowest composite mean, "Integrated Regulation" with a composite mean of 3.11, it is evident that respondents generally agreed less strongly with statements indicating that sports participation is integrated into their sense of self. Integrated regulation reflects a higher level of self-determined motivation, where individuals engage in sports activities because they align with their personal values and identity. The lower endorsement of integrated regulation may suggest that individuals perceive sports participation as less central to their sense of self or identity. This finding highlights the need to explore factors that may influence the integration of sports into one's identity, such as social support, or personal experiences. Understanding the determinants of integrated regulation can inform interventions aimed at promoting a stronger sense of identity and connection to sports, thereby enhancing motivation and long-term engagement in sports activities.

The average composite mean of 3.19 indicates that students generally agreed on various aspects of sports motivation. This suggests a positive overall attitude towards sports participation among the respondents. The relatively high composite mean reflects a moderate to strong endorsement of different motivational factors driving engagement in sports activities. This finding is consistent with research indicating that individuals are motivated by a combination of intrinsic and extrinsic factors when participating in sports (Schüler et al., 2021). The agreement with multiple motivational indicators suggests that individuals are influenced by a variety of factors, including internal drives such as enjoyment and satisfaction, as well as external incentives such as rewards or social recognition. This comprehensive understanding of sports motivation is crucial for developing effective strategies to enhance engagement and participation in sports activities among students.

This highlights the importance of considering individual differences in sports motivation. While the overall agreement suggests a general positive attitude towards sports participation, it is essential to recognize that individuals may have unique motivational profiles and preferences. Tailoring interventions and programs to align with individuals' specific motivational needs and preferences can help optimize engagement and promote sustained participation in sports activities. Additionally, fostering a supportive and inclusive sports environment that values effort, progress, and personal growth can further enhance motivation and contribute to a positive sports experience for all participants (Bhavsar et al., 2020).

Table 3

Summary Table on Sport Success

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Flow State	3.17	Agree	3
Attention	3.08	Agree	5
Technique	3.14	Agree	4
Sensitivity to error	3.23	Agree	1
Commitment	3.06	Agree	6
Achievement	3.18	Agree	2
Composite Mean	3.14	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 3 presents the summary of sport success indicators among the respondents, including their weighted mean scores, verbal interpretation, and ranks. The highest composite mean score was observed for “sensitivity to error”. It is notable that respondents generally agreed with the statements indicating individuals can identify errors by referring to learning to be careful in the battlefield and correcting errors on the next performance. This suggests sensitivity to errors can help to continuously improve oneself and grow during sports engagement and achieve success which is associated with a growth mindset. In addition, “achievement” gained the composite mean of 3.18 which ranked 2nd. This implies that one can succeed in sports associated with performance improvement by practice and mastery with guidance. With clear goals in mind will harness one’s skills in order to achieve the goal. Harnessing skills involves practice, learning and mastery by education and experience.

Also, the flow state has the weighted mean of 3.17 which is ranked 3rd. This rank suggests success in sports is associated to self-determination and hardwork to surpass challenging situations, focus on goals to win the game despite possible distractions like heat, cold and noise, performing to places they are not used to which may interfere self-confidence in the battlefield, when they feel everything is under control and also when they are so drowned in the game that they sometimes forget the passage of time. Also, the technique got the weighted mean of 3.14 which is rank 4th. This rank suggests having your own technique can help in achieving success in sports. Technique is associated with planning to reach the goal. Through special technique, one can be unique from the others. Sustaining physical fitness throughout the season is crucial for optimal athletic performance, with regular fitness assessments and consistent training being essential components of maintaining fitness levels.

The weighted mean of 3.08 for attention, ranking 5th, suggests a notable association between attentional focus and success in sports. The ability to maintain focus and concentration during sports activities is crucial for optimal performance, as it allows athletes to effectively execute skills and strategies while minimizing errors.

Moreover, the emphasis on attention underscores its role in shaping other aspects of athletic performance, such as decision-making, reaction time, and situational awareness. On the other hand, commitment has the lowest weighted mean of 3.06. It is evident that respondents generally agreed less strongly with statements indicating commitment is integrated to success in sports. This suggests students might be more focus on identifying possible errors instead of looking positively in performing their responsibilities in sports. They may find it challenging to attend on time to the training and competitions, respect their competitors, not neglecting to encourage teammates in the competition and practices, respect sports and rules and respectfully behave both in success and failure which may affect their long term engagement to sports due to many other activity engagements they need to attend to not giving prioritization to sports.

The average composite mean of 3.14 indicates that students generally agreed on various aspects of sports success. This suggests a positive overall attitude of students towards sports participation among the respondents. The relatively high composite mean reflects moderate to strong endorsement of different indicators to achieve success in sports towards increasing engagement to sports activities of despite challenging situations of middle school students. The findings align with Martin-Rodriguez et al.'s (2024) research, which emphasizes resilience as the ability to perceive stressors as opportunities. They suggest that traits like open-mindedness and intrinsic motivation are associated with resilient responses, as individuals motivated by personal satisfaction and enjoyment of tasks tend to demonstrate higher resilience. Sports environments, with their inherent challenges, serve as ideal contexts for developing positive coping skills and studying their differential effects on individuals.

Table 4

Difference of Responses on Sports Motivation when grouped according to Profile

Sex	χ^2_c / U	p-value	Interpretation
Amotivation	1017.5	0.195	Not Significant
External Regulation	10921	0.767	Not Significant
Introjected Regulation	11091	0.949	Not Significant
Identified Regulation	11038.5	0.891	Not Significant
Integrated regulation	10144	0.165	Not Significant
Intrinsic Motivation	10865	0.710	Not Significant
Grade Level			
Amotivation	7.586	0.055	Not Significant
External Regulation	6.042	0.110	Not Significant
Introjected Regulation	5.964	0.113	Not Significant
Identified Regulation	2.119	0.548	Not Significant
Integrated regulation	2.025	0.567	Not Significant
Intrinsic Motivation	3.935	0.269	Not Significant
Major			
Amotivation	0.327	0.568	Not Significant
External Regulation	0.837	0.360	Not Significant
Introjected Regulation	3.215	0.073	Not Significant
Identified Regulation	1.94	0.164	Not Significant
Integrated regulation	0.011	0.916	Not Significant
Intrinsic Motivation	2.344	0.126	Not Significant

Legend: Significant at p-value < 0.05

Table 4 presents the comparison of responses on sports motivation when grouped according to profile. It was observed that there was no significant difference when grouped according to profile since the computed p-values were all greater than the alpha level, indicating a lack of statistical variance in the responses. It can be noted that there are no significant differences in the sports motivation of the respondents as to amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation when grouped according to sex profile as evident in the obtained p values of 0.195, 0.767, 0.949, 0.891, 0.165, and 0.710 respectively which are all greater than the 0.05 level of significance. Therefore, the hypothesis was rejected. The absence of significant differences in sports motivation between male and female respondents across various parameters suggests a nuanced understanding of how gender influences individuals' motivations in sports. One possible interpretation is that intrinsic motivations, such as enjoyment, personal satisfaction, and fulfillment derived from sports participation, transcend gender boundaries. This aligns with self-determination theory (SDT),

which posits that individuals are driven by intrinsic motivations when they perceive activities as inherently enjoyable and meaningful (Ryan & Deci, 2020). Thus, both male and female respondents in the study may share similar intrinsic interests and values related to sports engagement, leading to comparable levels of motivation across genders.

Moreover, societal shifts towards gender equality in sports may have contributed to the convergence of sports motivation among males and females. Over the years, there has been a concerted effort to dismantle gender stereotypes and provide equitable opportunities for sports participation irrespective of gender (Kavoura & Kokkonen, 2021). Consequently, both males and females may have equal access to resources, support systems, and role models that foster motivation for sports involvement. This suggests that societal changes have created an environment where intrinsic motivation for sports transcends traditional gender roles and expectations. Additionally, the lack of significant differences in sports motivation could reflect the effectiveness of interventions aimed at promoting sports participation among diverse populations. Research suggests that autonomy-supportive environments, where individuals feel empowered to pursue their interests and goals, can enhance intrinsic motivation for sports engagement (Hagger & Chatzisarantis, 2008). Such interventions may have been successful in fostering intrinsic motivation among both male and female respondents, thereby minimizing gender differences in sports motivation.

In addition, there are no significant differences found in the sports motivation of the respondents as to amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation when grouped according to year levels profile as evident in the obtained p values of 0.055, 0.110, 0.113, 0.548, 0.567, and 0.269 respectively which are all greater than the 0.05 level of significance. The absence of significant differences in sports motivation across various motivational dimensions when grouped according to year levels profile suggests that individuals at different stages of their academic journey exhibit comparable levels of motivation towards sports participation. One possible interpretation is that sports motivation is not significantly influenced by academic year levels, indicating that factors such as age, academic progression, or developmental stage do not exert a substantial impact on individuals' motivation to engage in sports activities. This finding aligns with the notion of Yan (2018) that sports participation and motivation can be influenced by a multitude of factors beyond academic considerations. While academic year levels may signify differences in academic workload, social interactions, and developmental milestones, they may not necessarily correlate with variations in sports motivation. Instead, individual differences, personal interests, social support networks, and extracurricular opportunities may play more significant roles in shaping sports motivation across different academic year levels.

Moreover, the lack of significant differences in sports motivation across year levels profile highlights the universality of sports as a source of motivation and enjoyment, regardless of individuals' academic standing. Sports offer opportunities for physical activity, social interaction, skill development, and personal growth, which may appeal to individuals across all academic stages. Therefore, the non-significant findings suggest that sports motivation remains consistent and resilient across different phases of individuals' academic journeys. Moreover, there are no significant differences observed in the sports motivation of the respondents as to amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation when grouped according to major profile as evident in the obtained p values of 0.568, 0.360, 0.073, 0.164, 0.916, and 0.126 respectively which are all greater than the 0.05 level of significance.

The absence of significant differences in sports motivation across different major profiles suggests that students, regardless of their academic majors, exhibit similar levels of motivation towards sports participation. This finding implies that the pursuit of sports engagement is not significantly influenced by the specific academic disciplines or majors that students are enrolled in. One possible explanation is that physical education (PE) has been ingrained in educational curricula from childhood, shaping individuals' attitudes and behaviors towards sports participation regardless of their chosen majors. This suggests that the foundational principles instilled through PE programs may contribute to a consistent level of sports motivation across different academic

majors. Furthermore, the notion that PE develops students' behavior and performance to participate in various physical activities aligns with the finding that sports motivation remains consistent across major profiles. Regardless of their academic focus, students may perceive sports participation as integral to their overall development and well-being, leading to similar levels of motivation towards sports engagement across different major profiles.

Table 5 presents the comparison of responses on sports success when grouped according to profile. It can be observed that there are no significant differences in the assessment of the respondents in sports success in terms of flow state, attention, technique, sensitivity to error, commitment, and achievement when grouped according to sex profile as evident in the obtained p values of 0.189, 0.359, 0.667, 0.912, 0.839, and 0.955 respectively which are all greater than the 0.05 level of significance. Therefore, the hypothesis was rejected. The absence of significant differences in sports success assessment across different sex profiles suggests that male and female Chinese college student - respondents exhibit similar perceptions of success in sports regardless of gender. The absence of significant differences in sports success assessments across various factors based on sex profiles suggests that gender may not be a determining factor in predicting sports success among the respondents. This finding challenges traditional notions of gender disparities in sports performance, indicating that both males and females in the study exhibit similar levels of proficiency and achievement in various aspects of sports participation. It implies that individual capabilities, skills, and commitment are more influential in determining sports success than gender stereotypes or biological differences. This aligns with contemporary research trends emphasizing equality and inclusivity in sports, where individuals are recognized and evaluated based on their abilities rather than their gender (Martin, 2018).

Table 5

Difference of Responses on Sports Success when grouped according to Profile

Sex	χ^2 / U	p-value	Interpretation
Flow State	10194	0.189	Not Significant
Attention	10488	0.359	Not Significant
Technique	10834.5	0.667	Not Significant
Sensitivity to error	11057	0.912	Not Significant
Commitment	10989.5	0.839	Not Significant
Achievement	11096	0.955	Not Significant
Grade Level			
Flow State	3.843	0.279	Not Significant
Attention	3.584	0.310	Not Significant
Technique	4.308	0.230	Not Significant
Sensitivity to error	1.561	0.668	Not Significant
Commitment	3.168	0.367	Not Significant
Achievement	3.767	0.288	Not Significant
Major			
Flow State	0.708	0.400	Not Significant
Attention	1.262	0.261	Not Significant
Technique	0.027	0.868	Not Significant
Sensitivity to error	0.279	0.597	Not Significant
Commitment	0.195	0.659	Not Significant
Achievement	4.798	0.029	Significant

Legend: Significant at p-value < 0.05

Furthermore, this finding underscores the importance of promoting gender equity and providing equal opportunities for sports participation and development regardless of gender. It suggests that efforts to encourage and support individuals in pursuing sports should be based on individual merit rather than gender-based assumptions. An inclusive environment that values and respects the diverse talents and contributions of all athletes, sports organizations and communities can maximize the potential for success and excellence in sports.

Likewise, it can be noted that there are no significant differences in the assessment of the respondents in sports success in terms of flow state, attention, technique, sensitivity to error, commitment, and achievement when grouped according to year levels profile as evident in the obtained p values of 0.279, 0.310, 0.230, 0.668,

0.367, and 0.288 respectively which are all greater than the 0.05 level of significance.

The lack of significant differences in sports success assessments across different year levels suggests that factors such as flow state, attention, technique, sensitivity to error, commitment, and achievement may not vary significantly as students' progress through their academic years. This finding implies that these aspects of sports success may be relatively stable over time, regardless of the individual's stage of education. It also suggests that factors other than academic year level, such as individual differences in skill development, motivation, or training experience, may have a more significant impact on sports success.

One possible interpretation of this result is that the skills and attributes necessary for sports success may develop independently of academic progression. For example, athletes may develop a consistent level of attention and commitment to their sport regardless of their academic year, reflecting a personal trait or characteristic rather than a developmental milestone. Additionally, the absence of significant differences in technique and sensitivity to error across year levels may indicate that these skills are honed through consistent practice and experience rather than academic progression alone. Supporting this interpretation, research by Martin et al. (2018) suggests that sports success is influenced by a combination of individual factors, including intrinsic motivation, self-regulation, and environmental factors such as coaching and support networks. This aligns with the idea that sports success is multifaceted and influenced by a range of factors beyond academic year level. Moreover, it can be noted that there are no significant differences in the assessment of the respondents in sports success in terms of flow state, attention, technique, sensitivity to error, and commitment when grouped according to majors profile as evident in the obtained p values of 0.400, 0.261, 0.868, 0.597, and 0.659 respectively which are all greater than the 0.05 level of significance. Therefore, the hypothesis was rejected.

The absence of significant differences in sports success assessments across different majors among Chinese college students suggests that factors such as flow state, attention, technique, sensitivity to error, commitment, and achievement may not be influenced significantly by the students' choice of major. This finding implies that regardless of their academic specialization, students exhibit similar levels of sports success-related attributes. This may imply that sports success is not strongly influenced by academic major but rather by individual characteristics, experiences, and training efforts. While academic majors may vary in terms of coursework and focus, they may not necessarily impact students' performance or mindset in sports activities. This suggests that personal factors such as intrinsic motivation, discipline, and dedication to training may play a more substantial role in determining sports success than academic specialization. Furthermore, the non-significant difference in achievement levels across majors may indicate that academic pursuits do not necessarily hinder or enhance students' performance in sports. It suggests that students from various academic backgrounds can excel in sports activities if they possess the necessary skills, mindset, and commitment. Supporting this interpretation, research by Zhang et al. (2020) suggests that personal factors such as motivation and perseverance are significant predictors of sports performance among college students, regardless of their academic majors. Additionally, studies by Li et al. (2018) emphasize the importance of individual effort and training in achieving success in sports, highlighting the role of consistent practice and dedication.

However, it is interesting to find out that there is significant difference in the assessment of the respondents in sports success in terms of achievement when grouped according to majors profile as evident in the obtained p values of 0.029 which is less than the 0.05 level of significance. Therefore, the hypothesis was accepted. The significant difference observed in the assessment of sports success of Chinese college students in terms of achievement when grouped according to majors profile suggests that the choice of academic major may indeed influence students' performance in sports-related achievements. This finding implies that certain academic disciplines may provide students with skills, knowledge, or opportunities that contribute to their success in sports achievement. This may mean that certain majors may offer coursework, resources, or extracurricular opportunities that directly or indirectly support sports-related achievements. For example, majors related to health sciences or sports management may provide students with specialized knowledge in sports training, nutrition, or management practices, which could enhance their performance in sports-related achievements.

Additionally, majors that emphasize teamwork, leadership, or communication skills may equip students with valuable attributes that translate into success in sports achievement.

Table 6 illustrated the association between sports motivation and sports success of college students in China. The calculated r-value indicates a strong direct correlation, with the resulting p-value being less than the alpha level. Specifically, it can be seen that when sports motivation of the Chinese college students in terms of amotivation was correlated in the sports success as to flow state, attention, technique, sensitivity to error, commitment, and achievement, it generated p values of 0.000 which are less than the 0.05 level of significance. The finding of significant correlations between sports motivation, particularly in terms of amotivation, and various aspects of sports success among Chinese college students suggests that motivational factors play a crucial role in influencing athletic performance and outcomes. A low level of amotivation, or lack of motivation, appears to be associated with better performance indicators such as flow state, attention, technique, sensitivity to error, commitment, and achievement in sports.

The significant correlations observed in this study align with previous research demonstrating the influence of motivation on sports performance. For example, studies by Vallerand et al. (1997) and Schüler et al. (2021) have shown that athletes who are intrinsically motivated tend to experience higher levels of flow, better concentration (attention), superior technique execution, greater resilience to errors, higher levels of commitment, and increased achievement in sports. These findings highlight the importance of understanding and addressing motivational factors in sports settings to enhance performance and overall success among athletes.

Table 6
Relationship Between Sports Motivation and Sports Success

Amotivation	rho-value	p-value	Interpretation
Flow State	.570**	0.000	Highly Significant
Attention	.490**	0.000	Highly Significant
Technique	.623**	0.000	Highly Significant
Sensitivity to error	.604**	0.000	Highly Significant
Commitment	.391**	0.000	Highly Significant
Achievement	.578**	0.000	Highly Significant
External Regulation			
Flow State	.680**	0.000	Highly Significant
Attention	.634**	0.000	Highly Significant
Technique	.608**	0.000	Highly Significant
Sensitivity to error	.602**	0.000	Highly Significant
Commitment	.700**	0.000	Highly Significant
Achievement	.764**	0.000	Highly Significant
Introjected Regulation			
Flow State	.687**	0.000	Highly Significant
Attention	.587**	0.000	Highly Significant
Technique	.586**	0.000	Highly Significant
Sensitivity to error	.586**	0.000	Highly Significant
Commitment	.646**	0.000	Highly Significant
Achievement	.754**	0.000	Highly Significant
Identified Regulation			
Flow State	.764**	0.000	Highly Significant
Attention	.767**	0.000	Highly Significant
Technique	.689**	0.000	Highly Significant
Sensitivity to error	.745**	0.000	Highly Significant
Commitment	.654**	0.000	Highly Significant
Achievement	.853**	0.000	Highly Significant
Integrated regulation			
Flow State	.529**	0.000	Highly Significant
Attention	.435**	0.000	Highly Significant
Technique	.385**	0.000	Highly Significant
Sensitivity to error	.331**	0.000	Highly Significant
Commitment	.480**	0.000	Highly Significant
Achievement	.434**	0.000	Highly Significant

Intrinsic Motivation			
Flow State	.649**	0.000	Highly Significant
Attention	.648**	0.000	Highly Significant
Technique	.561**	0.000	Highly Significant
Sensitivity to error	.602**	0.000	Highly Significant
Commitment	.663**	0.000	Highly Significant
Achievement	.770**	0.000	Highly Significant

Legend: Significant at p-value < 0.01

Meanwhile, when sports motivation of the Chinese college students in terms of external regulation was correlated in the sports success as to flow state, attention, technique, sensitivity to error, commitment, and achievement, it generated p values of 0.000 which are less than the 0.05 level of significance. The significant correlation between external regulation and sports success indicators among Chinese college students underscores the influence of extrinsic factors on athletic performance and outcomes. External regulation, which involves engaging in sports activities due to external rewards or pressures, can impact various aspects of sports performance. Vallerand and Losier (1999) suggests that athletes who are primarily driven by external rewards, such as praise or recognition from others, may experience fluctuations in motivation and struggle to maintain consistent performance levels. Deci and Ryan (2020) propose that excessive reliance on external rewards can undermine intrinsic motivation and diminish the enjoyment and satisfaction derived from sports participation.

Likewise, when sports motivation of the Chinese college students in terms of introjected regulation was correlated in the sports success as to flow state, attention, technique, sensitivity to error, commitment, and achievement. The significant correlation between introjected regulation and sports success indicators among Chinese college students suggests that internal pressures or motivations tied to self-esteem or ego play a role in athletic performance and outcomes. Introjected regulation, characterized by engaging in sports activities to avoid feelings of guilt or to enhance self-worth, can influence various aspects of sports performance. Niemiec & Sheldon, (2006) have explored the nuanced effects of introjected regulation on motivation and performance, highlighting its potential to both enhance and undermine athlete well-being depending on the degree of internalization and integration with personal values.

Also, when sports motivation of the Chinese college students in terms of identified regulation was correlated in the sports success as to flow state, attention, technique, sensitivity to error, commitment, and achievement. The significant correlation between identified regulation and sports success among Chinese college students suggests that individuals who engage in sports activities because they personally value them and find them meaningful are more likely to experience positive outcomes in terms of flow state, attention, technique, sensitivity to error, commitment, and achievement. This finding underscores the importance of internal motivation in driving success in sports endeavors. When individuals are intrinsically motivated and derive a sense of personal significance from their participation in sports, they are more likely to be fully engaged in their activities, maintain focus and attention, execute techniques effectively, learn from mistakes, demonstrate commitment, and ultimately achieve their goals. Standage et al. (2019) provides insights into the concept of passion, which is closely related to identified regulation. It emphasizes the idea that individuals who engage in activities that align with their personal values and goals experience a sense of passion, which drives sustained effort and perseverance. This aligns with the findings of the present study, as Chinese college students who reported high levels of identified regulation in their sports activities exhibited greater success across various dimensions of sports performance.

When sports motivation of the Chinese college students in terms of integrated regulation was correlated in the sports success as to flow state, attention, technique, sensitivity to error, commitment, and achievement. The significant correlation between sports motivation, specifically integrated regulation, and sports success among Chinese college students underscores the importance of internalizing extrinsic motivators and values associated with sports participation. Integrated regulation reflects a high level of internalization of external regulations and

values, where individuals engage in sports activities because they personally endorse their importance and relevance. This finding suggests that when college students fully integrate sports into their sense of self, they are more likely to experience positive outcomes such as flow state, heightened attention, refined technique, reduced sensitivity to errors, increased commitment, and enhanced achievement in sports.

Previous research by Hagger and Chatzisarantis (2008) supports this notion, demonstrating that integrated regulation is positively associated with various indicators of sports success, including intrinsic motivation, performance satisfaction, and persistence in sports activities. Their study highlights the role of internalization in fostering sustained engagement and optimal functioning in sports contexts. Additionally, findings from studies by Howard et al. (2020) further emphasize the positive impact of integrated regulation on sports performance and psychological well-being, suggesting that individuals who internalize extrinsic motives as part of their self-concept are more likely to experience greater fulfillment and success in sports endeavors.

Moreover, when sports motivation of the Chinese college students in terms of intrinsic was correlated in the sports success as to flow state, attention, technique, sensitivity to error, commitment, and achievement. The significant correlation between intrinsic sports motivation and sports success among Chinese college students highlights the importance of engaging in sports activities for inherent enjoyment, satisfaction, and personal fulfillment. Intrinsic motivation reflects an individual's internal drive to participate in sports due to the inherent pleasure and satisfaction derived from the activity itself, rather than external rewards or pressures. This finding suggests that when college students are intrinsically motivated to participate in sports, they are more likely to experience positive outcomes such as flow state, heightened attention, refined technique, reduced sensitivity to errors, increased commitment, and enhanced achievement in sports.

4. Conclusions and recommendations

The conclusions drawn from the survey findings shed light on several key aspects regarding sports motivation and success among college students majoring in Physical Education (PE). Majority of the respondents are males, sophomores, and majoring in Physical Education (PE). The respondents generally agreed on sports motivation across various dimensions, including amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation. The respondents exhibit a general agreement on sports success, encompassing aspects such as flow state, attention, technique, sensitivity to error, commitment, and achievement. There are no significant differences observed in the respondents' assessment of sports motivation and sports success when grouped according to sex, year level and major profiles wherein sports motivation refers to amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation while sports success pertains to flow state, attention, technique, sensitivity to error and commitment. There is a significant difference found in the assessment of the respondents in sports success in terms of achievement when grouped according to majors profile as evident in the obtained p values of 0.029 which is less than the 0.05 level of significance. Therefore, the hypothesis was accepted. A significant relationship exists between the respondents' sports motivation and sports success.

In light of these findings, the recommendations outlined in the study's conclusions aim to enhance students' motivation and success in sports. These recommendations span various stakeholders within the educational institution, including school administrators, heads of the Physical Education department, teachers, and students themselves. The school administrators may implement the twenty-four (24) targeted strategies suggested in the proposed plan to enhance and improve sports motivation and sports success of college students in China to guide students in physical exercise and promote scientifically designed exercise routines. These efforts as follows not only enhance physical fitness but also contribute to improving students' overall quality of life. The heads of the Physical education department may supervise physical education teachers to elevate the importance of physical education within the school curriculum. Enhance awareness among both students and teachers regarding the significance of physical activity, thereby establishing a robust organizational structure for physical education. The school administration may strengthen guidance on the diversity of sports programs and activities, with a

specific focus on mental health promotion. They may encourage students through motivational initiatives to foster mental well-being alongside physical fitness. The teachers may organize sports clinics to provide opportunities for students to showcase their athletic abilities and receive guidance on improving their skills. The students are encouraged to strike a healthy balance between academic studies and participation in sports and physical activities. The value of a well-rounded education that encompasses both intellectual and physical development may be emphasized among these students. The school may initiate discussion and implementation of the proposed action plan among relevant stakeholders to ensure its effectiveness in promoting sports participation and success. The future researchers may focus on conducting studies that explore best practices and emerging trends in sports motivation and success. Specifically, they should investigate teaching approaches tailored to meet the evolving needs and aspirations of college students in China.

5. References

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