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The Influence of Family Environment on Physical Activity Participation Among College Students in Chongqing

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Abstract

As the primary institution where students receive their education, the family plays a prominent role in the physical and mental development of university students. This study situates the family environment as the broader context to analyze its impact on the participation of college students in Chongqing in physical activities. The research categorizes universities in Chongqing into three types—specialized institutions, comprehensive universities, and normal universities—and focuses on students from these categories as the subjects of investigation. Methods such as literature review, questionnaire surveys, and mathematical statistics were

employed, with data analysis conducted using SPSS. The study concludes that the family environment has a significant positive influence on university students' motivation to engage in physical activities. Specifically, the greater the level of family support for participation in sports, the stronger the motivation of students to take part in such activities. This research aims to assess the extent to which family environment affects physical activity participation among university students in Chongqing, with the goal of enhancing their motivation and autonomy in sports engagement. By starting from the foundational level of family education, it seeks to gradually increase the importance of physical education within China's educational system and contribute to building a strong sporting nation.

Keyword: College Students' Physical Activity; Family Environment; Motivation for Physical Activity

1. INTRODUCTION

Both the 《“14th Five-Year” Plan for Sports Development》 and the *Opinions on Deepening the Integration of Sports and Education to Promote the Healthy Development of Youth* emphasize continuing to deepen the integration of sports and education mechanisms and enriching various sports programs for university students. The *Healthy China Initiative (2019–2030)* proposes the implementation of a “Health Promotion Campaign for Primary and Secondary Schools,” which requires joint efforts from families, schools, communities, and students themselves to enhance university students' participation in physical activities and improve their physical fitness. Existing research has shown that, due to heavy academic workloads, the frequency and consistency of university students' engagement in physical activities have declined, which is one of the main reasons for the deterioration of their physical health. Strengthening physical activity to improve university students' physical fitness has become an urgent priority^[1].

The family is the fundamental unit of society. Parents are a child's first teachers and play a crucial role in shaping their entire lives. A student's values, worldview, and personal development are profoundly influenced by sound parental guidance. Family-based physical activities can provide adolescents with positive sports experiences, boosting their interest and enthusiasm for athletics. Moreover, families can help impart relevant sports knowledge and exercise techniques, enhancing young people's athletic skills^[2]. Furthermore, studies have shown a positive correlation between family leisure activities and beneficial family outcomes. In such supportive environments, youth participation is likely to lead to more positive and even unanticipated rewards^[3].

2. Research Methods

The title of this study is based on the *Family Environment Scale (FES)*^[4] and the *Exercise Motivation Inventory (EMI)*^[5], which were adapted along two dimensions—"motivation for physical activity among university students" and "family environment"—and designed using a five-point Likert scale for response options. For data encoding of the scale, this study utilized SPSS software, with the following values assigned to each option: Strongly Disagree (1 point), Disagree (2 points), Neutral (3 points), Agree (4 points), and Strongly Agree (5 points). The questionnaire does not include reverse scoring, meaning all items are positively scored. For instance, based on the Family Environment Scale (FES), the original item “No one in the family participates in various physical activities” was modified to “My parents strongly support my

participation in physical activities.” Similarly, the original statement “Family members seldom engage in recreational activities beyond work or study” was adapted to “My family encourages me to participate in physical activities outside of academics to maintain physical and mental well-being.”. Following the Exercise Motivation Inventory (MPAM-R), the original item “I want to maintain a pleasant mood” was revised to “Engaging in physical exercise at school helps improve your physical and mental well-being.”

This study is structured around two key dimensions: "Physical Activity Participation" and "Family Environment." The first dimension represents the dependent variable, while the second corresponds to the independent variable. Items 9 to 15 pertain to the first dimension, and items 16 to 23 relate to the second. Through this scale, researchers can better analyze how family environment factors influence college students’ participation in physical activities, thereby providing a scientific basis for promoting their engagement in sports.

2.1 Distribution and Collection of Questionnaire

In mid-January 2025, questionnaires were distributed across universities in Chongqing to initiate data collection, which concluded by the end of the same month. The surveyed institutions were categorized into normal universities, comprehensive universities, and technical universities, totaling six institutions. One hundred questionnaires were administered at each university, resulting in a total distribution of 600 copies. The questionnaire consisted of 24 items. Following the collection, a review process was conducted during which 150 responses containing logical inconsistencies were excluded. The final sample size retained for analysis was 450 valid questionnaires

Table 1. Questionnaire Distribution and Recovery Status

Category	Questionnaires Distributed	Questionnaires Returned	Recovery Rate (%)	Valid Questionnaires
Normal	200	150	75%	150
Comprehensive	200	161	81%	150
Specialized	200	157	79%	150
Total	600	468	77%	450

2.2 Test of Reliability and Validity

Reliability analysis was conducted to assess the consistency and trustworthiness of the scale used in the questionnaire. Validity measurement, on the other hand, was employed to evaluate whether the observed variables stably and consistently reflected the intended latent constructs, serving as a key indicator of the scale’s validity. Reliability analysis was conducted to assess the consistency and trustworthiness of the scale used in the questionnaire. Validity measurement, on the other hand, was employed to evaluate whether the observed variables stably and consistently reflected the intended latent constructs, serving as a key indicator of the scale’s validity.

As shown in Table 2, both dimensions—Family Environment and Physical Activity Participation—achieved Cronbach’s alpha values above 0.95. The overall Cronbach’s alpha for the entire questionnaire reached 0.979, indicating excellent reliability. For validity analysis, two primary conditions were evaluated: a KMO value greater than 0.6 is generally required. The survey yielded KMO values of 0.941 and 0.952 for the two dimensions, both well above the threshold of 0.70, suggesting very strong validity. Moreover, the overall KMO value for the questionnaire was 0.972, further confirming excellent structural validity.

Table 2. Reliability and Validity Tests

<i>Dimension</i>	<i>Number of items</i>	<i>Cronbach's α</i>	<i>KMO Value</i>
<i>Motivation of Physical Activity</i>	7	0.958	0.941
<i>Family Environment</i>	9	0.963	0.952
<i>Entire Questionnaire</i>	16	0.979	0.972

3. Research Results

3.1 Analysis Of Family Environment And Current Participation In Physical Activity Among University Students

To gain a clear understanding of the family environment and the specific circumstances of physical activity among university students in Chongqing, this study employed descriptive statistical methods, with the test value set at 3. Due to the different types of institutions involved, the questionnaire was divided into three versions, though the questions for both dimensions remained unchanged. The following three tables present the analysis results for the three categories of higher education institutions: Table 4 shows the results for normal universities, Table 5 for comprehensive universities, and Table 6 for specialized universities. As illustrated in the tables below, the mean values for both the family environment and physical activity participation variables fall between 3 and 4. This indicates that while the family environment generally tends to support students' engagement in physical activities, the level of support is not particularly strong. Furthermore, the data suggest that students' motivation to participate in physical activities remains relatively low.

Table 3. Descriptive Statistics (Normal Universities)

	<i>N</i>	<i>Standard Deviation</i>	<i>Variance</i>	<i>Test Value</i>	<i>Mean</i>
<i>Family Environment</i>	150	± 1.21	1.47	3	3.6
<i>PAP</i>	150	± 1.21	1.45	3	3.6

PAP: Physical Activity Participation

Table 4. Descriptive Statistics (Comprehensive Universities)

	<i>N</i>	<i>Standard Deviation</i>	<i>Variance</i>	<i>Test Value</i>	<i>Mean</i>
<i>Family Environment</i>	150	± 1.19	1.42	3	3.7
<i>PAP</i>	150	± 1.15	1.34	3	3.7

PAP: Physical Activity Participation

Table 5. Descriptive Statistics (Specialized Universities)

	<i>N</i>	<i>Standard Deviation</i>	<i>Variance</i>	<i>Test Value</i>	<i>Mean</i>
Family environment	150	± 1.21	1.48	3	3.6
PAP	150	± 1.18	1.40	3	3.6

PAP: Physical Activity Participation

3.2 Correlation Analysis Between Family Environment and Participation in Physical Activities Among University Students in Chongqing

As presented in Table 10, the correlation coefficients (*r*) between the composite variables of "Family Environment" and "Physical Activity Participation among University Students in Chongqing" demonstrate consistently strong positive relationships across institutional types. Specifically, the values reach 0.964 for specialized universities, 0.962 for comprehensive universities, and 0.960 for teacher-training institutions.

All coefficients fall within the expected range of -1 to 1, with these results indicating robust correlations. The observed relationships are statistically significant at the $p < 0.01$ level, confirming a strong positive association between family environment and physical activity participation in all three university categories

Table 6. Analysis of Correlation Between Family Environment and College Students' Participation in Physical Activities

		<i>Participation in Physical Activities of College Students</i>
Family Environment (Specialized)	<i>Pearson Correlation</i>	0.964
	<i>Significance (2-tailed)</i>	**
Family Environment (Comprehensive)	<i>Pearson Correlation</i>	0.962
	<i>Significance (2-tailed)</i>	**
Family Environment (Teacher- Training)	<i>Pearson Correlation</i>	0.960
	<i>Significance (2-tailed)</i>	**

Note: ** indicates $p < 0.01$; * indicates $p < 0.05$.

3.3 Simple Linear Regression Analysis of Family Environment and Physical Activity Participation among University Students in Chongqing

3.3.1 Linear Regression Analysis

Table 7. Linear Regression Model Summary (Specialized Universities, Comprehensive Universities And Teacher-Training Universities)

<i>Item</i>	<i>R</i>	<i>R</i> ²	<i>Durbin-Watson</i>
Specialized Universities	0.964	0.929	1.781
Comprehensive Universities	0.962	0.926	1.836
Teacher-Training Universities	0.960	0.922	1.551

As shown in Tables 7, the R^2 value for specialized universities is 0.929, indicating that family factors explain 92.9% of the variance in college students' motivation for physical activity, while the remaining 7.1% may be influenced by other factors. The Durbin-Watson statistic was 1.781. Similarly, comprehensive universities showed an R^2 of 0.926, meaning that family factors account for 92.6% of the variance, with 7.4% potentially attributable to other variables, and a Durbin-Watson value of 1.836. For teacher-training universities, the R^2 was 0.922, suggesting that 92.2% of the variance is explained by family factors, leaving 7.8% to other influences, alongside a Durbin-Watson statistic of 1.551. All Durbin-Watson values are close to 2, indicating weak autocorrelation among the residuals. Although mild autocorrelation is present, it generally does not compromise the statistical inferences drawn from the regression models. These results further support the stability and reliability of the linear regression models applied. Overall, the findings provide robust evidence clarifying the relationship between family factors and college students' motivation for physical activity.

3.3.2 Regression Coefficients

Table 8. Linear Regression Model Coefficients (Specialized Universities)

Dimension	Unstandardized Coefficients	Standardized Coefficients	Significance
	B	Beta	**
(Constant)	0.249		
Family Environment	0.938	0.964	**

Note: a Dependent variable: University students' motivation for physical activity. ** indicates $p < 0.01$

Table 9. Linear Regression Model Coefficients (Comprehensive Universities)

Dimension	Unstandardized Coefficients	Standardized Coefficients	Significance
	B	Beta	**
(Constant)	0.249		
Family Environment	0.935	0.962	**

Note: a Dependent variable: University students' motivation for physical activity. ** indicates $p < 0.01$

Table 10. Linear Regression Model Coefficients (Teacher-Training Universities)

Dimension	Unstandardized Coefficients	Standardized Coefficients	Significance
	B	Beta	**
(Constant)	0.17		
Family Environment	0.952	0.960	**

Note: a Dependent variable: University students' motivation for physical activity. ** indicates $p < 0.01$

As shown in Tables 8 to 10, the family environment dimension demonstrates statistically significant effects ($p < 0.01$) across all university types. Specifically, the standardized coefficient (β) is 0.964 for specialized universities, 0.962 for comprehensive universities, and 0.960 for teacher-training institutions. All β values exceed 0.95, indicating not only statistical significance but also a strong positive influence of family environment on college students' motivation for physical activity. This suggests that more pronounced family factors correspond to higher levels of physical activity motivation among students.

These results not only reinforce previous findings regarding the relationship between family environment and physical activity participation among Chongqing university students but also provide quantitative evidence elucidating the strength and direction of this association.

4. Discussion

4.1 Analysis of the Basic Characteristics of Family Environment and University Students' Participation in Physical Activities

According to the data, in specialized universities, the "Family Environment" dimension received an average score of 3.6. Within this dimension, the item "My family members influence my physical activity participation" scored the lowest at 3.50. Similarly, in the "Motivation for Physical Activity" dimension, the statement "Do you believe physical exercise brings you physical and mental pleasure?" also received the lowest score of 3.48. These results suggest that parental influence on students' participation in physical exercise is relatively limited. While parents' own engagement in physical activity is known to be a significant factor in adolescents' involvement in sports, the data indicate that in this context, parental emphasis on—or frequency of—physical activity remains insufficient, indirectly contributing to lower initiative among adolescents in pursuing physical activities^[6]. Regarding motivation for physical activity, multiple factors beyond parental influence may contribute to adolescents' physical and mental well-being. These include urbanization levels, availability of sports infrastructure, general convenience of living conditions, as well as personal interests such as music or video games^[7].

In the survey conducted at comprehensive universities, the "Motivation for Physical Activity" dimension received an average score of 3.7. Within this dimension, the item "I hope to make myself more attractive through physical exercise" scored relatively low at 3.48, indicating that university students seldom consider enhanced attractiveness as a primary motive for engaging in physical activities. This suggests that factors beyond physical exercise—such as personal image, core self-evaluation, verbal expression, and social demeanor—are perceived as more influential in enhancing one's attractiveness^[8]. Additionally, within the "Family Environment" dimension, the statement "My parents strongly support my participation in physical activities" received the lowest score of 3.53. This implies limited parental involvement—such as seldom accompanying children in sports, failing to support their interests in physical activities, or prioritizing academic achievement over physical exercise due to cultural or educational constraints^[9]—which collectively contribute to the lower score observed.

In the survey conducted at teacher-training universities, both the "Motivation for Physical Activity" and "Family Environment" dimensions received an average score of 3.6. Within the motivation dimension, the item "Through sports, I can maintain good relationships with friends and make more friends" scored the lowest at 3.52. This relatively low score may be attributed to multiple factors. As noted by Chinese researchers studying self-development and emotional bonds among youth, social media plays a significant role in shaping interactions. Young people present different facets of themselves on social platforms depending on their mood and context, often forming connections around shared interests such as gaming, music, and physical activities^[10]. Similarly, in the "Family Environment" dimension, the statement "My family's sports background gives me more confidence when participating in physical activities" also scored the lowest at 3.52. Scholars such as Zhao Xuetong et al. emphasize that the family is a crucial setting for forming healthy attitudes toward sports. Parents influence adolescents' motivation and initiative through daily routines, role modeling, and actual participation in physical activities^[11]. The low score on this item suggests that limited family engagement in sports, low parental emphasis on physical activity, or even parental discouragement may contribute to a lack of confidence among.

4.2 The Influence of Family Environment on University Students' Participation in Physical Activities

This study employed correlation analysis to conduct an in-depth investigation into the specific relationship between family environment and university students' participation in physical activities. Using SPSS 27.0, the correlation analysis was carried out across three types of higher education institutions: specialized universities, comprehensive universities, and teacher-training universities. The results were as follows: for specialized universities, $R^2 = 0.929$, $r = 0.964$, $p < 0.01$; for comprehensive universities, $R^2 = 0.926$, $r = 0.962$, $p < 0.01$; and for teacher-training universities, $R^2 = 0.922$, $r = 0.960$, $p < 0.01$. These consistently high values demonstrate a significant positive influence of family environment on students' engagement in physical activities. In other words, the more supportive and conducive the family environment is toward physical exercise, the stronger the motivation among university students to participate in sports. Furthermore, the study highlights that parental support—whether expressed through encouragement, resources, or shared values regarding physical health—plays an especially notable role in shaping students' attitudes and motivation toward maintaining an active lifestyle. These findings underscore the importance of the familial context in promoting physical well-being among young adults and suggest that interventions aimed at increasing physical activity should consider engaging families as key facilitators.

According to the research by scholar Dong Hongwei, there is a positive correlation between university students' motivation to engage in physical activities and their family's economic status. As household income increases, parents tend to develop a stronger awareness of health and are more willing to invest in their children's well-being, thereby enhancing adolescents' participation in physical exercise^[12]. Similarly, Fan Huiying et al. demonstrated that both the frequency of parents' own physical activity and their involvement in sports together with their children significantly promote university students' engagement in physical activities and strengthen their motivation^[9]. Based on expectancy-value theory, Dempsey, Kimiecik, and others explored the relationship between parental attitudes toward sports and college students' physical activity behavior. Their findings indicate that parents' beliefs and attitudes regarding physical activity are significantly associated with their children's level of engagement. When parents develop beliefs that encourage their children to be physically active, the children exhibit stronger willingness to participate in sports^[13]. The results of our study are consistent with these previous findings. It is also important to note that family environment may not only directly affect university students' motivation for physical activity but could also exert influence through other mediating variables. For instance, self-efficacy serves as a crucial psychological mechanism—when students possess greater confidence in their ability to perform physical activities, their motivation to engage in them is likewise strengthened. Future studies may further examine how such mediating and moderating factors interact with familial influence to shape behavioral outcomes.

This study also employed simple linear regression analysis to examine the impact of family factors on university students' motivation for physical activity. The results revealed that family environment exerts a significant influence on variations in students' motivation for physical activity, accounting for approximately 92% of the observed variance. The remaining 8% can be attributed to other factors, among which self-efficacy and social support play particularly important roles.

For instance, self-efficacy has been widely recognized as a critical factor influencing an individual's participation in physical exercise. Numerous studies, both domestically and internationally, have explored the relationship between physical activity and self-efficacy, consistently concluding that self-efficacy serves as one of the key determinants of engagement in exercise. Dwyer et al., in their study on the correlation between self-efficacy and physical

activity, found a significant positive relationship between the two. Their research further indicated that individuals with higher levels of self-efficacy are more likely to adopt positive and proactive strategies to overcome barriers encountered during physical activities^[14]. Similarly, Chinese scholars such as Sun Yong Jun have demonstrated that self-efficacy has a substantial positive effect on individual physical activity participation^[15]. These findings suggest that enhancing students' self-confidence in their physical capabilities can effectively strengthen their motivation for exercise.

In addition to self-efficacy, social support has also emerged as a major factor influencing university students' motivation for physical activity. According to research by Tian Dandan, He Pingping, and others, elements such as support from family and friends, access to social health resources, and the availability of sports facilities significantly affect students' willingness and ability to engage in physical activities^[16]. For example, emotional encouragement from parents, financial support for purchasing sports equipment, or even peer companionship during exercise can greatly enhance student participation. Moreover, the availability and accessibility of sports resources—such as adequate leisure time, well-maintained facilities, and safe environments—also play a pivotal role in facilitating sustained engagement. It is worth emphasizing that while family environment remains the dominant predictor in this regression model, these auxiliary factors should not be overlooked. The interaction between self-efficacy, social support, and familial influence creates a complex motivational framework that collectively shapes students' attitudes and behaviors toward physical activity. Future studies may further explore the mediating and moderating effects of these variables to develop a more holistic understanding of how different factors interact within this dynamic.

In conclusion, the outcomes of this regression analysis not only affirm the substantial role of the family but also highlight the multi-faceted nature of motivation in physical activity. A comprehensive approach that integrates familial, psychological, and social dimensions may prove most effective in promoting healthy exercise habits among university students.

4.3 The Influence of Family Environment on the Development and Prospects of Chinese Sports

In the context of comprehensively advancing Chinese modernization, the development of sports has been endowed with new strategic significance and historical fate. The Third Plenary Session of the 20th CPC Central Committee clearly stated that deepening comprehensive reforms is a crucial pathway toward modernizing China's governance system and capabilities. In the sports sector, it set the ambitious goal of establishing China as a leading sports nation by 2035. This goal not only reflects the nation's high priority on sports, but also highlights the important role of sports in promoting public health, enhancing soft power, and strengthening national spirit.

Looking back at 2024, China's sports industry achieved remarkable accomplishments. Particularly at the Paris Olympic Games, Chinese athletes demonstrated exceptional performance and tenacious fighting spirit, showcasing the strength and positive image of Chinese sports to the world. This truly embodied the profound meaning of "A strong sports sector contributes to a strong nation."

However, alongside this vigorous development, China's sports industry also faces multiple challenges and difficulties. In recent years, due to the gradual reduction in sports school enrollments, the rapid commercialization of professional sports, and the multifaceted impacts of socio-economic restructuring, the traditional model of sports talent development is undergoing significant transformation. Against this backdrop, a new form of training—the

family-led sports talent development model—has gradually emerged, demonstrating strong vitality and adaptability. This model, centered on the family as the core unit, involves independent planning of the athlete's development path and comprehensive responsibility for their training, academic education, and daily management. It is characterized by a high degree of autonomy, comprehensiveness, and targeted support^[17].

The emergence of the family-led development model is both a product of socioeconomic progress and a result of evolving perspectives on education and growing awareness of sports participation. Under this model, families assume the majority of responsibilities in nurturing athletes—covering daily living expenses, hiring professional coaches, and funding domestic and international competitions, among other costs. This approach not only alleviates pressure on the traditional sports school system but also offers talented young individuals a more personalized and diversified pathway to growth. As scholar Cheng Bao Yu notes, “The family-based training model refers to a system where the athlete's development is fully funded by the family, including all living costs, coaching fees, and competition-related expenses.”^[18] Practice has shown that the family-led development model has produced a number of representative success stories. For instance, tennis rising star Zheng Qinwen, with strong family support, underwent systematic training from a young age and competed extensively overseas, eventually breaking into the world's top ranks. Snowboarder Su Yiming, whose family provided him with professional training conditions and steadfast emotional backing, achieved outstanding results on the international stage. Similarly, Zhou Guanyu, China's first Formula One driver, benefited from his family's substantial investment and strategic planning, enabling his rise from karting to elite motorsport. These cases not only demonstrate the effectiveness of the family-led approach but also offer valuable insights for diversifying China's sports talent development system. That said, the family-led model also faces certain limitations and challenges, such as high financial thresholds, significant pressure on families, and uncertainties in the development pathway. Moving forward, while deepening institutional reforms in sports, China should actively encourage broader societal involvement and establish a collaborative framework integrating families, schools, society, and government. This four-pillar mechanism will provide solid talent support for achieving the goal of becoming a leading sports nation by 2035. Only by continuously improving the ecosystem for sports talent cultivation can we open new horizons for Chinese sports and write a new chapter in its development.

Previous studies have indicated a positive correlation between adolescents' sedentary time and the availability of media devices at home, whereas a negative correlation exists with the presence of sports equipment—meaning that home sports facilities are significantly positively associated with adolescents' engagement in physical activity^[19-21]. The home environment can be divided into internal and external environments. The internal environment includes both psychological and physical aspects, with the physical environment playing a particularly important role in promoting adolescents' participation in various intensities of physical activity. The external home environment encompasses the social context, within which parental modeling has a more pronounced effect on adolescents' involvement in sports^[22]. A synthesis of previous literature suggests that the home environment is crucial for encouraging greater participation in physical activity among adolescents. A European study similarly demonstrated that the family environment significantly influences engagement in sports. This study included factors such as economic status, availability of sports equipment at home, support for physical activity, and genetic predisposition inherited from parents—all of which showed a positive correlation with sports participation^[23]. In light of these findings, it is expected that an increasing number of people in China will engage in sports, thereby contributing to the development of athletics in the country. Research by A. Folle, J.V. Nascimento, and others highlights that when there are family members who participate in sports, the rate of involvement among their close relatives is higher^[24]. The authors further substantiate the view that the family

plays a critical role in the initiation and development of an individual's sports career and can provide support and contribution in various ways ^[25]. Additionally, parents' values and behaviors related to sports have a significant impact on adolescents' participation in physical activities ^[26]. Parental encouragement and support can enhance adolescents' initiative and competence in sports ^[27], thereby fostering a greater interest and passion for athletics. Beyond mere physical exercise, sports also help adolescents develop social skills, leadership abilities, and problem-solving capabilities ^[28-31].

Schools should place greater emphasis on students' physical health and elevate the importance of physical education within the curriculum, ensuring that students receive a balanced development in both academic and physical domains. At the same time, families should strengthen collaboration with schools and the broader community ^[13]. Currently, family education in China is entering a new phase, where family sports and the integration of "family-school-community" have been recognized as part of the national education strategy. However, numerous challenges and difficulties remain. By addressing the current shortcomings in family sports, stimulating initiative and enthusiasm for physical exercise, and achieving organic coordination and flexible synergy among families, schools, and communities, family sports can become not only a vital support for the development of China's sports industry but also an important pathway to fulfill the fundamental mission of fostering virtue and nurturing talent ^[32].

5. Conclusions and Recommendations

5.1 Conclusions

5.1.1 Analysis Of Family Environment And College Students' Physical Activity Participation

According to survey data collected from specialized, normal, and comprehensive universities, the average scores for both "Family Environment" and "College Students' Sports Participation" were 3.6 in specialized and normal universities, while comprehensive universities scored slightly higher at 3.7. The overall average across all three types of institutions falls within a moderate range, indicating that there is still room for improvement in both sports' participation among students and the influence of family environment. A more detailed analysis of the "Family Environment" dimension reveals certain variations among different types of universities. In specialized universities, the item "My family members have influenced my participation in sports" received the lowest average score in this dimension, at only 3.50, suggesting that students in these institutions experience relatively weak direct influence from family members regarding physical activity. In comprehensive universities, the statement "My parents strongly support me in participating in sports" scored the lowest at 3.53, indicating that even in environments with relatively higher family support awareness, explicit and active supportive behaviors are still insufficient. Furthermore, within the same category, the item "My family's sports background gives me more confidence when engaging in physical activities" also received a relatively low score of 3.52 in comprehensive universities, reflecting that the development and intergenerational transmission of a family sports culture need strengthening. Similarly, in the dimension of "Motivation for Sports Participation," the survey results highlight some common concerns. In specialized universities, the item "Do you believe physical exercise contributes to your physical and mental well-being?" scored the lowest in this dimension, with an average of 3.48, indicating that students in specialized institutions have relatively low recognition of the health benefits of sports. In comprehensive universities, the statement "You hope to make yourself more attractive through physical exercise" also averaged 3.48, the lowest in the dimension, suggesting that motivation to enhance physical appearance through sports is relatively weak. In normal universities, the lowest-scoring item was "Through

sports, I can maintain good relationships with friends and meet more people,” with a score of 3.52, showing that students are not highly motivated by social incentives to engage in physical activities. The statistical results above reveal two main issues to some extent: First, while college students’ families generally hold a supportive attitude toward their participation in sports activities, the level of support remains limited and has not yet translated into a significant impact. Such support often remains at the level of basic permission and encouragement, while there is considerable room for improvement in fostering a proactive family sports culture, providing substantive companionship, or engaging in activities together. As the primary setting where individuals’ sports behaviors take root, the family’s influence mechanism requires deeper guidance and structural development to shift from passive support to active involvement. Second, college students’ personal motivation to engage in physical activity is generally weak. Whether concerning physical and mental health, external appearance, or social expansion, no strong driving inclination is observed. This phenomenon reflects that the recognition of the value of physical exercise and a genuine internal demand for it have not yet fully formed among the current student population. It also suggests that physical education in schools still faces challenges in stimulating students’ intrinsic motivation and fostering long-term exercise habits. These outcomes are relevant not only to the improvement of individual student health but also have an important impact on building a vibrant sports culture on campus. Looking ahead, it is essential to make coordinated efforts at multiple levels—family, school, and society—by strengthening family sports awareness, innovating physical education teaching methods, and enhancing the social aspects of sports. Through these measures, we can gradually bolster both internal motivation and external support for college students’ sports participation, encouraging them to develop sustainable exercise habits throughout their lives.

5.1.2 The Influence of Family Environment on Physical Activity Participation Among College Students

Based on the data calculated by SPSS for the three types of universities, the following results were obtained: In specialized universities, $R^2 = 0.929$, $r = 0.964$, $p < 0.01$, and the Durbin-Watson statistic was 1.781, which is very close to 2, indicating weak autocorrelation among the model residuals. While this slight deviation generally does not affect the statistical inference of the regression, the data still support the stability and reliability of the linear regression model. The family factor dimension showed significance at $p < 0.01$, with a variance explanation rate of 92.9%, indicating that the independent variable (family factor) significantly influences the dependent variable (college students' motivation for physical activity). The standardized coefficient for the family factor was 0.964, suggesting that for every one-unit increase in the family factor, motivation for physical activity increases by 0.964 units. In comprehensive universities, $R^2 = 0.926$, $r = 0.962$, $p < 0.01$, and the Durbin-Watson statistic was 1.836, approximating the ideal value of 2. This indicates no autocorrelation among residuals, meaning they are independent and do not influence each other. These results further confirm the stability and reliability of the linear regression model. The family factor dimension was significant at $p < 0.01$, accounting for 92.6% of the variance, demonstrating a significant influence of the family factor on motivation for physical activity. The standardized coefficient of 0.962 indicates that a one-unit increase in the family factor leads to a 0.962-unit increase in motivation. In normal universities, $R^2 = 0.922$, $r = 0.960$, $p < 0.01$, and the Durbin-Watson statistic was 1.551, which is relatively close to 2. This suggests that the residuals are largely independent with no significant autocorrelation, supporting the stability and reliability of the linear regression model. These findings collectively indicate that the family environment has a significant positive impact on college students' motivation to engage in physical activities. That is, the more support students receive from their families, the stronger their motivation to

participate in various sports activities. This conclusion highlights the importance of the family environment in promoting physical activity, underscoring the need to consider family factors in future strategies aimed at encouraging sports participation.

5.2 Recommendations

(1) Encourage Active Family Involvement and Support. The family serves as a crucial setting for individual socialization, and family members' attitudes and behaviors profoundly influence an individual's participation in physical activities. Encouraging family members to actively participate in and support sports can not only enhance an individual's willingness to engage through shared activities but also help establish long-term exercise habits through ongoing emotional support. Specifically, family members can exercise together—such as morning runs, ball games, or cycling—to convey the joy and value of sports through firsthand experience. Additionally, watching sports events together and discussing related topics can strengthen cultural identification and emotional bonds with physical activity. These shared sports experiences not only boost personal motivation but also contribute to building a positive sports atmosphere within the family, thereby unconsciously increasing college students' interest and involvement in sports.

(2) Organize Regular Family Sports Activities to Enhance Awareness and Interaction. Families can further strengthen members' sports awareness and family cohesion by regularly organizing physical activities. For example, weekend hikes, family sports days, seasonal mountain climbing, or skiing trips not only promote physical exercise but also enhance emotional communication and teamwork within the family. Such activities are particularly meaningful for college students, as they can naturally cultivate good exercise habits without overtly emphasizing “working out.” At the same time, families can improve understanding of the importance of physical activity through education and awareness-building. Parents can share knowledge about exercise science, read health-related books together, or participate in community health seminars, highlighting how sports benefit not only physical health but also mental well-being, learning efficiency, and work performance. In such an environment, college students are more likely to develop positive sports values and proactively engage in various physical activities.

(3) Boost Students' Self-Efficacy in Sports Through Encouragement. Parental encouragement and support play a vital role in students' participation in physical activities. Affirmative feedback, periodic rewards, and emphasis on effort rather than outcomes can significantly enhance students' self-efficacy in sports. This psychological resource helps them build confidence when facing athletic challenges and adopt a positive attitude in overcoming setbacks. For instance, when a student encounters a plateau in a certain sport, parents can guide them to focus on their own progress rather than comparing themselves to others, fostering a “growth mindset.” In this process, sports become not only a physical practice but also an effective way to build character and develop resilience. Through this approach, students can genuinely experience the sense of achievement and happiness brought by sports, making them more willing to maintain long-term physical activity habits.

(4) Promote the Comprehensive Benefits of Sports and Foster a Positive Self-Image. Parents should proactively communicate the multiple benefits of participating in physical activities. In addition to obvious physical health improvements—such as enhanced cardiorespiratory function, better posture, and improved immunity—the positive effects on psychological and social adaptability should also be emphasized. For example, exercise can promote the secretion of endorphins, alleviate stress and anxiety, and enhance emotional stability. Meanwhile, good exercise habits help shape a fit physique, thereby boosting external attractiveness and self-image. This physical confidence often extends to other areas of life,

enabling students to exhibit greater confidence and resilience in academic, social, and professional development. Parents can use real-life examples, role models, and collaborative goal-setting to help students recognize that sports are not just about “exercise” but an effective strategy for improving overall quality of life.

6. Research Limitations

While this study offers a relatively detailed investigation into the motivation for physical activity among university students in Chongqing through the dimension of family environment, several limitations remain.

Firstly, the family environment encompasses numerous factors, not all of which were included in this study. Only representative factors were selected for examination, and even these were not explored in sufficient depth. Future research could conduct more granular analyses of these factors and investigate their long-term effects on motivation for physical activity.

Secondly, although methods such as simple linear regression and correlation analysis were employed in this study, they were insufficient to fully capture the influence of family environment on physical activity motivation. Subsequent studies should incorporate a wider range of methodologies to examine the research question from multiple perspectives and with diverse analytical tools, thereby enhancing the reliability and validity of the findings.

Lastly, future research should aim to expand the sample size, improve control for different variables, and refine the study design to strengthen its scientific rigor. It would also be valuable to explore interaction effects between independent and dependent variables, or to introduce mediating mechanisms, so as to enrich the theoretical foundation of this line of inquiry.

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Competing Contributions

This study was spearheaded by JR.W and B.J. All authors jointly conceived and designed the research protocol. JR.W was responsible for data collection and analysis, and drafted the initial manuscript together with B.J. All authors contributed to critical revision of the manuscript for important intellectual content, and approved the final version for publication.

Conflicts of Interest

The authors declare no competing interests.

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ATTACHMENT

Questionnaire on the Influence of Family Background on University Students' Motivation for Physical Activity

Respected Participant,

Thank you for taking part in this survey. This questionnaire aims to understand the influence of family background on university students' motivation to participate in physical activities. Your responses will provide valuable insights for our research. Please answer based on your actual situation. All data will be used solely for academic purposes and kept strictly confidential.

1. Your gender ()

- A. Male
- B. Female

2. Your current year of study ()

- A. Freshman
- B. Sophomore
- C. Junior
- D. Senior

3. Your major is ()

- A. Applied disciplines
- B. Theoretical disciplines
- C. Liberal Arts
- D. Science
- E. Teacher training program
- F. Non-teacher training program

4. Your family residence type is ()

- A. Urban
- B. Rural

5. What is the highest education level of your parents? ()

- A. Junior high school or below
- B. Vocational school (including high school)
- C. University or above (including college)

6. What is your approximate monthly household income? ()

- A. ¥2,330 – ¥5,000
- B. ¥5,001 – ¥8,000
- C. ¥8,001 – ¥10,000
- D. ¥10,001 – ¥15,000
- E. Above ¥15,000

7. How often do you engage in physical exercise per week? ()

- A. Once or less
- B. 2–3 times
- C. 4–5 times
- D. 6 times or more

8. What types of physical exercise do you usually participate in? ()

- A. Ball sports
- B. Walking or running
- C. Swimming
- D. Fitness training

- E. Martial arts
- F. Other

9. I enjoy sports ()

- A. Strongly disagree
- B. Disagree
- C. Neutral
- D. Agree
- E. Strongly agree

10. I can learn valuable things through sports, which also benefit other aspects of my development ()

- A. Strongly disagree
- B. Disagree
- C. Neutral
- D. Agree
- E. Strongly agree

11. Participating in physical exercise at school makes you physically and mentally happy ()

- A. Strongly disagree
- B. Disagree
- C. Neutral
- D. Agree
- E. Strongly agree

12. You believe that physical activity can improve your physical fitness ()

- A. Strongly disagree
- B. Disagree
- C. Neutral
- D. Agree
- E. Strongly agree

13. You hope to improve your physical fitness through sports ()

- A. Strongly disagree
- B. Disagree
- C. Neutral
- D. Agree
- E. Strongly agree

14. Exercising makes you more attractive ()

- A. Strongly disagree
- B. Disagree
- C. Neutral
- D. Agree
- E. Strongly agree

15. Through sports, I can maintain good relationships with friends or make more friends ()

- A. Strongly disagree
- B. Disagree
- C. Neutral
- D. Agree
- E. Strongly agree

16. The atmosphere in my family is harmonious and consistent ()

- A. Strongly disagree
- B. Disagree

- C. Neutral
 - D. Agree
 - E. Strongly agree
- 17. My parents strongly support me in participating in sports ()**
- A. Strongly disagree
 - B. Disagree
 - C. Neutral
 - D. Agree
 - E. Strongly agree
- 18. My family members often watch sports games or news ()**
- A. Strongly disagree
 - B. Disagree
 - C. Neutral
 - D. Agree
 - E. Strongly agree
- 19. My family members influence my participation in sports ()**
- A. Strongly disagree
 - B. Disagree
 - C. Neutral
 - D. Agree
 - E. Strongly agree
- 20. When my family's financial condition is good, I am more willing to participate in sports ()**
- A. Strongly disagree
 - B. Disagree
 - C. Neutral
 - D. Agree
 - E. Strongly agree
- 21. Your family's sports background gives you more confidence when participating in sports ()**
- A. Strongly disagree
 - B. Disagree
 - C. Neutral
 - D. Agree
 - E. Strongly agree
- 22. My family encourages me to participate in sports outside of academics to maintain good health ()**
- A. Strongly disagree
 - B. Disagree
 - C. Neutral
 - D. Agree
 - E. Strongly agree
- 23. My family considers it necessary to participate in sports ()**
- A. Strongly disagree
 - B. Disagree
 - C. Neutral
 - D. Agree
 - E. Strongly agree