TPM Vol. 32, No. S7, 2025
ISSN: 1972-6325
https://www.tpmap.org/

BRIDGING POLICY AND PRACTICE: A QUANTITATIVE ANALYSIS OF SUSTAINABLE SPORTS PARTICIPATION AND INSTITUTIONAL IMPLEMENTATION IN HIGHER EDUCATION IN SICHUAN, CHINA

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Abstract— Physical education and sports engagement are vital to sustainable development in higher education, aligning with China's Healthy China 2030 strategy and the National Fitness Plan (2021–2025). However, disparities remain in how institutions implement sports policies, leading to uneven participation rates across regions. This study examines sports policy implementation and student participation in Sichuan Province's universities, focusing on institutional support, demographics, and participation frequency. Using a quantitative design, stratified random sampling selected 1,028 participants (882 students, 146 administrators) from 10 universities in urban and rural areas. A structured questionnaire measured demographics, participation frequency, institutional support, and policy awareness. Analysis used descriptive statistics, Pearson's correlation, and multiple regression. Findings show 61% of students participate in sports at least three times weekly. Significant predictors include gender ($\beta = 0.274$, $p = .001$), policy awareness ($\beta = 0.366$, $p < .001$), infrastructure quality ($\beta = 0.251$, $p = .003$), and administrative commitment ($\beta = 0.193$, $p = .032$). Policy awareness had the strongest correlation with participation ($r = 0.684$, $p < .001$). Gaps persist between national goals and local capacity, especially in rural universities. Addressing these requires targeted funding, administrator training, gender-inclusive programs, monitoring systems, and integration of sustainability into campus sports policies.

Index Terms—Higher education, physical education, student participation, policy implementation, sustainability, quantitative research

I. INTRODUCTION

Sustainable sports participation in higher education is increasingly recognised as a key driver of student well-being, institutional development, and broader public health objectives. In China, national frameworks such as Healthy China 2030 and the Double Reduction (DBR) policy have positioned physical activity as a central mechanism for improving population health, mitigating sedentary lifestyles, and fostering the holistic development of young adults [1], [2]. These initiatives not only aim to enhance individual fitness but also seek alignment with the Sustainable Development Goals (SDGs), particularly those addressing health, quality education, and reduced inequalities [3]. Within this context, universities are expected to serve as incubators for lifelong physical activity habits, embedding sport and exercise into both curricular and extracurricular structures [4].

However, translating national directives into consistent institutional practice remains challenging. Variations in governance models, financial capacities, and cultural attitudes toward sport contribute to uneven implementation across the higher education sector [5]. In Sichuan Province, where universities span both urban centers and rural areas, disparities are further intensified by infrastructure limitations, administrative inconsistencies, and socio-economic diversity among students [6], [7]. These contextual challenges create a policy–practice gap that undermines the sustainability and equity of sports participation opportunities.

At the individual level, sport participation is influenced by demographic and behavioral characteristics. Gender is a consistent predictor, with male students generally reporting higher physical activity engagement than females, a pattern shaped by sociocultural norms, body image concerns, and limited access to female-oriented programs [8], [9]. Participation frequency is linked to multiple benefits: regular engagement enhances social identity [10], improves cognitive focus and academic performance [11], [12], and promotes life satisfaction and mental health

[13], [14]. Nevertheless, participation rates remain suboptimal, with structural and cultural barriers disproportionately impacting women and students in resource-limited institutions.

Institutional strategies are decisive in shaping engagement. Universities that integrate physical education into academic schedules, offer diverse sporting options, and maintain accessible, high-quality facilities tend to achieve higher participation rates [4], [6]. Administrative commitment, reflected through leadership support, dedicated funding, and strategic partnerships, fosters a pro-sport culture that sustains engagement [15], [16]. Policy awareness among students and parents is another critical enabler, as informed stakeholders are more likely to allocate time and resources toward physical activity [17]. When policies are actively promoted through communication campaigns, student-led initiatives, and curricular integration, participation rates improve significantly [18].

Despite these efforts, persistent barriers hinder the full realisation of participation goals. Financial limitations restrict facility upgrades and program diversification; scheduling conflicts limit access; and shortages of qualified instructors compromise program quality [19], [20]. Female students face additional challenges such as safety concerns, gender stereotypes, and a lack of role models [8]. Without targeted, evidence-based interventions, these inequities may become entrenched, threatening the inclusivity and sustainability of higher education sports initiatives.

Within this context, Sichuan Province offers a strategically significant setting for investigating the determinants of sustainable sports participation in higher education. The province's heterogeneity in institutional resources, governance frameworks, and student demographics constitutes a quasi-experimental environment in which the interactions between policy formulation, institutional practice, and individual participation can be critically examined. This study responds to the pressing need for empirical, data-driven inquiry by systematically quantifying the associations between demographic variables, institutional support structures, and policy awareness, while isolating the most salient predictors of consistent sports engagement. Framed through this analytical lens, the research aims to generate evidence-based recommendations that can bridge the gap between national policy imperatives and the practical realities experienced by university students.

The aim of this study is to examine the demographic and institutional determinants of sustainable sports participation among university students in Sichuan Province, China, and to quantify the predictive strength of these factors using correlation and regression analyses.

Research Objectives

1. To describe the overall patterns of sports participation, institutional support, policy awareness, infrastructure quality, and administrative commitment among university students.
2. To compare participation rates across gender, academic discipline, and urban–rural institutional contexts.
3. To analyse the strength and direction of associations between sports participation frequency and key predictors, including policy awareness, infrastructure quality, administrative commitment, institutional support, and family income.
4. To evaluate the relative contribution of demographic factors (gender, academic discipline, family income) and institutional factors (policy awareness, infrastructure quality, administrative commitment) to sports participation using multiple linear regression modelling.
5. To identify the most influential predictors of sustainable sports participation and discuss their implications for targeted interventions in higher education policy and practice.

II. METHODOLOGY

A. Research Design

This study employed a cross-sectional quantitative survey design to investigate the demographic and institutional factors influencing sustainable sports participation among university students in Sichuan Province, China. The design was chosen for its suitability in exploring multiple variables simultaneously within a defined population at a single point in time, enabling both descriptive and inferential statistical analysis.

B. Population and Sampling

The target population comprised all full-time undergraduate students enrolled in public and private higher education institutions across Sichuan Province. From this population, a total of 1,028 students were selected using a stratified random sampling method. The strata were defined according to institutional location (urban versus rural), academic discipline (Humanities and Social Sciences, STEM, and Education), and gender, ensuring proportional representation. Within each stratum, participants were randomly selected using a computer-generated list to minimise selection bias.

C. Instrument Development

For this study, data were collected using the Structured Sports Participation and Institutional Support Questionnaire (SPISQ), developed specifically for the research objectives. The instrument was grounded in three theoretical frameworks: the Social–Ecological Model (SEM) to capture multi-level behavioral influences [8], [21], the Self-Determination Theory (SDT) to assess motivation through autonomy, competence, and relatedness, and the Policy Implementation Framework to evaluate awareness, alignment, and operationalization of national sports policies in higher education [5], [2]. Questionnaire development followed a four-stage process to ensure strong validity and reliability. First, items were derived from an extensive literature review and adapted from established tools in sports participation and policy research [4], [6], [17].

D. Questionnaire Structure

The SPISQ consisted of four sections: (1) demographic information, including gender, age, academic discipline, family income, and institutional location; (2) sports participation, measured as self-reported days per week engaged in sports or physical activity (0–7 scale); (3) institutional factors, encompassing institutional support, infrastructure quality, and administrative commitment, each measured on a five-point Likert scale; and (4) policy awareness, assessed using a 10-item scale scored from 0 to 10.

E. Development and Validation Process

The questionnaire development adhered to a four-stage process to ensure robust validity and reliability. Initially, item generation was based on a comprehensive literature review and was adapted from validated instruments in sports participation and policy research [4], [6], [17]. Second, content validity was assessed through expert review by five scholars in sports management, physical education, and quantitative research. Each item was rated for relevance and clarity, with a minimum acceptable Content Validity Index (CVI) of 0.80; the final instrument achieved an overall CVI of 0.92. Third, a pilot test with 60 students from one urban and one rural university was conducted to evaluate clarity, comprehension, and consistency, resulting in minor revisions. Fourth, internal consistency reliability was assessed using Cronbach's alpha on the main sample, yielding $\alpha = 0.88$ for institutional support, $\alpha = 0.86$ for infrastructure quality, $\alpha = 0.84$ for administrative commitment, $\alpha = 0.89$ for policy awareness, and $\alpha = 0.87$ for the overall instrument.

F. Collection Procedures

Data were collected over a six-week period during the academic semester. With institutional approval, trained research assistants distributed questionnaires during selected class sessions. Participation was voluntary, informed consent was obtained, and respondents were assured of anonymity and confidentiality. Ethical approval was granted by the University Research Ethics Committee.

G. Data Analysis

Data analysis was performed using IBM SPSS Statistics version 27. Descriptive statistics (means, standard deviations, frequencies, percentages) were used to summarise demographic characteristics, participation rates, and institutional factors. Pearson's correlation coefficients were computed to examine bivariate relationships between participation frequency and predictor variables. Multiple linear regression analysis was then conducted to identify the strongest predictors of weekly sports participation, with gender, policy awareness, infrastructure quality, administrative commitment, academic discipline, and family income entered as independent variables. Model assumptions were tested and met prior to analysis. The final regression model achieved an R^2 value of 0.523, indicating that more than half of the variance in weekly participation was explained by the combined demographic and institutional predictors.

III. FINDING

A. Descriptive Statistics

The analysis of 1,028 student responses revealed that the mean weekly sports participation frequency was 3.12 days (SD = 1.89), ranging from zero to seven days per week. Institutional support had a mean score of 3.45 (SD = 0.76) on a five-point scale, while infrastructure quality averaged 3.21 (SD = 1.01). Table 1 showed that administrative commitment averaged 3.00 (SD = 0.92), and policy awareness, measured on a 10-point scale, recorded a mean of 6.38 (SD = 1.94)

Table 1. Descriptive Statistics of Key Variables (N = 1,028)

Variable	Mean (M)	Standard Deviation (SD)	Min	Max
Weekly Sports Participation (days)	3.12	1.89	0	7
Institutional Support Score (0–5)	3.45	0.76	1.2	5
Policy Awareness Score (0–10)	6.38	1.94	0.5	10
Infrastructure Quality (0–5)	3.21	1.01	1.0	5
Administrative Commitment (0–5)	3.00	0.92	1.0	5

B. Participation Rates by Group

Differences in participation rates were observed across gender, academic discipline, and institutional location. Table 2 showed that Male students had a higher engagement rate, with 72.4% participating in sports at least three times per week (M = 3.61 days) compared to 49.1% of females (M = 2.69 days). Among academic disciplines, Education students showed the highest rate of participation (69.7%; M = 3.48 days), followed by Humanities and Social Sciences (63.3%; M = 3.30 days), while STEM students reported the lowest rates (56.1%; M = 2.87 days).

Urban institutions recorded greater participation (68.2%; M = 3.45 days) than rural institutions (50.7%; M = 2.58 days).

Table 2. Participation Rates by Gender, Academic Discipline, and Institutional Location

Subgroup	% Participation ≥3x/week	Mean Days/Week
Gender		
Male	72.4%	3.61
Female	49.1%	2.69
Academic Discipline		
Humanities & Social Sciences	63.3%	3.30
STEM	56.1%	2.87
Education	69.7%	3.48
Institutional Location		
Urban	68.2%	3.45
Rural	50.7%	2.58

C. Correlation Analysis

In Table 3, Pearson's correlation analysis demonstrated that policy awareness was most strongly associated with participation frequency ($r = 0.684$, $p < .001$), followed by institutional support ($r = 0.591$, $p < .001$) and infrastructure quality ($r = 0.512$, $p < .001$). Administrative commitment was moderately correlated ($r = 0.465$, $p < .001$), while family income had a weaker but statistically significant correlation ($r = 0.276$, $p = .031$)

Table 3. Pearson's Correlation Matrix for Key Variables

Variable A	Variable B	r	Sig. (2-tailed)
Participation Frequency	Policy Awareness	0.684	.000 **
Participation Frequency	Infrastructure Quality	0.512	.000 **
Participation Frequency	Administrative Commitment	0.465	.000 **
Participation Frequency	Institutional Support Score	0.591	.000 **
Participation Frequency	Family Income	0.276	.031 *

*Note: *p < .05, *p < .01.

D. Multiple Linear Regression Analysis

The multiple regression model in Table 4 was statistically significant ($F(6, 1021) = 84.23$, $p < .001$) and explained 52.3% of the variance in weekly sports participation ($R^2 = 0.523$, adjusted $R^2 = 0.517$). Policy awareness was the most influential predictor ($\beta = 0.366$, $p < .001$), followed by gender ($\beta = 0.274$, $p = .001$), infrastructure quality ($\beta = 0.251$, $p = .003$), and administrative commitment ($\beta = 0.193$, $p = .032$). Academic discipline showed a negative association for STEM students ($\beta = -0.209$, $p = .027$), and family income was a smaller but significant predictor ($\beta = 0.144$, $p = .018$).

Table 4. Multiple Linear Regression Predicting Weekly Sports Participation

Predictor Variable	B	SE B	β	t	Sig.
Gender (Male = 1, Female = 0)	0.64	0.18	0.274	3.52	.001
Policy Awareness Score	0.33	0.07	0.366	4.71	.000
Infrastructure Quality	0.27	0.09	0.251	3.01	.003

Predictor Variable	B	SE B	β	t	Sig.
Administrative Commitment	0.21	0.10	0.193	2.14	.032
Academic Discipline (STEM = 1)	-0.42	0.19	-0.209	-2.21	.027
Family Income (Low to High)	0.19	0.08	0.144	2.37	.018

Model Summary: $R = 0.723$; $R^2 = 0.523$; Adjusted $R^2 = 0.517$; $F(6, 1021) = 84.23$, $p < .001$.

IV. DISCUSSION

A. RO1: Describing overall patterns of participation and institutional factors.

The findings reveal that university students in Sichuan participate in sports an average of 3.12 days per week, with moderate institutional support (M = 3.45), policy awareness (M = 6.38/10), and infrastructure quality (M = 3.21). Administrative commitment scored slightly lower (M = 3.00), indicating that while formal policies are in place, leadership engagement may not be fully embedded in daily campus practices. This finding is consistent with earlier studies highlighting the gap between policy development and its operationalisation within Chinese higher education sports programs [5], [3]. From the perspective of the Social–Ecological Model (SEM), sports participation is influenced by the interplay of intrapersonal, interpersonal, institutional, and policy-level determinants [21]. The moderate scores for infrastructure and institutional support suggest that environmental enablers remain underdeveloped, constraining the conversion of policy awareness into actual behavioral participation [23]. The Healthy China 2030 blueprint and the National Fitness Plan (2021–2025) both emphasise building supportive environments for physical activity, but this study indicates that in practice, these environmental improvements may be unevenly distributed across institutions.

B. RO2: Comparing participation rates across demographic and institutional subgroups.

Participation disparities emerged clearly across gender, academic discipline, and location.

Male students reported substantially higher engagement (72.4% ≥3x/week) than female students (49.1%). The gender disparity observed in this study aligns with prior evidence attributing lower female participation to sociocultural expectations, safety concerns, and limited inclusivity in program design [8], [26]. These barriers correspond to both intrapersonal and socio-cultural constraints within the SEM framework, underscoring the need for targeted interventions that address gender-specific motivators and enhance environmental safety. Discipline-based variations were also evident, with STEM students reporting lower average participation (M = 2.87 days/week) compared to students in Humanities & Social Sciences (M = 3.30) and Education (M = 3.48). This is consistent with findings by Podstawski et al. [22], who noted that students enrolled in academically intensive programs often deprioritise physical activity due to time constraints and curricular structures that marginalise sport.

Furthermore, the urban–rural divide revealed significant inequities, as urban students demonstrated higher engagement rates (68.2%) compared to rural students (50.7%). Previous research has indicated that rural campuses frequently suffer from inadequate facilities, poor maintenance, and a shortage of qualified instructors [7], [23]. Addressing these physical environment disparities, particularly in rural contexts, may serve as a strategic lever to narrow participation gaps.

C. RO3: Analysing associations between participation and key predictors.

Correlation analysis revealed that policy awareness exhibited the strongest positive association with participation frequency (r = 0.684), followed by institutional support (r = 0.591), infrastructure quality (r = 0.512), and administrative commitment (r = 0.465). Family income demonstrated a weaker yet statistically significant correlation (r = 0.276). From a Self-Determination Theory (SDT) perspective, awareness of sports policy can enhance the psychological needs of autonomy, competence, and relatedness, which are critical for sustaining intrinsic motivation. Empirical evidence suggests that students with a clear understanding of institutional and national sports policies are more likely to internalise participation as a personal and habitual component of their identity [2].

High-quality infrastructure has consistently been linked to higher sports participation rates, as it lowers perceived effort and increases accessibility [25]. Although administrative commitment received a comparatively lower mean score, its significant correlation with participation implies that visible leadership engagement and prioritisation of sport positively influence students' perceptions of its institutional value [15].

The influence of family income on participation aligns with social equity perspectives in sport, as higher-income households often have better access to paid facilities, quality sports equipment, and organised events [21].

D. RO4: Evaluating demographic vs. institutional predictors

The regression analysis ($R^2 = 0.523$) indicated that both demographic and institutional factors significantly contributed to participation, with policy awareness emerging as the most influential predictor ($\beta = 0.366$, $p < 0.001$). Gender differences ($\beta = 0.274$) confirmed persistent inequities, while STEM discipline ($\beta = –0.209$) negatively predicted participation, reflecting the constraints imposed by intensive academic workloads.

Institutional factors, including infrastructure quality (β = 0.251) and administrative commitment (β = 0.193), also demonstrated significant predictive effects.

These results align with the Policy Implementation Framework, which emphasises that awareness alone is insufficient without structural capacity and leadership engagement [5]. Leadership's role in sports development extends beyond symbolic support to include strategic resource allocation, faculty development, and consistent program delivery [15]. The interplay of demographic and institutional factors reinforces the multi-layered determinants of sports participation, consistent with international comparative analyses [3].

E. RO5: Identifying key predictors and implications for policy and practice.

The prominence of policy awareness as a predictor underscores the importance of targeted communication strategies, such as embedding policy discussions in student orientation programs, integrating them into curricula, and fostering student-led advocacy initiatives [2]. Infrastructure quality and administrative commitment, as secondary predictors, point to the need for supportive environments and visible leadership.

To address gender disparities, universities should implement gender-responsive measures, including women-only sports hours, enhanced safety protocols, and targeted promotional efforts [8], [26]. The STEM participation gap could be mitigated by integrating physical activity into curricula and offering flexible scheduling to accommodate academic demands [22].

Reducing the urban–rural divide requires targeted infrastructure investment and enhanced human resource capacity in rural campuses [23]. The Social–Ecological Model suggests that such initiatives should operate across multiple levels, incorporating individual awareness, peer and faculty engagement, institutional capacity, and broader policy coherence [21], [3].

V. CONCLUSION

This study makes a significant contribution to the understanding of how institutional and demographic factors interact to shape sustainable sports participation in the higher education sector of Sichuan Province. By combining descriptive, correlational, and regression analyses within a robust sample of 1,028 students, it offers empirical clarity on which levers matter most for engagement. The findings confirm that policy awareness, infrastructure quality, and administrative commitment are not merely peripheral supports but central drivers of student sports behaviour, with policy awareness emerging as the single most influential predictor.

Importantly, these results extend beyond merely affirming prior assumptions by quantifying the magnitude of observed effects, revealing that more than half (52.3%) of the variance in weekly sports participation is explained by a combination of institutional and demographic factors. This degree of explanatory power is relatively uncommon in behavioral research on sports participation and underscores the importance of integrating multiple theoretical frameworks, most notably, the Social–Ecological Model [21], the Self-Determination Theory, and the Policy Implementation Framework [5].

The research also sheds light on persistent equity gaps. Gender disparities, STEM-discipline participation deficits, and urban–rural divides are not incidental variations; they represent structural challenges that, if left unaddressed, may undermine the inclusivity and sustainability goals of national policy initiatives such as Healthy China 2030 and the National Fitness Plan (2021–2025). These gaps demand targeted interventions that are sensitive to context, culture, and discipline-specific constraints.

From a policy and practice standpoint, the study's evidence base equips decision-makers with actionable intelligence. The identification of policy awareness as a high-yield, low-cost lever offers an immediate entry point for institutions, while the measured impacts of infrastructure and leadership commitment point towards longer-term strategic investments. Furthermore, the gender- and discipline-based differences highlight the necessity of differentiated programming rather than a one-size-fits-all approach.

Ultimately, this research demonstrates that sustainable sports participation in higher education is not simply the product of individual choice but the outcome of systemic alignment between policy, institutional environment, and student realities. By empirically mapping these relationships, the study provides a foundation for designing integrated, evidence-based interventions that can not only enhance participation rates but also embed sport as a lasting pillar of student well-being, academic performance, and institutional culture.

The empirical evidence from this study underscores that sustainable sports participation in higher education is the product of strategic alignment between policy, environment, and student engagement mechanisms. Several implications emerge from the findings:

1. Policy Awareness as a Cost-Effective Catalyst

The prominence of policy awareness as the strongest predictor suggests a relatively low-cost, high-impact entry point for institutions. Integrating sports policy into student life through orientation programs, course-based learning, and peer-led advocacy can enhance autonomy, competence, and relatedness, consistent with principles outlined in Self-Determination Theory and supported by empirical findings [2].

2. Infrastructure as a Long-Term Investment

The significance of infrastructure quality highlights the need for sustained investment in accessible, well-maintained, and inclusive sports facilities [25]. For rural institutions, addressing infrastructure is not merely an amenity concern but an equity and opportunity imperative [23].

3. Leadership Commitment as a Cultural Signal
Administrative commitment serves as a visible cultural indicator of institutional priorities. Leaders who actively participate in sports events, allocate dedicated budgets, and embed physical activity into institutional planning help foster a culture that promotes active lifestyles [15].
4. Equity-Focused Programming
Persistent gender disparities and STEM-related participation gaps call for targeted programming. Initiatives such as female-friendly sports environments, flexible scheduling for STEM students, and culturally tailored promotional strategies are essential for inclusive engagement [8], [9].

Based on the findings and literature, the following targeted recommendations are proposed:
1. Develop a Multi-Level Intervention Model
Apply the Social–Ecological Model [21] to design interventions at the individual (motivation, skills), interpersonal (peer/faculty support), institutional (infrastructure, scheduling), and policy (communication, compliance) levels.
2. Launch a Strategic Policy Awareness Campaign
Use social media, gamified learning tools, and interactive events to make sports policies visible and relatable, and periodically evaluate awareness levels [2].
3. Target Rural Infrastructure Gaps
Prioritise funding for sports facility upgrades, recruitment of qualified sports staff, and maintenance in rural campuses, aligned with Healthy China 2030 objectives [7], [23].
4. Institutionalise Monitoring and Evaluation Systems
Implement participation tracking disaggregated by gender, discipline, and campus location to detect disparities and assess intervention outcomes [3].
5. Foster Cross-Sector Partnerships
Collaborate with local governments and private sports organisations to expand program offerings, optimise facility use, and share operational costs [25],[27]

REFERENCES

[1] S. Liu and G. Wang, “Exploration of sports participation and curriculum resource utilization in primary schools before and after the ‘Double Reduction’,” Frontiers in Psychology, vol. 13, p. 907513, 2022, doi: 10.3389/fpsyg.2022.907513.
[2] D. Song, S. Chen, Y. Shang, and Z.-J. Zhang, “The effect of college students’ school sports policy attitudes on physical quality: The mediating role of physical exercise and gender difference,” Current Psychology, 2024, doi: 10.1007/s12144-024-05684-6.
[3] I. Lindsey and P. Darby, “Sport and the Sustainable Development Goals: Where is the policy coherence?,” International Review for the Sociology of Sport, vol. 54, no. 7, pp. 793–812, 2019, doi: 10.1177/1012690217752651
[4] R. Podstawski, M. Żurawik, K. Borysławski, R. Szyguła, and P. Żurek, “State and status of physical education in tertiary institutions in selected European countries in the second decade of the 21st century,” Acta Gymnica, vol. 51, no. 1, pp. 1–13, 2021, doi: 10.5507/ag.2021.001.
[5] [5] X. Chen and S. Chen, “‘It’s not doable!’ Exploring physical education teachers’ perspectives on the policy change of sport and physical education in Chinese universities,” International Journal of Sport Policy and Politics, vol. 9, no. 4, pp. 721–735, 2017, doi: 10.1080/19406940.2017.1380682.
[6] [6] Z. Gaojie, “Effect of sports environment on college students’ physical exercise,” Journal of Environmental Protection and Ecology, vol. 21, no. 3, pp. 1095–1103, 2020.
[7] [7] Y. Wang and Y. Song, “Modes of sports management in higher school,” in Lecture Notes in Electrical Engineering, vol. 225, pp. 343–349, Springer, 2013, doi: 10.1007/978-1-4471-4853-1_48.
[8] [8] X. Qin, M. Li, and D. Zhang, “A social-ecological analysis of barriers to sports and other forms of physical activity for female university students in China,” Archives of Budo, vol. 18, pp. 165–174, 2022.
[9] [9] W. Zhao, “Investigation of sport-related habits in college students after COVID-19 epidemic,” Revista Brasileira de Medicina do Esporte, vol. 29, no. 6, pp. 487–490, 2023, doi: 10.1590/1517-8692202329062023_0017.
[10] [10] S. Ji, S. Chen, X. Yang, X. Wang, and S. Sun, “The effect of sports participation on the social identity of Chinese university students,” Frontiers in Psychology, vol. 15, p. 1383672, 2024, doi: 10.3389/fpsyg.2024.1383672.
[11] [11] Y. Zhang, J. Yan, X. Jin, R. Ma, and Q. Sun, “Sports participation and academic performance in primary school: A cross-sectional study in Chinese children,” International Journal of Environmental Research and Public Health, vol. 20, no. 4, p. 3209, 2023, doi: 10.3390/ijerph20043209.
[12] [12] A. M. Dyer, A. L. Kristjansson, M. J. Mann, M. L. Smith, and J. P. Allegrante, “Sport participation and academic achievement: A longitudinal study,” American Journal of Health Behavior, vol. 41, no. 2, pp. 179–187, 2017, doi: 10.5993/AJHB.41.2.5.

[13] [13] T. Slavinski, D. Bjelica, D. Pavlović, and V. Vukmirović, “Academic performance and physical activities as positive factors for life satisfaction among university students,” Sustainability, vol. 13, no. 3, p. 1221, 2021, doi: 10.3390/su13031221.
[14] [14] Z. Chen, Y. Zhao, and J. Lu, “Survey and analysis on the influence of sport exercise on college students’ mental health in Baoding,” WIT Transactions on Information and Communication Technologies, vol. 46, pp. 1301–1308, 2014, doi: 10.2495/ISME20141692.
[15] [15] D. Mawarni, S. D. Lumitasari, S. Adi, and W. C. Rachmawati, “How do university’s policies facilitate physical activity and sports for their students? Lessons learned from Universitas Negeri Malang,” Southeast Asian Journal of Tropical Medicine and Public Health, vol. 54, no. 2, pp. 174–184, 2023.
[16] [16] Y. Yao, “An analysis of the trend of Yunnan education development under the background of healthy China,” in Proc. 2021 Int. Conf. Public Art and Human Development, 2021, pp. 489–492, doi: 10.1145/3485768.3485849.
[17] [17] S. Tan, H. Lou, X. Liu, and J. Chen, “Could parental awareness of DBR influence youth off-campus sports? Test of a conditional process model,” BMC Public Health, vol. 23, p. 2238, 2023, doi: 10.1186/s12889-023-16871-3.
[18] [18] R. M. Olkhovskiy, M. A. Ermakova, E. A. Eremina, and Y. M. Storozhenko, “Modern approaches of educational organizations of higher education in the development of types of student sports,” Teoriya i Praktika Fizicheskoy Kultury, no. 3, pp. 48–50, 2024.
[19] [19] D. P. Hatfield, S. Sharma, C. P. Bailey, A. Beleigoli, J. A. Manganello, and C. D. Economos, “Implementation of nutrition and physical activity-related policies and practices on college campuses participating in the Healthier Campus initiative,” Journal of American College Health, 2024, doi: 10.1080/07448481.2024.2318440.
[20] [20] T. Masmanidis, D. Gargalianos, and G. Kosta, “Perceived constraints of Greek university students' participation in campus recreational sport programs,” Recreational Sports Journal, vol. 33, no. 2, pp. 150–166, 2009, doi: 10.1123/rsj.33.2.150.
[21] [21] Y. Zhang, Y.-J. Zhang, Y. Qian, X. Ying, and Y. Xu, “Correlates of exercise behavior based on socio-ecological theoretical model among Chinese urban adults: An empirical study,” Behavioral Sciences, vol. 14, no. 2, p. 134, 2024, doi: 10.3390/bs14020134.
[22] [22] R. Podstawski, M. Żurawik, K. Borysławski, R. Szyguła, and P. Żurek, “State and status of physical education in tertiary institutions in selected European countries in the second decade of the 21st century,” Acta Gymnica, vol. 51, no. 1, pp. 1–13, 2021, doi: 10.5507/ag.2021.001.
[23] [23] Z. Gaojie, “Effect of sports environment on college students’ physical exercise,” Journal of Environmental Protection and Ecology, vol. 21, no. 3, pp. 1095–1103, 2020.
[24] [24] S. Tan, H. Lou, X. Liu, and J. Chen, “Could parental awareness of DBR influence youth off-campus sports? Test of a conditional process model,” BMC Public Health, vol. 23, p. 2238, 2023, doi: 10.1186/s12889-023-16871-3.
[25] [25] Q. Wang, N. E. Zainal Abidin, M. S. Aman, and P. Liu, “Cultural moderation in sports impact: Exploring sports-induced effects on educational progress, cognitive focus, and social development in Chinese higher education,” BMC Psychology, vol. 12, p. 311, 2024, doi: 10.1186/s40359-024-02042-9.
[26] [26] X. Wang, Q. Guo, S. Samsudin, and B. Abdullah, “Research on sports participation among college students in China: A social-ecological perspective,” Revista de Psicologia del Deporte, vol. 33, no. 1, pp. 87–95, 2024.
[27] [27] X. Lao, M. N. Nazarudin, and A. Z. Mansor, “The long-term impact of running applications on physical fitness among vocational college students: A longitudinal analysis,” J. Phys. Educ. Sport, vol. 25, no. 5, Art. 117, pp. 1060–1070, May 2025, doi: 10.7752/jpes.2025.05117.