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The Impact of Lifestyle on Physical Health of College Students in China

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Abstract

Introduction: *Physical health of college students has always been a hot spot of concern in higher education, and the factors affecting the physical health level of college students are multifaceted. Among them, lifestyle is closely related to physical health level. The arrival of the information age has led to an increase in fragmented time for college students. The relatively free life of university makes students with low self-discipline have problems with their diet and work schedule. Understanding the lifestyles of college students can help provide effective interventions and provide a reference basis for improving the physical fitness and health level of college students.*

Research Methods: *This study used the "College Students' Lifestyle and Physical Fitness and Health Level" scale to conduct an online survey of college students at Yichun University through the Questionnaire Star platform. A total of 502 valid data were obtained from the survey, and the obtained data were statistically analyzed using SPSS 19.0 software.*

Results and Discussion : *The gender difference in the total score of college students' living habits was not significant, and the dimension of physical exercise behavior was better for male students than for female students ($P<0.05$). The overall physical fitness level was qualified, but the excellence rate was low, 15.5% for male students and only 13.5% for female students. There was a significant positive correlation between total lifestyle score and physical fitness test score ($P<0.01$).*

Conclusions and Recommendations: *Exercise behavior in lifestyle has a greater influence on the level of physical fitness, followed by rest time and dietary habits. It is recommended to make full use of school and social resources to cultivate healthy lifestyles among college students.*

Keywords: Lifestyle; Physical health; University student; Health performance

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1. Introduction

Enhancing the physical and mental health of college students is a major concern for the future of the country. The physical and mental health of college students is a reflection of the vigorous vitality of the nation (Ma, 2022). There are many factors that affect college students' physical health, including education, family, and society in addition to school sports. Lifestyle is one of the important factors affecting the physical health level of universities. The WHO points out that “60% of everyone's health and lifespan depend on their behavior and lifestyle.”

College students have more autonomous time and are in adolescence, resulting in diverse lifestyles. Studies have shown that lifestyle plays an important role in the health of individuals, groups, and society (Niu, 2023). Leisure activities, sleep conditions, dietary conditions, and exercise in lifestyle have the closest impact on health. A survey shows that the lifestyle of Chinese university students currently exhibits the following characteristics:

1. Daily routine: Nearly 65% of the college students interviewed believe that their lifestyles are unhealthy, which is mainly manifested in irregular daily life, often staying up late, sleeping too late, spending too much time in front of cell phones or computer screens, and sedentary phenomena are common. As self-study is emphasized in universities, students have more time for autonomy, leading to frequent long-term stage studies before exams. When there are no exams or homework tasks, it manifests itself in long-term leisure and entertainment, which mostly occurs in front of the screen.

2. Daily diet: 55% of Chinese people are able to ensure that they eat three regular meals. The regularity of the three meals for male students is worse than that of female students. A large proportion of college students love to eat snacks, especially female students. The main reason for snacking is that they are in a bad mood or don't have time to eat, and some of them also have the habit of drinking alcohol. In terms of dietary structure, the main food for college students is rice and noodles, and the intake of vegetables, fruits, and dairy products is relatively small. Quality protein intake is basically adequate, but vitamin and mineral intake is insufficient.

3. Exercise time: 48% of the students think that the weekly exercise time should be more than 7 hours, and 52% of the students think that it should be less than 7 hours. Healthy exercise time should be 1–1.5 hours per person per day, so college students should exercise more than 7 hours per week. This shows that half of the students have a misunderstanding on this issue. At present, Chinese university students attend 90-minute physical education classes once a week. In addition, there is no systematic organization of extracurricular physical exercise. As a result, there are inconsistencies and even great differences in exercise time. This is generally characterized by insufficient exercise time and frequency.

4. Emotional management: College students' emotion management ability is generally good, and there are differences in grade, urban and rural areas, personality and gender, but they are

not statistically significant. They do not have a deep understanding of the benefits of physical exercise for strengthening the body, and the psychological role of physical exercise in treating mental subhealth and preventing mental diseases is not widely recognized and valued.

The lifestyles of college students will not only affect their health during their college years but even their lifetime health. Therefore, it is of great significance to study the lifestyles of college students and improvement measures in the modern social environment. This study analyzes the correlation between students' physical health scores and healthy lifestyles to find out the main lifestyle factors affecting college students' physical health and provide some theoretical basis for improving college students' physical health (Yang & Wang, 2019).

2. Literature review

2.1 Theory

The Health Belief Model (HBM) is a health education model that changes people's behavior by intervening in mental activities such as perceptions, attitudes, and beliefs (Xu et al., 2023). Hochbaum and other social psychologists who were working for American public health organizations at the time created it in the 1850s. Through continuous enrichment and development, it has become an important working model for people to carry out health behavior intervention programmes and activities (Li & Wen, 2024).

2.2 Conceptual definition

Lifestyle: Scholars both domestically and abroad have different interpretations of its meaning, so there is no consistent definition. The concept of “way of life” was first proposed by Marx and Engels in their co-authored “German Ideology”. Lifestyle can be divided into broad and narrow definition. Broadly speaking, it refers to all the ways and methods of human labor and life, and narrowly speaking, it refers to the specific behaviors of individual life. This study is based on a narrow definition of lifestyle and defines it as the manifestation of daily activities among college students.

Current status of research on college students' lifestyles: Studies have found that unhealthy lifestyles among college students are becoming more common, and the health problems caused by unhealthy lifestyles are becoming more and more prominent. One of the important factors affecting the reduction of physical exercise among college students is the decline in college students' physical fitness due to unhealthy lifestyles.

Physical Activity: Studies of physical activity among college students have found a downward trend in physical activity among U.S. adolescents, with a particularly rapid decline during the college years. In an effort to change the decline in physical activity among college students, most U.S. colleges and universities offer lifelong fitness courses to help students acquire the skills they need to improve their physical activity behaviors. However, the vast majority of courses still fall short of the NCAA-recommended levels of physical activity.

Domestic studies have also shown that the lack of physical activity among college students is closely related to factors such as insufficient space and equipment, the habit of neglecting physical activity in high school, the development of a conveniently lazy mentality in modern life, and the absence of a sports culture.

Dietary habits: From high school to college, changes in living environment and lifestyle have also changed the dietary behavior of college students, mainly including eating in self-service restaurants, snacking at night, consuming junk food, and dieting. High-energy and low-nutrient foods, such as sugary drinks, fried foods, and high-salt snacks, have replaced nutritious fruits, vegetables, and whole grains containing dietary fiber, ultimately leading to changes in the gut microbiota and an increase in body fat. A study on Chinese university students found that only 53.2% eat breakfast every day, and the fewer times they eat breakfast per week, the higher the failure rate of physical health. There are also differences in dietary self-control between male and female college students. Male students pay less attention to their body shape and are more prone to binge eating; girls, on the other hand, tend to pay more attention to their external appearance and perform better in controlling their diet.

The current research status of lifestyle indicators: There have been earlier studies abroad on the measurement methods of lifestyle indicators. Soowon (2004) combined diet, physical exercise, smoking, and alcohol consumption to construct an overall measurement index for lifestyle, called the lifestyle index. Julie Skalame (2016) analyzed the health behavior patterns of American adolescents through eight behaviors: smoking, drinking, marijuana use, physical examination, oral examination, exercise, and dietary habits. From a domestic perspective, Wang Fuqin (2017) summarized the healthy lifestyle of urban and rural residents using five behavioral variables: smoking, drinking, physical exercise, rest and relaxation, and routine physical examinations when defining a healthy lifestyle.

Healthy Lifestyle of College Students: Wang (2009) analyzed the lifestyle of college students in China through eight dimensions on the development and preliminary application of the College Student Healthy Lifestyle Evaluation Scale. They are: exercise behavior, lifestyle behavior, dietary and nutritional behavior, health maintenance behavior, health responsibility behavior, interpersonal support behavior, stress management behavior, and life appreciation behavior (Zhou & Xu, 2023). The first five are defined as explicit behaviors, while the last three are defined as implicit behaviors. This study will use the above-dimensional classification methods for statistical analysis (Jiao & Wang, 2015).

Physical Health of College Students: The physical health score of college students is composed of the sum of the scores of various individual indicators and their weights and is executed according to the scoring standards of the National Student Physical Health Standards for testing (college students). The maximum score is 100 points. Each item includes: body shape indicators: Body Mass Index (BMI); physical function indicators: lung capacity; and physical fitness indicators: 50-metre running, standing long jump, sitting forward bending; 1000 metres for boys and 800 metres for girls. According to the total score of the student's academic year, the evaluation level is: 90.0 points or above is excellent, 80.0-89.9 points are

good, 60.0-79.9 points are passing, and 59.9 points or below are failing (Hu et al., 2022).

2.3 Hypothesis

H1:The correlation between the total score of lifestyles among college students and the overall level of physical health among college students.
H2: Explicit lifestyle of college students has a predictive effect on physical fitness indicators.
H3:The implicit lifestyle of college students has a predictive effect on physical fitness indicators
H4: Explicit lifestyle of college students has a predictive effect on body shape indicators.
H5:The implicit lifestyle of college students has a predictive effect on physical function indicators.

2.4 Theoretical Framework

This study is based on the Health Belief Model, which applies social psychological methods to explain health-related behaviors. This theory suggests that people's adoption of certain health-promoting behaviors or abstinence from certain harmful behaviors depends on five aspects: (1) Awareness of the existence and extent of the harm that particular behaviors cause. (2) Subjective judgement and feeling, that is, evaluating the motivation and resistance of a certain healthy behavior. (3) Self-efficacy refers to the self-evaluation of an individual's ability to control and regulate their health status. (4) Hint factors mainly refer to external inducing factors. For example, tips on health performance. (5) Sociodemographic factors, including age, gender, education level, economic status, health status, etc. In summary, the Health Belief Model is a health education model that changes people's behavior by intervening in their psychological activities such as perception, attitude, and beliefs. It can be inferred that the most direct psychological activity of conscious behavior is human perception, attitude, and belief. A healthy lifestyle is a conscious behavior. It is a behavioral approach adopted based on perception, attitude, and emotion. This study selected 8 representative dimensions from daily life: exercise behavior, lifestyle behavior, dietary and nutritional behavior, health maintenance behavior, health responsibility behavior, interpersonal support behavior, stress management behavior, and life appreciation behavior for investigation. These behaviors include five explicit aspects and three implicit aspects. Analyze the impact of different types of behaviors on the physical health of college students in various dimensions. (Dong et al., 2012). In the study, the physical health of college students includes three dimensions: body shape, body function, and physical fitness (see Figure 1).

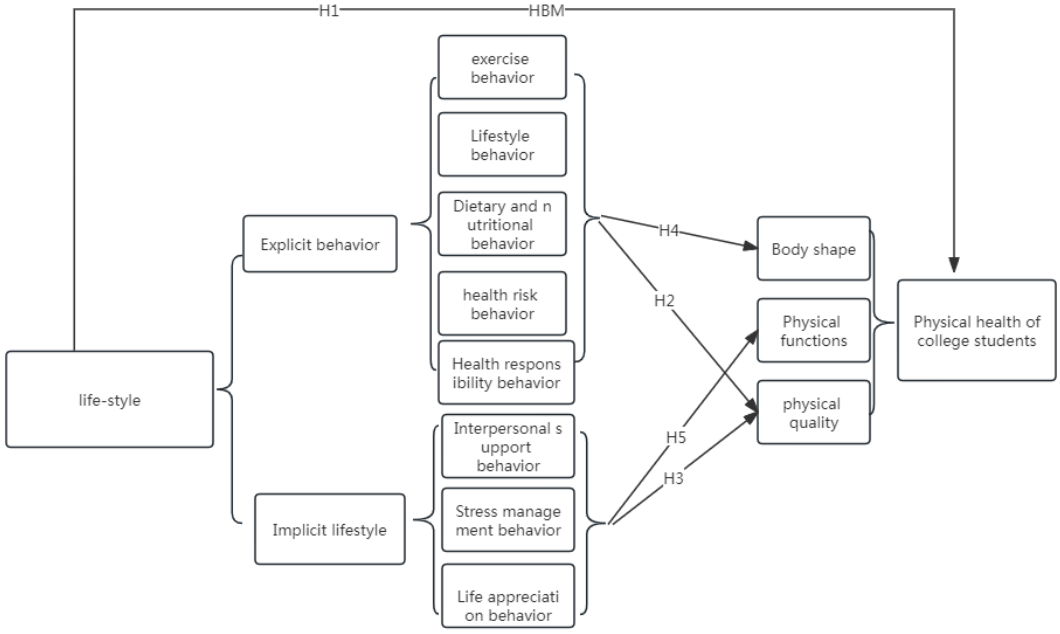

Figure 1 Theoretical and conceptual framework

3. Methodology

3.1 Participants

The survey subjects of this study are full-time undergraduate students from an ordinary university in China, using a stratified sampling method based on grade and major. 520 college students were selected for survey interviews. Understand the healthy lifestyle of the subjects and conduct physical health tests to explore the relationship between the lifestyle of college students and their physical health level.

3.2 Survey methods

This study selected full-time college students from the first to fourth year of Yichun University for stratified sampling by grade. Three classes were selected for science and engineering, three classes for literature and history, three classes for life sciences, two classes for art, and two classes for physical education, totaling 13 classes. Simple random sampling was then conducted, with 40 students from each class surveyed online through the QuestionStar platform. A total of 520 respondents were surveyed. After conducting a survey on the College Student Lifestyle Evaluation Scale, the sample data was sorted out, and 18 invalid samples were excluded. A total of 502 valid samples were obtained, including 265 male college students and 237 female college.

3.3 Instrument

Mainly referring to College Student Lifestyle Scale (Wang, 2011) and adapting it to meet the

needs of this study, a survey form titled "College Student Lifestyle and Physical Health Level" was developed. This scale adopts the Likert five-point scoring method and a positive scoring method. The higher the score, the healthier it is. The questionnaire consists of three parts: Part 1, demographic items; the second part of the College Student Lifestyle Scale items; the third part is about the physical health level of college students.

3.4 Data Analysis

Enter the physical examination scores and survey results of college students into Excel by group and import them into the statistical software SPSS 29.0 for statistical analysis. Use general description and discriminant analysis to obtain the correlation between the independent variable and the dependent variable.

4. Results and discussions

4.1 Results

Table 1 shows the respondents of this study including their demographic and other characteristics. Each category has its own description, frequency and percentage distribution, gender, grade level, economic status, field of study, type of address, and level of parental education. The gender breakdown of the respondents showed that there were more males (53%) than females (47%) in the sample. Due to the stratified sampling, the data showed that there were similar numbers of respondents in the four grades. In terms of household economic status, it shows that 62% of the households were average. The percentages of rich and poor families were 20% and 18%, respectively. In terms of students' majors, 34% were in Chinese history, 31% in science and technology, and 35% in sports and arts. In terms of family address, nearly half of the population lives in rural areas. In terms of parental education, only one third of the parents have higher education.

Table 1 Respondent profile

Demographic variable	Description	Frequency	Percent (%)
Gender	female	265	0.53
	male	237	0.47
Grade	freshman	126	0.25
	sophomore	132	0.26
	junior	123	0.25
	senior	121	0.24
Finances	rich	98	0.20
	average	312	0.62
	poor	92	0.18
Major	Literature and history	170	0.34
	Science and technology	158	0.31

	Sports and art	174	0.35
Address	city	119	0.24
	town	141	0.28
	countryside	242	0.48
Family education background	Junior middle school	145	0.29
	Middle school to high school	202	0.40
	University degree or above	155	0.31

Table 2 presents the results of the lifestyle questionnaire. There was no statistically significant difference in the total lifestyle scores between male and female students ($P > 0.05$). However, male students scored significantly higher than female students on exercise behaviors ($P<0.05$), and female students scored significantly higher than male students on health responsibility behaviors ($P<0.05$).

Table 2 Comparison of Lifestyles among College Students

N=502 (Score, $x_{\pm}s$)

Life-style	Male（n=265）	Female（n=237）
Exercise behavior	$13.62_{\pm}3.12$	$12.13_{\pm}2.56^{*}$
Lifestyle behavior	$15.12_{\pm}2.87$	$14.82_{\pm}2.87$
Dietary and nutritional behavior	$14.96_{\pm}2.85$	$15.16_{\pm}2.68$
Health maintenance behavior	$14.12_{\pm}2.63$	$14.23_{\pm}2.29$
Health responsibility behavior	$21.86_{\pm}2.96$	$22.67_{\pm}3.60^{*}$
Interpersonal support behavior	$21.62_{\pm}3.67$	$22.13_{\pm}3.52$
Stress management behavior	$19.12_{\pm}3.12$	$18.45_{\pm}3.42$
Life appreciation behavior	$20.16_{\pm}3.56$	$19.73_{\pm}3.63$
Explicit	$79.68_{\pm}2.88$	$79.01_{\pm}2.80$
Implicit	$60.90_{\pm}3.45$	$60.31_{\pm}3.52$
Total score	$140.58_{\pm}3.09$	$139.32_{\pm}2.98$

$^{*}P<0.05$

Table 3 presents a general picture of the physical fitness level of the 502 university students: the overall average pass rate for the test was over 95%, with 95.5% for men and 94.9% for women. Male students were slightly higher than female students. The results in the dimensions of physical form, physical functioning and physical fitness show insignificant differences.

Table 3 Distribution of Physical Health Status of College Students (No. percentage)

Gender	Project	Excellent	Good	Passing	Failing

Male（265）	BMI index	15	5.7%	115	43.4%	112	42.3%	23	8.7%
	Vital capacity	35	13.2%	132	49.8%	95	35.8%	3	1.1%
	50 meters	45	17.0%	123	46.4%	85	32.1%	12	4.5%
	1000meters	35	13.2%	95	35.8%	117	44.2%	18	6.8%
	Sit-and-reach	47	17.7%	110	41.5%	97	36.6%	11	4.2%
	Standing long Jump	45	17.0%	105	39.6%	107	40.4%	8	3.0%
	Total score	41	15.5%	107	40.4%	105	39.6%	12	4.5%
Female（237）	BMI index	18	7.6%	97	40.9%	102	43.0%	20	8.4%
	Vital capacity	21	8.9%	112	47.3%	96	40.5%	8	3.4%
	50 meters	35	14.8%	91	38.4%	98	41.4%	13	5.5%
	800meters	36	15.2%	87	36.7%	102	43.0%	12	5.1%
	Sit-and-reach	57	24.1%	82	34.6%	85	35.9%	13	5.5%
	Standing long Jump	32	13.5%	95	40.1%	98	41.4%	12	5.1%
	Total score	32	13.5%	98	41.4%	95	40.1%	12	5.1%

Table 4 displays a correlation analysis between the various dimensions of lifestyle and physical health tests of the surveyed college students. The results showed that there was a positive correlation ($P<0.01$) between the BMI index, physical fitness, and overall physical health score of college students and their explicit lifestyle, including exercise behavior, lifestyle behavior, dietary and nutritional behavior, health maintenance behavior, and health responsibility behavior. The statistical data shows that there is no significant statistical significance between the various dimensions of physical fitness testing and implicit lifestyle (interpersonal support behavior, stress management behavior, life appreciation behavior).

Table 4 Correlation analysis between physical health and healthy lifestyle scores (r-value)

Project	Explicit lifestyle dimension	Implicit lifestyle dimension	Total score of lifestyle
BMI	0.202**	0.085	0.197*
Vital capacity	0.015	0.015	0.037
Physicalquality	-0.276**	0.013	-0.136
Total score of physical health	0.252**	0.016	0.216**

***P < 0.05，**P < 0.01**

4.2 Discussions

Through statistical analysis, it can be concluded that there are certain problems with the lifestyle of current Chinese university students. The data shows a score of 140 points, which is relatively low for a total score of 300 points. The main problems are insufficient exercise, an irregular lifestyle, and an imbalanced diet and nutrition. Especially for girls, the lack of exercise is more severe. In terms of lifestyle patterns, it manifests in sedentary behavior and excessive time spent in front of mobile phones and computer screens. In terms of dietary nutrition, college

students have mainly relied on buffet meals, with an increase in high-sugar and high-calorie diets and insufficient supplementation of high-quality protein and dietary fiber.

The survey shows that the overall physical health of college students is good, with over 95% of students able to meet the national standard level, but the excellent rate is low, and many students have physical fitness scores on the edge of passing. In various dimensions of statistical indicators, the issue of obesity among students cannot be ignored. Due to the beauty of thinness among women in Chinese society, some girls have become too underweight, which has become a new concern for the physical health of students. Among the physical fitness indicators of students, their endurance level is relatively good, but male students need to improve their flexibility and female students need to enhance their explosive power.

The correlation between lifestyle and physical health level has been further confirmed. There is a positive correlation between the scores of exercise behavior, lifestyle behavior, dietary and nutritional behavior, and physical health level. There is a significant difference. The scores of interpersonal support behavior, stress management behavior, life appreciation behavior, and physical health level were not statistically significant. From this, it can be seen that improving the physical health level of college students requires promoting their practical behavior.

5.Conclusion and recommendations

The survey shows that there is no significant gender difference in the total score of lifestyles among college students. On specific dimensions, boys are more actively involved in physical exercise than girls. Girls are more concerned about the health of their personal behavior, but they participate less in practical activities. The impact of cognition and attitude on behavior is not absolute in practice. The unity of cognition and behavior requires other variables to be regulated.

In terms of physical health level, the survey shows that the pass rate is relatively high, reaching over 95% overall, but the excellent rate is low, with 15.5% for boys and only 13.5% for girls. The teaching of physical education in universities and the guidance of extracurricular physical education need to be further strengthened. The differences in physical health between male and female students are mainly reflected in their physical functions and physical fitness. Among them, boys in the 50-metre and standing long jump perform better in terms of physical fitness. But surprisingly, in endurance events, girls are better than boys, which is inconsistent with boys having better lung capacity than girls. Psychological factors such as beliefs and perseverance may have moderating effects.

Conduct a correlation analysis between the various dimensions of lifestyle and the physical health tests of the surveyed college students. The results showed that there was a positive correlation ($P<0.01$) between the BMI index, physical fitness, and overall physical health score of college students and their explicit lifestyle, including exercise behavior, lifestyle behavior, dietary and nutritional behavior, health maintenance behavior, and health responsibility behavior. The statistical data shows that there is no significant statistical significance between the various dimensions of physical fitness testing and implicit lifestyle (interpersonal support

behavior, stress management behavior, and life appreciation behavior). It is recommended to strengthen the physical exercise practice of college students, cultivate good daily habits, and have a reasonable diet.

References

Dong, W., Xiao-Hui, X., & Xian-Bo, W. (2012). The healthy lifestyle scale for university students: development and psychometric testing. *Australian journal of primary health*, *18*(4), 339-345.

Jiao Jianpeng, Wang Dong. Analysis of influencing factors on healthy lifestyle of college students [J]. China School Health, 2015,36 (12): 1804-1806+1810

Hu, D., Liu, Z., Zhang, H., & Jiang, C. (2022). Changes in physical health-related indexes of Chinese college students before and after COVID-19 lockdown. *BioMed research international*, *2022*.

Li, Y., & Wen, T. (2024). Psychological mechanism of forest-based wellness tourism decision-making during the prevention and control of COVID-19. *Forest Policy and Economics*, *160*, 103140.

Ma, C. (2022). relationship between students'positive and healthy psychology and physical education from the perspective of healthy china. *Psychiatria Danubina*, *34*(suppl 5), 99-99.

Niu, G., Wang, H., Ren, Y., Xing, X., Zhao, L., Liu, N., ... & Zhai, Y. (2023). Penpulimab and anlotinib in an elderly patient with recurrent cervical cancer: a case report and literature review. *Immunotherapy*, *15*(12), 905-912.

Xu, Y., Zhang, S., Wang, J., Shu, Z., Jing, L., He, J., ... & Li, S. (2023). Nurses' practices and their influencing factors in palliative care. *Frontiers in Public Health*, *11*, 1117923.

Yang, H., & Wang, F. (2019). The Influence of Tennis on the Physical Quality of Female College Students and the Intervention Measures. *International Journal of Frontiers in Medicine*, *1*(1).

Zhou, L., & Xu, N. (2023). Effects of COVID-19 event intensity on college students' health lifestyles: time perspective mediating model and its gender difference. *Current Psychology*, 1-11.