

Research on Influencing Factor and Optimmmization Pathways of Physical Exercise Behavior Among Contemporary College Students

Lei Zhang^{1,2}, Maria Liriad. Dacanay¹, Yan Zhang^{2,*}

¹ Graduate School, Adamson University, Manila, Philippines

² Department of Public Teaching, QianDongNan National Polytechnic, Guizhou, China

* Corresponding author: Yan Zhang (Email: zly900724@163.com)

Abstract: This study examined the physical activity abilities of contemporary college students by assessing muscle strength, muscle endurance, and body stability. The research examined aspects of their physical exercise behavior such as exercise frequency, focus, duration, and type. The results showed that the participants were predominantly female, freshmen, and medical students. Overall, college students scored at an average level in physical activity abilities; freshmen scored higher in muscle strength, while senior students scored higher in endurance. Additionally, senior students excelled in certain types of exercises. The study also found a negative correlation between muscle strength/body stability and exercise frequency, indicating a decrease in these abilities with increased exercise frequency. Conversely, other indicators showed a positive correlation with exercise frequency, suggesting an increase in exercise levels with higher physical activity levels as this can result in a page being rejected by search engines. Ensure that your abstract reads well and is grammatically correct.

Keywords: Endurance; Frequency; Intensity; Muscular Strength; Physical Exercise Behavior; Physical Mobility; Stability.

1. Introduction

With the rapid development of society, people's lifestyles are constantly changing, and health crises and lifestyle issues are becoming increasingly prominent. The World Health Organization's report in 2022 revealed that overweight and obesity remain major risk factors for non-communicable diseases, with obese individuals facing a greater risk of severe consequences from SARS-CoV-2 infection, including hospitalization, significant clinical care, and death (World Health Organization, 2022). The "Fifth National Physical Fitness Monitoring Report" in China also indicates that exercise plays a significant role in improving physical fitness, yet the strength quality of adults is declining. The rates of overweight and obesity among adults and the elderly in China continue to rise, with a significant increase in growth rate (National Sports Administration, 2022). Additionally, the "World Health Organization Guidelines on Physical Activity and Sedentary Behavior" suggest that all adults should engage in regular physical activity (WHO, 2021). These health crises and lifestyle issues highlight the importance of physical activity and universal health coverage as key priorities for international development.

Physical exercise is crucial for the physical and mental health as well as the comprehensive development of college students. Their overall quality is an important indicator of social development, and exercise can improve health, psychological well-being, social skills, and academic performance. Strengthening physical exercise is key to promoting the comprehensive development and lifelong awareness of physical activity among college students.

The Chinese government has emphasized the importance of strengthening physical education through the "Opinions on Comprehensive Strengthening and Improvement of School Physical Education in the New Era" and the "Outline of the National Economic and Social Development Plan of the

People's Republic of China." These policy documents stress the importance of ensuring students' physical activity time and promoting the habit of physical exercise, further highlighting the contemporary theme of improving the physical health of the population, especially college students. Despite the availability of more sports facilities and exercise opportunities, modern Chinese college students still face various challenges in their exercise behavior.

Statistics show that about 80% of college students often feel dizzy, and about 75% often feel weak. These are manifestations of physical weakness due to lack of physical exercise (Xue, 2020). The continuous decline in physical health among contemporary college students is primarily due to insufficient participation in sports (Ma, 2018), changes in lifestyle, weak awareness of physical exercise, lack of understanding of sports, and low enthusiasm for exercise (Shen, 2019). Many college students lack physical exercise for various reasons, leading to an increase in health problems. Modern sedentary lifestyles and heavy academic pressures affect the physical fitness and exercise behavior of college students. A deeper understanding of their physical fitness and its relationship with physical exercise can help propose more suitable physical improvement plans and develop more effective policies and plans. Improving the sports environment at home and in schools and encouraging students to participate more actively in sports can enhance their overall quality of life. This study delves into the factors influencing college students' exercise behavior, providing targeted recommendations to improve the quality of their exercise behavior, promote more active participation in physical exercise, and thereby enhance their physical health and quality of life.

1.1. Theoretical Framework

The origin of innovation and entrepreneurial capabilities can be traced back to the early stages of human society.

Throughout history, humans have possessed an innate ability to solve problems and adapt to their environment. However, these capabilities have evolved and developed over time.

This research is anchored on the Overload Principle Theory, this is a fundamental concept in physical fitness training. It states that the body will adapt to the workload placed upon it. To improve any aspect of physical fitness such as strength, endurance or flexibility, the individual must continually increase the demands or intensity of exercise. This can be done by changing the exercise type, increasing the weight repetitions, speed or volume of the exercise. By gradually increasing the intensity and duration of the exercise routines physical fitness can be improved.

Another theory that is applicable to this research is the Movement Transfer Theory (Xiao fang Liao 2020) this is a concept that explains how the skills and knowledge acquired in one activity can be transferred to another activity. In the context of physical mobility and exercise, this theory can be anchored to research that explores how the skills and knowledge acquired through one type of physical activity. For example another study could explore how the skills and knowledge acquired through physical therapy can be transferred to other physical activities

In addition, the Movement Transfer Theory can also be applied to research that examines how the skills and knowledge acquired through physical activity can be transferred to other areas of life.

Social cognitive theory, also known as Social Learning Theory, is a psychological theory proposed by American psychologist Albert Bandura in the mid-20th century. It is a theory of ability self-evaluation, and its ultimate purpose is to intervene in behavior; it is an educational thought based on social learning and social interaction theory, so the research on this theory in the behavioral intervention of physical activities is gradually increasing (Yu Hao , 2022).

Social cognitive theory is a theory that Bandura added cognitive components to the traditional behaviorist personality theory to explain the process of individuals in social learning (Dong Baolin, Zhang Huan, Zhu Leqing, et al., 2018). Social cognitive theory is divided into interactive Reciprocal Determinism (also known as triadic interactionism), observational learning and self-efficacy, the core of which is interaction determinism. From the perspective of reciprocal determinism, among the many school factors related to the physical exercise behavior of college students, the school sports environment may have an impact on physical exercise behavior by affecting the individual psychological characteristics of college students. At the same time, the physical exercise behavior of college students may also affect Reversely affect the school sports environment (Dong Baolin, 2021). From the perspective of observation learning, among the many family factors that influence adolescents' physical exercise behavior, the parents' exercise habits observed by adolescents will become a vicarious experience for individual behavior acquisition (SUKYS S, CESNAITIENE V J, OSSOWSKY Z M, 2017), from the perspective of self-efficacy (Self-efficacy), a positive sense of efficacy helps to stimulate individuals' achievement beliefs, build self-esteem and self-confidence, and make their social behavior more engaged and focused (Cheng Hui, 2019) (Dong Baolin, Zhang Huan, Zhu Leqing, 2018).The intervention effect of social cognitive theory on different groups of people has also been verified to have certain predictive ability, such as adolescent nutrition

education and physical exercise (Bagherniya M, Taghipour A, Sharma M, et al, 2018. etc.

Social cognitive theory can be applied to school physical education environments, social physical education environments, and family physical education environments to explain individuals' sports participation, skill development, and sports behaviors. This theory emphasizes the critical role of social interaction, observation, and role modeling in developing an individual's sporting interests and motor skills. Social interactions and social norms in different environments can influence an individual's cognitive and behavioral development, so understanding these influences is critical to promoting healthy physical behavior and motor development. Based on the relationship between individuals, behavior and environment in this theory, combined with the literature review in the early stage of this study, it was found that Exercise behavior has an impact. At the same time, college students' physical exercise behavior may also have a reverse impact on the school sports environment, which both affects and restricts each other. The modified variables are health literacy, self-care ability and family support.

Social cognitive theory emphasizes the interaction between individuals and their environment, paying particular attention to how individuals learn and form attitudes through social interaction, observation, and imitation. In order to encourage college students to be more actively involved in physical exercise and improve their physical health and quality of life, this study will use social cognitive theory as its theoretical framework to provide new insights into the application of social cognitive theory in the field of research on college students' physical exercise behavior. .

In terms of exploring the optimization path of behavior change, scholars mostly focus on the impact of factors such as beliefs, morality, values, and sense of responsibility on health behavior (Li Jiafan, 2022),, and with the deepening of behavioral research, it is necessary to conduct research integrating multiple factors such as individuals and environments (such as family, society, and school environment). The World Health Organization has repeatedly mentioned family sports at the International Health Promotion Conference, especially the role of parents in promoting physical exercise among adolescents (WHO, 2018). Schools are an important place for adolescents to engage in physical exercise activities, and are also important for teaching adolescents physical culture knowledge and skills, An important institution to improve physical health (Dong Baolin, 2021). In addition, intervening in the physical exercise behavior of college students also requires finding breakthroughs in the social environment and behavioral environment of college students (Dai Xia et al., 2015).

Under the framework of social cognitive theory, we will study the relationship between college students' physical abilities and physical exercise behaviors, and explore how to use the concepts of this theory to intervene and optimize college students' physical activity behaviors. We expect that this study can further enrich and expand the theory and provide useful insights for improving college students' physical exercise behavior. At the same time, it is hoped that through research, more families will be aware of the impact of the family environment on their children's physical exercise behavior and provide more support. Schools and educational institutions should also improve facilities and provide a variety of sports activities to promote healthy exercise among college students.

1.2. Statement of the Problem

Problem statement: This study aims to study the influencing factors and optimization paths of contemporary college students' physical exercise behavior in the context of Healthy China.

1.2.1 What is the profile of the respondents in terms of Gender & Grade or Year Level & Course

1.2.2 What is the assessment of the respondents on their physical mobility

Muscular Strength & Endurance & Stability

1.2.3 Is there a significant difference in the assessment of the respondents in their physical mobility in terms of the aforementioned variables when they are grouped according to their profile variables

1.2.4 What is the assessment of the respondents of their exercise practices in terms of

Frequency & Intensity & Time & Type

1.2.5 Is there a significant difference in the assessment of the respondents in their exercise practices in terms of the aforementioned variables when they are grouped according to their profile variables

1.2.6 Is there a significant relationship between the respondents' physical mobility and their exercise practices.

1.3. Research scope and definition

The study aims to identify key variables, indicators, and measures influencing contemporary college students' physical exercise behavior and propose optimization strategies to enhance their participation. This research will be conducted on the campuses of ten universities in China, involving ordinary students of varying genders, grades, ages, and majors.

The study will consider individual variables related to personal circumstances and physical activity capabilities affecting exercise behavior, including but not limited to gender, grade, major, personal muscular strength, endurance, stability, etc. Data will be collected through surveys and interviews, with surveys gathering quantitative data and interviews providing qualitative insights into factors influencing exercise behavior.

This study primarily builds on relevant research from the past five years, reflecting contemporary college students' exercise behavior without overly considering historical factors. The geographical scope of this study broadly covers the Chinese college student population, but for research purposes, ten universities in Guizhou Province will be randomly selected for in-depth study. The study will be conducted within a specific timeframe, considering academic schedules, with data collection planned to be completed by the end of November 2023.

Ethical considerations: The study will adhere to ethical principles to ensure participants' privacy and rights are fully protected. Collaborative education: A key focus of this study is collaborative education, examining how families, society, and schools collaborate to promote college students' physical exercise. Therefore, the study will extensively explore the synergistic effects in these three areas.

Some limitations of this study may include: The geographical scope may not encompass all regions or cultural backgrounds. Data may partly rely on self-reporting by students, which could lead to response bias. Long-term effects of exercise behavior on students' health and well-being may not be fully explored. Resource and time constraints may limit the depth and breadth of data collection, which will be

addressed within the study's scope and resource constraints.

This paradigm outlines the research's foundation, its intended direction, and the methods for achieving and measuring success. Using correlation analysis, the study explored the relationship between physical mobility, which encompasses strength, stability, and endurance, and physical exercise practices, which include time, type, intensity, and frequency, among college students in 10 universities in China. The purpose of this research is to create a school base training program that addresses the specific needs of students with limited mobility due to sedentary behavior. The program seeks to enhance functional movement, reduce the risk of injury, and improve quality of life.

2. Methodology

This study primarily employs methods such as questionnaire surveys and interviews to collect data on college students' physical exercise behavior and its influencing factors. Researchers design and develop questionnaires to gather data on a large scale and ensure the reliability and validity of the questionnaire through literature review and expert consultation. To ensure data reliability, the study will use the "test-retest method" for reliability testing and conduct correlation analysis using SPSS 22.0 software on the collected questionnaires. The questionnaires are created using the "Questionnaire Star" app and distributed by school office directors and counselors to improve response rates and efficiency. The study includes 600 college students as participants, with in-depth interviews conducted to obtain detailed information. Data analysis will involve statistical techniques such as frequency analysis, percentages, rankings, weighted averages, T-tests, and ANOVA.

3. Results and Analysis

3.1. Preliminary Analysis

This chapter presents tables representing the collected data, along with its analysis and interpretation. The conclusions in this section are based on statistical analyses conducted using jamovi 2.3.19. A normality test, specifically the Shapiro-Wilk test, will be conducted to determine whether parametric tests will be used to address the research objectives. If the p-value is greater than .05, parametric tests will be used. If the p-value is less than .05, non-parametric tests will be used, indicating that the data is not normally distributed. The research questions in this study are revisited, and the study results, along with their interpretations and analyses, are presented.

Reliability measurements were conducted using Cronbach's Alpha, particularly focusing on the Cronbach's alpha scale for physical mobility (muscular strength, endurance, and stability) and exercise habits based on frequency and type. Data analysis using Cronbach's alpha (CA) revealed that each domain of the two scales met reliability standards, with CA values ranging from 0.83 to 0.97.

Based on the results of the Shapiro-Wilk test, all p-values were greater than 0.05, indicating that the scores follow a normal distribution. The Levene's test results showed p-values greater than 0.05, indicating homogeneity of variances in the data. Therefore, parametric tests, including independent samples t-tests, one-way analysis of variance (ANOVA), and Pearson correlation, will be used by researchers to address inferential questions.

3.2. Profile Of The Respondents In Terms Of Gender, Year Level, And Course?

This study surveyed fourth-year students in 11 majors at 10 universities. The data showed that the majority of the students were female (60%), freshmen (54%), and medical majors (23%).

Physical activity among college students is determined by a variety of factors, with the majority of students being female, freshmen, and medical students. According to Alzahrani et al. (2019), the large proportion of female students in this study may be due to their greater understanding of the need for a healthy lifestyle. Freshmen, who typically adjust to the stress of college life, may view physical activity as a means to relieve stress and improve overall well-being (Liu et al.) Additionally, as Thompson et al. (2020) stated, students in the medical field may Greater awareness of the benefits of physical activity on health outcomes leads to a greater desire

Table 1. Assessment of the Physical Mobility in terms of Muscular Strength

Indicators	Mean	SD	Verbal Interpretation	Rank
Shoulder Abduction Exercise	3.39	1.38	Fair	6
Elbow Flexion Exercise	3.41	1.40	Fair	4
Wrist Extension Exercise	3.44	1.38	Fair	3
Hip Flexion Exercise	3.45	1.37	Fair	2
Knee Extension Exercise	3.49	1.36	Fair	1
Foot Dorsiflexion Exercise	3.40	1.43	Fair	5
COMPOSITE MEAN	3.43	1.19	Fair	

Legend: 1.00-1.50: Trace (Very Low); 1.51-2.50: Poor (Low); 2.51-3.50; Fair (Average); 3.51-4.50: Good (High); 4:51-5.00: Normal (Very High)

Table 1 shows the assessment of selected college students' physical mobility in muscular strength, with a mean score of 3.43 and a standard deviation of 1.19. This suggests they perceive their strength as average, allowing them to perform exercises like knee, hip, and wrist extensions comfortably. Physical mobility is vital for college students' health, as noted by Pantelaki et al. (2021), especially for those leading active lives. Muscular strength plays a key role in mobility, enabling activities such as walking, stair climbing, and lifting. In this study, the students' muscular strength falls within normal ranges, indicating adequate strength for daily tasks. However, individual strengths vary, and specialized training may benefit some students (Faigenbaum et al., 2019). Assessing muscular strength informs educators and health professionals about students' fitness. Tailored programs can then be developed to enhance strength and mobility, promoting healthier lifestyles (Wang et al., 2020).

3.3.2. Endurance

Table 2. Assessment of the Physical Mobility in terms of Endurance

Indicators	Composite Mean	SD	Verbal Interpretation
Sit-ups	40.36	9.83	Good
Push-ups	20.97	14.13	Poor
Deep squats	42.60	8.82	Regular
Burpees	15.64	4.98	Poor

Table 2 summarizes the endurance assessment of selected college students' physical mobility. Sit-ups scored well with a mean of 40.36, indicating good mobility. Push-ups scored poorly with a mean of 20.97, while deep squats scored regularly at 42.60. Burpees also scored poorly at 15.64. Physical mobility is crucial for college students' health, especially those with sedentary lifestyles (Von Sommoggy et al., 2020). Assessing their endurance in exercises reveals insights into their fitness levels and areas needing

to exercise.

To improve the physical activity habits of modern college students, the key is to include instruction on the strengths of physical activity, provide accessible exercise facilities, and provide support through group exercise programs or peer support networks. Additionally, fostering a culture of health on campus and incorporating physical activity into academic curricula may help college students develop lifelong exercise habits. By addressing these influencing variables and applying appropriate technology, universities can help students make healthy choices and prioritize their physical health (Corbin, 2021).

3.3. The respondents' assessment of their physical activity ability

3.3.1. Muscular Strength

improvement. These students excel in sit-ups and deep squats, indicating strong core and lower body muscles (Han et al., 2021). However, they struggle with push-ups and burpees, reflecting weaknesses in upper-body strength and cardiovascular endurance. This comprehensive assessment helps identify strengths and areas for growth, guiding students toward improving their overall physical mobility and well-being.

3.3.3. Stability

Table3 shows the stability of the effects of physical activity on selected college students. According to the data, the overall average score is 2.12 and the standard deviation is 0.67, indicating that they have appropriate sports stability, but may basically need compensation in some sports.

Physical mobility is critical to the overall health of college students, especially busy and active students (Leger et al., 2019). Assessing stability can provide information about injury risk and athletic ability (Hartman et al., 2020). According to the survey results, most students showed average levels of balance and coordination, but some showed considerable flexibility and stability (Pulimeno et al., 2020).

The stability of an individual is affected by multiple factors, such as age, gender, and health level (Coughenour et al., 2021). Therefore, individualized improvement is crucial to students' physical mobility and stability.

Table 3. Assessment of the Physical Mobility in terms of Stability

Indicators	Composite Mean	SD	Verbal Interpretation		Rank
Shoulder Mobility	2.12	0.79	Correct	Diagonal Repetition	1
Trunk Stability push-up	2.12	0.77	Correct	Diagonal Repetition	1
Rotary Stability	2.12	0.78	Correct	Diagonal Repetition	1
4.Active Straight Leg Raise	2.12	0.79	Correct	Diagonal Repetition	1
	2.12	0.67	Correct	Diagonal Repetition	

Legend: 0.00-0.50: Painful; 0.51-1.50: Incorrect Diagonal Repetition; 1.51-2.50; Correct Diagonal Repetition; 2.51-3.00: Correct Unilateral Repetition

3.4. Assessment of the impact of personal data on respondents' physical activity

Differences in assessed levels of physical activity ability among college students by gender. Since all generated p-values were greater than the significance level of 0.05 ($t = 0.27$; $Df = 553$; $P = 0.791$), endurance ($t = 0.62$; $Df = 553$; $P = 0.536$), stability ($t = 0.81$; $Df = 553$; $P = 0.421$), interruption does not reject the null hypothesis. Therefore, it can be concluded that the assessment of physical mobility is the same regardless of gender. According to the findings, male and female college students have similar perceptions of mobility. Additionally, male students have equal access to fitness and physical activity resources that enable them to maintain and develop their physical activity abilities.

The one-way analysis of variance was performed to determine how the assessment of physical mobility differs when the students are classified based on their year level. The generated p-values for muscle strength ($F = 4.08$; $df = 3, 551$; $p = 0.007$) and endurance ($F = 4.39$; $df = 3, 551$; $p = 0.005$) are both lower than the 0.05 level of significance. Hence, the researcher will reject the null hypothesis and will conclude that there is a variation in the physical mobility in terms of these two domains based on the students' year level.

Using the Tukey post-hoc test, the difference found between freshmen and sophomores ($md = 0.49$; $p = 0.018$) in terms of muscle strength, as well as freshmen and seniors ($md = -1.91$; $p = 0.038$) in terms of endurance. Specifically, freshmen students scored higher in muscle strength ($M = 3.37$) than sophomores ($M = 3.23$). On the other hand, seniors have better endurance ($M = 31.34$) than freshmen students ($M = 29.43$).

Since all the obtained values from one-way ANOVA are higher than the 0.05 level of significance, the researcher will not reject the null hypothesis. Hence, it can be concluded that there is no significant difference in the assessment of physical mobility in terms of muscle strength ($F = 1.41$; $df = 11, 543$; $p = 0.162$), endurance ($F = 0.93$; $df = 11, 543$; $p = 0.511$), and stability ($F = 0.88$; $df = 11, 543$; $p = 0.556$) when the college students are grouped based on their courses.

3.5. The respondents' evaluation of their own physical exercise style

The overall mean score of the exercise frequency assessment results for the sample of college students was 2.76, with a standard deviation of 0.68. This indicates that they regularly engage in endurance, balance, strength and flexibility training.

Descriptive statistical analysis of the student sample's

evaluation of the practice exercises revealed a composite mean score of 2.67 with a standard deviation of 0.73, meaning that they performed the exercise at an impressive intensity.

The evaluation data of college students' practice time shows that the overall mean score is 2.70 points and the standard deviation is 0.93 points, which means that students often perform different exercises.

3.6. Differences in respondents' assessment of exercise practice in terms of profile variables

The study found that there was little variation in the assessment of exercise behavior among college students when classified by gender. All generated p-values for frequency ($t = -0.10$; $Df = 553$; $P = 0.992$), intensity ($t = -1.39$; $Df = 553$; $P = 0.165$), time ($t = 0.37$; $Df = 553$; $P = 0.711$), and type ($t = -0.84$; $Df = 553$; $P = 0.400$) were greater than the significance level of 0.05. Therefore, the null hypothesis cannot be rejected, indicating that the assessment of exercise behavior is independent of gender.

Exercise is crucial for a healthy lifestyle, regardless of gender. Although there may be slight differences in exercise patterns between males and females, the overall assessment is similar (Aljayyousi et al., 2019).

On the other hand, using one-way ANOVA revealed significant differences in exercise practice assessment, specifically in terms of type ($F = 3.35$; $Df = 3, 551$; $P = 0.019$). Thus, rejecting the null hypothesis leads to the conclusion that there are substantive differences in exercise practices among students of different grades.

Post hoc Tukey tests showed differences between senior students and sophomores in specialized exercises ($md = 0.30$; $P = 0.018$). Seniors outperformed sophomores in exercise practices, possibly due to their familiarity with campus life, better time management, and integration of exercise.

When grouped by courses, there were no significant differences in exercise frequency ($F = 0.68$; $Df = 11, 543$; $p = 0.757$), intensity ($F = 0.71$; $Df = 11, 543$; $p = 0.732$), time ($F = 1.24$; $Df = 11, 543$; $p = 0.259$), or type ($F = 0.83$; $Df = 11, 543$; $P = 0.613$).

The study also emphasized the importance of physical activities in improving overall mental health and well-being, enhancing self-esteem and confidence, especially for children with low self-esteem or feelings of inadequacy (Marquez et al., 2020).

3.7. The relationship between the physical activity capacity of the respondents and their exercise habits

Table 4 summarizes the correlation matrix for the relationship between physical mobility and exercise practices. Analysis of the Pearson's r correlation found p-values that are less than the specified significance level of 0.05 for all domains, indicating that the null hypothesis will be rejected and the researcher will infer that the variables have a significant relationship. Specifically, physical mobility in terms of muscular strength, endurance, and stability is

correlated with exercise practices based on frequency, intensity, time, and type. The correlation coefficients ranged from 0.14 to 0.51, implying a very weak to moderate relationship. Based on the coefficients, there is a negative relationship between muscle strength and frequency, as well as stability and frequency. This indicates that as the level of frequency increases, the level of muscular strength and stability will decrease. On the other hand, the rest have a positive relationship; specifically, as the level of physical mobility increases, so does the level of exercise practices, and vice versa.

Table 4. Correlation Matrix Between Physical Mobility and Exercise Practices

		Frequency	Intensity	Time	Type
Muscle Strength	Pearson's r	-0.32	0.14	0.51	0.23
	p-value	< .001	< .001	< .001	< .001
Endurance	Pearson's r	-0.45	-0.13	0.43	0.44
	p-value	< .001	0.002	< .001	< .001
Stability	Pearson's r	-0.35	0.21	0.51	0.30
	p-value	< .001	< .001	< .001	< .001

Legend: .00-0.19: Very Weak; 0.20-0.39: Weak; 0.40-0.59: Moderate; 0.60-0.79: Strong; 0.80-1.00: Very Strong

4. Conclusion

1. Majority of the students were female, freshmen, and enrolled in medicine. Understanding the exercise behaviors of this specific group can lead to targeted interventions and programs tailored to the needs of female, freshman, medical students.

2. The assessment of physical mobility is average based on the rating of the college students. Based on the results, Interventions aimed at improving physical mobility of the students and may develop program on the importance of physical mobility in the overall health. Similarly, researchers may consider including additional measures of fitness and health beyond physical mobility to gain a more comprehensive understanding of students' overall well-being.

3. Freshmen students scored higher in muscle strength, while senior students have better endurance. The implication of freshmen students scoring higher in muscle strength and senior students having better endurance suggests that freshmen may excel in short bursts of physical activity requiring strength, while seniors may excel in prolonged physical activities that test endurance over time. This may reflect the natural progression of physical development and training as students advance through their academic years.

4. College students often perform exercise practices, which may imply that they do regular exercise to improve their physical health, mental well-being, focus, and academic performance. It may also help them to cultivate discipline, time management skills, and stress management abilities. Additionally, participating in exercise practices fosters a sense of community and promotes a healthy lifestyle for the future.

5. Senior students have better performance in type-specific exercise practice than sophomores. If senior students have better performance in type-specific exercise practice than sophomores, it could imply that experience, physical

development, maturity, and training consistency play a significant role in mastering specific exercises.

6. There is a negative relationship between muscle strength and frequency, as well as stability and frequency. This indicates that as the level of frequency increases, the level of muscular strength and stability will decrease. On the other hand, the rest have a positive relationship; specifically, as the level of physical mobility increases, so does the level of exercise practices, and vice versa.

5. Recommendations

1. The students may focus on addressing their shortcomings through specific workouts and training regimens. Combining strength training, cardio, and flexibility exercises may help the students enhance their overall physical mobility and endurance. By addressing their flaws and building on their strengths, these college students may improve their general fitness, as well as their health and well-being.

2. The teachers may incorporate a variety of exercises into a physical mobility assessment to ensure that different muscle groups are targeted and tested. This provides a holistic view of an individual's fitness level and allows for targeted training programs to address specific areas of weakness. By focusing on improving performance in exercises where they are lacking, college students may enhance their overall physical mobility and fitness.

3. The physical education department may include strength training exercises to improve muscle tone, bone density, and overall physical fitness among students.

4. Similarly, they may also integrate mobility training exercises into fitness programs to enhance flexibility, range of motion, and joint health.

5. Partner with healthcare providers, physical therapists, and sports medicine specialists to develop personalized exercise plans and address any mobility-related concerns.

6. The school may incorporate a variety of exercises to target different muscle groups and prevent injuries. It is also important to prioritize rest and recovery to allow the body to recuperate. Additionally, staying hydrated, eating a nutritious diet, and getting enough sleep are essential for optimal performance and overall well-being. Lastly, seeking guidance from fitness professionals or trainers can help students create personalized workout plans that align with their goals and capabilities.

7. To help sophomores improve their performance, provide additional support and guidance to sophomores to help them improve their performance. This could include personalized training programs, mentorship from senior students, and focusing on building a strong foundation in the basics before moving on to more advanced exercises.

8. When formulating educational standards and physical fitness plans, the state considers the relationship between college students' physical fitness and physical exercise behavior, and guides contemporary college students to maintain scientific physical exercise behavior and develop good physical exercise habits from the policy level. To test the physical fitness of contemporary college students regularly, and make a comprehensive plan to improve the physical quality of college students.

9. The school will combine students' fitness program with students' academic education and social activities on campus. For example, when students' physical exercise ability reaches the normal standard, priority will be given to the school's selection of outstanding students, learning and training opportunities and other activities. Organize colorful campus sports activities regularly and encourage students to actively participate in sports activities.

10. Students' parents teach by example, actively participate in physical activities, buy clothes and equipment for their children to participate in sports activities, and often accompany students to participate in sports exercises in other places outside the school.

References

- [1] Almutairi K M, Alonazi W B, Vinluan J M, et al. (2018). Health promoting lifestyle of university students in Saudi Arabia: a cross-sectional assessment. *BMC Public Health*, 18, 1-10.
- [2] Bagherniya M, Taghipour A, Sharma M, et al. (2018). Obesity Intervention Programs Among Adolescents Using Social Cognitive Theory: a Systematic Literature Review. *Health Education Research*, 33(1), 26-39.
- [3] Cheng Hui. (2019). The path to improving college students' aerobic fitness with friend support: The mediating role of physical activity and self-efficacy. *Sports and Science*, 40(4), 114-120.
- [4] Dai Xia, Xie Daixi, Qin Chunbo, et al. (2015). Optimizing the integrated curriculum environment of physical education in universities: A case study of Shenzhen University. *Journal of Sports Science*, 22(6), 5.
- [5] Ding Hualin. (2023). Study on the relationship between the values of college students' physical fitness and physical exercise behavior in Yunnan province. *Innovation in Ice and Snow Sports*, (14), 152-154.
- [6] Dong Baolin. (2021). A study on the interactive effects of individual, family, and school factors on physical exercise behavior of adolescents [Doctoral dissertation, Shanghai University of Sport]. URL: <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD202301&filename=1022729706.nh>.
- [7] Fan Wen. (2018). The relationship between college students' exercise behavior and their basic psychological needs, autonomous motivation, and self-efficacy [Master's thesis, Capital University of Physical Education and Sports].
- [8] General Administration of Sport of China. (2022). National Health and Fitness Monitoring Center releases the "Fifth National Health and Fitness Monitoring Report" [EB/OL]. URL: <https://www.sport.gov.cn/n315/n329/c24335066/content.html>.
- [9] Guo Rui. (2018). A study on extracurricular physical exercise behavior and influencing factors of college students in Wuhan city from the perspective of cross-theory models [Doctoral dissertation, Huazhong Normal University].
- [10] He Xinyi. (2022). Study on the improvement of college students' physical exercise behavior habits based on the theory of knowledge-attitude-practice [Master's thesis, Chongqing Technology and Business University]. DOI:10.27713/d.cnki.gcqgs.2022.000680.
- [11] He Yuqin. (2023). Analysis of factors influencing college students' physical exercise behavior intentions based on the theory of planned behavior. In Chinese Society of Sport Psychology, Professional Committee of Sports Psychology of Chinese Psychological Society, Tianjin Society of Sports Science, and Tianjin Society of Psychology (Eds.), *Abstracts of the 12th National Conference on Sport Psychology* (pp. 34-35). DOI:10.26914/c.cnkihy.2023.014072.
- [12] John B. Watson. (2016). *Behaviorism* [M]. Translated by Liu Xia. Beijing: Modern Publishing House.
- [13] Leandy Bertrand, Keely A. Shaw, Jongbum Ko, Dalton Deprez, Philip D. Chilibeck, and Gordon A. Zello. (2021). The impact of the coronavirus disease 2019 (COVID-19) pandemic on university students' dietary intake, physical activity, and sedentary behaviour. *Applied Physiology, Nutrition, and Metabolism*, 46(3), 265-272. <https://doi.org/10.1139/apnm-2020-0990>.
- [14] Li Jiafan. (2022). Design research on health behaviors based on social cognitive theory [Master's thesis, Jiangnan University]. URL: <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD202301&filename=1022729706.nh>.
- [15] Ma Dehao. (2018). The mission, challenges, and strategies for the development of college sports in the new era in China. *Journal of Sports Science*, 25(05), 5-12. DOI:10.16237/j.cnki.cn44-1404/g8.2018.05.003.
- [16] Nan Ping, Gao Zeng. (2022). Analysis of the value orientation of physical exercise psychology of college students in China. *Neijiang Science and Technology*, (03), 121-123.
- [17] Niu Zheng, Yu Xuemei, Gao Ninei. (2022). Reflections and construction of college students' physical exercise behavior in Xi'an under the background of "Healthy China". *Innovation in Ice and Snow Sports*, (18), 157-160.
- [18] Ozer Simon. (2015). Predictors of international students' psychological and sociocultural adjustment to the context of reception while studying at Aarhus University, Denmark. *Scandinavian Journal of Psychology*, 56(6).
- [19] Peng Zhongjin. (2022). A study of college students' physical exercise behavior intention based on the theory of planned behavior: A case study of Harbin Sports Institute. *Contemporary Sports Science and Technology*, 12(21), 195-198. DOI:10.16655/j.cnki.2095-2813.2111-1579-2691.

- [20] Peterson N E, Sirard J R, Kulbok P A, et al. (2018). Sedentary behavior and physical activity of young adult university students. *Research in Nursing & Health*, 41(1), 30-38.
- [21] Qiu Daming. (2016). The impact of individual, family, and school factors on the exercise behavior and persistence of college students on physical exercise. *Chinese School Health*, 37(03), 441-444.
- [22] Shen Huilin. (2019). Experimental analysis of the evolution of attitudes towards sports and cultural confidence in China. *Zhejiang Sports Science*, (03), 18-21.
- [23] Sukys S, Cesnaitiene V J, Ossowsky Z M. (2017). Is health education at university associated with students' health literacy? Evidence from cross-sectional study applying HLS-EU-Q. *Biomed Research International*, 87, 1-9.
- [24] Sun Lina. (2022). A study of college students' physical exercise behavior and its influencing mechanism based on the theory of planned behavior [Master's thesis, Liaoning Normal University].
DOI:10.27212/d.cnki.glnsu.2022.000581.
- [25] Wang Dengfeng. (2018). Promoting reforms and innovations in school physical education, health, art, and national defense education in the new era.