

Students' Engagement in Extra-Curricular Physical Activities, Physical Fitness, And Mental Health

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Abstract: With the development of society and economic progress, there is an increasing concern about the physical and mental health of university students. Guangxi, as an important province in southwestern China, has attracted widespread attention to its sports development. However, with the rapid development of the social economy, the physical and mental health issues of university students have become increasingly prominent. Therefore, this study aims to investigate the physical fitness, types of sports participation, and mental health status of sports major students in Guangxi, exploring the relationships among them, and providing theoretical and practical basis for promoting the physical and mental health of university students in Guangxi.

Keywords: Extra-curricular Physical Activities; Physical Fitness; Mental Health.

1. Introduction

In recent years, the physical health of adolescents in China had been declining annually, and students' physical activity was severely insufficient (Jiang Yuting, 2022). Adolescents were an important component of the population structure, and their physical fitness and mental health directly affected the quality of the population (Zhang Qingyi, 2021). Scholars from different regions had studied the physical exercise behaviors and physical fitness of adolescents, providing new solutions for improving university students' physical fitness. Chen Ting (2022) conducted a survey on the exercise intentions, exercise behaviors, and various aspects of the status of adolescents in Jiangsu Province, deeply exploring the relationship between extracurricular sports activities and these factors, examining their positive effects, and revealing the internal connections between them. This study provided rational suggestions for promoting adolescent sports activities.

Scholars such as Song Zhijuan (2022), Fu Hongsong (2020), Zhai Qiuyi (2022), Jiang Yuting (2022), Pan Yuqing (2022), Ji Ying (2022), and Yan Xiaomeng (2020) had studied different regions including Northern Anhui, Hainan, Suzhou, Xi'an, Beijing, and Harbin to support and verify the importance and internal relationship between sports activities and physical fitness. They had enriched and deepened the theoretical research on the relationship between the two, all believing that long-term participation in sports activities could shape students' physical fitness, with a positive correlation between the two. They also proposed that the level of physical activity could predict physical fitness; an increase in physical activity level could positively drive the development of physical fitness. That was, a low level of physical fitness led to negative attitudes towards physical exercise, lacking motivation and confidence to participate in sports activities. Conversely, higher levels of physical fitness increased the likelihood of participating in sports activities (Huang Yan et al., 2019).

Therefore, physical activity often played a regulatory or mediating role in individuals (Xu Shiqing et al., 2021). Researchers had reached a basic consensus on the structure of the sports activity system (Huang Songping et al., 2023). As

the main research group, university students were widely studied in relation to extracurricular sports activities.

This study focused on college students as research subjects, analyzing the relationship between extracurricular physical activities, physical fitness, and mental health. Its theoretical research findings provided a basis for university sports programs and mental health education, guiding students to actively participate in exercise, enhance their ability to cope with setbacks and adapt to their environment, and cultivate well-rounded personalities and good psychological qualities. The study aimed to improve physical and mental health levels, offer references for maintaining and promoting students' well-being, provide theoretical and practical guidance, offer valuable insights for relevant departments in planning, and supply empirical data for sports psychology and health psychology.

2. Method

2.1. Purpose of the study

The purpose of this study was to investigate the data of college students majoring in physical education in Guangxi who participated in extracurricular physical activities, physical fitness, and mental health. The study aimed to pay attention to the individual differences in college students' mental health, explore the relationship between physical activities, physical fitness, and mental health, and provide a theoretical and practical basis for college students' scientific physical exercise and college students' physical education managers' decision-making. The goal was to effectively solve the problem of college students' mental health.

2.2. Research Model

This paper used a correlation study to explore the overall correlation between college students' participation in extracurricular physical activities in terms of frequency, duration, intensity, amount of exercise, and stage of exercise as a unit of measurement type, and their overall correlation with physical fitness and mental health.

2.3. Research sample

This paper took the relationship between extracurricular sports activities, physical fitness, and mental health of college students as the research object. The overall randomly selected five general colleges and universities in the Guangxi Zhuang Autonomous Region were used as the survey object, with a total of 476 people, of which the selected universities and the number of people were 97 people from Guangxi Science and Technology Teachers' College, 96 people from Beibu Gulf University, 94 people from Guilin College, 95 people from Baise College, 94 people from Wuzhou College, and other five schools respectively.

2.4. Data collection tool

A comprehensive questionnaire was used as the main data collection tool in this study. The content of the questionnaire was designed considering the suggestions and opinions of consultants and experts to improve the questionnaire prepared by the researcher.

There were three (3) questionnaires used: the first questionnaire was for the impact of extracurricular physical activity, the second questionnaire was for the assessment of physical fitness, and the third questionnaire was for the assessment of mental health.

The questionnaire on the impact of participants' extracurricular physical activity consisted of 39 items in the areas of individual sports, dual sports, and team sports. Each question of the questionnaire was scored using a 4-point Likert rating system, then it indicated that the higher the score, the higher the level of participation. Otherwise, it indicated a lower level of participation.

The questionnaire on the assessment of participants' physical fitness consisted of 49 subjective items and 6 objective measures in six areas: lung capacity, speed, strength, endurance, agility, and explosive power. Each question of the questionnaire was scored using a 4-point Likert rating system, with higher scores indicating better physical fitness. Otherwise, it indicated lower physical fitness.

The questionnaire on the assessment of participants' mental health consisted of 20 items in four areas: self-care, interpersonal skills, stress management, and Resilience and Coping skill. Each question of the questionnaire was rated on a 4-point Likert rating system, with higher scores indicating greater mental health. Otherwise, it indicated poorer mental health.

The research instrument has been tested for validity and reliability to ensure the quality of the data collected.

2.5. Data analysis

The data were entered into the computer, and the descriptive statistics, correlation analysis were displayed using software.

Descriptive statistical analysis using WEIGHTED Mean was employed to describe and measure the basic characteristics and distribution for extracurricular physical activities, physical fitness, and mental health. Description statistics were used to demonstrate basic statistical information about these variables, such as the distribution of average weekly exercise time, physical fitness scores, and mental health levels.

Correlation analysis was used to explore the relationships between variables. In this study, correlation analysis was used to understand the relationship between extracurricular physical activity time and physical fitness and mental health.

3. Findings

Extent of students' engagement in extracurricular physical activities

These results emphasise that in extracurricular physical activity, the diversity of exercise forms, the variability of physical fitness and the intrinsic motivation of the individual are identified as key determinants of the effectiveness of participation. In order to improve the effectiveness of exercise, differentiated exercise instruction and technical support must be provided to meet the physical condition and needs of individuals. At the same time, facilitating positive experiences through the creation of positive sport environments is a key means of stimulating intrinsic motivation and enhancing participation. Improving personal expectations can build positive beliefs at the psychological level and motivate individuals to engagement in physical activity for a longer and more active period of time. With this comprehensive strategy, we are able to more fully promote the positive impact of extracurricular physical activity on individuals' physical and mental health.

3.1. Assessment of students' physical fitness

This result, taken together, reflects the low spirometry scores of the respondents and indicates that the respiratory capacity of the respondents is relatively stable. Since spirometry interacts smoothly with other qualities, it is less demanding of other qualities. In this context, combined with engagement in extracurricular physical activity, it may reflect that the respondents may be less involved in respiratory exercise. Medium scores for physical strength and endurance indicate that respondents have relatively balanced needs for overall physical fitness and may not have overly high expectations. Such an overall assessment underscores the need to pay attention to respiratory exercise enhancement when designing an individualized physical activity program to more fully enhance physical fitness.

3.2. Difference in the assessment of the respondents of their physical fitness when their profile is taken as test factor

Using independent samples t-tests of students' assessments of self-assessed physical fitness, After grouping the students in the different forms of participation (individual sports, dual sports and team sports), the overall values showed that their assessment of physical fitness in terms of lung capacity, speed, stamina, endurance, agility and explosiveness were assessed to the same extent as a result. The null hypothesis was affirmed at 0.01% level of significance indicating that after grouping the students in 3 different forms of extracurricular physical activities (individual sports, dual sports and team sports) the assessed values of physical fitness were found to be in a weaker relationship according to the sub-variables of the students such as lung capacity, speed, stamina, endurance, agility and explosive power. It indicated that there was no significant difference in the students' assessment of their physical fitness. Post hoc analyses showed that students who participated in extracurricular sports activities in the form of team sports tended to have the highest level of physical fitness performance, those who participated in the form of dual sports were moderate, and those who participated in the form of individual sports had the lowest level of performance in physical fitness ability.

3.3. 3.3 Assessment of students' mental health

This suggests that overall, participants had relatively good interpersonal skills, relatively weak resilience and coping skill, and relatively intermediate self-care and stress management. This emphasizes the need in enhancing an individual's mental health and coping skills. Specifically, strengthening resilience and coping skill may help individuals better cope with stress, adapt to life changes, and increase psychological resilience. Similarly, the relative centrality of the emphasis on self-care and stress management serves as a reminder that more attention and development of skills in this area may be needed to promote the overall mental health of individuals.

3.4. Difference in the assessment of the respondents of their mental health status when their profile is taken as test factor

Using independent samples t-tests of students' assessments of self-assessed mental health. After grouping the students into individual sports, dual sports, and team sports, the overall values showed the same results for their assessment of mental health in terms of self-care, interpersonal skills, stress management, resilience and coping skills to the same extent. The null hypothesis was affirmed at 0.01% level of significance indicating that after grouping students in 3 different forms of extracurricular physical activities (individual sports, dual sports, and team sports) it was found that the assessed values of mental health were found to be in a weaker relationship according to the sub-variables of self-care, interpersonal skills, stress management, resilience and coping skills of the students. This indicated that there were no significant differences in the students' assessment of their mental health. Post hoc analyses showed that students who participated in extracurricular physical activity in the form of team sports tended to perform the best in terms of their mental health status, those who participated in the form of dual sports participated very well, and those who participated in extracurricular physical activity in the form of individual sports performed better in terms of their mental health competence.

3.5. Relationship between the extent of engagement in extra-curricular physical activities and the physical fitness of the students

An overall comparative assessment of the respondents was conducted using the test of difference. The results showed that students involved in different forms of extracurricular sports activities (individual, pair and team sports) rejected the null hypothesis with regard to physical fitness, so there were significant differences in the indicators of lung capacity, speed, strength, endurance, flexibility and explosiveness. In conclusion, there was a significant strong positive correlation between physical fitness in terms of lung capacity, speed, strength, endurance, flexibility and explosive power. This may be due to the fact that the physical education students' own physical conditions are related to their usual course work, and this relationship affects the development of their exercise habits and physical functions.

3.6. Relationship between the extent of engagement in extra-curricular physical activities and the mental health status of the students

A comprehensive assessment of the respondents' mental health was carried out using the test of variance. The results showed that students who participated in different forms of extracurricular sports activities (individual, dual and team sports) rejected the null hypothesis in terms of psychological well-being, and as a result, there were significant differences in the indicators of self-care, interpersonal skills, stress management, resilience and coping skills. In conclusion, there was a significant strong positive correlation between mental health in terms of self-care, interpersonal skills, stress management, resilience and coping skills. This may be due to the physical condition of the physical education students themselves in relation to their usual course work, and this relationship affects the development of their exercise habits and physical functioning.

4. Conclusion

- 1). Explosive power, endurance, strength and flexibility are at high level, speed and lung capacity are at medium level, explosive power > endurance > flexibility > strength > lung capacity > speed.
- 2). Individual sport, dual sport and team sports are basically at a medium level, participating in team sport > dual sport > individual sport.
- 3). Mental health scores are all at high levels, interpersonal skills > resilience and coping skill > stress management > self-care.
- 4). There were statistically significant differences in physical fitness indicators such as lung capacity, speed, strength, endurance, flexibility, and explosive power when students participated in different forms of extracurricular physical activity.
- 5). There were statistically significant differences in mental health indicators such as self-care, interpersonal skills, stress management, resilience and coping skills among students who participated in different forms of extracurricular physical activities.
- 6). Students' engagement in extracurricular sports activities of different forms shows varying degrees of positive correlation with both physical fitness and mental health. The correlation is strongest for team sports activities, while the correlations for individual and paired sports activities are weaker but still significant.

5. Recommendations

- 1). Physical Fitness Programme:
Regular Health Assessment: Implement regular physical fitness assessments, including indicators of lung capacity, speed, physical strength, endurance, flexibility and explosive power. Objective measurements and assessments are carried out using specialised equipment and tools to ensure accurate and reliable data.
Personalised fitness programme: Based on the results of students' physical fitness assessment, a personalised fitness programme is formulated to differentiate between different levels and needs. Diversified exercise programmes and training methods are provided, including aerobic exercise, strength training, flexibility training, etc., to meet the fitness

needs of different students.

Construction of campus fitness facilities: add or improve campus fitness facilities to provide equipment and venues for students to exercise. Regular inspection and maintenance of fitness facilities to ensure their safety and comfort.

Promotion of sports activities: To organise various sports events and activities to stimulate students' enthusiasm and interest in participating in sports. To set up an award mechanism to encourage students to actively participate in sports activities and to recognise outstanding athletes and teams.

2). Mental Health Programme:

Mental Health Programme:

Mental health education: Mental health education activities are carried out to raise students' awareness of and attention to mental health. Provide mental health information and resources for students to access and learn from to enhance their mental health literacy.

Psychological counselling services: Training professional psychological counsellors and volunteers to provide specialised and personalised psychological support.

Mental health activities: organise mental health promotion activities and create a mental health communication platform for students to share their psychological experiences and emotions with each other, reduce their psychological burdens and enhance mutual understanding.

Mental health monitoring and intervention: Establish a mental health monitoring system to regularly assess and track students' mental health status, and provide timely intervention and support when problems are identified. Mental health intervention programmes are carried out to provide personalised psychological counselling and treatment programmes for different psychological problems and distress, and to help students rebuild a healthy mental state.

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