The influence of college physical education on students' psychological quality from the perspective of ideological and political education

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Abstract

In the modern era, college students with psychological problems have occasionally exhibited various extreme behaviors. Therefore, the psychological health education colleges and universities provide to college students needs to be enhanced. In contrast, the psychological health education provided to the subset of college students majoring in physical education is not comprehensive and in-depth. This study investigates the effect of college physical education on students' psychological well-being from the standpoint of ideological and political education. As the research object, college students from five institutions in a city were selected using cluster sampling. One thousand college students are surveyed to determine their mental health status. Regarding interpersonal sensitivity and anxiety symptoms, depression, paranoia, and obsessive-compulsive symptoms, the mental health level of the experimental group improved significantly after the experiment compared to before the investigation. In the control group, except for the significant improvement in interpersonal sensitivity, the mean value of the other factors did not change significantly. The experimental group's mental health was considerably better than that of the control group after the experiment, and there were significant differences in interpersonal sensitivity, anxiety, and depression.

Keywords: physical exercise, intersnational trade workers, exercise programs, psychological sub-health

1. Introduction

Physical education's psychological health education is the foundation of ideological and political education in colleges and universities, including ideological, political, and moral education. In addition, it is the basis for ideological and political education in colleges and universities (Shang, Moss, & Chen, 2023). Human psychology is the fundamental component of ideology and political morality, signifying that everyone's ideology and political morality is founded on a particular psychological mechanism and psychological form. A college student's psychological health education influences their psychological development, affecting their ideological and political education (Snedden et al., 2019). The severity of psychiatric disorders among college pupils has increased in recent years. Higher education has entered the popularization phase due to the ongoing reforms of the socialist market economic system, which have resulted in significant changes in the economic composition of society, employment patterns, distribution patterns, and relationships between interests (Ghrouz et al., 2019).

Due to these changes and other pressures, the psychological stress of college students has increased substantially, making them more prone to confusion and mental confusion. Mental health education for college students falls under the purview of ideological and political education (Tilga et al., 2019), the Central Committee of the Chinese Communist Party and the State Council on August 26, 2019, or document No. 16. Teachers should strive to improve college students' access to mental health education and devise efficient methods for educating them about ideologies and politics under the new conditions. In addition, teachers should emphasize mental health education following the physical and psychological development characteristics of college students and the laws of education. In the interim, teachers should establish and improve specialized institutions for mental health education and counseling, provide a sufficient number of full-time and part-time mental health educators, actively implement mental health education and counseling for college students, and assist college students in becoming as healthy as possible (Zhang et al., 2020). Figure 1 depicts the effect of college physical education on students' psychological well-being.

The accelerated development of modern society significantly impacts people's psychology while raising the bar for psychological excellence. Faced with a complex and diverse modern society, a person's mental health and psychological quality directly impact their physical and mental health and their career success or failure (Wang & Boros, 2021). Therefore, improving individuals' psychological character and mental health level is crucial for their lifelong development. Furthermore, the use of the cooperative learning teaching method of ideological and political education in college physical education has a relationship with promoting college students' mental health, can effectively improve college

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students' mental health, and supports the development of college students' mental health as well as the cultivation of positive psychological qualities (Herbert et al., 2020). Furthermore, in elective courses, it is necessary to introduce new content, such as orienteering, tennis, handball, etc., or to increase the difficulty of elective actions, thereby permitting students to engage in less-skilled activities. This will help to increase student engagement and reverse the trend of neglecting students' self-expression, self-improvement, and self-development (Kalajas-Tilga et al., 2020).

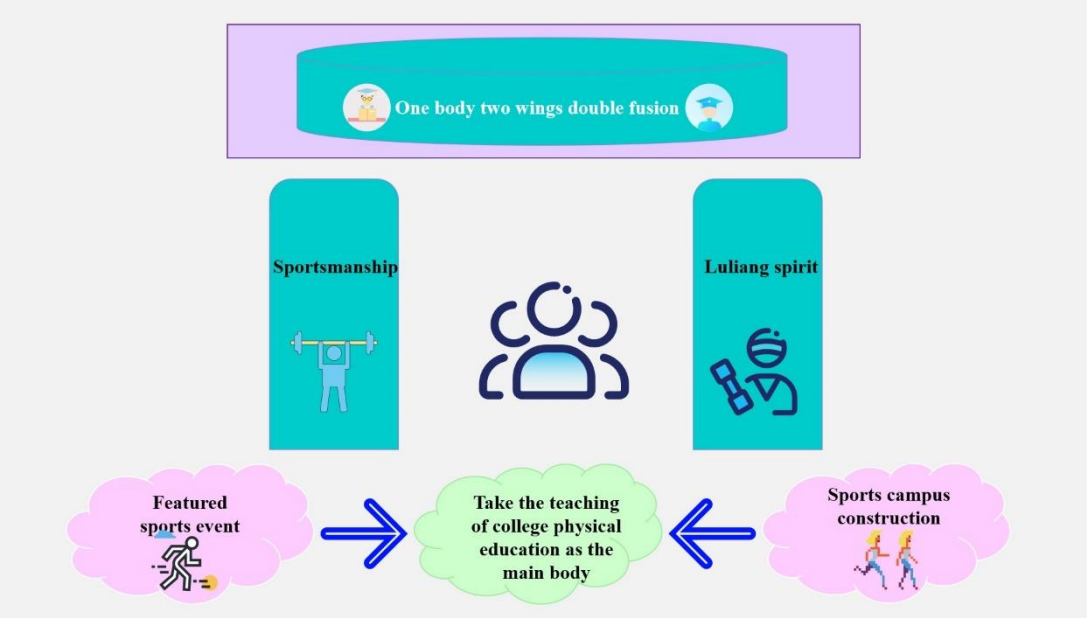

Figure 1. College physical education affects students' psychological quality.

This study investigates the effect of college physical education on students' psychological well-being from the standpoint of ideological and political education. As the research object, college students from five institutions in a city were selected using cluster sampling. One thousand college students are surveyed to determine their mental health status. This study's findings have theoretical and practical implications, extending the corpus of knowledge and providing practices for enhancing the psychological well-being of students receiving an ideological and political education. In addition to these limitations, future research direction is also discussed. In their future work, academicians must comply with these instructions.

2. Literature Review

Intelligence is a fundamental psychological concept essential for individuals to complete learning tasks. Currently, the social competition is intensifying, and the expectations for college students are becoming increasingly stringent; without a guarantee of fundamental intelligence, it is difficult to adapt to society without difficulty. Currently, many college students are under great pressure from their studies and jobs; without appropriate adjustment, they are likely to become depressed and ill, negatively impacting their mental health (Kalajas-Tilga et al., 2020). Physical education in college serves the fundamental purposes of fitness and mental health, which can assist college students in enhancing their intelligence and relieving physical and psychological stress. Specifically, college physical education can contribute to the intelligence of college students in three ways (White et al., 2021). First, sports can help college students further develop and utilize the brain and exercise the nervous system's functions. Second, sports can help college students reduce their stress response and enhance cognitive function. Thirdly, sports can alleviate college students' weekday study stress and balance work and leisure. Physical education in college can reduce tension among college students and promote the effective development of intelligence and skill (Rogowska et al., 2020). The psychological function of athletic activities is an essential aspect of sports psychology. Physical activity positively influences mental state, which can enhance positive emotions and diminish negative ones. It can keep individuals optimistic and happy.

However, research on the overall effect of physical activity on mental health has seldom manifested in China's research results in recent years. Therefore, this study focuses on the association between college students' athletic participation and harmful psychological states. Andermo et al. (2020) analyzed the relationship between fundamental physical activities and the psychological health of 500 college students. The results indicate that,

during ineffective sports activities, the functional states of students fluctuate with variations in exercise intensity and duration. Physical activity does not significantly affect the mental state. Although sports activities have a significant positive correlation with mentality, the frequency of sports activities can promote the improvement of negative emotions to a certain extent. Still, the impact of positive emotions is not as significant as that of negative emotions. The greater the college students' physical activity index, the better their mental health, interpersonal relationships, and emotional state. In contrast, the less physical activity college students engage in, the more apparent their poor mental health (Huhtiniemi et al., 2019).

Ingram, Maciejewski, and Hand (2020) state that students need physical education to enhance their cognitive abilities. Those pupils who lack physical exercise face significant obstacles to their learning. Physical education is necessary for students to improve their productive performance. Access to physical education can inspire students to learn more effectively through improved product performance. According to Wang and Boros (2021), physical education is a requirement for students in their educational institutions because it is essential for their development and performance. Critically enhancing students' learning opportunities can be accomplished through the reliability of education. Better physical education encourages students to participate in various activities to improve their critical learning performance. According to Baez, Hoch, and Hoch (2020), a lack of student motivation for physical education can result in performance detrimental to their health standard. In the meantime, institutes mandate that all students receive adequate physical education to enhance their learning and performance. Meanwhile, Vasconcellos et al. (2020) reported that students without access to physical education encounter significant life challenges due to slower mental health development.

Moreover, Amatori et al. (2020) reported that physical education is required for students to enhance their productive performance. When students have access to appropriate physical education, their mental health and cognitive abilities are impacted. Students' health awareness can be crucial to their mental development (MacPhail et al., 2023). Students must have access to dependable education and be encouraged to seek improved health facilities. According to Tilga et al. (2019), the reliability of the student's performance to higher health standards should be enhanced. Any nation's students must be motivated to pursue health education because it is essential for their improved standard of living. Public access to health education can influence the academic performance of students. According to McGuine et al. (2021), students' health consciousness affects their brain development when they access standard-quality, credible health education. In addition, health awareness is essential for students, and they should receive health education in various educational institutions. Access to good health education can inspire students to excel in their academic and extracurricular endeavors.

3. Methodology

3.1 Research object

As the research object, this study randomly selected college students from five institutions in a city using cluster sampling. First, the psychological health status of 1,000 randomly selected college students was investigated, and then the impact of psychological health on 60 randomly selected college students was assessed.

3.2 Research methods

In this study, one thousand college students were randomly selected from all five colleges and universities in a city to complete a questionnaire survey of the psychological symptoms scale (SCL-90). The sample includes college students of various grades, genders, and majors, including arts, science, engineering, economics, and medicine. Before the questionnaire survey, the investigators should be trained in a unified manner to understand relevant knowledge, and the survey should be arranged suitably in the specified location. It shall be distributed in person, with suitable instructions, and respondents shall fill in the scale on their own, and the form of unified withdrawal shall be carried out following the requirements. The collected student questionnaires were tested and screened; a total of 1,000 questionnaires were distributed, and 973 were collected; the recovery rate was 97.3%; after removing the invalid questionnaire, the number of valid questionnaires is 958; and the effective rate is 95.8%, which meets the requirements of this study.

This data analysis began with sorting the recovered questionnaires, eliminating the invalid ones, and retaining the valid ones. Additionally, collecting and submitting valid questionnaire data should be performed independently to avoid data errors caused by multiple entries. In statistical analysis, the frequency analysis method in descriptive statistics is used to acquire the required proportions for the general situation of the research object, and the group-based statistical distribution is described. For variables classified into two groups, a t-test on independent samples was used to analyze the differences between the groups, with IBM SPSS

16.0 used for statistical analysis. First, determine the experimental group and the control group, then use different teaching modes in the teaching of elective basketball courses, ensuring that all other contents and conditions are consistent, conduct comparative research through the experiment, and finally conduct statistical processing on the relevant data obtained from the investigation, and demonstrate the pertinent problems and hypotheses of this study.

This experiment uses cooperative learning as the independent variable and mental health, self-efficacy, and learning achievement as the dependent variables to test the students' mental health level and self-efficacy before and after the experiment to determine if different independent variables (cooperative learning teaching mode, application of traditional teaching mode) can cause changes in dependent variables under the experimental conditions, and to investigate the relationship between collaborative learning and mental health, self-efficacy, and learning achievement. The experimental and control groups have identical requirements (technical skills, physical quality, extraordinary level, mental health level, etc.). The experimental and control groups had similar class times and frequencies, i.e., once a week for two hours and ninety minutes. The same instructor taught physical education classes for the experimental and control groups, the teaching experiment employed a single-blind design, and the venue apparatus, teaching content, and teaching progress were identical. In this experiment, two psychological scales, namely the Symptom Checklist-90 (SCL-90), the general Self-efficacy Scale, and the Student Physical Education Learning Achievement Rating Scale, were chosen and used to comprehensively evaluate the mental health status and physical education learning achievement of college students to collect pertinent data and conduct comparative analysis.

This study selected the widely used Symptom Check List-90 (SCL-90) as the survey instrument. The scale was revised, and the Chinese version of SCL-90 was adopted to develop the latest norms for different age groups. The scale is the most extensively used psychological disease outpatient examination scale. It has excellent discrimination for individuals with psychological symptoms (who may be on the verge of psychological disorders). It can be used to determine who has psychological barriers, the nature of those barriers, and their severity. The scale has a relatively high level of validity in evaluating various psychological counseling and mental health surveys. It accurately reflects the symptoms and severity of the subjects, making it the most comprehensive mental health evaluation scale currently available.

The scale consists of 90 items, including somatization, interpersonal sensitivity, obsessive-compulsive symptoms, anxiety, hostility, paranoia, depression, phobia, psychosis, and 10 additional factors. Each of the 90 items utilizes a five-grade scoring system, ranging from 0 to 5 for none, mild, moderate, quite severe, and profound. The total score on the SCL-90 is low, indicating that the mental health condition is good; similarly, the average score on the factors is low, indicating that the adverse symptoms associated with each factor are minimal and the health condition is good. The evaluator must evaluate independently and complete the scale within one week, assuming that the teacher provides unified instruction. The results of the revision and application of the SCL-90 scale in China indicate that it has a large capacity, a comprehensive reflection of symptoms, a more accurate description of conscious symptoms, and high reliability and validity.

In 1981, Professor Ralf Schwarzer, a renowned clinical and health psychologist at Germany's Free University of Berlin, and his associates created the first German version of the General Self-Efficacy Scale (GSES). There were initially 20 products, but this number was reduced to 10 later. The greater the cumulative score, the more self-assured the participants were. The validity and reliability of the Chinese version of the GSES have been demonstrated. The scale is being used globally. Self-efficacy is the perception or belief that one can respond appropriately to environmental challenges; research indicates that increasing one's self-efficacy through sports participation promotes mental health. Consequently, the test results are used as supplementary indicators to evaluate the experiment's efficacy.

4. Results and Discussion

4.1 Statistics of college students' psychological symptoms and detection rate of psychological problems

To better understand the mental health and psychological symptoms of college students, a random survey was conducted on the level of mental health of 1,000 college students in five universities in a city. 958 valid questionnaires were collected, including 512 male students, with an average age of 21.2±0.31 years, and 446 female students, with an average age of 20.8±0.55 years. Following the context and interpretation of the SCL-90 psychological symptom scale, the detection rate of psychological symptoms and psychological problems among college students was statistically analyzed; see Table 1 for the statistical results.

Table 1

Statistical table of the detection rate of college students' psychological symptoms and psychological problems

Factor	≥3Number of factors	Scale	Precedence
Somatization	15	1.68	9
Obsessive-compulsive symptoms	26	2.94	6
Interpersonal Relationship	47	5.02	2
Depressed	38	4.08	4
Anxious	45	4.58	3
Hostility	23	2.52	7
Terror	15	1.47	8
Paranoia	33	3.35	5
Mental symptoms	10	0.95	11
Other	22	2.18	8

According to the design theory of the SCL-90 scale, if the subject has a factor score of 2, this indicates a mild adverse psychological reaction to this factor, which is defined as the symptomatic performance of this item. On the other hand, suppose the subject has a factor score of ≥3 on the scale. In that case, this indicates that the symptoms of this factor have reached a moderate or severe level of severity and are defined as indicators of a psychological problem. 773 of the 958 surveyed college students had symptoms on the mental health factor item, and 225 had varying psychological problems. The statistical results indicate that the average detection rate of college students with symptoms is 80.69 percent and that of students with psychological and severe psychological problems is 21.51 percent. The frequency distribution of their psychological problems is shown in Table 1. Interpersonal sensitivity, anxiety, and depression are college students' most prevalent psychological problems, followed by paranoia, compulsion, and anger. The findings indicate that there is little hope for the psychological well-being of college students, and some continue to experience severe psychological problems. These issues may result from the students' rigorous course load, inadequate living conditions, intense competition, and high psychological pressure.

4.2 Comparison of mental health between the experimental group and the control group before the experiment

This study selected Symptom Checklist 90 (SCL-90), a comprehensive mental health assessment instrument, as the mental health test index. This table contains a variety of mental health symptoms, including cognition, emotion, behavior, interpersonal relationships, and lifestyle, and the signs reflect the mental health of the subjects. See Table 2 for test results and a comparison of the experimental and control groups' mental health before the trial.

Table 2

Comparison of SCL-90 test results before the experiment between the experimental group and control group

Index	Experimental Group	Control Group	T	p
Somatization	1.48±0.355	1.49±0.305	0.556	0.965
Obsessive-compulsive symptoms	1.86±0.575	1.87±0.317	-0.086	0.569
Interpersonal sensitivity	1.95±0.428	1.95±0.325	0.218	0.854
Depressed	1.77±0.497	1.79±0.408	-0.097	0.953
Anxious	1.85±0.369	1.82±0.283	1.222	0.263
Hostility	1.59±0.558	1.63±0.484	-0.156	0.888
Terror	1.58±0.384	1.61±0.558	-0.056	0.961
Paranoia	1.82±0.436	1.78±0.343	0.218	0.842
Psychopathic	1.37±0.464	1.38±0.318	-0.083	0.943
Other	1.47±0.442	1.53±0.464	-0.136	0.902

Table 2 demonstrates that there is no statistically significant difference (P>0.05) between the experimental group and the control group on the various factor indexes of the SCL-90 scale, which reflect the level of mental health before the experiment. It demonstrates that the mental health of pupils in the experimental and control groups is essentially the same as before the experiment, thus satisfying the experimental requirements.

4.3 Comparison of self-efficacy between the experimental group and the control group before the experiment

Self-efficacy refers to an individual's perception or belief regarding their capacity to implement adaptive behavior in the face of environmental challenges. According to a study, participating in sports has increased self-efficacy, which has improved mental health. Self-efficacy, the central competency of the individual self-regulation system, is vital to college students' mental well-being. As self-efficacy is a significant factor influencing mental health, the GSES test result is regarded as one of the most important indicators for evaluating the effect of this experiment. The outcomes of the self-efficacy test and a comparison between the experimental and control groups before the investigation are presented in Table 3.

Table 3

Comparison of the GSES test before experimenting between the experimental group and control group

Index	Experimental Group	Control Group	t	p
Self-efficacy	10.08±2.643	9.87±2.954	0.8587	0.148

4.4 Comparison of learning achievements between the experimental group and the control group before the experiment

According to the body-mind interaction hypothesis, there is a connection between mental and physical health. The physical growth of college students serves as the foundation for their psychological growth, which is dependent on the development of each component of their bodies. A healthy psychological condition may lead to a healthy physical condition, and a healthy psychological condition leads to a healthy one. In physical education, learning outcomes represent the physical and mental health of students and the outcome of the experiment. As a result, the evaluation results of the two groups of students' physical education learning achievement are utilized as one of the indicators to evaluate the experiment's effect. See Table 4 for the evaluation results and comparison of the experimental and control groups' physical education learning achievements before the investigation.

Before the experiment, Table 4 demonstrates that there was almost no difference in the level of physical education learning between the experimental and control groups (P>0.05). In conclusion, the findings presented in Tables 1 through 4 indicate no difference between the experimental group and the control group regarding mental health, self-efficacy, and academic achievement; both groups are highly homogeneous and meet the criteria for a teaching experiment control.

Table 4

Comparison of pre-experiment learning achievement evaluation results between the experimental group and the control group

Index	Experimental Group	Control Group	t	p
Academic Record	74.51±6.415	75.20±6.532	-0.645	0.541

4.5 Comparison of test results before and after the experiment between the experimental group and the control group

After 16 weeks of comparative experiments with various teaching models, the selected indicators were retested. The differences between the groups before and after the investigation were coupled with a sample t-test to identify significant changes. Before and after the experiment, a comparison of mental health between the experimental group and the control group. See Table 5 and Figure 2 for a comparison of the experimental outcomes.

Table 5

Comparison of SCL-90 test results before and after the experiment in the experimental group

Index	Before Experiment	After Test	t	p
Somatization	1.49±0.277	1.46±0.275	0.218	0.542
Obsessive-compulsive symptoms	1.86±0.575	1.54±0.408	3.506	0.368
Interpersonal sensitivity	1.98±0.418.	1.38±0.522	5.807	0.012
Depressed	1.77±0.495	1.46±0.468	3.967	0.044
Anxious	1.84±0.374	1.43±0.358	3.645	0.008
Hostility	1.58±0.559	1.48±0.325	0.854	0.459
Terror	1.5±0.384	1.52±0.408	0.428	0.692
Paranoia	1.85±0.459	1.53±0.552	3.178	0.050
Psychopathic	1.35±0.407	1.343±0.375	0.246	0.853
Other	1.47±0.442	1.46±0.341	0.752	0.433

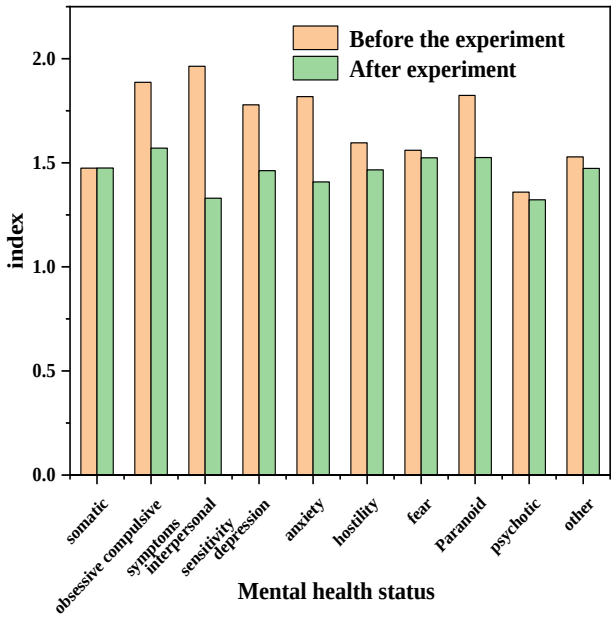

Figure 2. Comparison of mental health of the experimental group before and after the experiment.

The results of Table 5 and Figure 2 indicate that the cooperative learning teaching mode significantly impacts the mental health level of the experimental group, with noticeable effects on obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, and paranoia. Interpersonal sensitivity and anxiety symptoms reached a very significant difference level after the experiment ($P<0.01$), whereas the effect on obsessive-compulsive signs, depression, and anxiety symptoms was not statistically significant.

However, the learning performance of experimental group students utilizing the cooperative learning teaching mode is substantially higher than that of the control group. The improvement r is more significant when implementing a suitable learning teaching mode. Both the cooperative learning teaching mode and the traditional teaching mode contain factors that promote the development of students' learning performance, as demonstrated by the experimental results. Observations indicate that the experimental group employs a cooperative approach, and the students in the group support and assist each other while attempting to learn from each other, thereby creating a favorable learning environment and promoting the development of disadvantaged students. Learning outcomes, increased student interest in learning, teaching, learning, and practice, and positive student attitudes all contribute to a rich learning experience. Improvements in student performance have a ripple effect on students' mental health, boosting students' self-confidence, elevating their mood, reducing tension, and fostering student relationships. Supporting psychology and physical education, promoting positive development, and enabling psychological students in a stable and positive environment will create a virtuous circle and sustain and improve each other, thereby enhancing college students' mental health.

5. Discussion

The experiment results indicate that the students in the experimental group who participated in the cooperative learning teaching mode significantly improved their mental health levels before and after the experiment, particularly in terms of interpersonal sensitivity and anxiety symptoms, as well as depression, paranoia, and obsessive-compulsive symptoms. However, no other indicators changed significantly in the control group except for the significant improvement in interpersonal sensitivity. This further demonstrates that the theoretical hypothesis of this study can improve the mental health of college students through the application of cooperative learning in college physical education instruction, which uniquely influences college students' mental health. Furthermore, according to the experiment results, the self-efficacy of the experimental group's pupils increased dramatically after the cooperative learning teaching strategy was implemented. It also demonstrates that the teaching intervention designed for this experiment is effective, particularly the successful application of the suitable learning teaching mode, which increases students' propensity to engage in sports for enjoyment, pay attention to how individuals improve and develop in activities, and maintain a high sense of ability and self-determination, which in turn increases self-efficacy (Herbert et al., 2020).

Similarly, Kalajas-Tilga et al. (2020) found that physical education classes must directly influence students' learning and performance. Physical education must be made available to students who are not motivated to improve their mental health to enhance their learning and comprehension. When teachers improve the health education of students with critical learning abilities, the relationship between teachers and students will be appropriate (Rogowska et al., 2020). Physical education is required for students who are extremely motivated to learn and have access to positive mental health. Physical education is essential for enhancing students' productive performance. The findings of Andermo et al. (2020) indicate that students must have access to improved health standards through physical education.

For optimal mental development, they should cooperate with their teachers and learn all the dynamics necessary to enhance their performance constructively. Zhou and Wang (2019) demonstrated that physical education is essential for developing students' mental health and critical thinking skills. However, Violant-Holz et al. (2020) added that students who are physically capable of learning in a new manner must have access to physical education classes.

In addition, Snedden et al. (2019) demonstrated that students with negative learning attitudes must be motivated to improve their product performance. The relationship between students and instructors should be fruitful, and physical education classes should be designed to enhance student learning. McGuine et al. (2021) demonstrated that students motivated to improve their mental health appear to be actively enhancing their academic performance. Health education for students enhances their learning, which is essential for a brighter future. Zhang et al. (2020) noted that the mental development of students is a means to advance advanced learning. Access to students' mental health information is the key to improving their academic performance (Leisterer & Jekauc, 2019). In the meantime, Aperribai et al. (2020) emphasized that students with improved working strategies must improve their mental health through routine and regular exercise. The student's physical health can be improved, and they can become more mentally adroit if they have access to the appropriate information for enhancing their health (O'Brien et al., 2020).

6. Conclusion

Physical education electives are an effective means of enhancing the mental health of college students. Combining psychologically sound education with students' interests and pastimes can promote college students' physical and psychological health. Developing a healthy psychology in college students is crucial in the modern era and for the formation of a socialist society that is cohesive. To foster the psychological development of college students and allow them to enjoy sports genuinely, teachers must guide students according to the situation, adhere to the persuasion principle, and enhance the teaching process. This will assist students in improving their conditions and achieving holistic growth. Physical education activities in colleges and universities are applicable and well-liked by students. Educators can integrate mental health education into ideological and political education and further improve the mental health of sports graduates by incorporating educational methods such as psychological counseling or counseling into their specific teaching work.

7. Implications, Limitations, and Future Directions

Theoretically, this research has produced significant findings, as the study asserts that physical education courses are necessary to improve students' mental health. Based on experimental evidence, the study has demonstrated that physical education significantly impacts the psychological health of college students. This study's elucidation of this relationship is a significant contribution to the corpus of knowledge, as these relationships were not previously identified. Through this research, academics discern a significant relationship between college students' physical education and psychological health. The empirical findings of this study significantly advance the body of knowledge. This research has important practical ramifications because it has increased the requirement that students participate in physical education to strengthen their mental health. Students who are motivated to perform well must have physical health conducive to their academic success. Furthermore, physical education must be reliable to enhance the students' mental health. This study concluded that the administration of colleges should encourage students to enroll in physical education courses that can enhance their health.

This research has produced significant contributions to the body of knowledge, but the findings have limitations that must be addressed in future research. The study has collected data from college students; however, the results would be different if data were collected from high school students. Therefore, this research limitation must be addressed in future studies, and data must be collected from the institution's students. In the meantime, no moderating effects have been considered in this research. Therefore, future studies should test the moderating function of mental health literacy between students' physical education and psychological well-being to address this research limitation. The instructions would encourage scholars to contribute significant discoveries to the corpus of knowledge and literature.

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References

Amatori, S., Donati Zeppa, S., Preti, A., Gervasi, M., Gobbi, E., Ferrini, F., Rocchi, M. B., Baldari, C., Perroni, F., & Piccoli, G. (2020). Dietary habits and psychological states during COVID-19 home isolation in Italian college students: the role of physical exercise. *Nutrients, 12*(12), 3660. https://doi.org/10.3390/nu12123660

Andermo, S., Hallgren, M., Nguyen, T.-T.-D., Jonsson, S., Petersen, S., Friberg, M., Romqvist, A., Stubbs, B., & Elinder, L. S. (2020). School-related physical activity interventions and mental health among children: a systematic review and meta-analysis. *Sports medicine-open, 6*(1), 1-27. https://doi.org/10.1186/s40798-020-00254-x

Aperribai, L., Cortabarria, L., Aguirre, T., Verche, E., & Borges, Á. (2020). Teacher's physical activity and mental health during lockdown due to the COVID-2019 pandemic. *Frontiers in Psychology, 11*, 577886. https://doi.org/10.3389/fpsyg.2020.577886

Baez, S. E., Hoch, M. C., & Hoch, J. M. (2020). Psychological factors are associated with return to pre-injury levels of sport and physical activity after ACL reconstruction. *Knee surgery, sports traumatology, arthroscopy, 28*, 495-501. https://doi.org/10.1007/s00167-019-05696-9

Ghrouz, A. K., Noohu, M. M., Dilshad Manzar, M., Warren Spence, D., BaHammam, A. S., & Pandi-Perumal, S. R. (2019). Physical activity and sleep quality in relation to mental health among college students. *Sleep and Breathing, 23*, 627-634. https://doi.org/10.1007/s11325-019-01780-z

Herbert, C., Meixner, F., Wiebking, C., & Gilg, V. (2020). Regular physical activity, short-term exercise, mental health, and well-being among university students: the results of an online and a laboratory study. *Frontiers in psychology, 11*, 509. https://doi.org/10.3389/fpsyg.2020.00509

Huhtiniemi, M., Sääkslahti, A., Watt, A., & Jaakkola, T. (2019). Associations among basic psychological needs, motivation and enjoyment within finnish physical education students. *Journal of sports science & medicine, 18*(2), 239–247. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6544006

Ingram, J., Maciejewski, G., & Hand, C. J. (2020). Changes in diet, sleep, and physical activity are associated with differences in negative mood during COVID-19 lockdown. *Frontiers in psychology, 11*, 588604. https://doi.org/10.3389/fpsyg.2020.588604

Kalajas-Tilga, H., Koka, A., Hein, V., Tilga, H., & Raudsepp, L. (2020). Motivational processes in physical education and objectively measured physical activity among adolescents. *Journal of Sport and Health Science, 9*(5), 462-471. https://doi.org/10.1016/j.jshs.2019.06.001

Leisterer, S., & Jekauc, D. (2019). Students' emotional experience in physical education—A qualitative study for new theoretical insights. *Sports, 7*(1), 10. https://doi.org/10.3390/sports7010010

MacPhail, A., Tannehill, D., Leirhaug, P. E., & Borghouts, L. (2023). Promoting instructional alignment in physical education teacher education. *Physical Education and Sport Pedagogy, 28*(2), 153-164. https://doi.org/10.1080/17408989.2021.1958177

McGuine, T. A., Biese, K. M., Petrovska, L., Hetzel, S. J., Reardon, C., Kliethermes, S., Bell, D. R., Brooks, A., & Watson, A. M. (2021). Mental health, physical activity, and quality of life of US adolescent athletes during COVID-19–related school closures and sport cancellations: a study of 13 000 athletes. *Journal of athletic training, 56*(1), 11-19. https://doi.org/10.4085/1062-6050-0478.20

O'Brien, W., Adamakis, M., O'Brien, N., Onofre, M., Martins, J., Dania, A., Makopoulou, K., Herold, F., Ng, K., & Costa, J. (2020). Implications for European Physical Education Teacher Education during the COVID-19 pandemic: a cross-institutional SWOT analysis. *European Journal of Teacher Education, 43*(4), 503-522. https://doi.org/10.1080/02619768.2020.1823963

Rogowska, A. M., Pavlova, I., Kuśnierz, C., Ochnik, D., Bodnar, I., & Petrytsa, P. (2020). Does physical activity matter for the mental health of university students during the COVID-19 pandemic? *Journal of clinical medicine, 9*(11), 3494. https://doi.org/10.3390/jcm9113494

Shang, C., Moss, A. C., & Chen, A. (2023). The expectancy-value theory: A meta-analysis of its application in physical education. *Journal of Sport and Health Science, 12*(1), 52-64. https://doi.org/10.1016/j.jshs.2022.01.003

Snedden, T. R., Scerpella, J., Kliethermes, S. A., Norman, R. S., Blyholder, L., Sanfilippo, J., McGuine, T. A., & Heiderscheit, B. (2019). Sport and physical activity level impacts health-related quality of life among collegiate students. *American Journal of Health Promotion, 33*(5), 675-682. https://doi.org/10.1177/0890117118817715

Tilga, H., Hein, V., Koka, A., Hamilton, K., & Hagger, M. S. (2019). The role of teachers' controlling behaviour in physical education on adolescents' health-related quality of life: Test of a conditional process model. *Educational Psychology, 39*(7), 862-880. https://doi.org/10.1080/01443410.2018.1546830

Vasconcellos, D., Parker, P. D., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., Lee, J., Antczak, D., Ntoumanis, N., & Ryan, R. M. (2020). Self-determination theory applied to physical education: A systematic review and meta-analysis. *Journal of educational psychology, 112*(7), 1444–1469. https://doi.org/10.1037/edu0000420

Violant-Holz, V., Gallego-Jiménez, M. G., González-González, C. S., Muñoz-Violant, S., Rodríguez, M. J., Sansano-Nadal, O., & Guerra-Balic, M. (2020). Psychological health and physical activity levels during the COVID-19 pandemic: a systematic review. *International journal of environmental research and public health, 17*(24), 9419. https://doi.org/10.3390/ijerph17249419

Wang, F., & Boros, S. (2021). The effect of physical activity on sleep quality: a systematic review. *European Journal of Physiotherapy, 23*(1), 11-18. https://doi.org/10.1080/21679169.2019.1623314

White, R. L., Bennie, A., Vasconcellos, D., Cinelli, R., Hilland, T., Owen, K. B., & Lonsdale, C. (2021). Self-determination theory in physical education: A systematic review of qualitative studies. *Teaching and Teacher Education, 99*, 103247. https://doi.org/10.1016/j.tate.2020.103247

Zhang, Y., Zhang, H., Ma, X., & Di, Q. (2020). Mental health problems during the COVID-19 pandemics and the mitigation effects of exercise: a longitudinal study of college students in China. *International journal of environmental research and public health, 17*(10), 3722. https://doi.org/10.3390/ijerph17103722

Zhou, Y., & Wang, L. (2019). Correlates of physical activity of students in secondary school physical education: a systematic review of literature. *BioMed Research International, 2019*, 12. https://doi.org/10.1155/2019/4563484