

An Intervention Study of Traditional Chinese Medicine Exercise Ba Duan Jin on College Students' Depression

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Abstract: The purpose of this paper is to alleviate depression in college students, investigate the role of Ba duanjin in alleviating depression in college student groups, and give experience for expanding domestic mental health theories and intervention methods. College students exhibiting symptoms of depression were identified using the Self-rating Depression Scale (SDS), with a total score between 50-70 serving as the screening criterion. Participants meeting the criteria were randomly assigned to either the experimental group or the control group. The experimental group underwent an eight-week intervention involving Ba Duan Jin exercise, whereas the control group received no specific intervention. The level of depressive symptoms among the college students was assessed using the SDS before and after the intervention. The SDS scores of the experimental group showed a statistically significant decrease compared to the pre-intervention scores ($P < 0.05$). Additionally, the post-intervention SDS scores of the experimental group were significantly lower than those of the control group ($P < 0.05$). These findings indicate that the prescribed Ba Duan Jin exercise effectively improves depression and reduces psychological pressure among college students. This highlights the potential of Ba Duan Jin exercise as an intervention for addressing depression in the college student population.

Keywords: Depression; Exercise Therapy; Fitness Qigong (Baduanjin).

1. Introduction

The impact of depression on the college student population is a significant concern due to its disruptive effects on daily functioning, psychological adaptability, and potential for severe consequences such as suicidal behavior. Addressing this mental health issue is crucial to ensure the overall well-being and development of college students.

Internationally, research and treatment of depression among college students have been initiated at an early stage. A study conducted by the American College Health Association in 2016, involving 67,308 undergraduate students, revealed that approximately 25% of students had sought mental health treatment or reported mental health disorders, with a prevalence rate of depression at around 13.4%. Moreover, nearly 24% of college students reported experiencing suicidal ideation, and the prevalence of suicide attempts was approximately 9% [1].

In contrast, research and treatment of depression among college students in China commenced relatively late. A meta-analysis conducted by Wang Miyuan et al. on the prevalence of depression among Chinese college students between 2009 and 2019 indicated a range of 8.00% to 74.00% in prevalence rates, with a gradual increasing trend [2].

Therefore, it is essential to prioritize research and intervention measures targeting depression among college students in China to enhance understanding, prevention, and treatment strategies for this population. Currently, several therapeutic approaches are available for the clinical treatment and amelioration of depressive symptoms, including pharmacotherapy, psychological intervention therapy, and exercise therapy. While pharmacotherapy can yield significant short-term results and benefit many individuals, it is accompanied by various adverse effects and may not be appropriate for long-term treatment [3]. Psychological intervention therapies typically necessitate the guidance of

professional psychologists and may pose challenges in terms of implementation and dissemination within the general university context. Conversely, exercise therapy is readily embraced by college students due to its simplicity, convenience, applicability to diverse groups, and the concurrent improvement of sleep quality. Additionally, exercise therapy has been demonstrated to alleviate stress, improve depressive symptoms, and is increasingly acknowledged as a preferred method for mitigating depression [4].

Fitness Qigong-Baduanjin is an integrated practice that combines exercise, health maintenance, and traditional Chinese medicine. Through consistent practice, it promotes relaxation of the body and uplifts mood. The movements are simple and suitable for individuals of different age groups. Long-term and persistent practice of Baduanjin contributes to maintaining physical health, enhancing mental well-being, and may have a preventive effect on physical and psychological illnesses [5]. However, there are still certain gaps in the existing literature. Firstly, there is a limited number of studies investigating the efficacy of traditional Chinese medicine exercise therapy in intervening with patients' depressive symptoms. Secondly, the majority of studies primarily focus on adults and the elderly, with few studies specifically targeting college students.

In summary, this study aims to investigate the intervention effect of Fitness Qigong-Baduanjin on depressive mood among college students in China. Through a controlled trial design, the study will explore the impact of an 8-week Fitness Qigong-Baduanjin therapy on alleviating depressive symptoms in college students. The findings of this study aim to contribute to the development of a practical exercise program tailored to mitigate depressive mood in college students, while providing valuable guidance for their physical and mental well-being, as well as their future development.

2. Literature Review

2.1. Depression

Depressed mood is an emotional state often accompanied by frustration and distress, which is mainly characterized by feelings of a dull state of mind. However, these painful emotional experiences have not yet met the criteria for a clinical diagnosis of depression [6].

According to a study by Wenjun Cao, approximately 16.7% of college students are depressed. Depression was found to be negatively correlated with health promotion behaviors, and improving health promotion behaviors could alleviate or reduce depressive symptoms in college students [7]. Therefore, it is important to educate health-promoting behaviors at the university level. In addition, the study of Xu Linjie et al found that exercise intervention has a certain effect on college students' depression group. Aerobic exercise can relax the patient's body and mind and achieve a state of tranquility and calmness, which is especially suitable for those patients with depression accompanied by anxiety [8]. In addition, it is of great clinical significance to incorporate exercise programs characterized by traditional Chinese medicine, such as taijiquan and eight-duan brocade, into the research and practice, and to provide professional exercise guidance for college students with depression groups.

2.2. Fitness Qigong – Baduanjin

Baduanjin is a traditional health and fitness method characterized by soft and slow movements, focusing on the flexibility and coordination of the body. It combines movement and stillness, emphasizes the regulation of breathing and intention, and harmonizes the inner breath with the outer movements.

Susanna Zhang found that the practice of Baduanjin can effectively improve the sleep quality of college students with sleep disorders by shortening the time to fall asleep and prolonging sleep time. At the same time by helping college students to improve the three aspects of physiology, psychology, social interaction, and thus improve the state of sub-health [9]. Pei Yue believes that when depression and anxiety occur, practicing Baduanjin and Yi Jin Jing can reduce the level of depression and anxiety, calm the irritable and cluttered heart, and drive the negative emotions away, so that no matter in the physiological, or psychological aspects, they can be relaxed and happy, and maintain a healthy psychological level, so that the state of mind can slowly improve [10].

The existing literature indicates that although some studies have explored the effects of Baduanjin exercises on emotional problems, there are still certain limitations. Firstly, there is a scarcity of research on the intervention of depressive mood through traditional Chinese medicine exercise therapy, necessitating further evidence regarding its intervention effects. Secondly, the majority of existing studies primarily focus on adults and the elderly, with few studies specifically targeting college students. Therefore, the primary objective of this study is to examine the intervention effect of traditional Chinese medicine exercise, specifically Baduanjin, on college students' depressive mood.

To address the research goal, the study will investigate the following research question: Does the practice of Fitness Qigong-Baduanjin have an impact on college students' depressive mood? Building upon the previous literature review and theoretical foundations, this study proposes the

following hypothesis: Fitness Qigong-Baduanjin can significantly reduce the level of depression among college students at a psychological level.

3. Methods

3.1. Research Subjects

The study recruited participants from Hubei University for Nationalities using the depression self-assessment scale. Full-time undergraduate students were screened based on a total score of 50-70 on the SDS (Self-Rating Depression Scale) as the selection criterion. Upon identifying students who met the screening criteria, they were contacted and informed about the study. In line with the principle of voluntary participation, 30 eligible students were identified and included as subjects for the experiment.

3.2. Research Methods

3.2.1. Research Instrument

A controlled experiment was conducted with 30 college students from Hubei University for Nationalities. They were randomly divided into a control group and an observation group, with 15 participants in each group. The participants' level of depressed mood was assessed using the Self-Depression Scale (SDS) before and after the experiment to evaluate the intervention's effects.

Self-rating depression scale (SDS): The Self-rating Depression Scale (SDS) is a widely used assessment tool developed in 1965. It consists of 20 items rated on a 4-point scale, providing a simple and reliable measure of subjective feelings related to depression. The SDS is commonly employed for initial screening of outpatients, mood state assessment in adults, and research on moderate to severe depression. Scores below 50 are considered normal, with higher scores indicating greater severity of depression.

3.2.2. Intervention Methods

(1) Subjects and Groups

This study utilize a pre-test post-test experimental design, employing a control group and an experimental group. In adherence to the principle of complete randomization, the participants will be randomly assigned to either group, determining the number of subjects allocated to each group.

(2) Specific training arrangements

Exercise frequency: The control group will maintain their usual lifestyle without any specific exercise intervention. The experimental group will follow an exercise intervention protocol using the Eight-Duanjin exercise prescription. The intervention will span a duration of 8 weeks, with participants exercising 5 times a week (Monday, Tuesday, Wednesday, Thursday, Friday) for approximately 30 minutes each session, from 19:00 to 19:30.

Exercise content: During the first week, the experimental group will undergo a learning stage where they will be taught and guided to master each of the eight movements of Fitness Qigong. They will practice following the accompanying music and strive to achieve independent completion of the entire Eight-Duanjin routine. Starting from the second week, participants in the experimental group will practice the complete set of movements strictly according to the prescribed requirements. Throughout the training period, emphasis will be placed on ensuring effective training, maintaining standardized and smooth movements, and ensuring the completion of each section of the routine. From the third week onwards, participants will have the flexibility

to engage in free practice. The exercise program will span a total of 8 weeks.

Training process: The exercise session is divided into two parts: warm-up activities and the practice of Baduanjin. Prior to practicing Baduanjin, participants will engage in warm-up activities to prepare their muscles and adjust their breathing. The warm-up activities focus on promoting flexibility and mobilizing the body. Following the warm-up, participants will commence the practice of Baduanjin with accompanying music. After the practice session, participants will have a period for self-reflection, analyzing the standardization of their movements and determining whether to continue practicing or rest based on their subjective judgment and physical condition.

3.3. Statistical Processing

The statistical analysis of the data was conducted using SPSS 19.0 software. Measurement data are presented as mean \pm standard deviation ($\bar{x} \pm s$). The t-test was employed to compare the differences between the control group and the experimental group.

4. Results and Analysis

Both the experimental and control groups had 15 participants with 100% attendance and the data were analyzed using the t-test method.

4.1. Experimental Group Control Group before the Intervention

T-test was used for the data of the experimental group control group pre-intervention. The sample results were analyzed as follows:

Table 1. Comparison of pre-test scores in the experimental control group (M \pm SD)

Sports event	Experimental group	Control group	t-value	P-value
SDS score	56.067 \pm 4.556	58.400 \pm 5.730	-1.368	0.193

Table 1 presents the results of the t-test analysis, showing that the level of significance is calculated as $P=0.193$, which is greater than the predetermined α -level of 0.05. This suggests that there is no statistically significant difference between the experimental and control groups before the intervention. This indicates that the two groups are homogeneous and have comparable characteristics at baseline.

4.2. Experimental Group before and after Intervention

T-tests were used on the data from the pre-test of the experimental group and the results were analyzed as follows:

Table 2. Comparison of pre-test and post-test scores in the experimental group (M \pm SD)

Sports event	Pre-testing	Post-test	t-value	P-value
SDS score	56.067 \pm 4.556	48.067 \pm 5.650	11.593	0.000

Upon examination of Table 2, it is apparent that there was a notable and statistically significant change in the SDS scores of college students within the experimental group following the intervention of Baduanjin practice. The SDS

scores exhibited a significant decrease ($p < 0.05$) after the intervention compared to the pre-intervention scores, indicating an improvement in depressive symptoms among the participants.

4.3. Pre-test and post-test of the Control Group

A t-test was used on the data from the control group pre-test and the results were analyzed as follows:

Table 3. Comparison of pre-test and post-test scores in the control group (M \pm SD)

Sports event	Pre-testing	Post-test	t-value	P-value
SDS score	58.400 \pm 5.730	58.000 \pm 5.464	1.702	0.111

Upon reviewing Table 3, it is evident that there were no significant changes observed in the SDS scores of college students within the control group. The statistical analysis of the SDS post-test and pre-test scores in the control group revealed no significant difference ($p=0.111 > 0.05$), indicating that there was no notable change in depressive symptoms among the participants in the control group.

4.4. The Experimental Group Control Group Posttest

T-tests were used on the data from the experimental group control group posttest and the results were analyzed as follows:

Table 4. Comparison of posttest scores in the experimental group control group (M \pm SD)

Sports event	Experimental group	Control group	t-value	P-value
SDS score	48.067 \pm 5.650	58.000 \pm 5.464	-6.295	0.000

Table 4 presents the statistical analysis demonstrating that after the intervention of Baduanjin exercise, the SDS scores of college students in the experimental group were significantly lower than those of the control group ($P = 0.000 < 0.05$). This finding suggests that the implementation of Baduanjin exercise is effective in reducing depressive symptoms among college students.

Overall, the exercise intervention in the experimental group led to a significant reduction in SDS scores compared to baseline, with a statistically significant difference ($P < 0.05$). Furthermore, the experimental group exhibited a significant decrease in SDS scores compared to the control group following the exercise intervention, and this difference was also statistically significant ($P < 0.05$). Therefore, based on the findings from this study, it can be concluded that the implementation of Baduanjin exercise practice is effective in improving depressive symptoms and reducing psychological stress among college students.

5. Discussion

The college student population is confronted with numerous challenges, including incomplete physical and mental development, inadequate self-regulation abilities, and high levels of academic pressure, all of which contribute to their susceptibility to depression and other negative emotional states. Despite medication being the primary approach to treatment, it is accompanied by limitations and potential side

effects. Consequently, there has been growing interest in the research examining the antidepressant effects of exercise. An invaluable component of Chinese health culture, Baduanjin exercise, is known for its simplicity and accessibility, making it highly popular among the general public and particularly suitable for implementation in higher education settings.

Experimental research findings indicate that Baduanjin exercise has a positive impact on alleviating depression among college students. The practice of Baduanjin focuses on cultivating the mind and adjusting one's mentality. Through the unique effects of "body regulation," "breath regulation," and "mind regulation," it facilitates the development of positive mental health among college students. By engaging in Baduanjin, individuals can gain an understanding of the laws of nature and the dynamic interplay between yin and yang energies. This cultivates a natural state of relaxation and tranquility, wherein the body and mind harmonize through controlled exhalation and the regulation of Qi. Consequently, practicing Baduanjin effectively nurtures the mind, stabilizes and balances emotions, mitigates brain fatigue, regulates emotions, and maintains overall physical and mental equilibrium. Considering the fast-paced nature of modern college life and the prevalence of tense interpersonal relationships, participation in fitness qigong practice, including Baduanjin, proves effective in regulating tense emotions, alleviating psychological stress, and facilitating the attainment of a stable psychological state.

References

- [1] Liu, C. H., Courtney, S., Wong, S. H. M., Miwa, Y., & Chen, J. A. (2018) The prevalence and predictors of mental health diagnoses and suicide among us. college students: implications for addressing disparities in service use. *depression and Anxiety*, 36.
- [2] Wang, M.Y., Liu, J., Wu, X., et al. (2020) Meta-analysis of the prevalence of depression among Chinese college students in the past ten years. *Journal of Hainan Medical College* (09), 686-693+699.
- [3] Huang, X., Li, S. N., Yin, J. X., Sang, X. D., Zhang, Y., Tang, X. D., & Lu, S. (2023) Current status of research on prevention and control of sleep disorders in China and suggestions. *Journal of Sichuan University (Medical Edition)* (02), 226-230.
- [4] Liu, S. (2021) Intervention study of fitness qigong-baduanjin on sleep, cardiopulmonary function and emotion of college students with sleep disorders (Master's thesis, Henan University).
- [5] Yang, H.G. (2012) An analysis of the origin and cultural connotation of "eight-duanjin" (Master's thesis, Zhengzhou University).
- [6] Pu, Z.H. (2009) "Depressed mood" is not equal to "depression". *Family Medicine* (07), 31.
- [7] Cao, W. J., Guan, Z. J., Wu, T., Wang, J. Y., Wang, R. J. & Liu, X. D. (2017) Depressive Symptoms and Their Correlation with Health Promotion Behaviors in College Students. *China School Health* (02), 216-218.
- [8] Xu, L.J., Zhang, Y., Zheng, Y. & Xu, F.Q. (2015) Research Progress on the Intervention Effect of Different Exercise Programs on Depression in College Students. *World Journal of Integrative Medicine* (09), 1326-1328.
- [9] Susanna, Z. (2023) Applied research on the promotion of healthy sleep of college students by Baduanjin (Master's thesis, Capital Institute of Physical Education).
- [10] Pei, Y. (2018) Comparative study on the physical and psychological effects of fitness qigong Baduanjin and Yi Jin Jing on female college students (Master's thesis, Nanjing Institute of Physical Education and Sports).