

## RESEARCH ARTICLE

# Practical exploration of the impact of practicing fitness Qigong on the mental health of college students

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### ABSTRACT

Fitness Qigong is an important part of Chinese history and culture, and is one of the traditional intangible cultural heritage projects. In recent years, the mental health issues of college students have become a focus of attention in universities. Fitness Qigong is different from other sports programs in that it emphasizes the combination of movement and stillness, as well as the process of regulating the mind. It helps to improve the pressure brought by life, study, employment, and other aspects, and is one of the important means to promote the mental health and regulate emotions of college students. Therefore, it is very necessary to continue and promote this traditional sports project. The main research subjects are ordinary female college students, and data was collected using questionnaire survey and experimental methods. The questionnaire tool used was the Symptom Checklist-90, and the data was analyzed using mathematical statistics. The results show that college students can significantly improve and enhance their mental health by learning and practicing fitness qigong, which can eliminate tense emotions and reduce psychological pressure; Learning and practicing fitness qigong has effectively improved the psychological quality of college students. Based on this, it is suggested that ordinary higher education institutions should attach importance to the development of traditional fitness qigong sports; Ordinary higher education institutions need to expand the teaching staff for the fitness qigong program; Physical education teachers should promote and popularize fitness qigong courses.

**Keywords:** fitness Qigong; ordinary college students; mental health

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## 1. Introduction

Fitness Qigong, as a traditional ethnic sport, has the characteristics of regulating breath, body, and mind, and is also a traditional intangible cultural heritage of China. It has a great impact and role in promoting mental health, and helps to improve the pressure brought by life, study, employment, and other aspects<sup>[1,2]</sup>. Nowadays, fitness qigong has been regarded by the general public as one of the ways to enhance physical fitness. Research has shown that many universities are now offering fitness qigong courses, indicating that fitness qigong is receiving increasing attention from schools. Today's college students have complex interpersonal relationships, emotional tension, and are prone to impulsive emotions. Many college students may develop various psychological disorders due to their inability to withstand these pressures. The mental health issues of college students need to be highly valued, as they are a key target of national education.

### ARTICLE INFO

Received: 27 September 2024 | Accepted: 21 November 2024 | Available online: 29 November 2024

### CITATION

Zhang HP, Zagdkhorol B. Practical exploration of the impact of practicing fitness Qigong on the mental health of college students. *Environment and Social Psychology* 2024; 9(10): 3136. doi:10.59429/esp.v9i10.3136

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Therefore, improving the mental health quality of college students is an important teaching task. Related cases have shown that after students come into contact with fitness qigong, they gradually develop an interest in it and can improve their impatient temperament. They can gradually calm down when faced with problems and play a role in "regulating the mind". The so-called "regulating the mind" first requires concentration, eliminating all distractions in the mind, achieving mental calmness and concentration. It is also important to integrate into the artistic conception when practicing fitness qigong, and focus attention on every movement to achieve the unity of mind, qi, and form. This also indicates that fitness qigong plays an important role in regulating students' psychological state and promoting their mental health, which is beneficial for college students to adapt to fierce social competition in the future and greatly helps their mental health. Therefore, it is of great significance to promote and inherit this traditional sports event<sup>[3,4]</sup>. It can be seen from the previous literature that the research level and trend of fitness qigong in China is higher than that in foreign countries, but most of the research on fitness qigong has neglected the important aspect of emotional psychology, therefore, the present study aims to explore the effect of fitness qigong on the regulation of college students' emotional psychology. The innovation of this study is to compare the emotional and psychological conditions of college students before and after the experiment through factor analysis and t-test, to understand in detail the regulation and use of fitness qigong on college students' mental health, and also to improve the teaching strategy of fitness qigong, so that fitness qigong can better regulate and improve college students' mental health.

### **1.1. Analysis of the Psychological Health Level of Contemporary College Students and Interpretation of Fitness Qigong**

Contemporary college students who are at the highest stage of school education are in a period of significant transformation throughout their lives, and many factors can affect their life changes. During this period, their personalities, psychology, and abilities were also undergoing unpredictable changes<sup>[5]</sup>. The reason why they have undergone significant changes is because some external factors have influenced their inner tendencies, that is, their personality. Positive factors will have a positive impact on their life development, while negative factors will become obstacles to their life development. Contemporary college students are facing greater employment pressure and more new problems than in the past, with more contradictions constantly questioning their immature hearts. From a psychological perspective, contemporary college students have a certain limit to their psychological resilience, and exceeding this limit can lead to psychological problems or illnesses such as neurasthenia, anxiety, depression, etc. A series of news reports on college students' suicide, psychological abnormalities, etc. reveal that excessive psychological pressure has led to the occurrence of malignant events among some contemporary college students, seriously affecting their physical and mental health<sup>[6,7]</sup>. Psychological health refers to a person's strong psychological adjustment ability and high level of development, that is, the ability to maintain a normal psychological state for a long time when the internal and external environment changes. The main influencing factors for the inability to maintain a normal psychological state are, according to research, "psychological conflicts caused by environmental changes, tension and helplessness caused by academic difficulties, psychological barriers caused by interpersonal communication barriers, emotional distress caused by emotional problems, and confusion caused by difficulties in choosing a career and employment". These are the main factors affecting the psychological health level of college students<sup>[8,9]</sup>.

Fitness Qigong is one of the excellent traditional Chinese cultures, which is a way of life and attitude towards life, survival, and living for Chinese people. It is one of the treasures of the Chinese nation that has been accumulated through long-term historical changes and people's continuous summarization of experience in the long river of Chinese history<sup>[10,11]</sup>. Nowadays, people generally recognize that fitness

qigong is a self physical and mental exercise method guided by traditional Chinese philosophy, which uses the three basic methods of "regulating the body, regulating the breath, and regulating the heart" to enhance the internal qi of the human body, exercise the spirit and energy of the human body, and achieve balance and health in both body and mind<sup>[12,13]</sup>.

## **2. Research Subjects and Methods**

### **2.1. Research Object**

The impact of fitness qigong courses on the mental health of college students.

### **2.2. Research Methods**

#### **2.2.1. Literature review method**

Through search methods such as the A University Library (Huanghe University of Science and Technology, Inner Mongolia University of Science & Technology) and the China Sports Journal website, we searched for papers and books related to the impact of fitness qigong classes on the mental health of college students and related aspects using keywords such as "fitness qigong" and "college students' mental health". We learned about the current research status and depth of previous studies on this issue, obtained important information, and summarized it to provide reliable theoretical basis for this research.

#### **2.2.2. Questionnaire survey method**

##### (1) Survey subjects

Randomly select 100 students from Huanghe University of Science and Technology to participate in the teaching experiment intervention of fitness qigong course. Before and after the course, use the SCL-90 scale to measure the same sample twice. The university students participated in this experiment on their own, understood the content of the experiment in detail, and signed the informed consent form. A professional coach was invited to guide them. The experiment will strictly protect the privacy of the students and will never be disclosed.

Criteria for the experimental subjects: (1) College students in good health without any adverse symptoms; (2) Living a well-organised life, ensuring sufficient sleep time and without any bad habits; (3) Participating in physical activities only in regular physical education courses, with no additional physical exercise habits; (4) All the individuals participating in the experiments had not been exposed to or practiced Fitness Qigong Badaogu Jin and Mawangdui Guiding; (5) Maintaining a balanced nutritional intake and a healthy dietary pattern. balanced nutritional intake and healthy dietary patterns.

##### (2) Teaching experiment content and schedule

The main teaching content of this semester is the Eight Section Brocade and Mawangdui Guidance Technique. Students are required to attend five times a week, with each class lasting 1.5 hours, for a total of 18 teaching weeks. During the learning and practice process, there is music corresponding to the fitness qigong program.

##### (3) Distribution and collection of questionnaires

At the beginning of the first teaching week, a random distribution of questionnaires will be conducted on-site, with 20 questionnaires distributed daily for each class, for a total of 100 questionnaires over 5 days. Before the survey, the significance of the survey will be explained to students to alleviate their concerns. Provide unified guidance for students to fill out the questionnaire, and collect it on the spot after completion. The questionnaire number will not be recorded by name (students need to remember the questionnaire

number). At the end of the 18th teaching week, questionnaires will be distributed and collected again for the same sample, and both questionnaires must be filled out completely to be valid. The effective response rates of the two questionnaire surveys were 96% and 98%, respectively.

(4) Reliability and validity testing of questionnaire

The SCL-90 psychological scale is an internationally recognized scale with high validity. The reliability test of the questionnaire was conducted using the repeated measurement method. Through the correlation analysis of the questionnaire results collected twice,  $R=0.89$  was obtained, indicating that the questionnaire has good reliability.

**2.2.3. Mathematical and statistical methods**

Enter the results of two questionnaire surveys into the computer and use SPSS17.0 and Excel statistical software to perform statistical processing on the relevant data of the survey research.

**3. Research Results and Analysis**

**3.1. Descriptive Statistical Results of the Total Score and Factor Scores of Psychological Health Assessment before and after the Experiment**

**Table 1.** Statistical Table of Total Scores and Factor Scores Before the Experiment (N=96).

Before the experiment	maximum value	mean value	standard deviation
Total score	168	75.03	44.14
body	25	10.15	7.03
force	29	11.27	6.33
Interpersonal relationships	18	8.15	5.11
depressed	25	11.18	6.74
anxiety	20	8.25	4.91
hostile	15	4.52	3.95
terror	12	3.15	2.97
Paranoia	11	3.97	2.92
Psychotic nature	23	7.36	6.35

According to **Tables 1, 2, and 3**, there was a varying degree of decrease in the total score and 9 factor scores of mental health after the experiment compared to before the experiment. From the maximum value of the total score before and after the experiment, the maximum value of the total score before the experiment was 168.00, which decreased to 95.00 after the experiment, with a score difference of 73.00; From the average score before and after the experiment, the data decreased from 75.03 before the experiment to 50.27 after the experiment, with a score difference of 24.76; From the standard deviation of the total score before and after the experiment, the standard deviation of the total score before the experiment was 44.14, while the standard deviation of the total score after the experiment was 27.48, indicating a significant decrease in the dispersion of the statistical results. At the same time, there were significant differences in the maximum and mean values of the six factors of physical, compulsive, interpersonal, depression, anxiety, and psychoticism before and after the experiment, and they showed a downward trend. This indicates that fitness qigong courses have a significant impact on the mental health level of college students and have a positive guiding direction.

**Table 2.** Statistical Table of Total Scores and Factor Scores after the Experiment (N=96).

After the experiment	maximum value	mean value	standard deviation
Total score	95	50.27	27.48
body	17	5.88	4.11
force	14	7.97	3.85
Interpersonal relationships	13	5.21	3.79
depressed	15	7.91	4.63
anxiety	12	5.76	3.81
hostile	9	2.91	2.45
terror	10	2.21	2.37
Paranoia	12	3.15	2.58
Psychotic nature	12	4.7	3.31

**Table 3.** Statistical Table of Total Scores and Differences in Factor Scores Before and After the Experiment (N=96)

After the experiment	Maximum value (difference)	Mean (difference)
Total score	73	24.76
body	8	4.27
force	15	3.3
Interpersonal relationships	5	2.94
depressed	10	3.27
anxiety	8	2.49
hostile	6	1.61
terror	2	0.94
Paranoia	-1	0.82
Psychotic nature	11	2.66

### 3.2. Comparison of Scores of Experimental Subjects before and after the Experiment and Various Factors

As shown in **Table 4**, there is a significant decreasing trend in the total score and the mean of the 9 factors before and after the experiment, and the standard deviation is also relatively reduced, indicating that the degree of dispersion in students' choices of questionnaire answers has greatly decreased, gradually approaching consistency. From the comparison of total scores before and after the experiment, it can be seen that  $P=0.018<0.05$ , indicating a significant difference in total scores at the 0.05 level before and after the experiment. From the comparison of 9 factors, it can be seen that the somatization factor ( $P=0.006$ ) and obsessive-compulsive symptom factor ( $P=0.003$ ) showed significant differences at the 0.01 level before and after the experiment ( $P<0.01$ ); The five factors of interpersonal sensitivity ( $P=0.017$ ), depression ( $P=0.039$ ), anxiety ( $P=0.023$ ), hostility ( $P=0.046$ ), and terror ( $P=0.023$ ) showed significant differences at the 0.05 level ( $P<0.05$ ). This indicates that fitness qigong courses have a positive impact on the mental health of college students, and have a good and significant effect on regulating and improving their mental health.

**Table 4.** Statistical Table of T-test Results for Total Score and Factor Scores Before and After the Experiment.

	<b>Before the experiment</b>	<b>After the experiment</b>	<b>T</b>	<b>P</b>
Total score	75.03±44.14	50.27±27.48	2.5	0.018
body	10.15±7.03	5.88±4.11	2.98	0.006
force	11.27±6.33	7.97±3.85	2.23	0.003
Interpersonal relationships	8.15±5.11	5.21±3.79	2.53	0.017
depressed	11.18±6.74	7.91±4.63	2.16	0.039
anxiety	8.25±4.91	5.76±3.81	2.39	0.023
hostile	4.52±3.95	2.91±2.45	1.83	0.046
terror	3.15±2.97	2.21±2.37	1.3	0.023
Paranoia	3.97±2.92	3.15±2.58	1.03	0.308
Psychotic nature	7.36±6.35	4.7±3.31	1.96	0.058

## **4. Discussion**

### **4.1. The Importance of Choosing Teaching Content**

#### **4.1.1. Content of fitness Qigong**

The most common types of fitness qigong currently include "Five Animal Play", "Yi Jin Jing", and "Eight Section Brocade". Although there are not many varieties, their movements cover a wide range. Taking "Five Animal Play" as an example, it mainly imitates the movements of five famous animals, with the aim of strengthening the body; The "Yi Jin Jing" focuses on the stretching of muscles, joints, ligaments, fascia, and bones in the human body, in order to enhance the toughness and strength of various tissues and structures within the body. The "Eight Section Brocade" emphasizes the combination of rigid and flexible movements and breath regulation to achieve the goal of strengthening the body.

#### **4.1.2. The role of fitness qigong**

The characteristic of fitness qigong is to achieve the goal of mobilizing muscles and bones, regulating body functions, and strengthening the body through specific movements. Due to the fact that its movements are entirely for the purpose of strengthening the body and are inconsistent with the goals of modern competitive sports, there is no utilitarian aspect. Therefore, in general, it is difficult to cause physical sports injuries when carrying out fitness qigong exercises.

Due to the emphasis on whole-body exercise in fitness qigong, not only is the amount of exercise not large, but it can also promote sufficient movement of muscles, bones, joints, and fascia throughout the body. Fitness Qigong not only helps to strengthen the body, but more importantly, people of all ages can adapt to its exercise form. The use of fitness qigong in universities can not only effectively improve the static behavior of college students, but also enhance their overall physical fitness, which is very beneficial to their mental health.

#### **4.1.3. The value of fitness Qigong**

Fitness Qigong is a traditional national sports event in China. Through long-term evolution and improvement, the inherited items are all the essence. Its important value is reflected in the following aspects: First, fitness Qigong focuses on health preservation, and the purpose of exercisers to participate in fitness Qigong is health preservation, so its competitiveness is not strong. But intervening in the static life behavior of college students will have a positive effect. Secondly, learning fitness qigong is not difficult, and as long

as universities organize it properly, it is easy to achieve success, which is extremely beneficial for universities to utilize fitness qigong. Therefore, fitness qigong has important value in intervening in the static behavior of college students.

#### **4.2. Research Suggestions**

(1) Fitness Qigong Eight Section Brocade is not only a health practice with fitness and mental health benefits, but also a part of excellent traditional Chinese culture. In the teaching process of Ba Duan Jin, the instructor not only teaches the Ba Duan Jin routines, but also imparts the philosophical and cultural concepts contained in each movement of Ba Duan Jin to learners, enhancing their interest in learning traditional Chinese culture. Enable contemporary college students to truly understand the Chinese culture contained in the Eight Section Brocade of Fitness Qigong, integrate ideological and political education into the teaching process of Eight Section Brocade, further promote national spirit, and enhance the cultural confidence and patriotism of contemporary college students<sup>[14]</sup>.

(2) The complete set of movements in Fitness Qigong Eight Section Brocade is soft and slow, combining movement and stillness, and easy to learn. Compared to traditional sports such as Tai Chi and Wuqinxi, Baduanjin is easier to master. College students should actively engage in the study of the Eight dan Brocade movement. Through the intervention of the Eight dan Brocade movement, they can improve the mental state of practitioners while also being influenced by strong traditional ethnic culture. After long-term practice of the Eight Section Brocade, it can effectively suppress negative emotions such as pessimism and depression in practitioners, and promote the development of college students' mentality towards a positive and optimistic direction<sup>[15]</sup>.

(3) As a part of China's excellent traditional sports program, the Eight Section Brocade of Fitness Qigong should be actively carried out in universities with conditions to provide as many sports opportunities as possible for students who enjoy the Eight Section Brocade of Fitness Qigong. The Eight Section Brocade exercise of Fitness Qigong not only intervenes in improving the mental state of college students, but also plays a role in inheriting excellent traditional Chinese culture. At the school level, the Eight Section Brocade Club should be actively established and regular club activities should be carried out. Actively organize students to participate in the Fitness Qigong Eight Section Brocade Competition, enriching the extracurricular life of college students. Through teaching activities, sports clubs, and sports events, we aim to further stimulate college students' interest in learning the Eight Section Brocade of Fitness Qigong and enhance their sense of national pride.

### **5. Conclusion**

In the current social context, college students are facing academic pressure and life challenges, and their mental health problems are becoming increasingly prominent. Therefore, practicing fitness qigong as an effective way to integrate physical exercise and psychological regulation has attracted much attention. Through practical exploration of fitness qigong, research has found that it can not only enhance the physical fitness of college students, but also effectively alleviate negative emotions such as anxiety and depression. In qigong practice, the combination of deep breathing and focused meditation promotes students to relax and balance both physically and mentally. In addition, the form of collective practice also promotes communication and cooperation among classmates, enhancing their sense of social support. Therefore, the promotion and popularization of fitness qigong is of great significance for improving the mental health of college students and deserves to be widely carried out on campus.

## Conflict of interest

The authors declare no conflict of interest.

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