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Meta-Analysis of the Effect of Fitness Qigong on Depression in College Students

Wenli Mao

School of Physical Education, Southwest University, Beibei, Chongqing, 400715, China

Abstract

Objective: To evaluate the therapeutic effects of Health Qigong on depression in college students. Methods: A comprehensive search was conducted across databases including CNKI, Wanfang, PubMed, Embase, Web of Science, and Cochrane Library. Two researchers independently screened literature, extracted data, and assessed quality based on inclusion and exclusion criteria. Meta-analysis was performed using RevMan 5.4 software. Results: A total of 572 relevant articles were retrieved, with 15 meeting the inclusion criteria. Meta-analysis indicated that Health Qigong had a significant effect on alleviating depression in college students compared to control groups. Conclusion: Health Qigong demonstrates potential in improving depression among college students, but the limited number and quality of included studies necessitate further high-quality, large-sample randomized controlled trials for validation.

Keywords

Fitness Qigong; College Students; Depression; Meta-Analysis.

1. Introduction

The mental health of college students has become a focal point for families, schools, and society at large[1]. Mental health encompasses dimensions such as depression, anxiety, and interpersonal sensitivity, with depression being one of the primary psychological issues among college students. It is characterized by persistent and significant low mood, and severe cases may even involve self-harm or suicidal behavior. The "Healthy China 2030" Plan emphasizes the importance of mental health education and improving intervention capabilities for common psychological disorders[2]. In recent years, physical exercise, due to its multifaceted health benefits, has emerged as an effective intervention for improving college students' mental health. Fitness Qigong, as a traditional Chinese sport, achieves optimal physical and mental states through "three adjustments and one harmony" (body, breath, and mind), embodying the profound spirit of Chinese culture. It has gained widespread popularity, and research on its impact on college students' mental health is increasing.

Current studies on fitness Qigong and college students' depression involve various forms, such as Baduanjin[3], Wuqinxi[4], Liuzijue, and Daoyin Yangsheng Gong. The participants include general college students[5], those with psychological disorders[6], and physically disadvantaged students[7]. Among these, Baduanjin and Wuqinxi are the most commonly studied interventions. Different Qigong practices exhibit varying effects on alleviating depression, making a meta-analysis of their efficacy crucial for clinical applications.

2. Research Methods

2.1. Literature Search Strategy

Databases such as CNKI, Wanfang, PubMed, Embase, Web of Science, and Cochrane Library were searched from January 1, 2000, to July 1, 2024. Chinese search terms included "fitness

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Qigong," "Baduanjin," "college students," "interpersonal relationships," and "mental health." English terms included "Qigong," "Baduanjin," "Wuqinxi," "college students," and "depression."

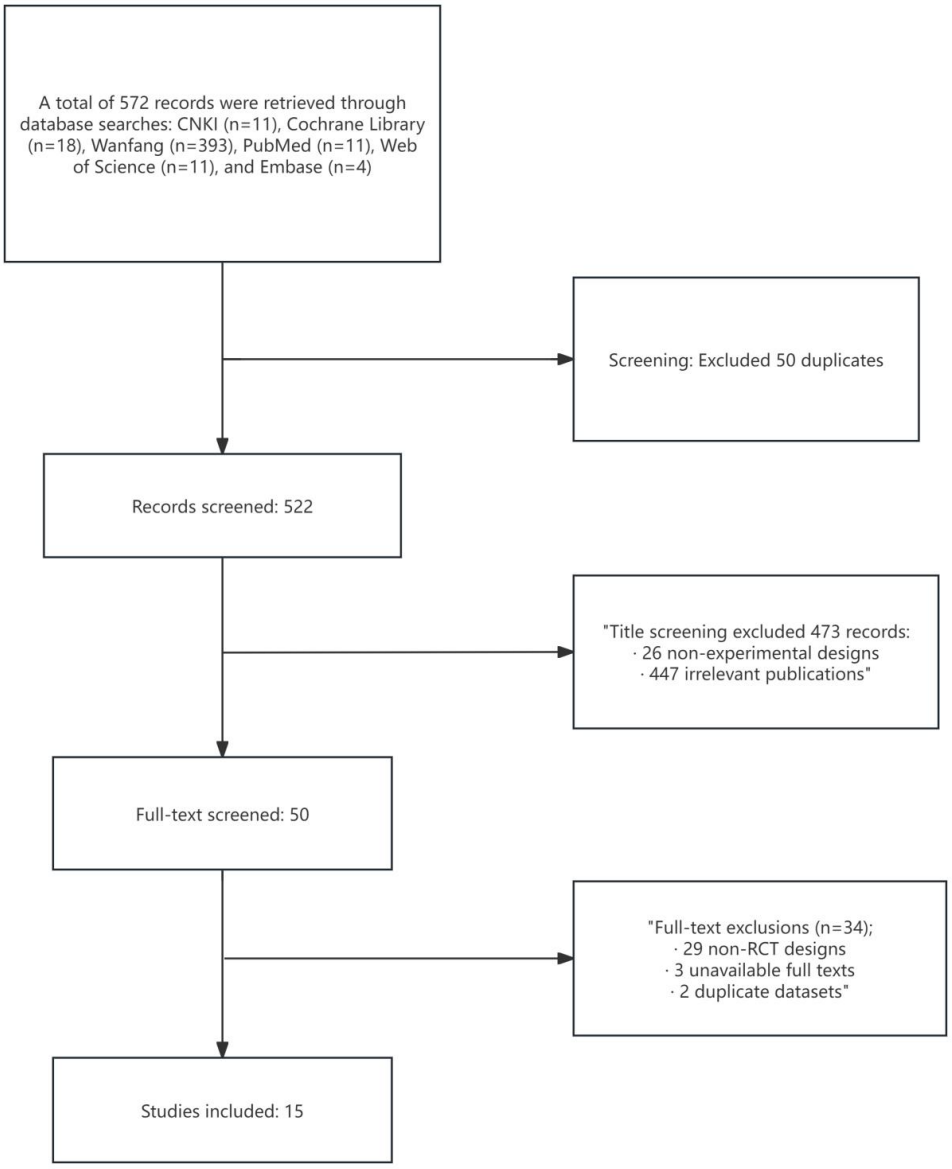

Figure 1 : Study Selection Flowchart

2.2. Inclusion Criteria

Randomized controlled trials (RCTs).

Participants were college students, with no restrictions on grade, major, gender, or physical condition.

The experimental group used fitness Qigong as the intervention.

Outcome measures included SCL-90, SDS, HAMD, or PHQ.

2.3. Exclusion Criteria

Non-RCT studies.

Non-college student participants.

Non-Qigong interventions.

Duplicate or incomplete data.

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2.4. Literature Screening and Data Extraction

Two researchers independently screened titles, abstracts, and full texts, extracted data (e.g., sample size, intervention details, outcome measures), and resolved discrepancies through discussion.

2.5. Statistical Analysis

Quality assessment was performed using Review Manager 5.4, evaluating bias risks (random sequence generation, allocation concealment, blinding, etc.). Heterogeneity was assessed using I^2 and Chi^2 tests. Subgroup analyses were conducted for different Qigong types.

3. Results

3.1. Literature Screening Process

From 572 retrieved articles, 15 met the inclusion criteria after screening (Figure 1).

3.2. Characteristics of Included Studies

Table 1 summarizes the 15 studies, detailing interventions (e.g., Baduanjin, Wuqinxi), durations (8–41 weeks), and outcomes (SDS, HAMD, etc.).

Table 1 : Baseline Characteristics of Included Studies

Selected Studies		Control Group		Experimental Group		Intervention time	Outcome measure
First author	Publication year	Number of participants	Intervention	Number of participants	Intervention		
Zhou Yu	2015	25	No intervention	25	Twelve-Form Daoyin Yangsheng Gong	18-week intervention with 5 sessions per week, 60 minutes per session	SDS
Zhang Yufeng	2021	30	No intervention	30	Baduanjin	8-week intervention with 2 sessions per week, 90 minutes per session	SDS
Zhang Le	2021	30	No intervention	30	Traditional fitness techniques	12-week intervention with 7 sessions per week, 60 minutes per session	SDS
Yao Liang	2014	15	Theoretical lecture	15	LiuZiJue	24-week intervention with 5 sessions per week, 30 minutes per session	HAMD
Wei Lai	2024	76	No intervention	76	Baduanjin	18-week intervention with 1 sessions per week, 90 minutes per session	PHQ
Yan Hongjie	2017	50	No intervention	50	Baduanjin	12-week intervention with 10 sessions per week	SCL-90
Tan Zhigang	2020	35	No intervention	35	Baduanjin	36-week intervention with 7 sessions per week, 40 minutes per session	SCL-90
Wang Man	2020	30	No intervention	30	Wuqinxi	24-week intervention with 7	SCL-90

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						sessions per week, 40 minutes per session	
Qin Yongting	2013	40	No intervention	40	Baduanjin	12-week intervention with 3 sessions per week, 60 minutes per session	HAMD
Liu Hongfu	2008	50	intervention	50	Baduanjin	12-week intervention with 5 sessions per week, 90 minutes per session	SCL-90
Li Ke	2023	24	Psychological intervention	24	Wuqinxi	12-week intervention with 7 sessions per week, 30 minutes per session	HAMD
Li Chengxiu	2014	20	No intervention	20	Baduanjin	41-week intervention with 5 sessions per week, 60 minutes per session	SDS
Jiang Jun	2024	40	No intervention	40	Wuqinxi	12-week intervention with 7 sessions per week, 80 minutes per session	SCL-90
Guo Tianrong	2021	30	No intervention	30	Baduanjin	12-week intervention with 3 sessions per week, 45 minutes per session	SCL-90
Zhang,Y	2023	39	intervention	39	Baduanjin	12-week intervention with 3 sessions per week, 60 minutes per session	SCL-90

3.3. Quality Assessment

Most studies lacked clarity in randomization and blinding, but all had complete outcome data and no selective reporting (Figures 2–3).

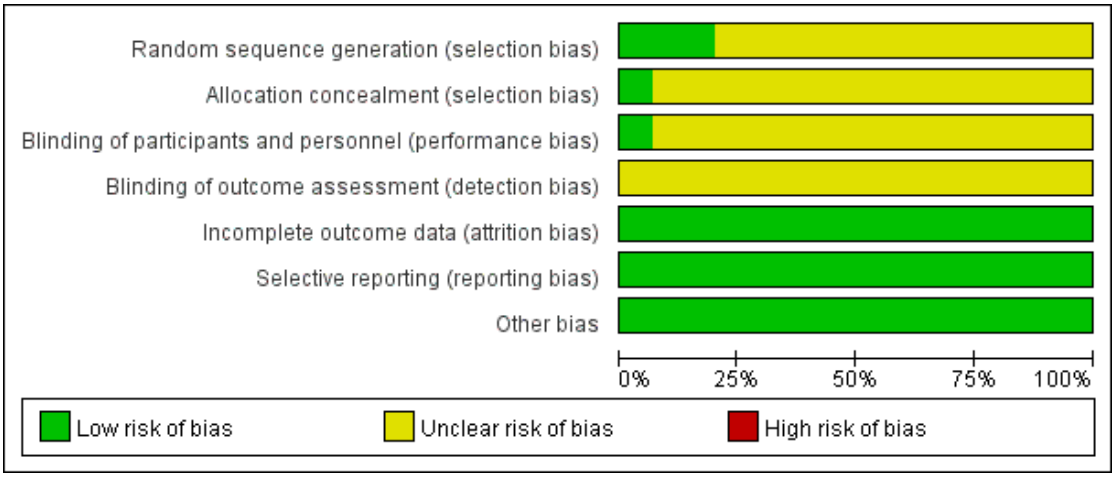

Figure 2 : Risk of bias assessment (A) for included studies

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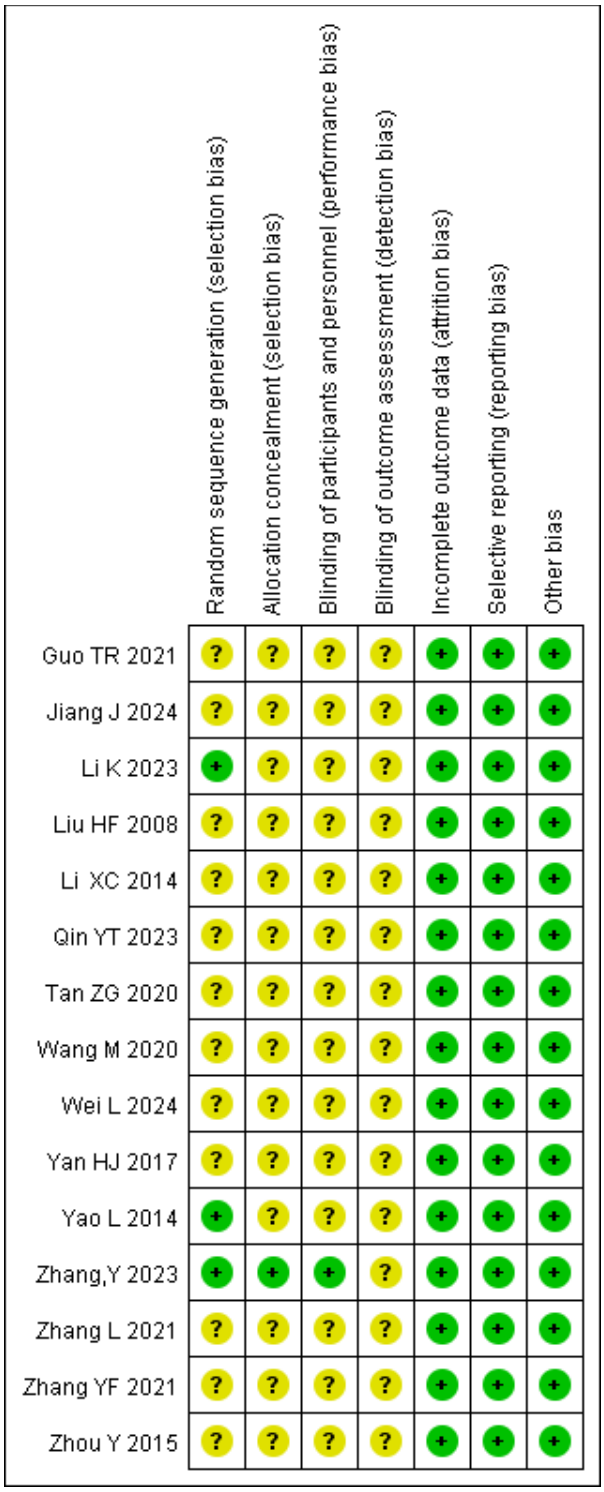

Figure 3 : Risk of bias assessment (B) for included studies

3.4. Meta-Analysis

The overall analysis (I^2=84%,*p*<0.00001) indicated significant heterogeneity. Fitness Qigong improved depression (MD=-0.71, 95% CI: -1.05, -0.36). Subgroup analyses showed consistent benefits across Qigong types (Figure 4).

3.5. Publication Bias

The funnel plot (Figure 6) suggested minimal bias, likely due to standardized interventions and outcomes.

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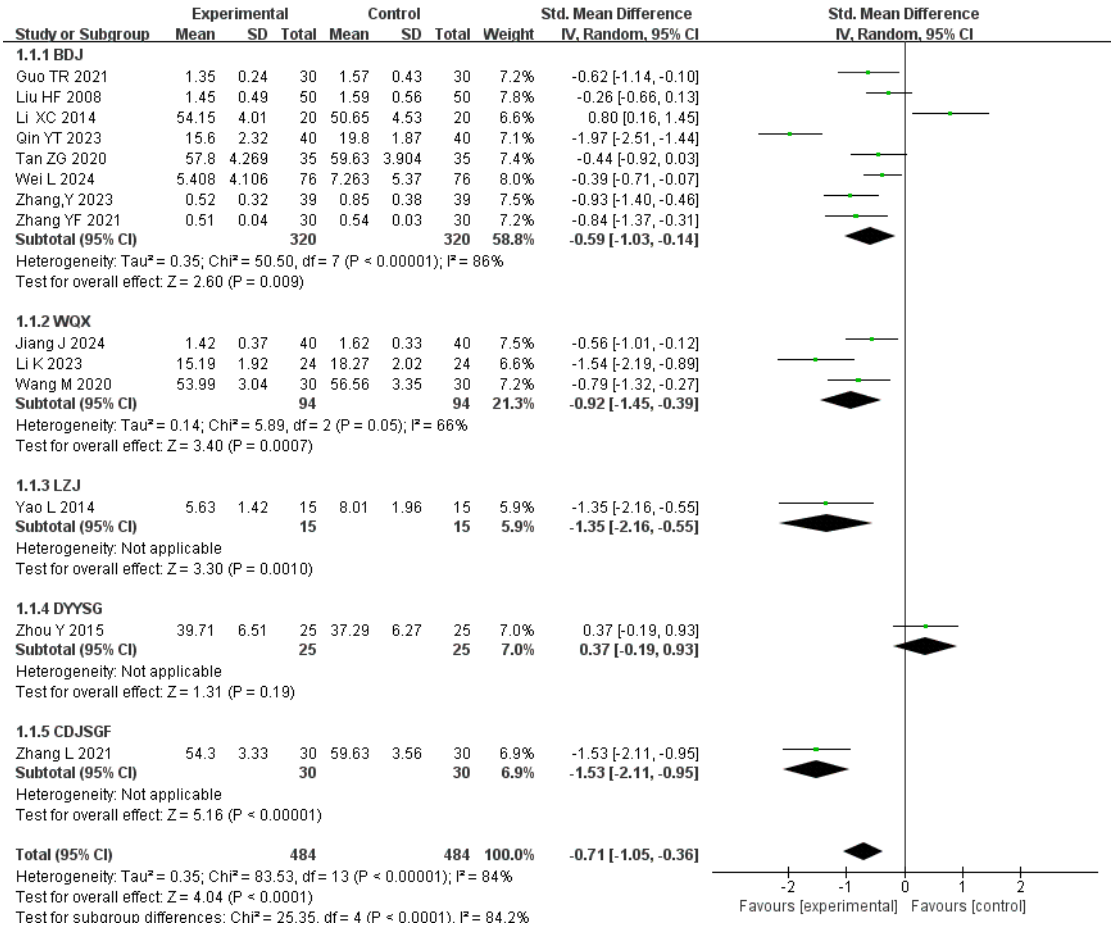

Figure 4 : Forest Plot of Meta-Analysis on the Effects of Baduanjin on Interpersonal Sensitivity in College Students

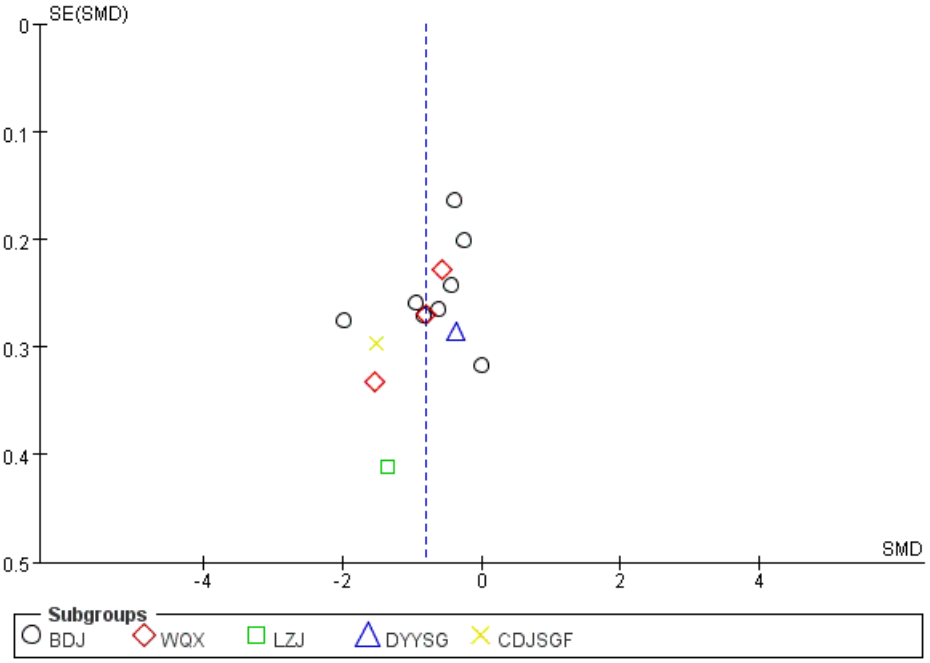

Figure 6 : Funnel plot for assessing publication bias

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4. Discussion

Fitness Qigong, with its cultural and health merits, shows promise in alleviating college students' depression. However, limited study quantity and quality call for more rigorous RCTs to confirm these findings and explore variations among Qigong practices.

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