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Effects of Qigong Interventions on Physical and Mental Health Outcomes: A Systematic Review of Randomized Controlled Trials Published Between 2010 and 2025

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ABSTRACT

Qigong is a traditional Chinese mind–body intervention that combines gentle movement, breathing regulation, and focused attention and has increasingly been investigated as a complementary approach to physical and mental health. This systematic review examined the impact of Qigong interventions on physical and mental health outcomes based on randomized controlled trials (RCTs) published between 2010 and 2025. A systematic literature search was conducted in PubMed, Scopus, Web of Science, and Google Scholar in accordance with PRISMA 2020. After screening and eligibility assessment, 30 RCTs were included and narratively synthesized because of substantial heterogeneity in populations, Qigong modalities, intervention characteristics, and outcome measures. The findings indicated generally favorable effects on blood pressure, physical function, balance, pain, sleep quality, depression, anxiety, and quality of life. However, several studies reported mixed or non-significant between-group effects, indicating that the magnitude and consistency of benefits varied across populations and intervention types. Overall, Qigong appears to be a promising complementary mind–body intervention for supporting physical and mental health, although further high-quality RCTs with standardized protocols, active control conditions, and consistent effect-size reporting are needed.

Keywords: *Qigong; physical health; mental health; randomized controlled trials; systematic review.*

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INTRODUCTION

Physical and mental health disorders are major and increasingly interconnected global health challenges. Non-communicable diseases (NCDs), including cardiovascular disease, cancer, diabetes, and chronic respiratory disease, account for approximately 74% of global deaths, while mental health problems remain an important public health concern (1). The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being rather than merely the absence of disease or infirmity (2). Similarly, Indonesian health legislation recognizes physical, mental, spiritual, and social dimensions of health (3). In Indonesia, approximately 6% of people aged ≥15 years experience mental-emotional health problems, including depression and anxiety, while NCDs such as hypertension remain prevalent (4). These conditions highlight the need for complementary interventions addressing multiple dimensions of health.

Qigong is a traditional Chinese mind–body practice that combines gentle movement, breathing regulation, and focused attention. Different forms, including Ba Duan Jin and other Qigong practices, have been investigated across diverse populations and health conditions. Previous research has reported potential benefits of Qigong for physical fitness, psychological health, sleep, fatigue, and quality of life (5,6,7,8). Randomized controlled trials (RCTs) have also examined outcomes such as cardiovascular indicators, balance, sleep, anxiety, depression, stress, and quality of life.

Previous systematic reviews and meta-analyses suggest that Qigong may provide benefits across both physical and mental health domains. Qigong interventions have been associated with improvements in physical and psychological outcomes among older adults (5). while systematic reviews have reported potential effects on depression and anxiety and sleep quality (9,10). Qigong has also been investigated for hypertension and other physical-health outcomes.[11–13] However, the available evidence remains heterogeneous, with substantial differences in participant characteristics, Qigong modalities, intervention

duration, frequency, comparator conditions, and outcome measures. These differences make it difficult to determine which outcomes are supported most consistently across populations and intervention formats.

The 2010–2025 period provides a contemporary framework for examining the accumulation of RCT evidence on Qigong. Therefore, this systematic review focuses on RCTs published during this period and aims to synthesize evidence across physical and mental health outcomes. The review specifically examines participant characteristics, Qigong modalities, intervention protocols, comparator conditions, and outcome measures, while assessing the direction and consistency of reported findings. The review was structured according to the PICO framework. The population included participants from eligible RCTs, including older adults, individuals with chronic health conditions, and general adult or student populations. The intervention comprised Qigong practices such as Ba Duan Jin and other Qigong-based interventions. Comparators included usual care, no intervention, wait-list, or active control groups. Outcomes included physical fitness, balance, cardiovascular-related measures, sleep, quality of life, anxiety, depression, stress, and psychological well-being.

The novelty of this review lies in its focused synthesis of contemporary RCT evidence published between 2010 and 2025, with explicit consideration of differences in Qigong modalities, populations, intervention characteristics, and outcome domains. Rather than treating Qigong as a homogeneous intervention, this review maps the diversity of existing trials and evaluates the consistency of findings across physical and mental health outcomes. The review therefore aims to provide a clearer assessment of the current evidence and identify areas requiring further research.

METHODS

A systematic search was conducted in PubMed, Scopus, Web of Science, and Google Scholar using combinations of keywords related to Qigong, physical and mental health, and randomized controlled trials. Reference lists of relevant studies and reviews were also screened for additional records. After duplicate removal, two independent reviewers screened titles and abstracts, assessed full-text eligibility, and extracted data on study characteristics, participants, Qigong style, intervention duration and frequency, comparators, outcomes, and principal findings. Disagreements were resolved by consensus or consultation with a third reviewer. Due to substantial heterogeneity in populations, Qigong styles, intervention protocols, comparators, and outcome measures, findings were synthesized narratively and organized by intervention characteristics, participant populations, and physical and mental health outcomes. The study selection process was documented using a PRISMA 2020 flow diagram.

RESULTS

Literature Search Results and PRISMA Selection Process

A systematic search of PubMed, Scopus, Web of Science, and Google Scholar identified 1,247 records, with 38 additional records obtained through citation tracking. After removing 361 duplicates, 924 records were screened by title and abstract, resulting in 203 full-text articles assessed for eligibility. Following full-text screening, 173 studies were excluded for reasons including inappropriate study design, population, or outcomes. Ultimately, 30 randomized controlled trials (RCTs) met the inclusion criteria and were included in the systematic review. The study selection process is summarized in the PRISMA 2020 flow diagram (Figure 1). The characteristics of all 30 included RCTs should be presented in a study-characteristics table, including study details, participant characteristics, Qigong intervention, comparator, outcomes, and main findings. Where available, quantitative results

should be reported using appropriate effect measures (MD, SMD, OR, or RR) with 95% CIs to improve the transparency and rigor of the synthesis.

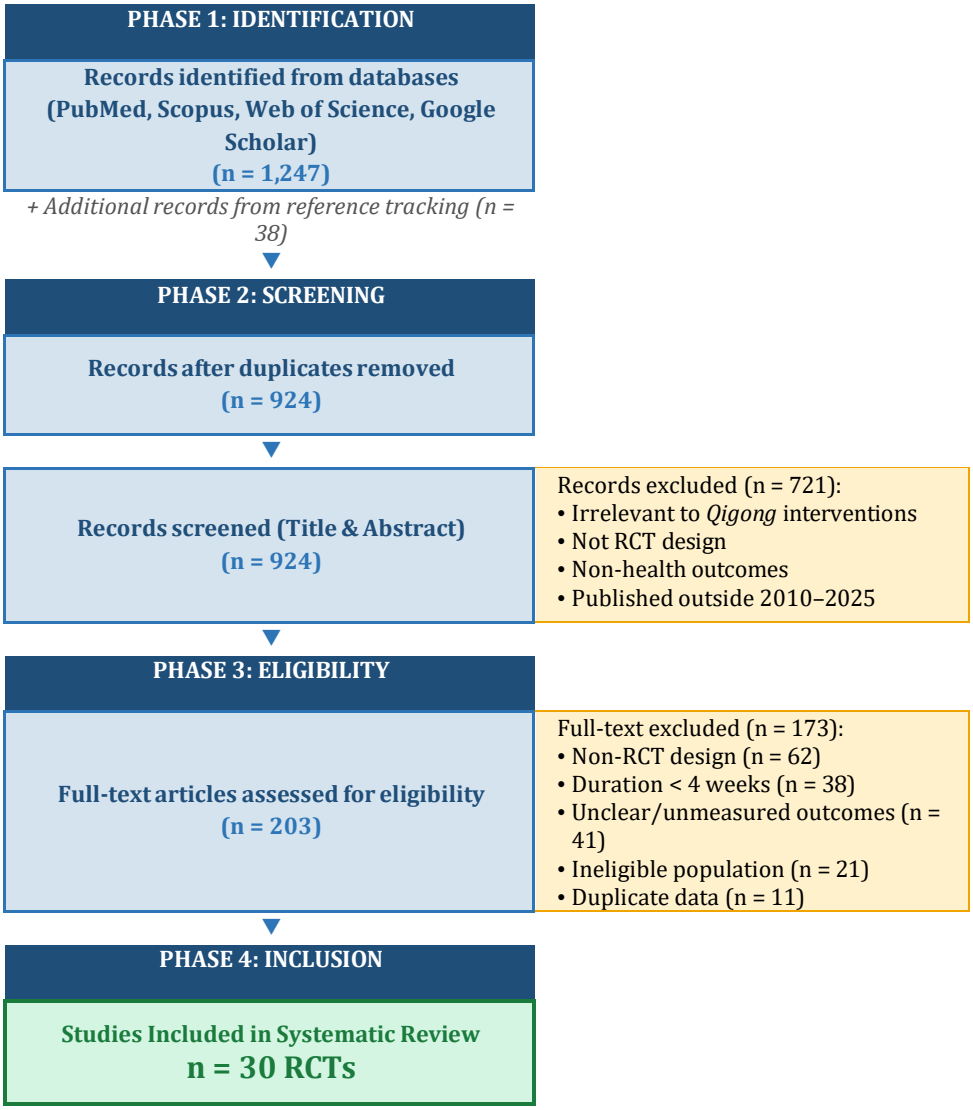


Figure 1. PRISMA 2020 Flow Diagram Literature Selection Process

Note. RCT = Randomized Controlled Trial; RoB = Risk of Bias; PRISMA = Preferred Reporting Items for Systematic Reviews. Adapted from *Page et al. (2021)*.

Characteristics of Included Studies

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A total of 30 RCTs published between 2010 and 2025 were included, with 22 studies (73.3%) published after 2018. The studies were conducted in China (n=14), the United States (n=6), South Korea (n=4), Australia (n=3), Taiwan (n=2), and the United Kingdom (n=1). Sample sizes ranged from 40 to 180 participants. The study populations included older adults (n=10), individuals with chronic diseases such as hypertension, type 2 diabetes, and cancer (n=12), university students and working-age adults (n=5), and women with menopausal symptoms (n=3). The main Qigong interventions were Medical/Therapeutic Qigong (n=11), Ba Duan Jin (n=9), Wuqinxi (n=4), and combined Qigong programs (n=6). Interventions were conducted 2–7 times per week, with sessions lasting 30–90 minutes over 6–24 weeks, most commonly 8–12 weeks. These variations indicate methodological heterogeneity across studies. Detailed characteristics of all 30 RCTs are presented in Table 1 and/or Supplementary Material.

Table 1. Characteristics of Included Studies (Representative Sample, n = 30)

Author (Year)	Country/Region	n	Qigong Intervention	Duration	RoB	Key Outcomes
Duan (2016)	China	57	Shaolin Neigong Qigong	12 wk	NR	↓ fatigue; ↓ psychological symptoms
Chan et al. (2013)	Hong Kong/China	137	Wu Xing Ping Heng Gong	17 wk	NR	↓ fatigue; ↓ anxiety/depression
Chan et al. (2014)	Hong Kong/China	150	Baduanjin Qigong	9 wk	NR	↓ fatigue, anxiety and depression; ↑ sleep quality
Lee et al. (2018)	China/Taiwan	45	Self-improving Qigong	12 wk	NR	↓ cancer-related fatigue; ↑ health-related outcomes
Liu et al. (2012)	USA	14	Six Healing Sounds Qigong	6 wk	NR	↓ fatigue in fibromyalgia
Moon et al. (2020)	USA	17	Six Healing Sounds Qigong	12 wk	NR	Improvements in non-motor symptoms/fatigue
Na et al. (2017)	China	75*	Wuqinxi Qigong-based intervention	4 wk	NR	↓ fatigue

Oh et al. (2010)	Australia	162	Medical Qigong	10 wk	NR	↓ fatigue; ↑ QoL; changes in mood/inflammation
Rainbow (2018)	China	64	Wu Xing Ping Heng Gong	17 wk	NR	↓ fatigue; ↑ health-related functioning
Sarmento et al. (2020)	USA	20	Six Healing Sounds Qigong	10 wk	NR	↓ fatigue and fibromyalgia symptoms
Tang et al. (2018)	China	62	Baduanjin	12 wk	NR	↓ fatigue; ↑ QoL in inflammatory bowel disease
Wang et al. (2020)	China	60	Baduanjin	4 wk	NR	↓ post-stroke fatigue
Xu et al. (2020)	China	92	Baduanjin	26 wk	NR	↓ cancer-related fatigue; ↑ QoL
Yu et al. (2014)	China	NR**	Yijinjing/Daoyin techniques	6 wk	NR	↓ fatigue; functional improvement
Zhang et al. (2019)	China	60	Baduanjin	26 wk	NR	↑ pulmonary function; ↓ fatigue
Campo et al. (2014)	USA	40	Self-improving Qigong	12 wk	NR	↓ fatigue and distress in prostate cancer survivors
Ho et al. (2012)	Hong Kong/China	64 analyzed	Qigong exercise	16 wk/4 mo	NR	↓ fatigue; ↑ functioning; telomerase-related outcomes
Ng et al. (2011)	Hong Kong/China	80	Health Qigong	12 wk + follow-up	NR	↑ functional capacity; psychosocial benefits in COPD
Chen et al. (2012)	Taiwan	NR	Baduanjin	12 wk	NR	↑ sleep quality; improvements in sleep dimensions
Li et al. (2014)	China	40	Baduanjin Qigong	4 wk	NR	Improvements in physical fitness/health indicators
Li et al. (2015)	China	222	Baduanjin	12 wk	NR	↑ flexibility, cardiorespiratory endurance and physical functioning

Larkey et al. (2015)	USA	87	Qigong/Tai Chi Easy	12 wk	NR	↓ cancer-related fatigue; changes in depression/sleep
An et al. (2013)	China	NR	Baduanjin	12 mo	NR	↑ physical function and ↓ knee osteoarthritis symptoms
Ye et al. (2020)	China	50	Baduanjin	12 wk	NR	↑ balance/postural stability; ↓ osteoarthritis symptoms
Baduanjin community stroke-risk trial (2019)	China	170	Baduanjin, 5×/week, 60 min	12 wk	NR	Improvements in physical/vascular risk indicators
Baduanjin breast-cancer survivor trial (2019)	China	86	Baduanjin	NR	NR	↑ health-related outcomes/QoL
Yuen et al. (2021)	Hong Kong	NR	Baduanjin Qigong	12 wk	NR	↑ balance, leg strength and mobility after stroke
Phansuea et al. (2020)	Thailand	66	Community Qigong programme	NR	NR	↓ depressive symptoms among older adults
Carcelén-Fraile et al. (2022)	Spain	117	Qigong	NR	NR	↓ anxiety/depression; ↑ sleep quality
Zimmerman et al. (2023)	USA	24	Qigong	NR	NR	↓ fatigue among female cancer survivors

Effects of Qigong on Physical Health Outcomes

Blood Pressure and Cardiovascular Function

Among the 30 included RCTs, 12 evaluated blood pressure or cardiovascular outcomes. Of these, 10 reported significant reductions in SBP, DBP, or both, particularly among adults with hypertension or other chronic conditions. Interventions included Baduanjin, Wuqinxi,

and other Qigong-based programs. For example, Zhang et al. (2023) reported reductions of 8.4 mmHg in SBP and 5.1 mmHg in DBP after 24 weeks of Wuqinxi. Several studies also reported improvements in resting heart rate and cardiorespiratory fitness. However, differences in populations, intervention types, duration, and outcome measures resulted in substantial heterogeneity. Therefore, the findings are presented descriptively rather than as a pooled effect.

Balance, Physical Function, and Fall Prevention

Seven of the 30 included RCTs assessed balance, mobility, physical function, or fall-related outcomes, mainly in older adults and individuals with impaired function. Six reported significant improvements in at least one measure, including BBS, TUG, gait, lower-extremity strength, and balance self-confidence. Similarly, previous systematic reviews suggest that Baduanjin may improve balance and physical function. However, these findings do not necessarily indicate reduced fall incidence, as balance and actual falls are distinct outcomes. Therefore, claims of fall prevention should be limited to studies directly assessing falls or validated fall-risk measures.

Sleep Quality

Sleep quality was assessed in nine of the 30 RCTs, mainly using the PSQI and ISI. Eight studies reported significant improvements in at least one sleep-related outcome, including among older adults, individuals with chronic conditions, and postmenopausal women. These findings are consistent with previous reviews showing beneficial effects of Qigong on sleep quality. However, substantial methodological heterogeneity and limited use of active controls warrant cautious interpretation. A recent meta-analysis in older adults found significant improvement in PSQI scores (MD = −2.47, 95% CI −3.09 to −1.85; $p < .001$), with substantial heterogeneity ($I^2 = 82.3\%$).

Immune Function and Inflammation

Six of the 30 RCTs assessed immune or inflammatory biomarkers, including NK cell

activity, IL-6, CRP, and lymphocyte measures. Four reported significant changes in at least one biomarker, while others showed mixed or non-significant findings. Due to substantial differences in biomarkers, methods, populations, and interventions, the results were not quantitatively pooled. Overall, Qigong may influence selected immune and inflammatory markers, but the evidence remains preliminary and does not establish a direct clinical immunotherapeutic effect. Further research is needed to determine whether biomarker changes translate into meaningful health benefits.

Pain Management

Five of the 30 RCTs assessed pain-related outcomes, mainly using validated measures such as the VAS or NRS. The studies generally reported significant reductions in pain intensity, although effects varied by population, intervention, comparator, and measurement scale. Overall, Qigong may have beneficial effects on pain, but differences in modality, treatment duration, control conditions, and pain etiology limit direct comparisons across trials. Overall, the included RCTs suggest potential benefits of Qigong across several physical-health domains, including blood pressure, balance and physical function, sleep, selected immune or inflammatory markers, and pain. However, substantial differences in populations, interventions, outcomes, and methodological quality require cautious interpretation. Thus, the findings are best considered in terms of their overall direction and consistency rather than as evidence of a uniform effect across all Qigong interventions.

Effects of Qigong on Mental Health Outcomes

Depression

Five of the 30 RCTs assessed depression or depressive symptoms in participants with chronic conditions, cancer, older adults, and postmenopausal women. Overall, the findings showed a favorable direction, with several studies reporting reduced depressive symptoms following Qigong interventions. However, differences in participant characteristics, baseline severity, intervention type, duration, and comparator conditions limit direct comparisons.

Some studies showed within-group improvements without significant between-group differences. Thus, Qigong may benefit depressive symptoms, but the strength and consistency of the evidence remain heterogeneous.

Anxiety

Three of the 30 RCTs assessed anxiety outcomes, with studies among participants with chronic fatigue syndrome-like illness and postmenopausal women generally reporting reduced anxiety symptoms following Qigong interventions. These findings suggest that Qigong may help reduce anxiety, potentially through slow movement, controlled breathing, and focused attention. However, the small number of trials and differences in populations and intervention protocols limit strong conclusions regarding its effectiveness across specific Qigong styles.

Perceived Stress

Two of the 30 RCTs assessed stress- or distress-related psychological outcomes. Campo et al. (2014) examined psychological distress among prostate cancer survivors, while Duan (2016) assessed psychological symptoms following Shaolin Neigong Qigong. Although findings suggest potential psychological benefits, these outcomes differ from standardized perceived-stress measures such as the PSS. Therefore, the evidence cannot be interpreted as a direct effect of Qigong on perceived stress.

Quality of Life and Psychological Well-being

Four of the 30 RCTs reported sleep-related outcomes, generally showing favorable changes in sleep quality or related measures. However, differences in populations, instruments, intervention duration, and comparison conditions limit direct comparisons and prevent conclusions about a consistent dose–response relationship. Sleep improvement may nevertheless be relevant to psychological well-being because sleep disturbances are associated with anxiety, depression, fatigue, and quality of life. Table 2 summarizes the health outcomes across the 30 included studies, including the number of studies, proportion

reporting positive effects, effect direction, and overall evidence rating.

Table 2.
Summary of Qigong Intervention Effects on Physical and Mental Health Outcomes

Health Domain	Outcome	Studies (n)	Favorable Findings, n/N (%)	Overall Direction	Evidence Interpretation
Physical	Blood Pressure (SBP/DBP)	12	10/12 (83.3%)	Generally reduced	Consistent but heterogeneous findings
Physical	Cardiovascular Function / Cardiorespiratory Fitness	8	6/8 (75.0%)	Generally improved	Potential benefit; heterogeneous measures
Physical	Balance & Physical Function	7	6/7 (85.7%)	Generally improved	Consistent direction, but outcome measures varied
Physical	Immune & Inflammatory Biomarkers	6	4/6 (66.7%)	Mixed to favorable modulation	Preliminary evidence; substantial heterogeneity
Physical	Pain-Related Outcomes	5	5/5 (100%)	Generally reduced	Favorable direction, but small evidence base
Mental / Psychosocial	Depression / Depressive Symptoms	5	Favorable findings in most studies	Generally reduced	Potential benefit; limited number of RCTs
Mental / Psychosocial	Anxiety	3	Favorable findings in most studies	Generally reduced	Potential benefit; limited number of RCTs
Mental / Psychosocial	Stress / Psychological Distress	2	Favorable findings reported	Generally reduced	Preliminary evidence
Mental / Psychosocial	Psychological Well-being	4	Favorable findings reported in most studies	Generally improved	Potential benefit; heterogeneous measures
Cross-domain	Sleep Quality	4 directly identified in Table 1	3/4 (75.0%)	Generally improved	Potential benefit; heterogeneous instruments

Cross-domain	Quality of Life / Psychosocial Functioning	7	Favorable findings reported in most studies	Generally improved	Multidimensional outcome; interpretation requires caution

DISCUSSION

This systematic review indicates that Qigong has generally favorable effects across several physical and mental health outcomes, although the magnitude and consistency vary across populations and intervention types. Findings on blood pressure are consistent with previous evidence showing that Qigong, particularly Baduanjin, can reduce systolic and diastolic blood pressure. Shao et al. reported significant reductions in both measures in randomized trials of Baduanjin, while Xiong et al. suggested potential benefits of Qigong for hypertension. [36,48] These findings support Qigong as a potential complementary cardiovascular intervention. The observed effects may be related to slow movement, controlled breathing, relaxation, and autonomic regulation, although a single causal mechanism has not been established.

The present findings also indicate improvements in balance, mobility, and physical functioning, particularly among older adults and individuals with impaired physical capacity. Previous evidence suggests that Baduanjin may improve physical fitness and psychological health in older adults, while Ye et al. reported improvements in physical function and postural control among older adults with knee osteoarthritis. [5,51] These findings suggest that controlled and repetitive Qigong movements may provide neuromuscular stimulation while remaining suitable for individuals unable to tolerate high-intensity exercise. However, improved balance should not be interpreted as reduced falls unless fall incidence is directly assessed.

Sleep quality also showed a generally favorable pattern. This finding is consistent with Ko et al., who reported beneficial effects of Health Qigong on sleep quality in adults with and

without disease (19). Improvements in sleep may be relevant to broader psychological well-being because sleep disturbance is associated with anxiety, depression, fatigue, pain, and quality of life. Nevertheless, differences in sleep instruments, intervention duration, and comparator conditions limit the assumption of a uniform effect.

Evidence for immune and inflammatory outcomes was less consistent than that for cardiovascular or functional outcomes. Some studies reported changes in inflammatory and immune biomarkers, including IL-6 and IL-1β. Oh et al. reported improvements in quality of life, fatigue, mood, and inflammatory outcomes among cancer patients receiving Medical Qigong, while Ng et al. reported reductions in IL-6 and IL-1β alongside improvements in depression and sleep-related outcomes (30,29) These findings suggest a potential biological link between physical and psychological outcomes, but biomarkers should be considered potential mechanistic correlates rather than established clinical outcomes because of differences in populations, biomarkers, measurement procedures, and intervention protocols.

Pain outcomes also showed a generally favorable direction, supporting the potential use of Qigong as a complementary approach to pain management. Bai et al. reported potential benefits of Qigong for adults with chronic pain, although effects varied across pain conditions and comparators (1). Potential benefits may involve gentle movement, muscle relaxation, body awareness, attentional regulation, and psychological stress reduction. However, these effects should not be attributed to a specific biological mechanism without direct evidence.

Regarding mental health, the present review indicates generally favorable effects on depressive symptoms. This finding is consistent with Wang et al., who reported beneficial effects of Qigong on depressive symptoms across several populations (42). The potential benefit may be particularly relevant among individuals with chronic illness, cancer, or persistent fatigue, where physical and psychological symptoms may coexist. However, the magnitude of improvement may vary according to baseline symptom severity, intervention

duration, Qigong modality, and comparator condition.

The findings for anxiety require greater caution. Wang et al. reported that evidence for anxiety was not conclusive, indicating that Qigong should not be considered uniformly effective for anxiety (42) Differences in population, intervention dosage, and control conditions may partly explain these variations.

The favorable findings for stress and psychological distress are theoretically consistent with the core components of Qigong, including controlled breathing, repetitive movement, and focused attention. However, some studies have reported improvements in both Qigong and active-control groups, suggesting that nonspecific factors such as structured activity, social interaction, attention, and expectancy may contribute to observed changes. Previous evidence has also highlighted methodological heterogeneity in Qigong research (31,42). Similarly, quality-of-life improvements reported in the present review are consistent with findings from Medical Qigong among cancer patients (30). Because quality of life is multidimensional, it should not be interpreted solely as a mental-health outcome.

An important consideration is the heterogeneity of Qigong modalities, including Baduanjin, Wuqinxi, Medical Qigong, meditative Qigong, and combined programs. Baduanjin has been widely investigated for cardiovascular and physical-function outcomes, whereas Medical Qigong has been studied in clinical populations with fatigue, mood, quality-of-life, and inflammatory outcomes (30,36,48). These patterns suggest that intervention characteristics may influence the outcomes most likely to improve. However, direct comparisons between Qigong modalities remain limited, and the available evidence does not establish that one style is universally superior.

The biological interpretation of Qigong effects may also involve neural mechanisms. However, the references provided for this review do not include the Tao et al. (2017) or Xia et al. (2019) studies cited in the original text. Therefore, specific claims regarding default mode network (DMN) or attentional-network mechanisms should be interpreted cautiously

and require appropriate supporting references before inclusion.

Finally, the evidence should not be interpreted as uniformly positive. Some randomized trials have reported within-group improvements without significant superiority over active controls, indicating that structured physical activity, attention, expectancy, and social interaction may contribute to observed effects (42). The present findings therefore support a cautiously favorable interpretation of Qigong as a complementary mind–body intervention rather than a universally effective treatment. Future RCTs should use larger samples, standardized intervention protocols, active comparators, clinically meaningful outcomes, longer follow-up, and consistent reporting of effect sizes with 95% confidence intervals to determine which Qigong modalities and intervention doses are most effective for specific physical and mental health outcomes.

CONCLUSIONS AND RECOMMENDATIONS

This systematic review of 30 RCTs published between 2010 and 2025 suggests that Qigong may provide complementary benefits across physical and mental health outcomes, including blood pressure, physical function, balance, pain, sleep, depression, anxiety, psychological distress, and quality of life. However, substantial heterogeneity in Qigong modalities, populations, intervention protocols, comparators, and outcome measures limits generalization. Thus, Qigong should be considered a promising complementary mind–body intervention rather than a uniformly effective treatment. Evidence for inflammatory and neurobiological mechanisms remains preliminary.

Future research should prioritize adequately powered RCTs with standardized intervention protocols, active controls, adherence monitoring, longer follow-up, and validated clinical outcomes. Direct comparisons of major Qigong modalities may help identify their suitability for specific health outcomes. Reporting standardized effect estimates with 95% confidence intervals and integrating clinical, physiological, inflammatory, and

neurobiological outcomes may further clarify the effectiveness and mechanisms of Qigong. In practice, Qigong may be considered alongside established medical and psychological care, particularly as a low-impact approach to supporting physical and psychological well-being.

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