

# INPLASY PROTOCOL

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None declared.

## Comparison of the effectiveness of different traditional Chinese medicine exercise therapy in the treatment of essential hypertension: A Bayesian Network Meta-Analysis of Randomized Controlled Trials

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**Review question / Objective:** In this study, the efficacy of different traditional Chinese exercising therapies in the treatment of essential hypertension will be evaluated, subsequently, systematic evaluation and network meta-analysis will be carried out, and its anti-hypertensive effect will be ranked, which help further guide the future clinical application with scientific methods, and provide some reference for the clinical application in the future.

**Information sources:** We used manual and computer aided search methods, the search scope includes CNKI, WANFANG, VIP, SinoMed, PubMed, Cochrane Library, Embase, and the search content is the clinical randomized control Trials of different traditional Chinese medicine exercise therapies in the treatment of essential hypertension, the search period is the establishment of the database-February 4, 2022.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 February 2022 and was last updated on 08 April 2022 (registration number INPLASY202220036).

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### INTRODUCTION

**Review question / Objective:** In this study, the efficacy of different traditional Chinese exercising therapies in the treatment of essential hypertension will be evaluated,

and provide some reference for the clinical application in the future.

**Condition being studied:** Hypertension is a clinical syndrome characterized by increased systemic arterial pressure and peripheral arteriole resistance, and accompanied by functional or organic damage to the heart, brain, kidney and other organs. It is the major risk factor for the development of cardiovascular diseases (CVD). Studies showed that the number of adults suffering from hypertension in the world reached 31.1% (95% CI, 30.0% to 32.2%) in 2010. The number of deaths of Chinese patients with cardiovascular disease (CVD) has reached 750,000 per year because of the failure control of hypertension in time. A survey conducted by the China Cardiovascular Disease Center in 2018 showed that the number of Chinese patients with cardiovascular disease was 290 million, of which 245 million suffered from hypertension. The number of patients worldwide with hypertension in 2025 was expected to reach 1.56 billion (1.54-1.58 billion). At present, the western medicine is still the main treatment for hypertension. However, due to possible side effects, the compliance of patients with medication has been affected to a certain extent. Therefore, new treatment options need to be further studied.

## METHODS

**Search strategy:** We used manual and computer aided search methods, the search scope includes CNKI, WANFANG, VIP, SinoMed, PubMed, Cochrane Library, Embase, and the search content is the clinical randomized control Trials of different traditional Chinese medicine exercise therapies in the treatment of essential hypertension, the search period is the establishment of the database-February 4, 2022. The search strategy take the pubmed as example:

#1: (hypertension[MeSH Terms])

#2: ((((((((((tai chi[MeSH Terms]) OR (tai ji[MeSH Terms])) OR (baduanjin[Title/Abstract])) OR (qigong[MeSH Terms])) OR

(yijinjing[Title/Abstract])) OR (wuqinxi[Title/Abstract])) OR (liuzijue[Title/Abstract])) OR (six-character formula[Title/Abstract])) OR (eight-section brocade[Title/Abstract])) OR (twelve-section brocade[Title/Abstract])) OR (Tao yin[Title/Abstract])

#3: #1 and #2.

**Participant or population:** Patients diagnosed with essential hypertension in clinic and meet the diagnosis and treatment standards of hypertension during the treatment period.

**Intervention:** Traditional Chinese exercising therapy, such as Taijiquan, Baduanjin, Wuqinxi, etc, and can be combined with routine treatment or (and) routine care of Western medicine.

**Comparator:** The treatment measures of the control group were routine nursing or routine western medicine treatment or other exercising therapies, which can all be combined with each other.

**Study designs to be included:** Randomized controlled trials. 1. Patients diagnosed with essential hypertension in clinic, and they met the diagnosis and treatment standards of hypertension during the treatment period. 2. The type of the research must be a randomized controlled trials.

**Eligibility criteria:** Inclusion standard: 1. Patients diagnosed with essential hypertension in clinic, and they met the diagnosis and treatment standards of hypertension during the treatment period. 2. The type of the research must be a randomized controlled trials. Exclusion standard: 1. Research subjects confirmed to be patients with hypertension, but it was clearly stated in the clinical literature that they had other diseases. 2. Repeatedly published literature. 3. The intervention measures are combined with other anti-hypertensive therapies other than conventional western medicine, such as traditional Chinese medicine, acupuncture, moxibustion, etc. 4. Literature published in informal medical journals. 5. Only effective clinical researches were reported.

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**Main outcome(s):** Outcome: outcome indicators include Systolic pressure and diastolic blood pressure.

**Quality assessment / Risk of bias analysis:** Two review authors will assess the risk of bias of each individual included study based on methods endorsed by The Cochrane Collaboration. The following domains will be considered: randomization, allocation concealment, blinding, selective reporting, publication bias, as well as any other detected sources of bias that may arise. The risk of bias will be assessed at study level. However, the risk of bias of each study will be considered when we conduct the summary of findings table.

**Strategy of data synthesis:** Included data was expressed by weighted mean difference (WMD) with 95% confidence interval (CI). First, we drew the network evidence map through Stata17.0 software. Second, a Bayesian network meta-analysis was performed using R4.1.2 with GeMTC package. Direct and indirect evidences were compared for the interventions in the studies [22-23]. Four Markov chains were used for initial setting with a step size of 1, 20,000 pre-iterations for annealing, and 50,000 iterations to achieve convergence. In the trajectory density map, when the potential scale reduction factor (PSRF) tends to 1, the model has converged satisfactorily. Otherwise, the number of iterations continue to increase. When there is a closed loop, the node splitting method is used to test the local inconsistency, and  $P > 0.05$  is a good consistency [24]. Finally, we drew the surface under the cumulative ranking curve (SUCRA) through Stata17.0

to rank the efficacy of each intervention. In addition, we drew a comparison-specific funnel plot to test the small sample effect between studies to determine whether there is publication bias.

**Subgroup analysis:** N/A.

**Sensitivity analysis:** N/A.

**Country(ies) involved:** China.

**Keywords:** traditional Chinese exercising therapies; essential hypertension; network meta-analysis; systematic review.

**Contributions of each author:**

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