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# Efficacy of Acupuncture Combined with Cognitive Training for Post-Stroke Cognitive Impairment: A systematic review and meta-analysis

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**ADMINISTRATIVE INFORMATION**

**Support -** This study did not receive any.

**Review Stage at time of this submission -** Unreleased (Not specified by the author).

**Conflicts of interest -** None declared.

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**Amendments -** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 March 2026 and was last updated on 24 March 2026.

## INTRODUCTION

**Study aim** To systematically review the efficacy of acupuncture combined with cognitive training for post-stroke cognitive impairment (PSCI).

**Background** Post-stroke cognitive impairment (PSCI) is a clinical syndrome characterized by cognitive dysfunction that occurs after stroke and persists for at least 6 months. PSCI imposes severe social, economic, and psychological burdens on patients and their families, leading to a growing research focus on effective interventions for cognitive recovery.

## METHODS

**Search strategy** A systematic search was performed in PubMed, EMbase, Cochrane Library, CNKI, VIP, and WanFang databases up to December 25, 2025. Both Chinese and English searches combined MeSH terms, free words, and Boolean operators. Chinese search terms included "Cu zhong", "Ren zhi zhang ai", "Zhen jiu liao fa", and "Ren zhi xun lian". Corresponding English terms included "Stroke", "Cognition Disorders", "Acupuncture Therapy", and "Cognitive Training".

**Eligibility criteria** (1)Participants: Patients diagnosed with PSCI according to the Experts Consensus on Post-stroke Cognitive Impairment Management 2021[3]. This entails: (a) a confirmed diagnosis of stroke based on clinical or imaging evidence, including transient ischemic attack, hemorrhagic stroke, or ischemic stroke; (b) presence of cognitive impairment, evidenced by patient or informant report, clinical judgment, and neuropsychological confirmation of impairment in at least one cognitive domain or evidence of cognitive decline; (c) a clear temporal relationship where cognitive impairment emerges after the stroke event and persists for 3 to 6 months.
(2) Intervention: The experimental group received acupuncture combined with cognitive training, with a total intervention duration of at least 6 weeks.
(3) Control: The control group received cognitive training alone.

(4) Outcome: At least one of the following outcome measures was reported: (a) overall effective rate, (b) score on the Mini-Mental State Examination Scale (MMSE), or (c) score on the Montreal Cognitive Assessment Scale (MoCA).
(5) Study design: Randomized controlled trials (RCTs).

**Data extraction** Two reviewers independently screened the literature. Initially, irrelevant studies were excluded by reviewing titles and abstracts. Subsequently, the full texts of the remaining studies were then assessed according to the predefined inclusion and exclusion criteria. Disagreements were resolved by consulting a third reviewer.
Data were then independently extracted from the included studies by two researchers and cross-checked. Extracted data included the first author, publication year, stroke type, disease course, follow-up duration, evaluation criteria, and outcome indicators.

**Strategy of data synthesis / Statistical analysis**
Statistical analyses were performed using Stata 15.0 software. For dichotomous variables, the pooled effect sizes were presented as risk ratios (RR) with its 95% confidence intervals (CI). For continuous variables, the mean differences (MD) with its 95% CI were used.
Heterogeneity between studies was assessed: If P ≥ 0.1 and $I^2$ ≤ 50%, indicating low heterogeneity, a fixed-effect model was applied for meta-analysis. If P 50%, indicating significant heterogeneity, a random-effect model was adopted. In cases of significant heterogeneity, subgroup analyses were conducted to explore potential sources of heterogeneity.
A sensitivity analysis was performed by sequentially excluding each individual study to assess the robustness of the pooled results. Additionally, Funnel plots and Egger's test were used to evaluate publication bias; P > 0.05 indicated no significant publication bias.

**Country(ies) involved** China.

**Keywords** Acupuncture; Cognitive Training; Cognitive Impairment; Stroke; Meta-Analysis.

**Contributions of each author**
Author 1 - Yuqi Wang - The author contributed to data collection, data analysis and interpretation, drafting of the article, and critical revision of the article.
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