Table des matières

Cognitive impairment

Troubles cognitifs

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. Sun 2026

Sun B, Fu Q, Lau YYG, Zhan Y. Acupoint Therapy for Enhancing Cognitive Function in Patients with Mild Cognitive Impairment: A Systematic Review and Meta-Analysis. J Integr Complement Med. 2026;32(4):345–359. https://doi.org/10.1177/27683605251394592

Background	Mild cognitive impairment (MCI) signifies a transitional phase between normal aging and dementia. As the disease progresses, MCI patients face considerable challenges due to the deterioration in cognitive function, activities of daily living (ADL), and neuropsychiatric symptoms. This study aims to evaluate the evidence regarding the application of acupoint therapy in individuals with MCI based on randomized controlled trials (RCTs).
Methods	Six databases were searched to September 25, 2025, for RCTs comparing acupoint therapy (alone or combined with nonpharmacological treatments) with health education, blank or waiting groups, sham interventions, and standard treatments (nonpharmacological treatments or oral medications). Outcomes included Montreal Cognitive Assessment (MoCA) and Mini-Mental State Examination (MMSE). Data on ADL scale, relevant biomarkers, and safety data were extracted where available. After the process of literature review and data collection, risk of bias was assessed with the Cochrane Risk of Bias 2.0. Meta-analyses were performed employing the Review Manager (version 5.4.1).
Results	**Twenty-four trials comprising 2005 patients** were analyzed. Acupoint therapy improved the overall cognitive function of MCI patients (MoCA: mean difference [MD] = 1.47, 95% confidence interval [CI]: [0.95, 1.99], $p < 0.00001$; MMSE: MD = 1.44, 95% CI: [1.03, 1.86], $p < 0.00001$). MoCA and MMSE scores after acupoint therapy were significantly higher than those of health education control (MoCA: MD = 2.63, 95% CI: [1.19, 4.07], $p = 0.0003$; MMSE: MD = 2.83, 95% CI: [2.14, 3.51], $p < 0.00001$), sham control (MoCA: MD = 0.94, 95% CI: [0.18, 1.69], $p = 0.01$; MMSE: MD = 1.29, 95% CI: [0.51, 2.08], $p = 0.001$), standard nonpharmacological control (MoCA: MD = 1.42, 95% CI: [0.81, 2.03], $p < 0.00001$; MMSE: MD = 1.09, 95% CI: [0.79, 1.40], $p < 0.00001$), and oral-medication control (MoCA: MD = 0.52, 95% CI: [0.06, 0.98], $p = 0.03$; MMSE: MD = 0.91, 95% CI: [0.22, 1.61], $p = 0.01$), but no difference versus blank control (MoCA: MD = -1.10, 95% CI: [-4.58, 2.38], $p = 0.54$; MMSE: MD = 1.80, 95% CI: [-0.92, 4.52], $p = 0.20$). Auricular acupressure improved ADL scores. Biomarker changes remained nonsignificant. Only nine studies reported safety events with heterogeneous definitions, leaving the risk-benefit ratio unclear.
Conclusion	Acupoint therapy is beneficial for cognitive function in MCI patients. Additional high-quality research is needed to provide a reliable basis for the management of MCI through acupoint therapy.

1.1.2. Cepeda-Pineda 2025

Cepeda-Pineda D, Sequeda G, Carrillo-Sierra SM, Silvera-Cruz K, Redondo-Chamorro J, Rozo-Sánchez A, Bermúdez V, Contreras-Velásquez JC, Gómez-Charris Y, Rivera-Porras D. Clinical Effectiveness of Treatments for Mild Cognitive Impairment in Adults: A Systematic Review. Eur J Investig Health Psychol Educ. 2025 Nov 3;15(11):226. https://doi.org/10.3390/ejihpe15110226

Background	Mild cognitive impairment (MCI) represents an intermediate stage between normal ageing and dementia with a high annual progression rate. Despite its clinical relevance no pharmacological treatment has been definitively approved for this condition; however multiple pharmacological and non-pharmacological strategies have been investigated for their potential benefits. This systematic review assessed the effectiveness of both types of interventions in adults with MCI aiming to identify effective strategies to preserve cognitive function.
Methods	A systematic search (2017-2025) was conducted in PubMed Scopus ScienceDirect SpringerLink and WOS following PRISMA guidelines. Randomised controlled trials and quasi-experimental studies involving adults aged ≥ 50 years with a diagnosis of MCI were included. Outcomes were evaluated in terms of cognitive functional behavioural and quality-of-life improvements. Risk of bias was assessed using the RoB 2 and ROBINS-I tools.
Results	Of 108700 records screened 40 studies were included. Non-pharmacological interventions such as cognitive training (conventional computerised or virtual reality-based) consistently improved memory attention and executive functions (e.g. MoCA: +3.84 points; $p < 0.001$). Transcranial magnetic stimulation combined with physical exercise also demonstrated significant benefits ($p = 0.025$). Among pharmacological treatments only vortioxetine and choline alfoscerate showed modest improvements; cholinesterase inhibitors had limited effects and frequent adverse events. Complementary therapies (yoga probiotics and **acupuncture**) yielded promising outcomes but require further validation.
Conclusion	Non-pharmacological strategies particularly cognitive training and physical exercise emerge as the most effective and safe approaches for managing MCI. The inclusion of pharmacological interventions with preliminary evidence of benefit should be considered within a personalised multimodal approach while recognising the current absence of approved drug treatments for MCI. Further research is needed in underrepresented populations such as those in Latin America.

1.1.3. Sun 2025

Sun B, Fu Q, Lau YYG, Zhan Y. Acupoint Therapy for Enhancing Cognitive Function in Patients with Mild Cognitive Impairment: A Systematic Review and Meta-Analysis. J Integr Complement Med. 2025 Nov 7. https://doi.org/10.1177/27683605251394592

Introduction	Mild cognitive impairment (MCI) signifies a transitional phase between normal aging and dementia. As the disease progresses, MCI patients face considerable challenges due to the deterioration in cognitive function, activities of daily living (ADL), and neuropsychiatric symptoms. This study aims to evaluate the evidence regarding the application of acupoint therapy in individuals with MCI based on randomized controlled trials (RCTs).

Methods	Six databases were searched to September 25, 2025, for RCTs comparing acupoint therapy (alone or combined with nonpharmacological treatments) with health education, blank or waiting groups, sham interventions, and standard treatments (nonpharmacological treatments or oral medications). Outcomes included Montreal Cognitive Assessment (MoCA) and Mini-Mental State Examination (MMSE). Data on ADL scale, relevant biomarkers, and safety data were extracted where available. After the process of literature review and data collection, risk of bias was assessed with the Cochrane Risk of Bias 2.0. Meta-analyses were performed employing the Review Manager (version 5.4.1).
Results	**Twenty-four trials comprising 2005 patients** were analyzed. Acupoint therapy improved the overall cognitive function of MCI patients (MoCA: mean difference [MD] = 1.47, 95% confidence interval [CI]: [0.95, 1.99], p < 0.00001; MMSE: MD = 1.44, 95% CI: [1.03, 1.86], p < 0.00001). MoCA and MMSE scores after acupoint therapy were significantly higher than those of health education control (MoCA: MD = 2.63, 95% CI: [1.19, 4.07], p = 0.0003; MMSE: MD = 2.83, 95% CI: [2.14, 3.51], p < 0.00001), sham control (MoCA: MD = 0.94, 95% CI: [0.18, 1.69], p = 0.01; MMSE: MD = 1.29, 95% CI: [0.51, 2.08], p = 0.001), standard nonpharmacological control (MoCA: MD = 1.42, 95% CI: [0.81, 2.03], p < 0.00001; MMSE: MD = 1.09, 95% CI: [0.79, 1.40], p < 0.00001), and oral-medication control (MoCA: MD = 0.52, 95% CI: [0.06, 0.98], p = 0.03; MMSE: MD = 0.91, 95% CI: [0.22, 1.61], p = 0.01), but no difference versus blank control (MoCA: MD = -1.10, 95% CI: [-4.58, 2.38], p = 0.54; MMSE: MD = 1.80, 95% CI: [-0.92, 4.52], p = 0.20). Auricular acupressure improved ADL scores. Biomarker changes remained nonsignificant. Only nine studies reported safety events with heterogeneous definitions, leaving the risk-benefit ratio unclear.
Conclusion	Acupoint therapy is beneficial for cognitive function in MCI patients. Additional high-quality research is needed to provide a reliable basis for the management of MCI through acupoint therapy.

1.1.4. Lin 2024

Lin G, Yie SLJ, Guo S, Li X, Xu L. Clinical evidence of acupuncture for amnestic mild cognitive impairment: A systematic review and meta-analysis of randomized controlled trials. Complement Ther Med. 2025 Mar;88:103114. https://doi.org/10.1016/j.ctim.2024.103114

Backgound	People with amnestic mild cognitive impairment (aMCI) carry a substantial risk of developing dementia compared to non-amnestic MCI (naMCI). Several previous studies proved the remarkable effectiveness of acupuncture for MCI, but they didn't distinguish between aMCI and naMCI. We conducted this meta-analysis to systematically assess the evidence of the efficacy of acupuncture in this unique population with aMCI.
Methods	We comprehensively searched nine databases on January 09, 2024, to identify relevant articles estimating the effects of acupuncture for aMCI, and then assessed the risk of bias of the included trials utilizing the RoB 2.0 tool which included the domain of randomization process, deviation from intended interventions, missing outcome data, measurement of the outcome, selection of the reported outcome, and overall bias. The results of this meta-analysis were exhibited with forest plots. Sensitivity analyses were conducted to determine the robustness of the pooled results, and publication bias was estimated by Egger's and Begg's tests. Besides, we also performed subgroup analysis to determine whether there was a difference in therapeutic effects between four weeks and eight weeks of treatment duration. The certainty of the evidence was graded using GRADEpro GDT.

Results	A total of **15 randomized controlled trials (RCTs) involving 908 people** with aMCI were included in this study. According to the meta-analysis, acupuncture treatment provided a remarkable improvement in cognitive function as assessed by Mini-Mental State Examination (MD = 1.09, 95 %CI [0.86, 1.31], p < 0.00001), Montreal Cognitive Assessment (MD = 0.93, 95 %CI [0.80, 1.07], p < 0.00001), Alzheimer's Disease Assessment Scale-Cognitive (MD = 1.00, 95 %CI [-1.23, -0.77], p < 0.00001), and P300 latency (MD = -15.40, 95 %CI [-23.68, -7.12], p = 0.0003). Subgroup analysis showed evidence that the efficacy of four weeks of acupuncture treatment was consistent with that of eight weeks. Sensitivity analyses, Egger's and Begg's tests suggested the pooled results were robust and reliable. The overall quality of the evidence, as appraised by the GRADE criteria, was very low or low for all outcomes.
Conclusions	The evidence from 15 RCTs demonstrated that acupuncture interventions are effective in ameliorating cognitive function in people with aMCI. There is a need for larger-scale multicenter RCTs using standardised training protocols and more rigorous designs to confirm the conclusions further.

1.1.5. Hou 2023

Hou Z, Yu X, Chen J, Brenner JS, Sun Z, Shang H. Does acupuncture have advantages in the rehabilitation of vascular mild cognitive impairment? A systematic review and meta-analysis. Heliyon. 2023 Aug 9;9(8):e18955. https://doi.org/10.1016/j.heliyon.2023.e18955

Background	Vascular mild cognitive impairment (VMCI) is a common impairment caused by vascular factors. VMCI often occurs after stroke, and it is the main clinical manifestation of long-term disability. Many patients are treated with acupuncture in combination with other therapies. However, evidence regarding the effectiveness of this treatment regimen is lacking.
Aims	This meta-analysis aimed to evaluate the efficacy of acupuncture therapy for treating VMCI.
Methods	This systematic review was conducted in accordance with the preferred reporting and meta-analysis guidelines. The CNKI, Wanfang, VIP, CBM, Cochrane Library, PubMed and Embase databases were searched from inception to August 20, 2022. After two researchers independently screened the literature, they extracted the data and evaluated the risk of bias in the included studies. Revman 5.3 software was used for the meta-analysis.
Summary of review	Thirty-two randomized controlled trials (RCTs) were included. The overall effective rate of acupuncture for treating VMCI was 3.06, 95% CI [2.39, 3.91], (P < 0.05). Montreal Cognitive Assessment (MoCA), Mini-Mental State Examination (MMSE), Barthel Index and Activities of Daily Living (ADLs) scores significantly differed between the treatment and control groups, with weighted mean differences (WMDs) [95% CI] (P value) of 1.97 [1.44, 2.49] (P < 0.05), 2.02 [1.50, 2.54] (P < 0.05), 5.54 [3.81, 7.28] (P < 0.05), and 3.43 [2.53, 4.33] (P < 0.05), respectively. The overall effective rate of electroacupuncture (EA) for treating VMCI was better than that of the control group (RR = 2.25, 95% CI, [1.13, 4.50], P < 0.05). MoCA, MMSE, Barthel index and ADL scores differed significantly between the treatment and control groups, with WMDs [95% CI] (P value) of 1.79 [1.20, 2.38] (P < 0.05), 1.45 [0.87, 2.03] (P < 0.05), 5.78 [2.38, 9.18] (P < 0.05), and 3.15 [2.15, 4.15] (P < 0.05), respectively. Acupuncture alone and combined with drug therapy were thus superior to drug therapy alone for improving cognitive function. EA also has potential advantages.
Conclusions	Acupuncture combined with another therapy is better than other therapies alone, such as simple drug therapy, for treating VMCI. However, variations in study duration (4-12 weeks) limit us from drawing any definitive conclusions about long-term effects. Therefore, more RCTs with rigorous designs and reasonable treatment and follow-up durations are needed.

1.1.6. Huang 2023 (cerebral small vessel disease)

Huang XT, Chen CY, Zhang QF, Lu LH, She YL, Fang XY. Meta-analysis of the efficacy of acupuncture in the treatment of the vascular cognitive impairment associated with cerebral small vessel disease. Explore (NY). 2023 Jul-Aug;19(4):509-518. https://doi.org/10.1016/j.explore.2022.10.019

Objective	To systematically evaluate the efficacy and safety of acupuncture in the treatment of the vascular cognitive impairment (VCI) associated with cerebral small vessel disease (CSVD-VCI) and to provide a theoretical basis for clinical acupuncture treatment for CSVD-VCI.
Method	Various databases, including China National Knowledge Infrastructure, Wanfang Data, Chinese Science and Technology Journal Database, Chinese BioMedical Literature Service System, PubMed, the Cochrane Library, and EBSCOhost, were searched for randomized controlled trials (RCTs) related to acupuncture treatment for CSVD-VCI. The quality of the included trials was evaluated, and a meta-analysis was conducted using the Review Manager 5.4 software.
Results	Ten articles on RCTs were included, involving 761 patients, i.e., 381 in the acupuncture group and 380 in the control group. The meta-analysis results indicated that the use of acupuncture alone and acupuncture alongside other therapies for CSVD-VCI could improve the overall clinical response rate [odds ratio = 3.51, 95% confidence interval (CI) = (2.05, 6.00), P < 0.00001], increase the patients' Montreal Cognitive Assessment scores [mean difference (MD) = 3.33, 95%CI (2.98, 3.68), P < 0.00001], Mini-Mental State Examination scores [MD = 2.78, 95%CI (2.51, 3.06), P < 0.00001], and activities of daily living scores [MD = 6.30, 95%CI (4.22, 8.37), P < 0.00001], and shorten the latency of auditory evoked potential P300 [MD = -14.67, 95%CI (-19.54, -9.80), P < 0.00001].
Conclusion	Acupuncture alone and acupuncture alongside other therapies are superior to non-acupuncture-based therapies in the treatment of CSVD-VCI. However, due to the small number of relevant available articles and their general low quality, this conclusion may be biased. More clinical RCTs with a larger sample size and higher quality are needed to support this theory.

1.1.7. Li 2023

Li R, Xu C, Zhong P, Wang K, Luo Y, Xiao L, Dai X, Han J, Zhang X. Efficacy of acupuncture and pharmacological therapies for vascular cognitive impairment with no dementia: a network meta-analysis. Front Aging Neurosci. 2023 Jun 15;15:1181160. https://doi.org/10.3389/fnagi.2023.1181160 37396654; PMCID: PMC10310406.

Background and objective	Vascular cognitive impairment with no dementia (VCIND) is considered to be the prodromal stage of vascular dementia, characterized by insidious onset. Although acupuncture and drug therapies are effective, the optimal therapy for VCIND remains to be further determined. Therefore, we conducted a network meta-analysis to compare the effectiveness of acupuncture therapies and current common medicines for VCIND.

Methods	We searched eight electronic databases to identify eligible randomized controlled trials of patients with VCIND treated by acupuncture or drug therapies. The primary outcome was Montreal Cognitive Assessment, and the secondary outcome was Mini-Mental State Examination. We conducted the network meta-analysis within a Bayesian framework. Weighted mean difference with 95% confidence intervals were applied as effect sizes to continuous data for all outcomes. Sensitivity analysis was done to assess the robustness of the findings, and we also carried out a subgroup analysis based on age. We assessed the risk of bias using the Risk of Bias 2.0 tool and applied the Grade of Recommendation Assessment, Development and Evaluation (GRADE) to assess the quality of the outcomes. This study was registered with PROSPERO, number CRD42022331718.
Results	A total of 33 studies with 14 interventions were included, including 2603 participants. In terms of the primary outcome, manual acupuncture plus herbal decoction was considered to be the most effective intervention (P = 91.41%), followed by electroacupuncture (P = 60.77%) and manual acupuncture plus piracetam (P = 42.58%), whereas donepezil hydrochloride ranked the least efficacious intervention (P = 54.19%). For the secondary outcome, electroacupuncture plus nimodipine was considered to be the most effective intervention (P = 42.70%), followed by manual acupuncture plus nimodipine (P = 30.62%) and manual acupuncture (P = 28.89%), whereas nimodipine ranked the least efficacious intervention (P = 44.56%).
Conclusion	Manual acupuncture plus herbal decoction might be the most effective intervention for VCIND. The combination of acupuncture and drug therapy had a tendency to perform better than monotherapy in terms of clinical outcomes.

1.1.8. Wang 2023

Wang YY, Wang XX, Chen L, Liu Y, Li YR. A systematic review and network meta-analysis comparing various non-pharmacological treatments for older people with mild cognitive impairment. Asian J Psychiatr. 2023 Aug;86:103635. https://doi.org/10.1016/j.ajp.2023.103635

Background and objective	Non-pharmacological therapy appeared to alleviate Mild Cognitive Impairment (MCI) symptoms and signs, according to systematic studies. This network meta-analysis aimed to assess the impact of non-pharmacological therapies on improving cognition in individuals with MCI and identified the most effective intervention.
Methods	We reviewed six databases in search of potentially relevant studies of non-pharmacological therapies such as Physical exercise (PE), Multidisciplinary intervention (MI), Musical therapy (MT), Cognitive training (CT), Cognitive stimulation (CS), Cognitive rehabilitation (CR)Art therapy (AT), general psychotherapy or interpersonal therapy (IPT), and Traditional Chinese Medicine (TCM) (such as **acupuncture therapy, massage, auricular-plaster and other related systems**) and others. Excluded the literature such as missing full text, missing search results, or no reporting specific values and combined with the inclusion criteria and exclusion criteria in this article, the literature ultimately included in the analysis addressed the following seven non-drug therapies PE, MI, MT, CT, CS, CR, AT. Mini-mental state evaluation paired meta-analyses were undertaken by taking weighted average mean differences with confidence intervals (CI) of 95%. The network meta-analysis was conducted to compare various therapies.
Results	A total of 39 randomized controlled trials, including two three-arm studies, with 3157 participants were included. PE was most likely to be the most effective intervention to slow down the cognitive ability of patients (SMD = 1.34, 95%CI: 0.80, 1.89). CS and CR had no significant effect on cognitive ability.

Conclusions	The non-pharmacological therapy had the potential to greatly promote the cognitive ability of the adult population with MCI. PE had the best chance of being the best non-pharmacological therapy. Due to the limited sample size, substantial variability among different study designs, and the potential for bias, the results should be regarded with caution. Our findings should be confirmed by future multi-center randomized controlled, high-quality large-scale studies.

1.1.9. Yin 2023

Yin Z, Li Y, Jiang C, Xia M, Chen Z, Zhang X, Zhao L, Liang F. Acupuncture for mild cognitive impairment: A systematic review with meta-analysis and trial sequential analysis. Front Neurol. 2023 Jan 6;13:1091125. https://doi.org/10.3389/fneur.2022.1091125

Background	There is insufficient evidence to support the use of acupuncture for mild cognitive impairment (MCI), and there is no consensus on its efficacy. This review aimed to determine the acupuncture effect in patients with MCI.
Methods	Relevant and potentially eligible randomized controlled trials (RCTs) of acupuncture for MCI were obtained from four Chinese databases, four English databases, and additional resources up to 1 August 2022. The primary outcome was the improvement in overall cognitive function (OCF). Secondary outcomes were improved memory function (MF) and activities of daily living (ADLs). The revised Cochrane collaboration risk of bias (ROB) assessment tool (ROB 2.0) was applied to evaluate their methodological quality. The Review Manager software v 5.4 was used for analyses. Trial sequential analysis (TSA) 0.9.5.10 β software was used to estimate the required sample size and test the reliability of the pooled outcome. The quality of evidence was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) tool.
Results	This meta-analysis included **11 RCTs** with a total of **602 patients**. The methodological quality of all trials was moderate. Low-quality evidence showed that acupuncture significantly improved OCF (Mini-Mental State Examination (MMSE): mean difference (MD) = 1.22, 95% confidence interval (CI): 0.78-1.66; the Montreal Cognitive Assessment Scale (MoCA): MD = 1.22, 95% CI: 0.47-1.97). In subgroup analyses, it was revealed that acupuncture significantly increased OCF in patients with MCI when compared to conventional medicine (CM) and sham acupuncture (SA). TSA's findings indicated that the evidence of improving OCF with acupuncture for patients with MCI was conclusive. Meanwhile, there is no statistical difference in the improvement of MF and ADL between acupuncture and CM. TSA showed that the evidence of improving MF and ADL for patients who had MCI and received acupuncture was inconclusive. The shreds of evidence of improving MF and ADL were ranked from low to critically low.
Conclusion	Acupuncture appears to be an effective clinical application method for improving OCF in patients with MCI. However, due to low-quality evidence, more relevant and high-quality research is needed in this field.

1.1.10. Su 2021 ☆

Su XT, Sun N, Zhang N, Wang LQ, Zou X, Li JL, Yang JW, Shi GX, Liu CZ. Effectiveness and Safety of Acupuncture for Vascular Cognitive Impairment: A Systematic Review and Meta-Analysis. Front Aging Neurosci. 2021. [221283]. https://doi.org/10.3389/fnagi.2021.692508

Background	Acupuncture may be a promising complementary therapy for vascular cognitive impairment (VCI) and has been extensively applied in China. However, its potential effects remain uncertain, and the clinical findings are inconsistent. This review aimed to systematically appraise the overall effectiveness and safety of acupuncture in treating VCI.

Methods	To investigate the effects of acupuncture on VCI from inception to February 28, 2021 using randomized clinical trials (RCTs), seven electro-databases [Cochrane Central Register of Controlled Trials (CENTRAL), PubMed, Embase, China National Knowledge Infrastructure (CNKI), Chinese Biomedical Literature Database (CBM), VIP, and Wanfang] were searched. Two independent investigators identified the eligible RCTs and extracted data into predesigned forms. The risk of bias (ROB) within each individual trial was evaluated using the Cochrane Collaboration's tool. Meta-analyses were conducted for calculating comparative effects in the RevMan software (version 5.3). The strength of attained evidence was rated using the online GRADEpro approach.
Results	A total of **48 RCTs involving 3,778 patients** with VCI were included. The pooled data demonstrated that acupuncture was more beneficial for a global cognitive function [mean difference (MD) 1.86, 95% CI 1.19-2.54, $p < 0.01$] and activities of daily living (MD -3.08, 95% CI -4.81 to -1.35, $p < 0.01$) compared with western medicine (WM). The favorable results were also observed when acupuncture was combined with WM (MD 2.37, 95% CI 1.6-3.14, $p < 0.01$) or usual care (UC, MD 4.4, 95% CI 1.61-7.19, $p = 0.002$) in comparison with the corresponding control conditions. Meanwhile, the subgroup analysis did not indicate a statistical effect difference between manual acupuncture (MA) and electroacupuncture (EA) (inter-group $I 2 < 50\%$ and $p > 0.1$) when comparing acupuncture with WM. There were no significant differences in the occurrence of adverse events (AEs) between the acupuncture group and the control group ($p > 0.05$). Owing to the poor methodological quality and considerable heterogeneity among studies, the certainty of the evidence was low or very low.
Conclusions	This review suggests that acupuncture as a monotherapy or an adjuvant therapy may play a positive role in improving the cognition and daily performance of VCI patients associated with few side effects. The difference in styles may not significantly influence its effectiveness. More rigorously designed and preregistered RCTs are highly desirable to verify the therapeutic benefits and determine an optimal acupuncture paradigm. The methodological and reporting quality of future researches should be enhanced by adhering to authoritative standardized statements.

1.1.11. Jiao 2020

Jiao Lan, Ji-fei Miao, Shu-qi Ge, Tie-qu Chai, … Li-ming Lu. Acupuncture for cognitive impairment in vascular dementia, Alzheimer's disease and mild cognitive impairment: A systematic review and meta-analysis. European Journal of Integrative Medicine. 2020;35. [212068]. doi

Introduction	Cognitive impairment is a worldwide health problem. Numerous studies have been conducted to evaluate the effect of acupuncture on cognitive impairment. However, it is still unclear that if acupuncture shows the same efficacy on cognitive impairment caused by different diseases. Therefore, we conducted a systematic review and meta-analysis based on the current evidence to evaluate the efficacy and safety of acupuncture for cognitive impairment in vascular dementia (VD), Alzheimer's disease (AD) and mild cognitive impairment (MCI) patients.
Methods	Five databases were searched from their inception to December 2019. Randomized controlled trials (RCTs) involving VD, AD or MCI treated by acupuncture alone or as part of combination therapy were included. The primary outcomes were the Mini-Mental State Examination and the Hierarchic Dementia Scale.

Results	**Twenty-one RCTs (N = 2253)** were quantitatively analyzed. For VD, compared with Western medicine (WM), acupuncture showed better Hierarchic Dementia Scale scores (P < 0.01), and acupuncture plus WM also showed better Hierarchic Dementia Scale scores (P < 0.01). For MCI, acupuncture showed a significant improvement in Mini-Mental State Examination (P < 0.01) and picture recognition test scores compared with WM. For AD, WM resulted in better Hierarchic Dementia Scale scores than acupuncture (P < 0.01). Eight trials reported adverse events, 15 out of 2253 patients had adverse events related to acupuncture treatment, and 25 out of 2253 patients had adverse events related to WM treatment.
Conclusion	Acupuncture may be efficacious for improving cognitive function in patients with VD and MCI. However, the evidence is limited, and larger sample size and more rigorous RCTs should be conducted to verify the effectiveness and safety of acupuncture.

1.1.12. Li 2020

Li W, Wang Q, Du S, Pu Y, Xu G. Acupuncture for mild cognitive impairment in elderly people: Systematic review and meta-analyses. Medicine (Baltimore). 2020;99(39). [212660]. doi

Background	Acupuncture has an unique role in preventing and managing mild cognitive impairment (MCI) in nonpharmaceutical therapies because of its small wound, mild pain, and high security for many years. However, there is no systematic review evaluating safety and efficacy of acupuncture for MCI in elderly people. Therefore, this study will provide a protocol to explore the effectiveness and safety of acupuncture for MCI in the elderly.
Methods	Retrieval from 8 electronic databases was conducted to determine eligible trials published until May, 2019. Homogeneity qualified studies were included for data were extracted such as study country location, demographic characteristics, and measure outcomes, and were analyzed by a random effect model and sensitivity analyses to identify heterogeneity. Review Manager (Revman Version 5.3) software will be used for data synthesis, sensitivity analysis, meta regression, subgroup analysis, and risk of bias assessment. A funnel plot will be developed to evaluate reporting bias.
Results	A total of **15 randomized control trials involving 1051 subjects were included**. The results were as follows: Compared with the control group, the clinical efficacy rates of acupuncture was better, odds ratio = 2.52, 95% confidence interval (CI) (1.86, 3.42), P < .00001, mini-mental state examination scores (mean difference [MD] = 1.53, 95% CI [1.04, 2.01], P < .00001), Montreal cognitive assessment scores (MD = 2.05, 95% CI [1.17, 1.92], P < .00001), activity of daily living scale (MD = 1.71, 95% CI [-1.38, 4.79], P > .05), and clock drawing task scores (MD = 1.91, 95% CI [1.74, 2.08], P < .00001).
Conclusion	This study shows that acupuncture is beneficial for improving aspects of cognitive function in elderly people with MCI, which suggests that acupuncture may be an effective alternative and complementary approach to existing therapies for elderly people. More rigorous experimental studies and longer follow-up studies should be conducted in the future.

1.1.13. Min 2019

Min Wook Kim, Jae Hee Yoo, Hong Je Go, Seon Woo Kim, Seung Won Jang, Hyun Jin Jeong, Jae Hong Kim. Systematic Review of Acupuncture Treatment for Mild Cognitive Impairment. Journal of Acupuncture Research. 2019;36(2):72. [197044].

Background	The aim of this study was to review clinical efficacy of acupuncture treatment of mild cognitive impairment.

Methods	Randomized controlled trials that performed acupuncture treatment for mild cognitive impairment were retrieved from 6 online databases (PubMed, Cochrane Library, EMBASE, CNKI, NDSL, OASIS) on September 30th, 2018. Studies were selected according to inclusion and exclusion criteria, and were reviewed by Risk of Bias assessment.
Results	In total, 21 studies were included in this review. All studies were Chinese (19 studies published in Chinese and 2 in English). The sample size, 50 to 100, and the number of treatment times, 20 to 30, were the largest range in all studies. The most treatments performed was 30. The longest treatment period was 56 days, which accounted for 33% of the studies. The most frequently used evaluation index was the Mini Mental State Examination followed by the Montreal Cognitive Assessment, each used 17 times and 15 times, respectively. The most frequently used acupoints were GV20, EX-HN1, GB20, and GV24, which accounted for 47% of total number of acupoints used. In 48% of the studies, needle retention time was 30 minutes. Western medicine treatment was the most common control group. Most studies reported that the intervention group was statistically significantly different to the control group.
Conclusions	These results suggest that acupuncture for mild cognitive impairment was effective. However, it is difficult to confirm this conclusion because the quality of most of these studies were of low quality.

1.1.14. Min 2016 (Vascular Cognitive Impairment) ☆

Min D, Xu-Feng W. An Updated Meta-Analysis of the Efficacy and Safety of Acupuncture Treatment for Vascular Cognitive Impairment Without Dementia. Curr Neurovasc Res. 2016;13(3):230-8. [164648].

Background	Vascular cognitive impairment with no dementia (VCIND) refers to a transitional state and will progress to dementia. Currently, effective medicines to control VCIND are surprisingly scarce. Acupuncture intervention is frequently advocated as an adjunct treatment for VCIND in recent studies.
Objective	So the aim of this meta-analysis was to assess the clinical efficacy and safety of acupuncture for VCIND.
Methods	The literature search was conducted in English and Chinese databases from inception until July 2015, and 15 study populations were included in the meta-analysis. Mean differences with their 95% confidence interval for continuous data were calculated with fixed effect model or random effect model using Rev Man 5.3 software.
Results	This review included 1148 subjects. The methodological qualities of the included studies were judged to be generally poor because plenty of trials had high or unclear risk of bias. The results of meta-analysis showed that acupuncture therapy was more effective in treating VCIND when compared with conventional therapy or pharmacological treatment. Two trials showed minor adverse events and two other trails mentioned no adverse events had existed.
Conclusions	Current evidences cautiously suggest that acupuncture therapy can improve the clinical efficacy for VCIND. More rigorously designed studies are needed to further confirm effectiveness and safety of acupuncture therapy in patients with VCIND.

1.1.15. Deng 2016 ☆

Deng M, Wang XF. Acupuncture for amnestic mild cognitive impairment: a meta-analysis of randomised controlled trials. Acupunct Med. 2016;34:342-348. [191715].

Objectives	Mild cognitive impairment (MCI) is a pre-dementia state; 5-10% of cases per year will evolve into dementia. MCI can be amnestic (AMCI) or non-amnestic. AMCI is associated with a higher risk of progression. In recent years, interest in acupuncture as a potential treatment for AMCI has grown. The aim of this meta-analysis was to estimate the clinical effectiveness and safety of acupuncture for AMCI.
Methods	Randomised controlled trials (RCTs) of acupuncture versus medical treatment for AMCI were identified using the following databases from inception to July 2015: PubMed; Medline; CENTRAL; Chinese Scientific Journal Database; The Chinese Acupuncture Trials Register; China National Knowledge Infrastructure (CNKI); and Wanfang database. Data were extracted from RCTs meeting the inclusive criteria according to Cochrane methods. Meta-analyses were conducted using Rev Man V.5.3 software.
Results	**Five trials involving 568 subjects** were included. Meta-analysis showed that participants receiving **acupuncture had better outcomes than those receiving nimodipine** with greater clinical efficacy rates (odds ratio (OR) 1.78, 95% CI 1.19 to 2.65; p<0.01), mini-mental state examination (MMSE) scores (mean difference (MD) 0.99, 95% CI 0.71 to 1.28; p<0.01), and picture recognition score (MD 2.12, 95% CI 1.48 to 2.75; p<0.01). Meta-analysis also showed **acupuncture in conjunction with nimodipine significantly improved MMSE scores** (MD 1.09, 95% CI 0.29 to 1.89; p<0.01) compared to nimodipine alone. Three trials reported adverse events. Methodological quality of the included studies was judged to be generally poor.
Conclusions	**Acupuncture appears effective for AMCI when used as an alternative or adjunctive treatment**; however, caution must be exercised given the low methodological quality of included trials. Further, more rigorously designed studies are needed.

1.1.16. Lu 2015 (Vascular Cognitive Impairment) ☆☆

Lu Jin-Hua, Tan Jie, Zhang Hong, Yuan Yi-Qin. [Meta-analysis of acupuncture clinical efficacies on ischemic type cognitive dysfunction]. Guiding Journal of Traditional Chinese Medicine and Pharmacy. 2015;20: 87-89. [186975].

Objectives	To analysis the clinical efficacies and the adverse reactions of acupuncture treatment on ischemic type cognitive dysfunction.
Methods	The paper studied the ischemic type cognitive dysfunction patients to compare the different therapeutic effect between acupuncture and western therapy in randomized controlled trials, and to evaluate the quality of the included studies with Rev Man 5. 3 Meta-analysis software.
Results	Acupuncture treatment of ischemic type cognitive dysfunc-tion is generally more effective than drug therapy, with summary OR=6. 12, 95%CI [4. 01, 9. 35]; In MMSE score improving respect, acupuncture treatment of ischemic type cognitive dysfunction is more effective than drug therapy, with summary MD=2. 21, 95% CI [1. 02, 3. 40]; In ADL score improving respect, acupuncture treatment is also more effective than drug therapy, with summary MD=3. 72, 95% CI [2. 80, 4. 63]. There was significant difference in Meta-analysis, and there was no significant ad-verse reactions found.
Conclusions	**Acupuncture treatment of ischemic type cognitive dysfunction is more effective than drug therapy** tendency, as shown in MMSE and ADL score improving respects, and the study still needs more high-quality re-searches in order to increase the strength of evidence.

1.1.17. Hu 2014 ☆☆

Hu Jun, Zhang Na, Wang Zhi-Xing, Liang Yun-Wu, Qian Qian. [Systematic review of acupuncture in

treating mild cognitive impairment]. Chinese Journal of Ethnomedicine and Ethnopharmacy. 2014;12:17-21. [186940].

Objectives	Based on the principle of evidence-based medicine, the therapeutic effect and safety of acupuncture treatment for the mild cognitive impairment are systematically assessed. The Conclusion of this text would guide to the clinical practice.
Methods	The 161 essays which are about acupuncture treatment for the MCI are indexed by the evidence-based medicine method. All the RCT of the essays above are estimated and 14 of them which are consistent with the internalize standard are taken into the Meta-analy-sis which are performed by the Review Manager 5. 0 statistical software. The sensitivity analyses and test for heterogeneity are taken at the same time. The publication bias are analysed by the funnel plot.
Results	**1052 patients in 14 RCT** consistent with the internalize standard are taken into the Meta-analysis, OR=2. 89, (95%CI, 2. 10~3. 97), test for overall effect Z=6. 51, P<0. 00001, in-dicating that there is statistical difference between the acupuncture group and the control group.
Conclusions	The **acupuncture treatment for the MCI is effective and safe**. However the conclusion is rather limited and it suggests that well-planned, large-scale and multi-ple-center, double-blinded, randomized controlled trials are required.

1.1.18. Zhou 2013 (Vascular Cognitive Impairment) ☆☆

Zhou Li, Zhang Yun-Ling ,Cao Hui-Juan,And Hu Hui. [Treating vascular mild cognitive impairment by acupuncture: a systematic review of randomized controlled trials]. Chinese Journal of Integrated Traditional and Western Medicine. 2013;33(12): 1626-30. [167901].

Objectives	To systematically evaluate the effect and safety of acupuncture in the treatment of vascular mild cognitive impairment(VMCI).
Methods	Recruited were China National Knowledge Infrastructure Database(CNKI)(1979 -2012),Chinese Science and Technology Periodical Database (VIP) (1989 -2012), Chinese Biomedical Database (CBM), Wanfang degree and conference papers database (1985-一2012)PubMed Database(1966-2012), and The Cochrane Library (issue 2012)□ The search date ended in February 2012. Randomized controlled trials (RCTs) by taking acupuncture as the main treatment for VMCI (nonvascular dementia) were collected. Results were measured using at least one internationally recognized evaluation cognitive scale. Two analysts selected the data independently. The assessment of methodological quality was based on the Cochrane Handbook and the data were analyzed by using RevMan 5. 1.0 Software. The mean difference (MD) or risk ratio (RR) were taken and graphed with 95% confidence interval (CI).
Results	Recruited **12 RCTS included a total of 691 cases** meeting the inclusion criteria (all of the methodological quality was of B level). Acupuncture combined other therapies was involved in 9 RCTs, with effect compared with that of other therapies. Results of meta-analysis showed, compared with the cognitive function training alone, electroacupuncture (MD 1. 59, 95% CI 0. 69 -2. 48, P = 0. 0005, 3 studies) or body acupuncture (MD 3. 26, 95%CI 1. 69 -4. 83, P <0. 01, 1 study) combined with the cognitive function training could significantly increase the mini-mental state examination (MMSE) score of patients. In comparison to Western medicine, acupuncture could elevate ADAS-Cog score (MD 2. 16, 95%CI 1.36 -2.95, P<0.01, 3 studies). Ln all the studies, adverse event had not been reported.
Conclusions	**Acupuncture in combination with other therapies could significantly improve cognitive functions. Acupuncture itself appeared to have better therapeutic effects than Western medicine alone.**

1.1.19. Cao 2013 Ø

Cao H, Wang Y, Chang D, Zhou L, Liu J. Acupuncture for vascular mild cognitive impairment: a systematic review of randomised controlled trials. Acupuncture in Medicine. 2013;31(4):368-74. [167262].

Background	Vascular mild cognitive impairment (VMCI) is the most common type of vascular cognitive impairment induced by cerebrovascular disease. No effective medicines are currently available for VMCI.
Objective	To assess the effectiveness and safety of acupuncture for VMCI.
Methods	Seven electronic databases were searched for randomised controlled trials which investigated the effects of acupuncture compared with no treatment, placebo or conventional therapies on cognitive function or other clinical outcomes in patients with VMCI. The quality of the trials selected was evaluated according to the 'risk of bias' assessment provided by the Cochrane Handbook for Systematic Reviews of Interventions. RevMan V.5.1 software was employed for data analysis.
Results	Twelve trials with 691 participants were included. The methodological quality of all included trials was unclear and/or they had a high risk of bias. Meta-analysis showed acupuncture in conjunction with other therapies could significantly improve Mini-Mental State Examination scores (mean difference 1.99, 95% CI 1.09 to 2.88, random model, p<0.0001, 6 trials). No included trials mentioned any adverse events of the treatment.
Conclusions	The current clinical evidence is not of sufficient quality for wider application of acupuncture to be recommended for the treatment of VMCI, and further large, rigorously designed trials are warranted.

1.1.20. Leung 2013

Leung MCP, Yip KK, Lam CT, Lam KS, Lau W, Yu WL, Leung AKM, So KF. Acupuncture improves cognitive function (A systematic review). Neural regeneration Research. 2013; (18):1673-84. [165336].

Background	Acupuncture has been used as a treatment for cognitive impairment.
Objective	This review assesses clinical evidence for or against acupuncture as a treatment for cognitive impairment. This review also discusses the proposed mechanism(s) that could link acupuncture to improved cognitive function.
Methods	We searched the literature using PolyUone search from its inception to January 2013, with full text available and language limited to English. Levels of evidence were examined using Oxford Centre for Evidence-based Medicine-Levels of Evidence (March, 2009).
Results	Twelve studies met the inclusion criteria: **3 human studies** and 9 animal studies. Levels of evidence ranged from level 1b to level 5.
Conclusion	Most animal studies demonstrated a positive effect of acupuncture on cognitive impairment. However, **the results of human studies were inconsistent**. Further high-quality human studies with greater statistical power are needed to determine the effectiveness of acupuncture and an optimal protocol.

1.2. Special outcome

1.2.1. Sleep disturbances

1.2.1.1. Xia 2026

Xia Y, Wang S, Luo Y, Moyle W, Vitiello MV, Yorke J. The effects of non-pharmacological interventions on sleep disturbances in people with subjective cognitive decline: A systematic review. Geriatr Nurs. 2026;70:104055. https://doi.org/10.1016/j.gerinurse.2026.104055

Background	Fifty to eighty percent of people aged over 60 have subjective cognitive decline, and more than half report sleep disturbances, which may accelerate their cognitive decline. Non-pharmacological interventions have been identified as the first-line treatment to improve sleep disturbances for people of any age. However, the effectiveness of non-pharmacological interventions among people with subjective cognitive decline varies, and there is a lack of systematic reviews synthesizing their effectiveness in improving sleep disturbances in this population.
Objective	This study aimed to identify, appraise, and synthesize the effects of non-pharmacological interventions for improving sleep disturbance among people with subjective cognitive decline.
Methods	Six databases (Medline, Web of Science, Scopus, PsycINFO, EMBASE, CINAHL) and relevant references of included studies were systematically searched. Two researchers screened the literature, extracted data, and independently assessed the quality of the studies. Version 2 of the Cochrane collaboration risk of bias tools for randomized controlled trials was used to assess the quality of studies.
Results	Seven studies were included in this review. Two studies reported small positive effect sizes for music and meditation interventions based on pre-post within-group comparisons. Another study combined the results of meditation and music and compared them with the usual care group, which reported no improvement in sleep disturbance. A fourth study reported a small positive effect of a brain photobiomodulation intervention, while a fifth reported that mobile-based multidomain interventions did not improve sleep disturbance. Finally, two studies reported **acupuncture** with medium to large positive effect sizes on improving sleep disturbance. Caution is necessary in interpreting the results, as all studies had methodological limitations and insufficient sample sizes.
Conclusion	A small number of studies with small sample sizes and methodological limitations support the limited effectiveness of non-pharmacological interventions to improve sleep disturbance in people self-reporting cognitive decline. More rigorous studies are needed to better characterize the impact of non-pharmacological interventions in this population.

1.3. Special Acupuncture Techniques

1.3.1. Acupuncture combined with physical therapies

1.3.1.1. Li 2021

Li RY, Huang RJ, Yu Q. Comparison of Different Physical Therapies Combined with Acupuncture for Poststroke Cognitive Impairment: a Network Meta-Analysis. Evid Based Complement Alternat Med. 2021 Nov 18;2021:1101101. https://doi.org/10.1155/2021/1101101

Objective	Physical therapy combined with acupuncture is the current research hotspot in the treatment of poststroke cognitive impairment, but which combination treatment is the best is still controversial. Based on the network meta-analysis method, we evaluated the efficacy of various physical therapies combined with acupuncture for the treatment of poststroke cognitive impairment.
Methods	We retrieved diverse randomized controlled trials of various physical therapies combined with acupuncture for the treatment of cognitive dysfunction after stroke. We selected studies, extracted data, and evaluated the risk of literature bias for the included randomized controlled trials. We used STATA 14.0 for the current network meta-analysis.
Results	**Fifteen randomized controlled trials involving 1288 patients** were included, which involved 7 treatment plans that included 3 control treatment plans and 4 acupuncture treatment plans combined with physical therapy. The best treatment plan for improving the Mini-Mental State Examination score of poststroke cognitive impairment is acupuncture combined with hyperbaric oxygen therapy. The best treatment option for improving the Montreal Cognitive Assessment score of poststroke cognitive impairment is acupuncture combined with hyperbaric oxygen therapy. The best option for improving the Barthel index score of poststroke cognitive impairment is acupuncture combined with transcranial magnetic stimulation. In terms of improving the overall clinical effectiveness of poststroke cognitive impairment, the best treatment option is acupuncture combined with transcranial magnetic stimulation.
Conclusion.	The analysis of all the results shows that acupuncture combined with hyperbaric oxygen therapy can significantly improve poststroke cognitive impairment compared with other combined treatments. However, due to the overall quality and quantity of the included studies, more randomized controlled trials focusing on clinical research on acupuncture combined with physical therapy for poststroke cognitive impairment are required to support the current evidence. This trial is registered with CRD42020200092.

1.3.2. Comparison of Acupuncture techniques

1.3.2.1. Dong 2026

Dong Z, Li P, Xu J, Wang S, Li Z, Yang N, Zhang Z, Wu X. Effect of traditional Chinese medicine non-pharmacological interventions on cognitive function in patients with mild cognitive impairment: a systematic review and network meta-analysis. Front Med (Lausanne). 2026;13:1799759. https://doi.org/10.3389/fmed.2026.1799759

Background	With the intensification of population aging, the incidence of mild cognitive impairment (MCI) continues to rise, and the risk of developing dementia is high, making it a global public health challenge. Traditional Chinese medicine non-pharmaceutical interventions (TCM-NPIs) is an important means of treating MCI. However, in clinical practice, there are various therapies, and there is no clear optimal plan yet. This study aims to evaluate the intervention effects of different TCM-NPIs on the cognitive function of MCI patients through network meta-analysis (NMA) and rank their effectiveness.
Methods	The system retrieved randomized controlled trials (RCTs) related to TCM-NPIs in the treatment of MCI from 7 databases, with the search time frame from database inception to December 26, 2025. Bayesian NMA was performed on the included articles using R 4.4.3 software.

Results	A total of **76 RCTs were included, involving 4,895 MCI patients** and 9 types of TCM-NPIs. The NMA results showed that in terms of improving the Mini-Mental State Examination (MMSE) score effect, physical and mental exercise (MBE), massage (TN), and acupoint catgut embedding (ACE) ranked the top three. Among them, MBE (MD = 2.18, 95% CrI: 0.86 to 3.55) had the best effect, with a SUCRA of 82.56%. Regarding improvements in Montreal Cognitive Assessment (MoCA) scores, TEAS, TN, and ACE ranked in the top three, with TEAS (MD = 3.31, 95% CrI: 1.87 to 4.75) showing the best effect and a SUCRA of 88.16%. Subgroup analysis and meta-regression indicated that intervention duration and the MCI population did not have a significant impact on cognitive outcomes. In the analysis of internal difference characteristics of intervention measures, the method of moxibustion had a moderating effect on MMSE scores ($p < 0.05$), with moxibustion devices showing better efficacy (MD = 1.42, 95% CI: 0.96 to 1.87). TCM-NPIs demonstrated high safety, with no serious adverse events observed.
Conclusion	Existing evidence suggests that different types of TCM-NPIs have varying therapeutic effects in improving cognitive function. Among them, MBE shows the most significant in the improvement of MMSE scores, and TEAS has the best effect in the improvement of MoCA scores.

1.3.2.2. Liao 2025

Liao YL, Hsu PS, Lee CT, Su LJ, Shen YY, Tsou A, Lan CC, Tzeng IS, Liu GT, Hsieh PC. Comparisons of acupuncture therapies combining conventional treatment in the management of vascular cognitive impairment: a systematic review and network meta-analysis. Front Aging Neurosci. 2025 Jun 16;17:1559388. https://doi.org/10.3389/fnagi.2025.1559388

Background	Vascular cognitive impairment (VCI) is the second most frequent form of cognitive disorder. It is mainly caused by a diseased cerebral vasculature and affects patients' cognition and activities of daily living (ADL). Previous studies have demonstrated that acupuncture therapy is a promising complementary treatment that significantly improves cognitive status and ADL in VCI patients. This study aimed to investigate the effects of different types of acupuncture therapies and conventional treatments on cognitive status and ADL in VCI patients to provide evidence-based clinical recommendations.
Methods	We searched seven electronic databases for randomized controlled trials comparing acupuncture therapies [including manual acupuncture (MA), scalp acupuncture (SA), electroacupuncture (EA), and auricular acupuncture (AA)] with conventional treatment [pharmacotherapy (P), cognitive rehabilitation (CR)] or standard care (SC) in patients with VCI. The primary outcome was cognitive improvement, while secondary outcomes included improvement in ADL and the risk of severe adverse effects. A frequentist random-effects network meta-analysis was performed under a consistency model. Study quality was assessed using the RoB 2.0 tool. Inconsistency was examined via node-splitting. Subgroup analysis, meta-regression, and sensitivity analysis were conducted to explore heterogeneity and assess robustness. Publication bias was evaluated using funnel plots and Egger's test.
Results	Through stepwise exclusion of studies contributing to publication bias and inconsistency, a robust bias-adjusted network meta-analysis dataset was established. The results showed that among all interventions, SA+P+SC demonstrated the greatest efficacy in improving cognitive status compared to SC (SMD: 2.04; 95% CI: 1.21–2.86) with substantial heterogeneity ($I^2 = 71.0\%$), no significant inconsistency, and relatively low publication bias ($p = 0.7020$).
Conclusion	Acupuncture, particularly SA combined with P and SC, appears to be a safe and effective adjunctive treatment for patients with VCI. Future studies are warranted to establish VCI-specific MCID thresholds and to validate these findings through large-scale, high-quality RCTs.

1.3.2.3. Yin 2025

Yin T. Dementia Care Research and Psychosocial Factors. Alzheimers Dement. 2025 Dec;21 Suppl 4:e099011. https://doi.org/10.1002/alz70858_099011

Background	Cognitive, exercise and Traditional Chinese Medicine (TCM) non-pharmacological therapies can be effective in patients with mild cognitive impairment (MCI). However, because of lack of resources, TCM non-pharmacological therapies are being used more frequently worldwide. We aimed to evaluate the comparative effectiveness of TCM non-pharmacological therapies in treating overall cognitive function in elderly people with MCI.
Methods	In this systematic review and network meta-analysis, we searched the Cochrane Central Register of Controlled Trials, PubMed, Web of Science, Embase, CNKI, Vip, Wanfang, and China Biomedical Literature from database inception to October 31, 2023, to identify published and unpublished randomised controlled trials. We included studies comparing TCM non-pharmacologic treatment or placebo as monotherapy for mild cognitive impairment. The primary outcome was overall cognitive function measured by any neuropsychological scale. Paired and network meta-analyses with random effects were used to estimate standardized mean differences and 95% confidence intervals.
Results	**Thirty-four trials comprising 2779 subjects** were included, evaluating nine interventions: hand acupuncture, electroacupuncture, warm acupuncture, moxibustion, medicated wire moxibustion, transcutaneous electrical stimulation of acupoints, acupuncture point burrowing, auricular acupoint therapy, and acupressure. Control groups included Western medication, sham acupuncture, and minimum-treatment groups. Probability ranking indicated electroacupuncture as the most effective intervention on the MMSE, followed by warm acupuncture and moxibustion and by moxibustion alone (electroacupuncture SMD 3.66, 95% CI [2.52,4.80]; warm acupuncture and moxibustion SMD 3.78, 95% CI [2.08,5.48]; moxibustion SMD 3.47, 95% CI [2.44,4.50]). On the MoCA scale, acupressure ranked highest, followed by transcutaneous electrical acupoint stimulation (acupressure SMD 5.03, 95% CI [3.36,6.70]; transcutaneous electrical acupoint stimulation SMD 3.68, 95% CI [2.26,5.10]).
Conclusion	Current evidence suggests that electroacupuncture and acupressure may be more advantageous among external TCM non-pharmacological therapies for mild cognitive impairment. However, data on long-term efficacy are lacking, and the findings should be interpreted cautiously in evidence-based clinical practice.

1.3.2.4. Yi 2024

Yi N, Xing D, Xie J, Cheng Z. Different acupuncture and moxibustion therapies for mild cognitive impairment: a network meta-analysis. Arch Gerontol Geriatr. 2024 May;120:105328. https://doi.org/10.1016/j.archger.2024.105328

Objective	To investigate the effectiveness of different acupuncture and moxibustion therapies in improving cognitive function in patients with mild cognitive impairment (MCI) to determine the optimal approach. This study aims to provide insights into the treatment of MCI patients for future randomized controlled trials (RCTs) and clinical decision-making.
Materials and methods	RCT studies were retrieved from databases including PubMed, Embase, Cochrane Library, Web of Science, CNKI, WANFANG, VIP, and SinoMed. The Cochrane risk of bias tool was used to assess the risk of bias for eligible trials. Bayesian network meta-analysis was conducted using R4.2.3 software.

Results	A total of **46 RCTs with 3641 participants** were included. The network meta-analysis showed that acupoint pressing + cognitive training + auricular point sticking, massage + western medicine treatment, and electroacupuncture + western medicine treatment ranked first, second, and third in improving MMSE score, respectively. Acupoint pressing + cognitive training, cognitive training + scalp acupuncture, and cognitive training + moxibustion ranked first, second, and third in improving MoCA score, respectively.
Conclusion	This study showed that acupoint pressing alone or acupoint pressing + auricular point sticking may improve cognitive function in MCI patients and possibly be the most effective acupuncture interventions for the treatment of MCI.

1.3.3. Electroacupuncture

1.3.3.1. Shen 2024

Shen M, Zhang L, Li C, Ma Y, Gao S, Ma Y. Meta-analysis with trial sequential analysis investigating the impact of adjunctive electroacupuncture therapy on vascular mild cognitive impairment. Transl Psychiatry. 2024 Aug 30;14(1):349. https://doi.org/10.1038/s41398-024-03052-1

Backgound	To systematically collect, evaluate, and synthesize evidence from randomized controlled trials (RCTs) supporting the use of electroacupuncture (EA) as an additional treatment option for Vascular mild cognitive impairment (VaMCI), a meta-analysis was carried out.
Methods	Electronic searches of eight databases were used to locate RCTs that evaluated EA as a VaMCI adjuvant therapy. The Cochrane Risk of bias was used to assess the included trials' methodological quality. Review Manager 5.4 was used to analyze the data. Trial sequential analysis (TSA) was conducted with the trial sequential analysis program.
Results	There were **15 RCTs with 1033 subjects** in them. Compared to conventional therapy (CT) alone, the Montreal Cognitive Assessment (SMD 0.72, 95 percent CI [0.55, 0.88]), Mini-mental State Examination (SMD 0.73, 95 percent CI [0.60, 0.87]), and activities of daily living (SMD 0.83, 95 percent CI [0.54, 1.12]) were significantly improved while EA was used in conjunction with CT. The current studies exceeded the required information size, according to trial sequential analysis (TSA), demonstrating the reliability of EA adjuvant therapy VaMCI.
Conclusions	According to the pooled data, EA as an adjunct therapy for the treatment of VaMCI increases clinical efficacy. Although the TSA confirms a stable conclusion, it is encouraged to conduct studies of the highest quality standards.

1.3.3.2. Kim 2019 ☆

Kim H, Kim HK, Kim SY, Kim YI, Yoo HR, Jung IC. Cognitive improvement effects of electro-acupuncture for the treatment of MCI compared with Western medications: a systematic review and Meta-analysis. BMC Complement Altern Med. 2019;19(1):13. [190023].

Background	Almost half of mild cognitive impairment (MCI) patients progress to dementia, which is associated with decreased quality of life and obstacles to independent living. Relevant management is expected to prevent MCI patients from progressing to dementia. In recent years, electroacupuncture (EA) has been used to treat various kinds of neurological disorders including MCI. This study evaluates the use of EA for MCI patients to increase cognitive function through a comparison with Western medications.

Methods	Randomized controlled trials (RCT) or systematical reviews (SR) of EA versus Western medications for MCI were searched using the following 10 databases: Pubmed, Cochrane Library, CINAHL, EMBASE, China National Knowledge Infrastructure (CNKI), National Digital Science Library (NDSL), Journal of Oriental Neuropsychiatry (JON), Korean Medical Database (KMBASE), KoreaMed, and OASIS, from October 2007 to August 2017, without language restriction. A methodological quality assessment of RCTs or SRs that met inclusion criteria was conducted using Cochrane Risk of bias (RoB) tool and a meta-analysis by RevMan (Review Manager) 5.3.5 version of Cochrane collaboration.
Results	**Five RCTs with 257 patients** met inclusion criteria and those were randomly divided into two groups: the EA group (n = 103) and Western medications group (n = 154). The methodological quality of the included studies showed high risk or/and unclear of risk of bias. The meta-analysis of five studies reported that the EA group was better than the Western medications group, improving the Mini Mental State Examination (MMSE) score by 0.65 [95% CI 0.28~1.01] higher mean difference, Montreal Cognitive Assessment (MoCA) score by 0.66 [95% CI 0.00~1.32] higher mean difference. Adverse effects were not reported in the selected studies.
Conclusion	Electroacupuncture was an effective treatment for MCI patients by improving cognitive function. However, the included studies presented a low methodological quality and no adverse effects were reported. Thus, further comprehensive studies with a design in depth are needed to derive significant results.

Scalp Acupuncture

1.3.4.1. Mai 2015

Mai Wei, Zheng Jinghui. [Clinical efficacy of scalp acupuncture on mild cognitive impairment: a meta-analysis study]. Journal of Liaoning College of Traditional Chinese Medicine. 2015;12:121-124. [187007].

Objectives	To evaluate the clinical efficacy and security of scalp acupuncture on mild cognitive impairment.
Methods	Randomized Controlled trials (RCTs)concerning scalp acupuncture on mild cognitive impairment were searched from Pub Med database, VIP database, CNKI database and Wangfang database and these studies were estimated according to the Cochrane collaboration system evaluation method and were given a statistical analysis with Rev Man 5. 3 software offered by the Cochrane collaboration.
Results	**Five studies about MCI treated by scalp acupuncture with a total of 565 patients met inclusion criteria**. The total effective rate [RR=1. 53, 95%CI (1. 25, 1. 89), P<0. 0001], effective rate [RR=14. 17, 95%CI (3. 44, 58. 44), P=0. 0002]and MMSE scores [MD=1. 33, 95%CI (0. 85, 1. 82), P<0. 00001] had a significant difference between the scalp eletroacupuncture group and the nimodipine group, which showed that scalp eletroacupuncture had a better effect on MCI than nimodipine. The total effective rate [RR=1. 18, 95%CI (0. 94, 1. 47), P=0. 16], effective rate [RR=1. 83, 95%CI (0. 72, 6. 64), P=0. 20]had no significant difference between the scalp acupuncture with cognitive training group and the cognitive training group, which showed that they had the same effect on MCI, while the MOCA scores [MD=2. 12, 95%CI (0. 78, 3. 47), P=0. 002]had a significant difference between the two groups which showed that scalp acupuncture with cognitive training had a better effect on MCI than cognitive training.
Conclusions	This meta-analysis suggests that **scalp acupuncture has a better therapeutic efficacy on MCI** and the results still need more rigorous design, large sample, mutlicentre randomized controlled to further verification.

1.3.5. Auricular Acupuncture

1.3.5.1. Shieu 2025

Shieu B, Cho YM, Wang M, Reid MC, Epps F, Li YL, Song L. Application of auricular therapy on individuals with cognitive impairment and dementia: A systematic review and meta-analysis. Adv Integr Med. 2025;12(3):100494. https://doi.org/10.1016/j.aimed.2025.100494

Background	Auricular point acupressure (APA) has been used to treat cancer-related pain, chronic lower back pain, headache, and dysmenorrhea and to improve anxiety and sleep quality. However, its application in populations with cognitive impairment and dementia is understudied. This systematic review and meta-analysis aim to summarize APA implementation in these populations, evaluate its effects on cognitive function and Activities of Daily Living (ADLs), provide evidence-based conclusions, and guide future research directions.
Methods	We followed the PRISMA guideline to comprehensively search seven electronic English and Chinese databases (PubMed, CINHAL, Scopus, Google Scholar, NCKI, Weipu, and Wangfang). Our search strategy utilized a combination of relevant keywords and MeSH terms related to the topic of interest. Two independent investigators screened the titles and abstracts of the retrieved articles, followed by full-text screening to identify eligible studies. Discussion and consultation with a third investigator resolved disagreements. We used a standardized form for data extraction, including study characteristics, intervention details, outcomes, and risk of bias assessment. The Mixed Methods Appraisal Tool evaluated the quality of evidence. Narrative synthesis and meta-analysis conducted data synthesis.
Results	Key findings include: (1) there is a universal APA treatment procedure, (2) most studies that used APA with an adjunct treatment showed positive results, (3) meta-analyses revealed significant improvements with APA treatment: MMSE scores (13 RCTs; SMD = 0.55, 95% CI: 0.13–0.97) and MoCA scores (10 RCTs; SMD = −1.03, 95% CI: −1.79 to −0.28). The high heterogeneity (I^2 = 88% for MMSE and 89.6% for MoCA) indicates substantial variability between studies in the magnitude of treatment effects, which may be attributed to differences in study populations, intervention protocols, and treatment durations across the included trials. While analysis of ADLs (4 RCTs) showed no significant between-group differences (SMD = 0.95, 95% CI: −1.27 to 3.16).
Conclusion	Our meta-analysis results demonstrate significant improvements in cognitive function with APA intervention, suggesting its potential as an effective nonpharmacological therapeutic approach in clinical practice. These findings emphasize the importance of studying APA's benefits for patients with cognitive impairment and dementia, opening new avenues for research. Healthcare professionals can leverage this understanding to provide patient-centered care, tailor treatments effectively, and enhance patient participation in their healing process.

1.3.5.2. Kwon 2018

Kwon CY , Lee B , Suh HW , Chung SY , Kim JW. Efficacy and Safety of Auricular Acupuncture for Cognitive Impairment and Dementia: A Systematic Review. Evid Based Complement Alternat Med. 2018. [168729].

Objectives	To analyze the efficacy and safety of auricular acupuncture (AA) in patients with cognitive impairment and dementia.

Methods	Twelve electronic databases were searched for randomized controlled trials evaluating effects of AA in patients with cognitive impairment and/or dementia, from their inception to August 2017. The primary outcome was cognitive function, and secondary outcomes were self-care ability, quality of life, clinical efficacy rate, and incidences of adverse events.
Results	**Nine studies** were included, and five involving 677 participants were analyzed quantitatively. Compared with Western medications (WM), AA had mixed effects on cognitive functions (Mini-Mental State Examination [MMSE], mean difference [MD] 0.73, 95% confidence interval [CI] -0.02 to 1.48; Hierarchic Dementia Scale [HDS], MD 2.21, 95% CI 1.09 to 3.33); there was no significant improvement in the activities of daily living (ADL) score (MD 0.20, 95% CI -3.51 to 3.91) in patients with vascular dementia (VD). Compared to WM, AA combined with WM showed better clinical efficacy rate (risk ratio [RR] 1.42, 95% CI 1.06 to 1.91) in patients with VD; there was no significant improvement in cognitive functions (MMSE, MD 0.97, 95% CI -0.44 to 2.38; Montreal Cognitive Assessment [MoCA], MD 0.22, 95% CI -1.83 to 2.27) in patients with mild cognitive impairment (MCI). Compared to herbal medicine (HM), AA plus HM showed significant improvements in cognitive function (MMSE, MD 1.31, 95% CI 0.13 to 2.49) in patients with MCI and patients with vascular cognitive impairment, no dementia (VCIND) and in ADL score (MD -6.70, 95% CI -8.78 to -4.62) in patients with MCI. No adverse event associated with AA was reported.
Conclusion	The evidence reveals mixed efficacy of AA in patients with cognitive impairment and/or dementia. However, the results were inconclusive because of the small number and poor methodological quality of the included studies.

1.3.6. Acupression

1.3.6.1. Liu 2018 ☆

Liu F, Shen C, Yao L, Li Z. Acupoint Massage for Managing Cognitive Alterations in Older Adults: A Systematic Review and Meta-Analysis. Journal of Alternative and Complementary Medicine. 2018;24(6):532-540. [166427].

Background	Cognitive disorders pose a major problem in the aging population across the globe. Acupoint massage has been used to improve cognitive functions in older adults. In this study, the authors performed a meta-analysis to evaluate the usefulness of acupoint massage in preventing cognitive declines in older adults.
Design	The authors searched for randomized controlled trials (RCTs) reporting on the effectiveness of acupoint massage on cognition in older adults in the following literature databases: PubMed, MEDLINE, Embase, CINAHL, ScienceDirect, Foreign Medical Journal Service, Cochrane Library, VIP Information, Chinese National Knowledge Infrastructure, WANFANG, and Chinese Biomedical. Two reviewers independently extracted the data related to the study and participants' characteristics and the cognitive impairment outcomes. Only RCTs meeting the inclusion criteria were used in the present meta-analysis.

Results	**Eight RCTs with 657 participants** in total (age ≥60 years) were included. It is actually 8 for synthetic and 6 in the meta-analysis. The authors calculated the pooled estimates of the random effects of changes in the Mini-Mental State Examination to compare the groups with and without acupoint massage. The merged mean difference (MD) was 1.94 (95% confidence interval, C.I., [1.41-2.47], $p < 0.00001$) after 3 months of acupoint massage treatment and 3.04 (95% C.I. [2.43-3.64], $p < 0.00001$) after 6 months of treatment. They also calculated the merged MD of the Wechsler Memory Scale-Revised Chinese version after 6 months of acupoint massage. Visual Reproduction was 2.95 (95% C.I. [1.30-4.60], $p = 0.0005$), Associate Learning was 1.89 (95% C.I. [1.41-2.37], $p < 0.00001$), Logical Memory was 2.85 (95% C.I. [2.06-3.63], $p < 0.00001$), and Digit Span was 3.16 (95% C.I. [2.59-3.73], $p < 0.00001$). The Cochrane Handbook for Systematic Reviews of Interventions was used to rate the quality of the studies, which was moderate overall.
Conclusion	The findings suggested that acupoint massage is an effective intervention for maintaining cognitive functions in older adults.

1.4. Special Clinical Forms

1.4.1. Elderly Patients

1.4.1.1. Xue 2023

Xue H, Li Y, Xu Z. A Systematic Review and Evaluation of Non-Pharmacological Interventions for Elderly Patients with Mild Cognitive Impairment. Altern Ther Health Med. 2023;29(7):74-79. https://pubmed.ncbi.nlm.nih.gov/37632951/

Objective	This study aims to comprehensively summarize and evaluate the impact of non-pharmacological interventions on mild cognitive impairment (MCI) in elderly individuals through a systematic review of pertinent literature. The interventions include acupuncture, massage, ear point pressing, acupoint moxibustion, dietary modifications, and exercise interventions.
Methods	A thorough literature search spanned 2017 to 2023 across databases like Zhichou, Wanfang, PubMed, CINAHL, Web of Science, and the Cochrane Library. It covered pharmacological and non-pharmacological interventions, emphasising MCI in elderly patients. Independent screening, evaluation, and data extraction were conducted and assessed via the AMSTAR 2 scale and GRADE approach. Outcome measures (e.g., MMSE, MoCA, ADL, CDT, overall efficacy) were analyzed.
Results	Three systematic evaluations were assessed using AMSTAR 2. Two were low quality, one moderate. Limited rigor in two studies led to considering only medium-quality papers for evidence grading. Key indicators in RCTs included MMSE (eight studies), MoCA (seven studies), ADL (two studies), CDT (two studies), and overall efficacy (12 studies). GRADE evaluation revealed moderate, high, and high evidence quality for intervention efficacy at one, two, and three months respectively. MMSE evidence was low, MoCA high, ADL very low, and CDT moderate. Adverse events were reported in one publication, suggesting acupuncture's potential pain and resistance.
Conclusions	Non-pharmacological interventions, like **acupuncture**, cognitive exercises, and exercise, show promise in mild cognitive impairment among the elderly. They enhance cognitive function and daily living while maintaining safety. Acupuncture notably improves MoCA scores, supported by robust evidence.

1.4.2. Parkinson disease

1.4.2.1. Hanyu 2025

Hanyu P, Wang A. The effectiveness and safety of acupuncture for the treatment of cognitive impairment from Parkinson disease: A meta-analysis and systematic review. Medicine (Baltimore). 2025 Apr 18;104(16):e42148. https://doi.org/10.1097/MD.0000000000042148

Background	This systematic review and meta-analysis examined the efficacy and safety of acupuncture for treating patients with cognitive impairment from Parkinson disease (PDCI).
Methods	We searched the China National Knowledge Infrastructure, Wanfang (WF), Weipu (VIP), China Biology Medicine, PubMed, Embase, Cochrane Library, Web of Science and Clinical Trials electronic databases from database inception to January 2024 to identify randomized controlled trials that examined the use of acupuncture to treat PDCI. Studies published in Chinese or English were considered eligible. Two independent reviewers performed the literature search. Data extracted from the included studies were analyzed via RevMan 5.4 software for Meta. The mean effect sizes and 95% confidence intervals were calculated.
Results	This meta-analysis ultimately included 9 articles involving a total of 629 patients. The outcome measures included the mini-mental state examination, the Montreal cognitive assessment (MoCA), and the overall effective rate. The meta-analysis revealed that there were significant differences in all 3 outcomes between the experimental and control groups.
Conclusions	Acupuncture can be used as an effective treatment for PDCI and is significantly superior to conventional treatments. However, considering the low methodological quality of the included studies, results of this meta-analysis should be interpreted with caution. In addition, due to the inconsistency observed in this study, more clinical trials are needed for further investigation.

1.4.3. Poststroke Cognitive Impairment

See corresponding item

1.4.4. Sleep Disturbance in Mild Cognitive Impairment

1.4.4.1. O'Caoimh 2019

O'Caoimh R, Mannion H, Sezgin D, O'Donovan MR, Liew A, Molloy DW. Non-pharmacological treatments for sleep disturbance in mild cognitive impairment and dementia: A systematic review and meta-analysis. Maturitas. 2019:82-94. [200466].

Background	No disease-modifying treatments for dementia are available. Sleep disturbance is strongly associated with cognitive impairment. Non-pharmacological treatments targeting sleep may offer an alternative therapeutic approach.
Methods	We searched PubMed, CINAHL, EMBASE and the Cochrane library for non-pharmacological treatments for sleep disturbance in mild cognitive impairment (MCI) and dementia, published in English from October 1965 to 2018, including all designs, excluding studies of drug therapies.

Results	In all, 53 papers representing 48 studies were included. Participant age ranged from 67.3 to 89.4 years. Most studies (79%) had small samples (<50 participants, range 1-173) and were conducted in long-term/residential care (62%). The majority (85%) recruited participants with moderate-severe dementia; mean MMSE scores ranged from 0 to 28.3/30. Four studies examined MCI. Light therapy delivered over 1-10 weeks was the most studied stand-alone intervention (n = 27), and the majority (81.5%) of these studies found improvements on objective or subjective sleep measures, though the evidence was inconclusive with significant clinical and methodological heterogeneity. Seven multi-modal intervention studies were identified, all incorporating light exposure, and six of these reported improved sleep. Other interventions included electrotherapy stimulation (n = 4), physical exercises/activities (n = 4), **acupressure/acupuncture (n = 3)** and mindfulness/cognitive behavioural therapy (n = 3). Those examining MCI utilised different mono-modal approaches. A meta-analysis of data from randomised controlled trials showed a statistically significant (mean difference = 3.44, 95% CI: 0.89-5.99, I2=0%; p = 0.008) improvement in sleep efficiency between interventions and controls, favouring the pooled interventions (bright light, multi-domain and other therapies). No other significant differences in sleep or non-sleep outcomes were found.
Conclusions	While evidence is available for non-pharmacological sleep interventions, particularly multi-domain approaches, studies were diverse and had small samples. More research examining multi-modal interventions, community-dwellers and those with MCI is required.

1.4.5. Cancer-related cognitive impairment

See corresponding item

1.5. Mechanistic systematic reviews

1.5.1. Wang 2026

Wang K, Shao B, Ye LF, Wen JZ, Chen Y, Fang C, Luo X. Effects of acupuncture on brain functional networks in patients with mild cognitive impairment and Alzheimer's disease: a systematic review and activation likelihood estimation meta-analysis of neuroimaging studies. Quant Imaging Med Surg. 2026 Jan 1;16(1):29. https://doi.org/10.21037/qims-2025-1047

Background	The increasing prevalence of Alzheimer's disease (AD) and mild cognitive impairment (MCI) presents a significant societal and familial burden. Acupuncture has shown promise in modulating brain function; however, systematic evidence on its effects on brain functional networks in individuals with AD and MCI remains limited. This study aimed to quantitatively synthesize neuroimaging findings using activation likelihood estimation (ALE) meta-analyses.
Methods	We systematically searched PubMed, PsycINFO, Google Scholar, SinoMed, and China National Knowledge Infrastructure (CNKI) for neuroimaging studies on acupuncture in AD and MCI. Activation coordinates were analyzed using GingerALE software. Separate ALE meta-analyses were conducted for AD and MCI with family-wise error (FWE) correction (P<0.05) and a cluster-forming threshold of P<0.001 (5,000 permutations), achieving >80% post hoc power. Contrast analyses used P<0.01, a minimum cluster size of 200 mm3 (10,000 permutations), and 95% confidence intervals from permutation distributions.

Results	**Thirteen studies (702 participants: 105 with AD, 312 with MCI, and 285 controls)** with 303 activation foci (153 increased and 150 decreased) were included in the analysis. In patients with AD, acupuncture enhanced activation in the right superior frontal gyrus (BA10), left cerebellar regions, and right inferior occipital gyrus (BA19), while reducing activation in the right middle frontal gyrus (BA6). In an individual with MCI, increased activation was found in the right superior and middle temporal gyri (BA38 and BA21), parahippocampal gyrus (BA28), bilateral posterior cerebellar lobes, and left superior parietal lobe (BA7), which was accompanied by decreased activity in the right superior frontal gyrus (BA6) and cerebellar regions. Combined analyses revealed convergent activation in the bilateral cerebellar tonsils, parahippocampal gyrus, right middle temporal gyrus, left superior parietal lobe, and right superior frontal gyrus, indicating shared modulatory effects across both disorders.
Conclusion	Acupuncture consistently activates the frontal, temporal, parietal, and cerebellar regions linked to cognitive and sensorimotor functions. Stronger effects in individuals with MCI suggest greater neuroplastic responsiveness. These findings provide quantitative evidence supporting acupuncture as a potential adjunctive therapy for cognitive impairment in neurodegenerative diseases.

1.5.2. Jiao 2025

Jiao X, Hu Y, Tian G. Systematic Review and Meta-Analysis of Acupuncture Treatment for Diabetic Cognitive Impairment: Focus on Animal Models. Brain Behav. 2025 Sep;15(9):e70783. https://doi.org/10.1002/brb3.70783

Background	Cognitive impairment is a frequent complication of diabetes, yet effective treatments remain elusive. In animal models, acupuncture has shown potential in improving cognitive deficits related to diabetes, but a comprehensive evaluation of its efficacy is lacking.
Methods	Materials and methods: We systematically searched seven databases (PubMed, Web of Science, Embase, OVID, SinoMed, CNKI, and Wanfang) from their inception through January 1, 2025. Studies meeting inclusion criteria underwent quality assessment using the SYRCLE Risk of Bias tool. Data analysis was conducted with Stata 14.0.
Results	Thirteen studies comprising 294 animals were included. Acupuncture significantly reduced blood glucose in diabetic models [SMD = -2.44, 95% CI (-3.33, -1.55); I2 = 88.9%, $p < 0.000$], shortened water maze escape latency [SMD = -2.35, 95% CI (-2.86, -1.84); I2 = 60.0%, $p = 0.003$], and increased target platform crossings [SMD = 1.49, 95% CI (1.10, 1.88); I2 = 51.9%, $p < 0.001$].
Conclusion	Acupuncture can improve cognitive impairment in diabetic animal models and lower their blood glucose levels.

1.5.3. Liu 2025

Liu C, Su Y, Yau YM, Lin H, Chen Y, Fang W, Xu N, Wu Z. Effect of acupuncture on cognitive impairment induced by sleep deprivation in animal models: a preclinical systematic review and meta-analysis. Front Aging Neurosci. 2025 Mar 19;17:1560032. https://doi.org/10.3389/fnagi.2025.1560032

Backgound	Sleep deprivation (SD) has been associated with cognitive deficits, mediated by mechanisms such as neuroinflammation and oxidative stress. Acupuncture, a core component of traditional Chinese medicine, has shown promise in mitigating SD-induced cognitive impairment. However, the effectiveness and underlying mechanisms of acupuncture need further validation through high-quality evidence. This study aims to evaluate the therapeutic effects and molecular mechanisms of acupuncture on cognitive impairment resulting from SD by conducting a systematic review and meta-analysis.
Methods	This study comprehensively searched eight databases for randomized controlled trials (RCTs) that examine the effects of acupuncture on SD-induced cognitive impairment. Primary outcomes were assessed using the Morris Water Maze (MWM), including measures of escape latency and time spent in the target quadrant. Secondary outcomes focused on molecular markers such as brain-derived neurotrophic factor (BDNF), tropomyosin receptor kinase B (TrkB), and indicators of oxidative stress. The risk of bias was evaluated using the SYRCLE tool, and data were analyzed using R software. Standardized mean differences (MD) and 95% confidence intervals (CIs) were calculated.
Results	**Eight RCTs involving 222 rodents were analyzed**. The findings indicate that acupuncture significantly improves cognitive performance in SD models, evidenced by increased platform crossings [MD = 1.67, 95% CI (1.42, 1.91)] and extended time in the target quadrant [MD = 8.54, 95% CI (6.35, 10.73)], along with reduced escape latency [MD = -8.33, 95% CI (-11.68, -4.99)]. Electroacupuncture (EA) was found to regulate the expression of BDNF and its receptor, TrkB, and to decrease oxidative stress markers such as malondialdehyde (MDA) while enhancing antioxidant activities, including those of superoxide dismutase (SOD). Manual acupuncture (MA) influenced apoptosis markers by decreasing Bax and increasing Bcl-2 expression. Despite these positive findings, the studies exhibited heterogeneity in intervention methods and variability in acupuncture techniques.
Conclusion	This study preliminarily confirms that acupuncture, specifically electroacupuncture, and manual acupuncture, can effectively alleviate cognitive impairment caused by sleep deprivation. The benefits are observed through modulation of BDNF-TrkB signaling, reduction in oxidative stress, and regulation of apoptosis. Although the current evidence is derived from animal studies, it suggests potential applications in human clinical trials to explore the viability of acupuncture for treating cognitive impairment related to SD.

2. Overviews of Systematic Reviews

2.1. Han 2022

Han FH, Sun LJ, Zhang YL, Zeng ZX, Shen W, Zhan M, Wang Y, Shi JZ, Zeng XY, Lu XY, Liao X. [Overview of systematic reviews of acupuncture for vascular cognitive impairment]. Zhongguo Zhen Jiu. 2022 Jan 12;42(1):109-15. https://doi.org/10.13703/j.0255-2930.20210207-0002

Objective	To overview the methodological quality, report quality and evidence quality of the systematic review (SR) of acupuncture for vascular cognitive impairment (VCI).
Methods	The SRs regarding acupuncture for VCI were searched in PubMed, Cochrane Library, EMbase, CNKI, SinoMed, Wanfang and VIP databases. The retrieval period was from the establishment of the database to September 24, 2020. The report quality, methodological quality and evidence quality of the included SRs were evaluated by PRISMA statement, the AMSTAR 2 tool and the GRADE system.

Results	A total of **22 SRs** were included, including **102 outcome indexes**. The methodological quality was generally low, with low scores on items 2, 5, 7, 10, 14, 15 and 16. The report quality was good, with scores ranging from 19 points to 24.5 points. The problems of report quality were mainly reflected in the aspects of structural abstract, program and registration, other analysis and funding sources. The level of outcome indexes of SRs was mostly low or very low, and the main leading factor was limitation, followed by inconsistency and inaccuracy.
Conclusion	Acupuncture for VCI is supported by low quality evidence of evidence-based medicine, but the methodological quality and evidence body quality of the relevant systematic reviews are poor, and the standardization still needs to be improved.

2.2. He 2021

He W, Li M, Han X, Zhang W. Acupuncture for Mild Cognitive Impairment and Dementia: An Overview of Systematic Reviews. Front Aging Neurosci. 2021. [211503]. doi

Background	Dementia is a gradual decline in cognitive ability and is becoming more common in our elderly population. Mild cognitive impairment (MCI) is defined as a slight clinical deterioration of memory capacity, below the level of normal aging, but does not constitute a clinical diagnosis of dementia. To date, no interventions have been proven to cure MCI and dementia fully. Purpose: To evaluate the potential effectiveness and safety of acupuncture for mild cognitive impairment (MCI) and dementia and evaluate the methodological quality of systematic reviews (SRs).
Methods	We conducted a literature search for SRs with meta-analyses in seven Chinese and international databases through October 1, 2020. The basic characteristics of the included SRs/meta-analyses and the basic information of the original included randomized controlled trials were extracted by three reviewers independently. A meta-analysis of the original randomized controlled trials from the included SRs/meta-analyses was performed using Stata 12.0 software. The Assessing the Methodological Quality of Systematic Reviews 2 was used to assess the methodological quality of the included SRs/meta-analyses, and the Grading of Recommendations, Assessment, Development, and Evaluation was used to rate the quality of evidence.
Results	A total of **35 SRs/meta-analyses** were included, and the majority showed that acupuncture was more effective than western medicine or conventional therapy for MCI and dementia [odds ratio =1.39; 95% confidence interval (CI): 1.24, 1.56]. There was a statistically significant difference in the Mini-Mental State Examination score (weighted mean difference = 1.23; 95% CI: 0.78, 1.68; $p < 0.00001$), and there was no significant improvement in the activities of daily living score (weighted mean difference = 1.58; 95% CI: -0.02, 3.18; $p = 0.053$). The assessment results of Assessing the Methodological Quality of Systematic Reviews 2 showed that the methodological quality of most included SRs/meta-analyses was critically low; the lowest scores were items 2, 7, and 10. For Grading of Recommendations, Assessment, Development, and Evaluation, of the 73 outcomes, 50 (68.5%) outcomes were low or very low quality, and 23 (31.5%) outcomes were moderate quality.
Conclusions	Acupuncture can be considered as an alternative for the treatment of MCI and dementia when western medicine or other therapies are contraindicated. More high-quality evidence is needed to determine further the effectiveness of acupuncture.

2.3. Hou 2020 (Methodology and Reporting Quality)

Hou T, Zheng Q, Feng X, Wang L, Liu Y, Li Y. Methodology and Reporting Quality Evaluation of Acupuncture for Mild Cognitive Impairment: An Overview of Systematic Reviews. Evid Based Complement Alternat Med. 2020. [211866]. doi

Objective	Since there is no consistent evidence on the effectiveness of acupuncture in the treatment of mild cognitive impairment, this review aims to summarize and critically evaluate the methodological and reporting quality of systematic reviews (SRs).
Methods	We comprehensively searched PubMed, Embase, Cochrane Library, Web of Science, China National Knowledge Infrastructure (CNKI), China Science and Technology Journal Database (VIP), Chinese Biomedical Literature (CBM), and Wanfang databases from the date of establishment to April 2019. Two authors independently selected the articles, collected the data, and assessed the identified and included SRs with the revised measurement tool to assess systematic reviews (AMSTAR 2) and preferred reporting items for SRs and meta-analyses (PRISMA). The quality of outcomes was evaluated by the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE).
Results	Eleven SRs were included in this overview. The items of AMSTAR 2 in most SRs were poorly reported; only 3 SRs were rated as low quality by AMSTAR 2, and the remaining were rated as very low quality. A total of 8 SRs obtained a decent rating by PRISMA. With the GRADE tool, we have not found high-quality evidence that acupuncture is effective for mild cognitive impairment (MCI), so there is no certain conclusion on the effectiveness of acupuncture treatment for MCI.
Conclusion	The methodological and reporting quality of SRs on acupuncture for MCI is substandard, and the quality of evidence is poor. In future research, more efforts are needed to improve the quality of SRs in this field.

3. Clinical Practice Guidelines

⊕ positive recommendation (regardless of the level of evidence reported)
Ø negative recommendation (or lack of evidence)

3.1. Istituto Superiore di Sanità (ISS, Italy) 2024 Ø

Fabrizi E, Ancidoni A, Locuratolo N, Piscopo P, Della Gatta F, Salemme S, Pani SM, Marconi D, Vignatelli L, Sagliocca L, Caffarra P, Secreto P, Guaita A, Stracciari A, Vanacore N, Lacorte E; Guideline Working Group. The Italian guideline on diagnosis and treatment of dementia and mild cognitive impairment. Age Ageing. 2024 Nov 1;53(11):afae250.
https://doi.org/10.1093/ageing/afae250
https://www.demenze.it/documenti/schede/the_italian_guideline_on_the_diagnosis_and_treatment_of_dementia_and_mci.pdf

100- Do not offer acupuncture to treat cognitive symptoms in dementia. Strong against
118- Do not consider acupuncture to treat cognitive symptoms in people with Mild Cognitive Impairment.