

Evaluation of the Effects of Non-Pharmacological Interventions on Mild Cognitive Impairment in the Elderly: A Network Meta-Analysis

INPLASY202480024

doi: 10.37766/inplasy2024.8.0024

Received: 05 August 2024

Published: 05 August 2024

Zhang, HL; Yao, Y.

Corresponding author:

Huiling Zhang

1101090886@qq.com

Author Affiliation:

Anhui University of Chinese Medicine.

ADMINISTRATIVE INFORMATION

Support - This work was supported by Anhui Provincial Higher Education Institution Key Project of Natural Science Research No.2023AH050774; Anhui Provincial Higher Education Quality Engineering Project: 2023jyxm0354.

Review Stage at time of this submission - Risk of bias assessment.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202480024

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 05 August 2024 and was last updated on 05 August 2024.

INTRODUCTION

Review question / Objective A systematically review the current clinical evidence of Non-pharmaceutical intervention for elderly people with mild cognitive impairment by network meta-analysis.

Condition being studied With the global aging population, the prevalence of Mild Cognitive Impairment (MCI) is increasing annually, necessitating effective interventions to delay its progression to dementia. Non-pharmacological therapies have been widely applied in the treatment of MCI. However, due to insufficient evidence, it remains unclear which strategy is most effective for treating MCI.

METHODS

Participant or population Individuals with mild cognitive impairment (MCI) were included,

regardless of gender, age, race, and duration of the disease.

Intervention The treatment group received non-drug therapies, which could include cognitive training, cognitive rehabilitation, cognitive stimulation, and physical stimulation such as computer-based cognitive training and non-invasive brain stimulation techniques, either as single or combined interventions.

Comparator The control group received conventional care, a placebo, or no.

Study designs to be included Only randomized controlled trials (RCTs) were included to evaluate the efficacy of non-drug therapies in treating cognitive dysfunction.

Eligibility criteria Exclusion criteria Studies that met the following criteria were excluded:

(I) Duplicated literature;
(II) Non-randomized studies;
(III) Studies that were not published in either Chinese or English.

Information sources We searched six electronic databases, including PubMed, Embase, Chinese Biomedical Literature Database (CBM), Chinese Science Journal Database (VIP), Cochrane Library, China National Knowledge Infrastructure (CNKI), and Wanfang Database, from their inception to August 2024.

Main outcome(s) The primary outcomes included the Mini-Mental State Examination (MMSE), Montreal Cognitive Assessment (MoCA), and Activities of Daily Living (ADL).

Data management Review Manager 5.4 software was used for literature quality evaluation. The data synthesis and statistical analysis were conducted using Stata 15.0 software.

Quality assessment / Risk of bias analysis The assessment showed that most of the studies did not provide sufficient information on random sequence generation, allocation concealment, blinding of participants and personnel, and blinding of outcome assessment, which resulted in unclear or high risk of bias in these domains. In terms of incomplete outcome data and selective reporting, the risk of bias was generally low or unclear. There was no evidence of other bias in the included studies.

Strategy of data synthesis We compared Cognitive training, cognitive stimulation, cognitive rehabilitation, technology-assisted interventions (including computer-based interventions and transcranial direct current stimulation), and physical interventions. For continuous outcomes, we calculated the weighted mean difference (WMD).

When the closed ring appears, the node splitting method is used to test the inconsistency and convergence. In addition, MD and CI were transformed into the surface under the cumulative ranking curves (SUCRA) and league figures by STATA to visualise the comparisons. We ranked the therapeutic effects of interventions by calculating SUCRA values to evaluate the absolute efficacy of different interventions based on the mesh meta-analysis.

Subgroup analysis Subgroup analysis was performed according to intervention time.

Sensitivity analysis We used a funnel plot to analyze the small sample effect and publication bias of included studies.

Country(ies) involved China, Anhui University of Chinese Medicine.

Keywords Mild Cognitive Impairment, Elderly, Non-Pharmacological Interventions; meta-analysis.

Contributions of each author

Author 1 - HuiLing zhang.
Email: 1101090886@qq.com
Author 2 - Yao Yao.
Email: 278442021@qq.com