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ADMINISTRATIVE INFORMATION

Support - Not applicable.

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202560084

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 June 2025 and was last updated on 19 June 2025.

INTRODUCTION

Review question / Objective Patient: Dementia. Intervention: Horticultural therapy. Comparison: treatment as usual or other non-drug intervention. Outcomes: Behavioral and psychological symptoms of dementia (BPSD), physical function and care-giver burden. Study: Randomized controlled study and controlled group study.

Condition being studied Neurocognitive disorders, as known as dementia.

METHODS

Participant or population Patients with dementia.

Intervention Horticultural therapy including participatory horticultural activities, observational horticultural activities, or both.

Comparator Standard care or other nonpharmacological interventions.

Study designs to be included Randomized controlled trials and controlled clinical trials.

Eligibility criteria The inclusion criteria for this study were as follows:

- (1) Peer-reviewed articles that employed a randomized controlled trial (RCT) or controlled clinical trial design;
 - (2) Participants diagnosed with dementia based on DSM-5, ICD-10, other recognized diagnostic criteria, or by a psychiatrist or neurologist;
 - (3) Application of horticultural therapy as the primary intervention;
 - (4) Studies assessing BPSD, physical function, cognitive function, or caregiver burden.
- The exclusion criteria for this study were:
- (1) Studies in which aromatherapy, animal-assisted therapy, forest bathing, or forest therapy was the primary intervention;

(2) Conference proceedings or degree dissertations.

Information sources We performed systematic review in the following database: PubMed, Embase, CINAHL, Cochrane Library, and Chinese databases such as CEPS, CNKI and Wanfang databases. The search was conducted up to June 2025. Manual search of of reference list among included studies was also conducted.

Main outcome(s) The primary outcome is behavioral and psychological symptoms in dementia.

Additional outcome(s) Physical function in dementia and the care-giver burden of individuals with dementia.

Quality assessment / Risk of bias analysis

(1)Cochrane risk of bias tool 2.0 (ROB 2.0) for randomized controlled trial.

(2)Risk of Bias In Non-randomized Studies of Interventions (ROBINS-I) for controlled clinical trials.

Strategy of data synthesis We assessed the pre-post changes of the outcomes. We calculated Hedge's g and 95% confidence interval.

Subgroup analysis Subgroup analysis was performed based on the study design. Meta-regression was performed based on participant characteristics, such as age, gender ratio, as well as intervention characteristics, such as weekly duration, treatment length.

Sensitivity analysis The one-study removed method was applied to the examine the robustness of the results.

Country(ies) involved Taiwan.

Keywords dementia, horticultural therapy, BPSD, physical function, care-giver burden.

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