Dementia module - evidence profile DEM3: Non-pharmacological interventions for people living with dementia

WHO mhGAP guideline update: Mental Health Gap Action Programme (mhGAP) guideline for mental, neurological and substance use disorders

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World Health Organization

Contents

Mental Health Gap Action Programme (mhGAP) guideline for mental, neurological and substance use disorders, available at: https://www.who.int/publications/i/item/9789240084278

1. Background

Dementia is a progressive neurodegenerative condition that affects individuals' cognition, behaviour, and psychological, physical, and social functions. Dementia is the seventh leading cause of death worldwide and a leading cause of disability and dependency in older adults. Currently 55 million people live with dementia worldwide and without a viable cure this is expected to rise to 139 million people by 2050 (WHO, 2021).

While the prognosis and overall trajectory of the condition vary, most people with dementia experience at least one symptom of dementia that can impact their safety and quality of life and eventually necessitate the need for specialized, long-term care. The chronic nature of dementia as well as behaviours and psychological symptoms associated with dementia contribute great burden to those directly affected by dementia and their families.

In the last twenty years, a great deal of research has been published on the effectiveness of non-pharmacological interventions on preventing, slowing down the progression and severity of symptoms of dementia. Whilst quality and strength of evidence differ a great deal, non-pharmacological interventions are recommended as the first line approach to managing the symptoms of dementia and improve well-being and quality of life of people living with dementia. Such interventions have been deemed to be critical and important in improving individuals' cognitive functioning, behaviours and psychological symptoms of dementia, and well-being/quality of life, and daily function, all of which may also play a role in improving well-being of the carer.

Following a preliminary review of research studies using Medline (2019-2021) in December 2022, the review team and the World Health Organization (WHO) methodology team agreed that a systematic review of existing relevant, up to date, high-quality systematic reviews would be deemed to provide sufficient evidence for this update of mhGAP guideline recommendations for carers of people living with dementia. The aim of this review was to identify current evidence on the effectiveness of non-pharmacological interventions for people with dementia in improving outcomes.

2. Methodology

The process for evidence retrieval and synthesis is based on Chapter 8 of the WHO handbook for guideline development *https://apps.who.int/iris/handle/10665/145714*. A summary of the process is also available in the process note in Appendix I: mhGAP process note.

2.1. Question

For people with dementia, are psychosocial interventions effective in improving their outcomes?

Population (P): People living with dementia.
Intervention (I): Non-pharmacological interventions such as cognitive stimulation, cognitive rehabilitation, cognitive training, reality orientation, reminiscence therapy, cognitive behavioural therapy, behavioural activation, interpersonal therapy, counselling, assistive technology, musicotherapy, art\gardening therapy, physical activity, dance, animal assisted therapy, personally tailored activity, exercise
Comparator (C): Placebo, usual care, or comparator
Outcomes (O):
List critical outcomes:

- Critical outcome 1 cognitive functioning.
- Critical outcome 2: behaviours and psychological symptoms of dementia (BPSD).

List important outcomes:

- Important outcome 1: everyday function (activities of daily living [ADLs]/ Instrumental Activities of Daily Living [IADLs]).
- Important outcome 2: quality of life.
- Important outcome 3: self-efficacy.

- Important outcome 4: falls.
- Important outcome 5: hospital/aged care home admission.

Subgroups: N/A

2.2. Search strategy

We searched the following databases: Medline, EMBASE, PsycInfo, Cumulative Index to Nursing and Allied Health Literature (CINAHIL), Scopus, African Index Medicus, Index Medicus for the Eastern Mediterranean Region, Index Medicus for the South-East Asian Region, Latin American and Caribbean Health Sciences Literature, and Western Pacific Region Index Medicus, EPISTEMONIKOS (https://www.epistemonikos.org)

Repositories of systematic reviews protocols were also searched e.g. International prospective register of systematic reviews (PROSPERO), Open Science Framework (OSF), and Cochrane to identify additional systematic reviews.

Searches were limited to title, abstract, keywords, and subject headings. Wildcards (*) were used to accommodate variations of American/British English.

Terms/concepts used included, but not limited to, the following: (dementia OR Alzheimer) AND (cognitive interventions OR cognitive stimulation OR cognitive rehabilitation OR reality orientation OR reminiscence therapy OR Psychosocial interventions OR cognitive behavio* therapy OR multisensory treatment OR communication treatment OR sleep treatments OR meditation OR behavio* activation OR interpersonal therapy OR counsel* OR environmental interventions OR assistive technology OR music therapy OR art\gardening therapy OR physical activity OR dance OR exercise).

For dementia related search terms, where applicable, we used MeSH (exp) which included all types of dementia. Where MeSH was not applicable, we used dementia and Alzheimer's disease. Where applicable, we combined MeSH and non-MeSH terms for all search terms.

Selection criteria applied to search terms were based on:

- *Type of studies:* Primarily systematic reviews and/with meta-analysis. We excluded meta/umbrella/systematic overview of systematic reviews, narrative reviews, qualitative reviews, realist reviews, scoping reviews, and protocols.
- *Types of participants:* People with dementia (Mild Cognitive Impairment [MCI] was not the focus but if a review had distinctive groups of people with dementia and people with MCI, it was included).
- *Types of interventions: all non-pharmacological interventions for carers.* See PICOS (the interventions were not exhaustive lists and other interventions not included in PICOS were considered if they were non-pharmacological interventions for people living with dementia.
- *Types of outcome measures:* all primary and secondary outcomes were considered in the selection of studies. However, they were not used for initial search processes. See PICOS.
- *Published language of study*: No language limit.
- *Date range*: Last 3 years (January 2019 – January 2022).

See Appendix II for search terms and results of each bibliographic database, and repository of systematic reviews.

It was deemed appropriate to include more than one systematic review for the same PICO, as different reviews may match different outcomes of a PICO. However, when more than one systematic review was

available for the same PICO outcome, one review was selected, based on quality, relevance, search comprehensiveness and date of last update.
The preference was given to reviews of highest quality (High and Moderate based on (A MeaSurement Tool to Assess systematic Reviews-II) [AMSTAR-II] rating) which might need to be supplemented with additional material, should other reviews provide more comprehensive or up to date information. For example, nine additional papers were added with Low rating of AMSTAR-II as they offered evidence on interventions that were not included in other reviews. Two reviews (Saragih et al. 2022; Cafferata et al. 2021) of the same intervention (cognitive stimulation therapy) were included in this DEM3 review as they reported difference outcomes. The selection process was transparently reported, with justification of choices.

2.3. Data collection and analysis

As the first stage in selecting relevant studies, records retrieved from the bibliographic databases and from other sources (such as snowballing and expert recommendations) were recorded and assessed for eligibility by examining their titles and abstracts only using COVIDENCE by two researchers independently. This assessment was performed in accordance with the inclusion and exclusion criteria developed above. The full text of articles found to be potentially relevant on the basis of their titles and abstracts were then retrieved and examined in light of the eligibility criteria in the second stage of study selection. Data from eligible studies were extracted into pre-defined templates that generally included the characteristics of the study design and of the population, intervention, comparator, and outcomes.

To ensure accuracy, two people independently assessed the eligibility of the studies identified and extracted data from study reports. Any inconsistencies between the two researchers were discussed as a team and consensus was reached. The lead researcher provided guidance throughout and acted as a final decision maker if consensus could not be reached.

The search strategy and results were carefully documented. This involved reporting the databases searched, the strategy used to search each database, the total number of citations retrieved from each database, and the reasons for having excluded some publications after reviewing the full text.

The flow of articles throughout the search and up to the final cohort of included studies were depicted with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram, which included the number of excluded articles and the reasons for any exclusions at the full-text screening stage.

2.4. Selection and coding of identified records

We used COVIDENCE and EndNote X.9.3.3 to organize all searched papers and remove duplicates the records obtained from the searches, with search outputs for each database before duplications are removed. A copy of the reference library in electronic format (without attached pdfs of included publications) is supplied alongside the final report.

2.5. Quality assessment

The AMSTAR-II[1] was used to assess the quality of included systematic reviews. This assessment was carried out by the two researchers independently and consensus was reached after discussion of any discrepancies found between the researchers. The lead researcher provided guidance throughout. See a supplementary file containing all AMSTAR rated studies, containing two researchers' rating and final decision.

2.6. Analysis of subgroups or subsets

Data synthesis was carried out based on 14 identified interventions:

- Animal-assisted therapy (AAT)
- Personally tailored activities
- Dance-based interventions
- Cognitive training
- Cognitive stimulation therapy
- Music therapy
- Physical activity (PA)
- Assistive technology (AT)
- Mindfulness-based intervention
- Psycho-behavioural educative interventions, multimodal intervention, or art therapy
- Cognitive behavioural therapy or supportive and counselling interventions
- Horticultural therapy compared to no horticultural therapy (usual care)
- Reminiscence therapy
- Aroma therapy

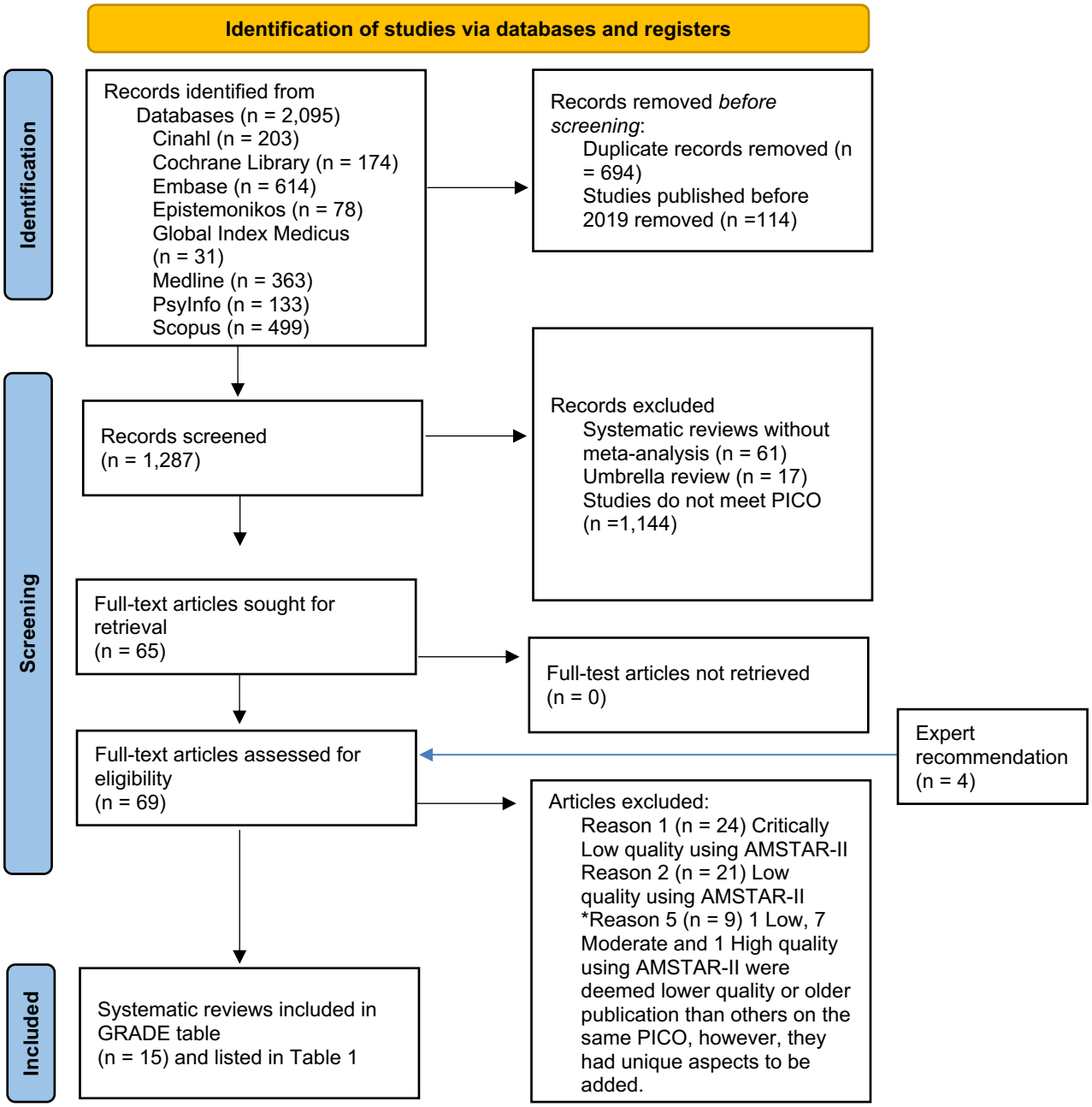
We considered the subgroups or subsets (different intervention / comparison groups), that were available in the included meta-analyses.
We included a narrative description of the reviews included in the the Grading of Recommendations, Assessment, Development and Evaluations (GRADE) table. This section included a report of the abstract of included reviews taken directly from the publications. Completed Grading of the evidence was represented in tables. Risk of bias was rated according to the Cochrane risk-of-bias tool for randomized trials (ROB) decision tree (Appendix III). Additional evidence not mentioned in GRADE tables was detailed in a narrative summary. We completed a summary of findings table that summarizes the GRADE table(s). For the evidence to decision table, we populated sections on priority of the problem, desirable effects, undesirable effects, certainty of evidence and balance of effects.

[1] https://amstar.ca/Amstar_Checklist.php

3 Results

3.1. List of systematic reviews and/or studies identified by the search process

Figure 1: PRISMA 2020 flow diagram for systematic review of reviews which includes searches of databases and registers only



*Nine papers were not included in the final GRADE table and detailed in a narrative summary instead.

3.1.1. Included in GRADE tables/footnotes (n=15)

Bahar-Fuchs, A., Martyr, A., Goh, A. M., Sabates, J., & Clare, L. (2019). Cognitive training for people with mild to moderate dementia. Cochrane Database of Systematic Reviews, 3, CD013069. https://doi.org/https://dx.doi.org/10.1002/14651858.CD013069.pub2 **AMSTAR-II High**

Brims, L., & Oliver, K. (2019). Effectiveness of assistive technology in improving the safety of people with dementia: a systematic review and meta-analysis. Aging & Mental Health, 23(8), 942-951. https://doi.org/https://dx.doi.org/10.1080/13607863.2018.1455805 **AMSTAR-II Low**

Cafferata, R. M., Hicks, B., & von Bastian, C. C. (2021). Effectiveness of cognitive stimulation for dementia: A systematic review and meta-analysis. Psychological Bulletin, 147(5), 455-476. https://doi.org/https://dx.doi.org/10.1037/bul0000325 **AMSTAR-II Moderate**

Kim, EK, Park, H., Lee, CH, & Park, E. (2019). Effects of Aromatherapy on Agitation in Patients with Dementia: A Systematic Literature Review and Meta-analysis. *Journal of Korean Academy of Community Health Nursing*, 183-194. Retrieved from http://dx.doi.org/10.12799/jkachn.2019.30.2.183 **AMSTAR-II Low**

Kim, K., & Lee, J. (2019). Effects of Reminiscence Therapy on Depressive Symptoms in Older Adults with Dementia: A Systematic Review and Meta-Analysis. [Korean]. *Journal of Korean Academy of Nursing, 49(3)*, 225-240. doi:http://dx.doi.org/10.4040/jkan.2019.49.3.225 **AMSTAR-II Moderate**

Lai, N. M., Chang, S., Ng, S. S., Tan, S. L., Chaiyakunapruk, N., & Stanaway, F. (2019). Animal-assisted therapy for dementia. The Cochrane Database of Systematic Reviews, 2019(11), CD013243. https://doi.org/10.1002/14651858.CD013243.pub2 **AMSTAR-II Low**

Lin, R. S. Y., Yu, D. S. F., Li, P. W. C., & Masika, G. M. (2021). The effectiveness of non-pharmacological interventions targeting neuropsychiatric symptoms among persons with preclinical and mild dementia: A systematic review and network meta-analysis. International Journal of Geriatric Psychiatry, 36(4), 479-492. https://doi.org/http://dx.doi.org/10.1002/gps.5460 **AMSTAR-II Low**

Lu, L. C., Lan, S. H., Hsieh, Y. P., Yen, Y. Y., Chen, J. C., & Lan, S. J. (2020). Horticultural Therapy in Patients With Dementia: A Systematic Review and Meta-Analysis. American Journal of Alzheimer's Disease & Other Dementias, 35, 1533317519883498. https://doi.org/https://dx.doi.org/10.1177/1533317519883498 **AMSTAR-II Low**

Mohler, R., Renom, A., Renom, H., & Meyer, G. (2020). Personally tailored activities for improving psychosocial outcomes for people with dementia in community settings. Cochrane Database of Systematic Reviews, 8, CD010515. https://doi.org/https://dx.doi.org/10.1002/14651858.CD010515.pub2 **AMSTAR-II Low**

Moreno-Morales, C., Calero, R., Moreno-Morales, P., & Pintado, C. (2020). Music Therapy in the Treatment of Dementia: A Systematic Review and Meta-Analysis. Frontiers in Medicine, 7, 160. https://doi.org/https://dx.doi.org/10.3389/fmed.2020.00160 **AMSTAR-II Low**

Nagaoka, M., Hashimoto, Z., Takeuchi, H., & Sado, M. (2021). Effectiveness of mindfulness-based interventions for people with dementia and mild cognitive impairment: A meta-analysis and implications for future research. PloS one, 16(8), e0255128. https://doi.org/10.1371/journal.pone.0255128 **AMSTAR-II Low**

Orgeta, V., Leung, P., Del-Pino-Casado, R., Qazi, A., Orrell, M., Spector, A. E., & Methley, A. M. (2022). Psychological treatments for depression and anxiety in dementia and mild cognitive impairment. The Cochrane database of systematic reviews, 4(4), CD009125. https://doi.org/10.1002/14651858.CD009125.pub3 **AMSTAR-II High**

Saragih, I. D., Tonapa, S. I., Saragih, I. S., & Lee, B. O. (2022). Effects of cognitive stimulation therapy for people with dementia: A systematic review and meta-analysis of randomized controlled studies. International Journal of Nursing Studies, 128, 104181. https://doi.org/10.1016/j.ijnurstu.2022.104181 **AMSTAR-II High**

Wang, Y., Liu, M., Tan, Y., Dong, Z., Wu, J., Cui, H., Shen, D., & Chi, I. (2022). Effectiveness of Dance-Based Interventions on Depression for Persons With MCI and Dementia: A Systematic Review and Meta-Analysis. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.709208 **AMSTAR-II Low**

Zhou, S., Chen, S., Liu, X., Zhang, Y., Zhao, M., & Li, W. (2022). Physical Activity Improves Cognition and Activities of Daily Living in Adults with Alzheimer's Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. International Journal of Environmental Research and Public Health, 19(3), 1216. https://doi.org/https://dx.doi.org/10.3390/ijerph19031216 **AMSTAR-II Moderate**

3.1.2. Excluded from GRADE tables/FOOTNOTES (n=9)

Ali, N., Tian, H., Thabane, L., Ma, J., Wu, H., Zhong, Q., Gao, Y., Sun, C., Zhu, Y., & Wang, T. (2022). The Effects of Dual-Task Training on Cognitive and Physical Functions in Older Adults with Cognitive Impairment; A Systematic Review and Meta-Analysis. Journal of Prevention of Alzheimer's Disease. https://doi.org/https://dx.doi.org/10.14283/jpad.2022.16 **AMSTAR-II Moderate**

Dauwan, M., Begemann, M. J. H., Slot, M. I. E., Lee, E. H. M., Scheltens, P., & Sommer, I. E. C. (2021). Physical exercise improves quality of life, depressive symptoms, and cognition across chronic brain disorders: a transdiagnostic systematic review and meta-analysis of randomized controlled trials. Journal of Neurology, 268(4), 1222-1246. https://doi.org/https://dx.doi.org/10.1007/s00415-019-09493-9 **AMSTAR-II Moderate**

Dorris, J. L., Neely, S., Terhorst, L., VonVille, H. M., & Rodakowski, J. (2021). Effects of music participation for mild cognitive impairment and dementia: A systematic review and meta-analysis. Journal of the American Geriatrics Society, 69(9), 2659-2667. https://doi.org/10.1111/jgs.17208 **AMSTAR-II Low**

Russ, J., Weyh, C., & Pilat, C. (2021). High-intensity exercise programs in people with dementia — a systematic review and meta-analysis. German Journal of Exercise and Sport Research, 51(1), 4-16. https://doi.org/10.1007/s12662-020-00688-1 **AMSTAR-II Moderate**

Saul, S. F. (2020). Effect of exercise on cognitive function in persons with dementia: A systematic review and meta-analysis. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 81*(3-A). **AMSTAR-II Moderate**
Sun, Y., Zhang, X., & Wang, Z. (2021). Comparative Effectiveness of 3 Settings of Cognitive Stimulation Therapy on Cognition and Quality of Life for People With Dementia: A Systematic Review and Network. Journal of the American Medical Directors Association, 20, 20. https://doi.org/https://dx.doi.org/10.1016/j.jamda.2021.11.015 **AMSTAR-II Moderate**

Watt, J. A., Goodarzi, Z., Veroniki, A. A., Nincic, V., Khan, P. A., Ghassemi, M., Thompson, Y., Tricco, A. C., & Straus, S. E. (2019). Comparative Efficacy of Interventions for Aggressive and Agitated Behaviors in Dementia: A Systematic Review and Network Meta-analysis. Annals of Internal Medicine, 171(9), 633-642. https://doi.org/https://dx.doi.org/10.7326/M19-0993 **AMSTAR-II High**

Watt, J. A., Goodarzi, Z., Veroniki, A. A., Nincic, V., Khan, P. A., Ghassemi, M., Lai, Y., Treister, V., Thompson, Y., Schneider, R., Tricco, A. C., & Straus, S. E. (2021). Comparative efficacy of interventions for reducing symptoms of depression in people with dementia: systematic review and network meta-analysis. The BMJ, 372, n532. https://doi.org/https://dx.doi.org/10.1136/bmj.n532 **AMSTAR-II Moderate**

Wong, Y. L., Cheng, C. P. W., Wong, C. S. M., Wong, S. N., Wong, H. L., Tse, S., Wong, G. H. Y., & Chan, W. C. (2021). Cognitive Stimulation for Persons with Dementia: a Systematic Review and Meta-Analysis. East Asian Archives of Psychiatry, 31(3), 55-66. https://doi.org/https://dx.doi.org/10.12809/eaap2102 **AMSTAR-II Moderate**

3.1.3. PICO Table

Take 1: PICO Table

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
1	Animal-assisted therapy (AAT) / No AAT (standard care, reminiscing activities, cooking, or exercise therapy)	BPSD (Depression)	Lai et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of AAT on BPSD (depression). This review is the only review that examined the effectiveness of AAT published in Jan 2019-Jan 2022.
		BPSD (Behaviour)	Lai et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of AAT on BPSD (behaviour) of people living with dementia. This review is the only review that examined the effectiveness of AAT published in Jan 2019-Jan 2022.
		BPSD (Agitation or irritability)	Lai et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of AAT on BPSD (agitation and irritability) of people living with dementia. This review is the only review that examined the effectiveness of AAT published in January 2019-January 2022.
		Everyday Function (Physical functioning using Barthel Index for ADLs)	Lai et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of AAT on physical functioning of people living with dementia. This review is the only review that examined the effectiveness of AAT published in January 2019-January 2022.
		Everyday Function (Physical functioning using MOSES: self-care ability)	Lai et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of AAT on self-care ability of people living with dementia. This review is the only review that examined the effectiveness of AAT published in January 2019-January 2022.
		Quality of Life	Lai et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of AAT on health related quality of life of people living with dementia. This review is the only review that examined the effectiveness of AAT published in January 2019-January 2022.

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
		Other outcomes of interest (Adverse events)	Lai et al. 2019	Most recent low-quality meta-analysis available on adverse events associated with AAT for people living with dementia. This review is the only review that examined the effectiveness of AAT published in January 2019-January 2022.
		Other outcome of interest (Social functioning)	Lai et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of AAT on social functioning of people living with dementia. This review is the only review that examined the effectiveness of AAT published in January 2019-January 2022.
2	Personally tailored activities / Usual care and attention control	BPSD	Möhler et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of personally tailored activities on BPSD. This review is the only review that examined the effectiveness of personally tailored activities published in January 2019-January 2022.
		BPSD (Depression)	Möhler et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of personally tailored activities on BPSD (depression) of people living with dementia. This review is the only review that examined the effectiveness of personally tailored activities published in January 2019-Januray 2022.
		BPSD (Affect)	Möhler et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of personally tailored activities on BPSD (affect) of people living with dementia. This review is the only review that examined the effectiveness of personally tailored activities published in January 2019-January 2022.
		Quality of Life	Möhler et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of personally tailored activities on quality of life of people living with dementia. This review is the only review that examined the effectiveness of personally tailored activities published in January 2019-January 2022.

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
3	Dance-based interventions / No treatment, usual care or waiting list group	BPSD (Depression)	Wang et al. 2022	Most recent low-quality meta-analysis available on the effectiveness of dance-based interventions on BPSD (depression) of people living with dementia. This review is the only review that examined the effectiveness of dance-based interventions published in January 2019-January 2022.
		BPSD (Anxiety)	Wang et al. 2022	Most recent low-quality meta-analysis available on the effectiveness of dance-based interventions on BPSD (anxiety) of people living with dementia. This review is the only review that examined the effectiveness of dance-based interventions published in January 2019-January 2022.
4	Cognitive training / Passive, active or alternative treatment control	Cognitive Function (Global)	Bahar-Fuchs et al. 2019	Most recent high-quality meta-analysis available on the effectiveness of cognitive training on global cognition of people living with dementia.
		Cognitive Function (Delayed memory)	Bahar-Fuchs et al. 2019	Most recent high-quality meta-analysis available on the effectiveness of cognitive training on delayed memory of people living with dementia.
		BPSD (Mood)	Bahar-Fuchs et al. 2019	Most recent high-quality meta-analysis available on the effectiveness of cognitive training on BPSD (mood) of people living with dementia.
		Everyday Function	Bahar-Fuchs et al. 2019	Most recent high-quality meta-analysis available on the effectiveness of cognitive training on capacity of activities of daily living of people living with dementia.
		Other outcome of interest (Burden - retention rates)	Bahar-Fuchs et al. 2019	Most recent high-quality meta-analysis available on the impact of cognitive training on burden (retention rates) of people living with dementia.
		Other outcome of interest (Disease progression)	Bahar-Fuchs et al. 2019	Most recent high-quality meta-analysis available on the effectiveness of cognitive training on disease progression of people living with dementia.
5	Cognitive stimulation therapy / Treatment as usual, active control	Cognitive Function	Saragih et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on cognitive function of people living with dementia.

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
	(group interaction and/or structured activities) or passive control (usual care)	Cognitive Function (Global)	Cafferata et al. 2021	Most recent moderate-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on global cognition of people living with dementia.
		Cognitive Function (Memory)	Cafferata et al. 2021	Most recent moderate-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on memory of people living with dementia.
		Cognitive Function (Language)	Cafferata et al. 2021	Most recent moderate-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on cognitive function (language) of people living with dementia.
		BPSD (Neuropsychiatric symptoms)	Saragih et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on BPSD (neuropsychiatric symptoms) of people living with dementia.
		BPSD (Depression)	Saragih et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on BPSD (depression) of people living with dementia.
		BPSD (Anxiety)	Cafferata et al. 2021	Most recent moderate-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on BPSD (anxiety) of people living with dementia.
		BPSD (Behaviour)	Cafferata et al. 2021	Most recent moderate-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on BPSD (behaviour) of people living with dementia.
		Everyday Function	Cafferata et al. 2021	Most recent moderate-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on activities of daily living of people living with dementia.
		Quality of Life	Cafferata et al. 2021	Most recent moderate-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on quality of life of people living with dementia.
		Other outcome of interest (Dementia ratings)	Cafferata et al. 2021	Most recent moderate-quality meta-analysis available on the effectiveness of cognitive stimulation therapy on dementia severity of people living with dementia.
6	Music therapy / Active controls (dancing to	Cognitive Function	Moreno-Morales et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of music therapy on cognitive function of

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
	music, making music using musical instruments, active singing) or passive listening to music			people living with dementia. This review is the only review that examined the effectiveness of music therapy published in January 2019-January 2022.
		BPSD (Depression)	Moreno-Morales et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of music therapy on BPSD (depressive state) of people living with dementia. This review is the only review that examined the effectiveness of music therapy published in January 2019-January 2022.
		Quality of Life	Moreno-Morales et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of music therapy on quality of life of people living with dementia. This review is the only review that examined the effectiveness of music therapy published in January 2019-January 2022.
7	Physical activity (PA) / No physical activity (usual medical treatment)	Cognitive Function	Zhou et al. 2022	Most recent moderate-quality meta-analysis available on the effectiveness of physical activity on global cognition of people living with dementia.
		Everyday Function	Zhou et al. 2022	Most recent moderate-quality meta-analysis available on the effectiveness of physical activity on activities of daily living of people living with dementia.
8	Assistive technology (AT) compared to no assistive technology (usual treatment)	BPSD (Depression)	Brims et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of assistive technology on BPSD (depression) of people living with dementia. This review is the only review that examined the effectiveness of assistive technology published in January 2019-January 2022.
		BPSD (Agitation)	Brims et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of assistive technology on BPSD (agitation) of people living with dementia. This review is the only review that examined the effectiveness of assistive technology published in January 2019-January 2022.
		Everyday function	Brims et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of assistive technology on daily function of people living with dementia. This review is the only review

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
				that examined the effectiveness of assistive technology published in January 2019-January 2022.
		Falls	Brims et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of assistive technology on falls of people living with dementia. This review is the only review that examined the effectiveness of assistive technology published in January 2019-January 2022.
		Hospital/Aged Care home admission	Brims et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of assistive technology on care home admission of people living with dementia. This review is the only review that examined the effectiveness of assistive technology published in January 2019-January 2022.
9	Mindfulness-based intervention / No intervention	Cognitive Function	Nagaoka et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of mindfulness-based intervention on cognitive function of people living with dementia. This review is the only review that examined the effectiveness of mindfulness-based intervention published in January 2019-January 2022.
		BPSD (Depression)	Nagaoka et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of mindfulness-based intervention on BPSD (depression) of people living with dementia. This review is the only review that examined the effectiveness of mindfulness-based intervention published in January 2019-January 2022.
		BPSD (Anxiety)	Nagaoka et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of mindfulness-based intervention on BPSD (anxiety) of people living with dementia. This review is the only review that examined the effectiveness of mindfulness-based intervention published in January 2019-January 2022.
		Everyday Function	Nagaoka et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of mindfulness-based intervention on activities of daily living of people living with dementia. This review is the only review that examined the effectiveness of

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
				mindfulness-based intervention published in January 2019-January 2022.
		Quality of Life	Nagaoka et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of mindfulness-based intervention on quality of life of people living with dementia. This review is the only review that examined the effectiveness of mindfulness-based intervention published in January 2019-January 2022.
10	Psycho-behavioural educative interventions, multimodal intervention or art therapy / Usual care	BPSD (Psycho-behavioural educative interventions: Depression)	Lin et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of psycho-behavioural educative intervention on BPSD (depression) of people living with dementia. This review is the only review that examined the effectiveness of psycho-behavioural educative intervention published in January 2019-January 2022.
		BPSD (Multimodal Intervention: Depression)	Lin et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of multimodal intervention on BPSD (depression) of people living with dementia. This review is the only review that examined the effectiveness of multi-modal intervention published in January 2019-January 2022.
		BPSD (Art therapy: Depression)	Lin et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of art therapy on BPSD (depression) of people living with dementia. This review is the only review that examined the effectiveness of art therapy published in January 2019-January 2022.
		BPSD (Art therapy: Apathy)	Lin et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of art therapy on BPSD (apathy) of people living with dementia. This review is the only review that examined the effectiveness of art therapy published in January 2019-January 2022.
		BPSD (Art therapy: Neuropsychiatric symptoms)	Lin et al. 2021	Most recent low-quality meta-analysis available on the effectiveness of art therapy on BPSD (neuropsychiatric symptoms) of people living with dementia. This review is the

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
				only review that examined the effectiveness of art therapy published in January 2019-January 2022.
11	Cognitive behavioural therapy (CBT) or supportive and counselling (S&C) interventions / Usual treatment	Cognitive Function (CBT)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive behavioural therapy on cognition of people living with dementia.
		Cognitive Function (S&C)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of support and counselling on cognition of people living with dementia.
		BPSD (Depressive symptoms) (CBT)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive behavioural therapy on BPSD (depression) of people living with dementia.
		BPSD (Depressive symptoms) (S&C)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of support and counselling on BPSD (depressive symptoms) of people living with dementia.
		BPSD (Depression Remission) (CBT)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive behavioural therapy on BPSD (depression remission) of people living with dementia.
		BPSD (Anxiety) (CBT)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive behavioural therapy on BPSD (anxiety) of people living with dementia.
		BPSD (Anxiety) (S&C)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of support and counselling on BPSD (anxiety) of people living with dementia.
		BPSD (Neuropsychiatric symptoms) (CBT)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive behavioural therapy on BPSD (neuropsychiatric symptoms) of people living with dementia.
		BPSD (Neuropsychiatric symptoms) (S&C)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of support and counselling on BPSD (neuropsychiatric symptoms) of people living with dementia.
		Everyday Function (CBT)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive behavioural therapy on activities of living of people living with dementia.

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
		Everyday Function(S&C)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of support and counselling on activities of daily living of people living with dementia.
		Quality of Life (CBT)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of cognitive behavioural therapy on quality of life of people living with dementia.
		Quality of Life (S&C)	Orgeta et al. 2022	Most recent high-quality meta-analysis available on the effectiveness of support and counselling on quality of life of people living with dementia.
12	Horticultural therapy / No horticultural therapy (usual care)	BPSD (Agitation)	Lu et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of horticultural therapy on BPSD (agitation) of people living with dementia. This review is the only review that examined the effectiveness of horticultural therapy published in January 2019-January 2022.
		Other outcomes of interest (Time spent engaged in activity)	Lu et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of horticultural therapy on engagement of people living with dementia. This review is the only review that examined the effectiveness of horticultural therapy published in January 2019-January 2022.
		Other outcomes of interest (Inactivity status)	Lu et al. 2020	Most recent low-quality meta-analysis available on the effectiveness of horticultural therapy on inactivity of people living with dementia. This review is the only review that examined the effectiveness of horticultural therapy published in January 2019-January 2022.
13	Reminiscence therapy / Usual care or alternative care	BPSD (Depression, Overall and subgroups based on age, dementia severity, group vs individual and intervention length and numbers)	Kim & Lee 2019	Most recent low-quality meta-analysis available on the effectiveness of reminiscence therapy on BPSD (depression) of people living with dementia. This review is the only review that examined the effectiveness of reminiscence therapy published in January 2019-January 2022.

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
14	Aromatherapy / Usual care	BPSD (Agitation, Overall and subgroups based on dementia severity, length of intervention, application method, and type of aroma)	Kim et al. 2019	Most recent low-quality meta-analysis available on the effectiveness of reminiscence therapy on BPSD (agitation) of people living with dementia. This review is the only review that examined the effectiveness of aroma therapy published in January 2019-January 2022.

AAT: Animal-assisted therapy; ADL: Activities of daily living; AT: Assistive technology; BPSD: Behaviours and psychological symptoms of dementia; CBT: Cognitive behavioural therapy; PA: Physical activity; S&C: Strength and conditioning

3.2. Narrative description of studies that contributed to GRADE analysis

Animal-assisted therapy: The Cochrane review carried out by Lai et al. (2019) included 9 studies (6 studies were parallel-group, individually randomized controlled trials (RCTs); one was a randomized cross-over trial; and two were cluster-RCTs that were possibly related where randomization took place at the level of the day care and nursing home) with a total of 305 participants with dementia. All studies were at high risk of performance bias and unclear risk of selection bias. The certainty about the results for all major outcomes was very low to moderate. Comparison of AAT vs. no AAT (standard care or non-animal-related activities) indicated that AAT may reduce depressive symptoms in people with dementia. No clear evidence of improvement in other outcomes (quality of life, social functioning, problematic behaviour, agitation, ADLs and self-care ability) was detected. There was no data on adverse events. Further well-conducted RCTs are needed to improve the certainty of the evidence. In view of the difficulty in achieving blinding of participants and personnel in such trials, future RCTs should work on blinding outcome assessors, document allocation methods clearly, and include major patient-important outcomes such as affect, emotional and social functioning, quality of life, adverse events, and outcomes for animals.

Personally tailored activities: The Cochrane review carried out by Möhler et al. (2020) included five RCTs (4 parallel-group studies and 1 cross-over study), in which a total of 262 participants completed the studies. Two studies compared personally tailored activities with an attention control group, and three studies with usual care. The meta-analysis found low-certainty evidence indicating that offering personally tailored activities to people with dementia living in the community may reduce BPSD and may slightly improve quality of life (based on the rating of family caregivers). Low-certainty evidence also indicated that personally tailored activities may have little or no effect on secondary outcomes, including depression, affect, passivity and engagement. None of the studies assessed adverse effects. There is a need for more sufficiently powered RCTs that are planned and conducted according to current methodological standards (e.g. randomized and concealed allocation, and adequate blinding of participants and family caregivers (which can be made possible by offering an active control group) and outcome assessors).

Dance-based interventions: The systematic review and meta-analysis by Wang et al. (2022) included five RCTs with sample sizes ranging from 21 to 204. There were significant differences (with a small effect size) in decreasing depression in favour of dance-based interventions compared with controls (no treatment, usual care or waiting list control groups). Compared with the post-intervention data, the follow-up data indicated diminishing effects. One RCT also showed no significant benefit on anxiety rating scores. GRADE analysis indicated the evidence quality of depression was moderate, and the evidence quality of anxiety was low. More trials of high quality, large sample sizes are needed to gain more profound insight into dance-based interventions, such as their effects of alleviating anxiety, and the best approaches to perform dance-based interventions.

Cognitive training: The Cochrane review by Bahar-Fuchs et al. (2019) included 33 randomized controlled trials (32 parallel and 1 crossover), with samples ranging from 12 -633 participants. Thirty-two (32) RCTs were included for meta-analysis. Comparison of cognitive training (guided practice on structured tasks) vs control (standard care or non-cognitive training activities) demonstrated low to moderate improvement of overall cognition (standardized mean difference [SMD]) 0.42, 95% confidence interval [CI] 0.23 to 0.62) and moderate improvement with verbal fluency (SMD 0.52, 95% CI 0.23 to 0.81) at end-treatment that may last for a few months. No clear evidence of improvement in ADLs, clinical disease progression, mood or caregiver burden were demonstrated. Nearly all studies were at high or unclear risk of performance bias and selection bias. The certainty about the results for all major outcomes was very low to moderate. Further well-conducted RCTs are needed to improve the certainty of the evidence.

Cognitive Stimulation (Cognitive function, BPSD [Neuropsychiatric Symptoms, depression]): The systematic review and meta-analysis by Saragih et al. (2021) included 26 RCTs and a total of 2244 participants. Seven trials from the grey literature were excluded from the meta-analysis, leaving 19 remaining RCTs. Comparison of cognitive stimulation vs control (standard care or non-cognitive stimulation activities) demonstrated no significant reduction in neuropsychiatric symptoms in people with mild to moderate dementia.
Methodological limitations were noted in some papers. The meta-analysis required more studies to meet pooled effect size with acceptable rigor, as some currently included studies had small sample sizes. More high-quality trials with larger sample sizes are needed to improve the certainty of the evidence of cognitive stimulation on neuropsychiatric symptoms of people with dementia.

Cognitive Stimulation (Cognitive function, Cognitive function (memory), BPSD (Anxiety, Behaviour, Language) Activities of Daily Living, Quality of Life): The systematic review and meta-analysis by Cafferata et al. (2021) included 44 RCTs and a total of 2444 participants. Comparison of cognitive stimulation (non-pharmacological interventions involving group activities and social interaction) vs control conditions (passive control wait list, usual care, and active controls of non-cognitive stimulation activities) reported improved cognition immediately following the treatment, but with no sustained benefit at one month or 10 months. Comparison of cognitive stimulation vs control conditions reported positive effect on secondary outcomes of memory, ADLs, depression, and dementia rating, with substantial and at times strong evidence. Assessment of bias was conducted using the RoB. Poor methodological quality was reported for some included papers, notably incomplete statistical reporting prevented extraction of relevant data, small overall sample size particularly on secondary outcomes, and lack of blinding may have contributed to overestimation of effect. More studies that investigate long term benefits, use controls for non-specific intervention effect and investigate effect beyond diagnostic measures of global cognition are needed to improve definitive practice recommendations.

Music therapy: The systematic review and meta-analysis by Moreno-Morales et al. (2020) included eight RCTs and a total of 816 participants. Comparison of active music therapy (active singing; making music) passive music therapy (listening to music) vs control conditions (usual care or non-music activities) reported improvement in cognitive function, quality of life after the intervention and long-term depression in mild to severe dementia. All studies had acceptable quality (rated on Pedro and the Critical Appraisal Skills Programme [CASP] scales). Limitations of original studies included small sample sizes, a lack of standardized music stimulus, and sub-group analysis of dementia severity and intervention effect could not be performed. Further robust large scale randomized controlled trials that measure outcomes of standardized music stimuli and are sensitive to the level of participant dementia, that also investigate long term effects are needed to improve certainty of the evidence.

Assistive technology: The review carried out by Brims and Oliver (2019), yielded 3 RCTs meeting the inclusion criteria (containing 245 subjects). Two studies were considered at low risk of bias overall, and one study was scored as unclear risk of bias relating to allocation concealment and blinding. The certainty about the results for all outcomes was very low to low. No significant differences were found between intervention and control groups in care home admission, depression, agitation, or daily function. The probability of a fall occurring was 50% lower in the intervention group. There was no data on adverse events. Further robust research is needed which isolates assistive technology as the independent variable, in order to infer causality. Detailed reporting of the intervention components in multifactorial interventions is recommended. More adequately powered studies to provide conclusive results, as well as adequate length to test long-term outcomes, are needed.

Physical activity: The review carried out by Zhou et al. (2022), identified 16 RCTs meeting the inclusion criteria (containing 945 subjects). All studies were considered to be of good methodological quality; though concealed allocation was used in eight studies and only two studies performed blinding to measure outcomes. The certainty about the results for all outcomes was high. Physical activity was associated with significant improvements in global cognition and activities of ADLs in Alzheimer Disease patients. Subgroup analyses suggested that physical activity for three to four times per week for 30–45 min for more than 12 weeks had a relatively strong effect on improving global cognition in Alzheimer Disease patients. There was no data on adverse events. Further research with large sample sizes and high methodological quality are needed to acknowledge these findings.

Psychological intervention: The review carried out by Orgeta et al. (2022), identified 29 RCTs with 2599 participants. There were 15 trials of cognitive behavioural therapies, 11 trials of supportive and counselling therapies, three trials of mindfulness-based cognitive therapy MBCT, and one of interpersonal therapy. There were 24 trials of people with a diagnosis of dementia, and five trials of people with MCI. Psychological treatments based on cognitive behavioural therapy probably have small positive effects on depression, quality of life and daily activities in people with dementia or MCI. There is not enough evidence to know whether any psychological treatments are helpful for anxiety in people with dementia or MCI. Furthermore, there were limited data and very low-certainty evidence on mindfulness-based cognitive therapy and interpersonal therapy; these were not included in meta-analysis and the reviewers were unable to draw any conclusions about the effectiveness of these interventions.

The review conducted by Lin et al. (2020), identified 21 RCTs meeting the inclusion criteria (1773 participants). All studies were at high or unclear risk of performance bias and had insufficient reporting of methods. The certainty about the results for all major outcomes was very low to low. Non-pharmacological interventions including art therapy, psycho-behavioural interventions, cognitive training and multimodal interventions and their effect on depression were measured with the results of pairwise pooling. Multimodal interventions were the most effective for improving depression and the inclusion of cognitive, psycho-behavioural, and educative components was needed. There was no data on adverse events. Further research on preclinical and mild dementia using specific and comprehensive instruments to measure overall BPSD are warranted to better capture intervention effects.

Mindfulness meditation: The review carried out by Nagaoka et al. (2021) identified eight RCTs meeting the inclusion criteria with 276 participants. Participants included people with dementia and MCI. The interventions ranged in duration from five to 96 weeks (half were 8 weeks duration). Due to the small number of studies conducted and small sample sizes (range 14-85), no significant effects for mindfulness-based interventions were found in either the short-term or the medium- to long-term on any outcomes, when compared with control conditions. Further the quality of evidence has been compromised by lack of intent to treat analysis, high-risk of bias and imprecise study results. More rigorous, well-designed, and large scales RCTs are recommended.

Horticultural therapy: The review carried out by Lu et al. (2020), included 23 articles with eight meeting the criteria for inclusion in the meta-analysis. There were 552 participants and the interventions included audio-visual presentation of natural scenes (n = 2), structured gardening program (n = 1), combination of gardening with other activities (n = 5) and only garden activities (n = 17). Beneficial effects of horticultural therapy on agitation level (5 studies, 470 patients); increased time spent on activity engagement and decreased time for doing nothing (inactivity status) (3 studies, 142 patients) were observed. Findings suggest that horticulture activities are a suitable activity for people with dementia. However, the lack of definition of horticultural therapy has

resulted in great diversity of interventions making the results unclear and heterogeneity across studies has impacted the strength of evidence. Further, only two RCTs were included in the review with the majority of studies being cohort studies and observational studies with pre-post measures. Further high quality RCTs are needed to confirm current results.

Reminiscence therapy: The systematic review by Kim & Lee (2019) examined the effects of reminiscence therapy on depressive symptoms in older adults with dementia and included 22 RCTs with 1 461 participants in their review. Significant reductions in depressive symptoms in older adults with dementia was seen with reminiscence therapy. Reminiscence therapy was found effective in improving depressive symptoms in older adults with dementia The effectiveness was greater in older participants under 80 years old, those with less disease severity, and those for whom the therapy session lasted less than 40 minutes.

Aromatherapy: The systematic review by Kim et al. (2019) reported the effects of aromatherapy on agitation in patients with dementia included nine studies and a total of 837 participants. The commonly applied methods were massage (50%), type of oil lavender (75%), and instrument Cohen-Mansfield Agitation Inventory (75%). The authors concluded aromatherapy to be effective in improving agitation in patients with dementia, especially for people with severe dementia and non-massage application methods such as oil burners and soaked into pillows and tissues.

3.3. Grading the Evidence[2]

Table 2: Animal-assisted therapy

Author(s): Stephanie Wong, Karen Watson
Date: 2022
Question: Do animal assisted therapy interventions compared with standard care or active controls of reminiscence activities, cooking or exercise therapy improve outcomes for people living with dementia?
Setting: Nursing home or assisted-living facilities
Population: People with very mild, mild, moderate and severe dementia as defined by a validated instrument
Reference List: Lai, N. M., Chang, S., Ng, S. S., Tan, S. L., Chaiyakunapruk, N., & Stanaway, F. (2019). Animal-assisted therapy for dementia. The Cochrane Database of Systematic Reviews, 2019(11), CD013243. https://doi.org/10.1002/14651858.CD013243.pub2

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Depression) – Higher scores indicate more severe depressive symptoms												
2	Randomized controlled trials	Serious[2]	Not serious	Not serious	Serious[4]		41	42	-	MD –2.87 [–5.24, –0.50]	⨁⨁◯◯ Low	Critical
BPSD (Agitation or irritability) – Higher scores indicate more severe irritability												
3	Randomized controlled trials	Serious[2]	Not serious	Not serious	Serious[5]	Different instrument used to measure behaviour in each study	75	68	-	SMD –0.39 [–0.89, 0.1]	⨁◯◯◯ Very low	Critical
BPSD (Behaviour) – Higher scores indicate more severe disoriented behaviour												
3	Randomized controlled trials	Serious[2]	Serious[3]	Not serious	Serious[5]	Different instrument used to measure behaviour in each study	77	65	-	SMD –0.34 [–0.98, 0.30]	⨁◯◯◯ Very low	Critical
Everyday function (Social functioning) – Higher scores indicate more severe withdrawn behaviour												

1	Randomized controlled trial	Serious[2]	Not serious	Not serious	Serious[5]		33	25	-	MD –0.4 [–3.41, 2.61]; SMD -0.52 (-0.96, -0.08)	⊕⊕◯◯ Low	Critical
Everyday function (Physical functioning) – Higher scores indicate better abilities												
1	Randomized controlled trial	Serious[2]	Not serious	Not serious	Serious[5]	Imprecise effect comparable in either direction	19	18	-	MD 4.65 [–16.05, 25.35]	⊕⊕◯◯ Low	Important
Everyday function (Physical functioning: self-care ability) – Higher scores indicate poorer function												
1	Randomized controlled trial	Serious[2]	Not serious	Not serious	Serious[6]	Imprecise effect comparable in either direction	33	25	-	MD 2.2 [–1.23, 5.63]	⊕⊕◯◯ Low	Important
Quality of life (Health-related quality of life) – Higher scores indicate poorer quality of life												
3	Randomized controlled trials	Serious[2]	Not serious	Not serious	Not serious		85	79	-	MD 0.45 [–1.28, 2.18]	⊕⊕⊕◯ Moderate	Important
Other (Adverse events) – not assessed												
0	-	-	-	-	-	-	-	-	-	-	-	-

BPSD: Behaviours and psychological symptoms of dementia; CI: confidence interval; SMD: standardized mean difference.

[1]4 categories of quality of evidence: ⊕⊕⊕⊕ (High), ⊕⊕⊕◯ (Moderate), ⊕⊕◯◯ (Low), ⊕◯◯◯ (Very low). Examples are provided in the table. 3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[2]the included studies had unclear risk of selection bias and high risk of performance bias.

[3]Substantial degree of heterogeneity present as suggested by an I^2 greater than 50%.

[4]The 95% CI ranged from a moderate reduction in depressive symptoms to virtually no difference with a small sample size from a single study, which is likely to translate into different decisions if either was the true effect.

[5]The 95% CI ranged from substantially lower (reflecting meaningful benefit) to substantially higher (reflecting meaningful harm) scores, which is likely to translate into different decisions if either was the true effect.

[6]The 95% CI ranged from a moderately lower (reflecting meaningful benefit) to substantially higher (reflecting meaningful harm) score, which is likely to translate into different decisions if either was the true effect.

Table 3: Personally tailored activities

Author(s): Stephanie Wong, Karen Watson
Date: 2022
Question: Do personally tailored activities compared to usual care improve outcomes for people with dementia?
Setting: Community
Population: People with dementia of all stages of dementia and cognitive impairment
Reference List: Mohler, R., Renom, A., Renom, H., & Meyer, G. (2020). Personally tailored activities for improving psychosocial outcomes for people with dementia in community settings. Cochrane Database of Systematic Reviews, 8, CD010515. https://doi.org/https://dx.doi.org/10.1002/14651858.CD010515.pub2

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Affect, follow-up: 4 months; assessed with 6 quality of life items) – Higher scores indicate greater frequency of positive emotion												
1	Randomized controlled trial	Serious[3]	Not serious	Not serious	Serious[5]		76	84	-	MD –0.47 [–1.37, 0.43]	⨁⨁◯◯ Low	Important
BPSD (follow-up: range 2 weeks to 4 months; assessed with different scales) – Higher scores indicate more severe BPSD												
4	Randomized controlled trials	Serious[2]	Not serious	Not serious	Serious[3]	Proxy-rating by family caregivers	147	158	-	SMD –0.44 [–0.77, –0.1]	⨁⨁◯◯ Low	Critical
BPSD (Depression, follow-up: range 2 weeks to 4 months; assessed with different scales) – Higher scores indicate more severe depressive symptoms												
2	Randomized controlled trials	Serious[3]	Not serious	Not serious	Serious[5]		47	49	-	Two studies found little or no difference of personally tailored activities compared with usual care or an attention control group on depression	⨁⨁◯◯ Low	Critical

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Quality of life (follow-up: 4 months; assessed with different scales) – Higher scores indicate better quality of life												
2	Randomized controlled trials	Serious[2]	Not serious	Not serious	Serious[4]	Proxy-rating by family caregivers	42	44	-	Meta-analysis not performed[5]	⨁⨁◯◯ Low	Important

BPSD: Behaviours and psychological symptoms of dementia; CI: confidence interval; SMD: standardized mean difference; MD: mean difference.

[1]4 categories of quality of evidence: ⨁⨁⨁⨁ (High), ⨁⨁⨁◯ (Moderate), ⨁⨁◯◯ (Low), ⨁◯◯◯ (Very low). Examples are provided in the table. 3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[2]Risk of bias: outcome assessors not blinded to group allocation.

[3]Imprecision (wide confidence interval, including both a small and a large effect (SMD)).

[4]Imprecision (wide confidence intervals).

[5]Meta-analysis not performed due to pronounced baseline differences in Novelli 2018). One study found a slight increase of quality of life in the intervention group and a slight decrease in the control group with usual care and one study found little or no difference in quality of life compared with usual care

Table 4: Dance-based interventions

Author(s): Stephanie Wong, Karen Watson
Date: 2022
Question: Do dance-based interventions compared to no treatment or usual care improve outcomes for people with dementia?
Setting: Community
Population: People with mild cognitive impairment and dementia
Reference List: Wang, Y., Liu, M., Tan, Y., Dong, Z., Wu, J., Cui, H., Shen, D., & Chi, I. (2022). Effectiveness of Dance-Based Interventions on Depression for Persons ith MCI and Dementia: A Systematic Review and Meta-Analysis. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.709208

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Anxiety) – Higher scores indicate more severe anxiety symptoms												
1	Randomized controlled trial	Serious[3]	Not serious	Not serious	Serious[4]	Only one study was included	58	53	-	MD −0.63 [−2.36, 1.10], p = 0.47	⨁⨁◯◯ Low	Important
BPSD (Depression) – Higher scores indicate more severe depressive symptoms												
5	Randomized controlled trials	Serious[2]	Not serious	Not serious	Not serious	Only 5 RCTs were included, so the funnel plot was not made and publication bias was undetected; however, it could not be ruled out.	232	226	-	SMD –0.42 [–0.6, 0.23]	⨁⨁⨁◯ Moderate	Critical

BPSD: Behaviours and psychological symptoms of dementia; CI: confidence interval; SMD: standardized mean difference.
[1]4 categories of quality of evidence: ⨁⨁⨁⨁ (High), ⨁⨁⨁◯ (Moderate), ⨁⨁◯◯ (Low), ⨁◯◯◯ (Very low). Examples are provided in the table.3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.
[2]Most included studies were judged to be unclear or high risk in the two domains of allocation concealment, and blinding participants and interventionists.
[3]The included study was unclear in the two domains of the allocation concealment, and blinding participants and interventionists.
[4]The study had a small sample size (n = 53) which did not meet the requirements of optimal information size (OIS); the confidence interval was wide [CI (−2.36, 1.10)].

Table 5: Cognitive training

Author(s): Stephanie Wong, Karen Watson
Date: 2022
Question: Do cognitive training interventions compared to no cognitive training passive controls, active controls or alternative treatments improve outcomes for people with dementia?
Comparators: no cognitive training consisting of **18 passive** (involving a wait-list condition, a no-contact condition, placebo medication, or usual care (i.e. continuing with usual activities of the nursing home or hospital, or receiving conventional medical care) and **13 active control conditions** (including social support groups, activities similar to those in the experimental condition but with a passive approach, unstructured conversation or discussion, educational information, semi-structured interviews, clinical support, unstructured or non- specific cognitive activity, and other non-specific activities), along with **15 alternative treatment condition**s (new medication, dyadic counselling, dual supportive seminar groups, and early-stage daycare programmes, occupational therapy, mindfulness and muscular relaxation, reminiscence therapy and cognitive rehabilitation, and spaced retrieval combined with Montessori activities, aerobic exercise, cognitive stimulation and music therapy and neuroeducation).
Setting: Community dwelling or in residential care
Population: People with mild to moderate dementia and their carers.
Reference List: Bahar-Fuchs, A., Martyr, A., Goh, A. M., Sabates, J., & Clare, L. (2019). Cognitive training for people with mild to moderate dementia. Cochrane Database of Systematic Reviews, 3, CD013069. https://doi.org/https://dx.doi.org/10.1002/14651858.CD013069.pub2

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Cognitive Function (Immediately post-intervention – Change in a global measure of cognition) – Higher scores indicate higher level of cognitive function												
20	Randomized controlled trials	Not serious	Very serious[3]	Not serious	Not serious		657	631	-	SMD 0.65 [0.26 to 1.05]	⨁⨁◯◯ Low	Critical
Cognitive Function (Immediately post-intervention – Change in a global measure of cognition (composite) – Higher scores indicate higher level of cognitive function												
27	Randomized controlled trials	Not serious	Serious[2]	Not serious	Not serious		704	685	-	SMD 0.42 [0.23, 0.62]	⨁⨁⨁◯ Moderate	Critical
Cognitive Function (composite – 3 to 12 months post intervention) – Higher scores indicate higher level of cognitive function												
8	Randomized controlled trials	Very serious[8]	Serious[8]	Not serious	Very serious[9]		185	202		SMD 0.65 [0.11, 1.2]	⨁◯◯◯ Very low	Critical

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Cognitive Function (memory – Immediately post-intervention) – Higher scores favour the intervention												
11	Randomized controlled trials	Serious[5]	Very serious[3]	Not serious	Not serious		269	274	-	SMD 0.81 [0.29, 1.32]	⨁◯◯◯ Very low	Critical
Cognitive Function (memory – 3 to 12 months post intervention) – Higher scores favour the intervention												
4	Randomized controlled trials	Very serious[7]	Very serious[10]	Not serious	Very serious[9]		115	155		SMD 0.97 SD [0.02, 1.92]	⨁◯◯◯ Very low	Critical
Cognitive Function (screening – 3 to 12 months post intervention) – Higher scores indicate higher level of cognitive function												
6	Randomized controlled trials	Very serious[8]	Very serious[10]	Not serious	Serious[11]		185	202		SMD 1.33 [0.31, 2.34]	⨁◯◯◯ Very low	Critical
BPSD (mood – Immediately post-intervention) – Higher scores favour the intervention												
8	Randomized controlled trials	Not serious	Very serious[3]	Not serious	Serious[5]		310	267	-	SMD 0.72 [–0.1, 1.54]	⨁◯◯◯ Very low	Important
BPSD (mood – 3 to 12 months post intervention, Change in participants' mood) – Higher scores favour the intervention												
2	Randomized controlled trials	Not serious	Not serious	Not serious	Very serious[9]		19	11		SMD 0.21 [–0.54, 0.96]	⨁⨁◯◯ Low	Important
Everyday Function (ADL – Immediately post-intervention) – Higher scores favour the intervention												
10	Randomized controlled trials	Not serious	Not serious	Not serious	Serious[5]		355	332	-	SMD 0.12 SD [–0.11, 0.35]	⨁⨁◯◯ Low	Important
Everyday Function (ADL– 3 to 12 months post intervention) – Higher scores favour the intervention												
3	Randomized controlled trials	Not serious	Not serious	Not serious	Very serious[9]		36	28		SMD 0.22 [–0.5, 0.94]	⨁⨁◯◯ Low	Important

Other (Participant burden (retention rates) - Immediately post-intervention) – Higher scores favour intervention												
17	Randomized controlled trials	Not serious	Not serious	Not serious	Very serious[6]		676	606	OR 0.73 [0.37 to 1.43]		⊕⊕◯◯ Low	Important
Other (Disease progression – 3 to 12 months post intervention) – Higher score indicates more severe dementia												
3	Randomized controlled trials	Very serious[7]	Not serious	Not serious	Very serious[9]		38	60		SMD 0.55 [0.12, 0.98]	⊕◯◯◯ Very low	Critical

BPSD: Behaviours and psychological symptoms of dementia; CI: confidence interval; SMD: standardized mean difference.

[1]4 categories of quality of evidence: ⊕⊕⊕⊕ (High), ⊕⊕⊕◯ (Moderate), ⊕⊕◯◯ (Low), ⊕◯◯◯ (Very low). Examples are provided in the table.3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[2]Inconsistency: downgraded 1 point for serious concerns regarding heterogeneity in effect size, which is moderate and statistically significant. Heterogeneity does not seem to be well explained by investigated effect moderators.

[3]Inconsistency: downgraded 2 points for very serious concerns regarding heterogeneity in effect size, which is relatively large and statistically significant. Heterogeneity does not seem to be well explained by investigated effect moderators.

[4]Publication bias: downgraded 1 point for strongly suspected publication bias based on visual inspection of the funnel plot, raising the possibility that small negative studies may remain unpublished.

[5]Imprecision: downgraded 1 point for serious concerns related to imprecision because the confidence interval crosses the no treatment threshold.

[6]Imprecision: downgraded 2 points for very serious concerns related to imprecision because the confidence interval includes positive effect, negligible effect, and effect in the direction of the control group.

[7]Risk of bias: downgraded 2 points for very serious concerns related to risk of bias: removal of high-risk studies leads to reasonably large changes in the effect estimate.

[8]Inconsistency: downgraded 1 point for serious concerns regarding heterogeneity in effect size, which is large and statistically significant. However, heterogeneity seems to be partially explained by investigated effect moderators.

[9]Imprecision: downgraded 2 points for very serious concerns related to imprecision because the analysis is based on fewer than 400 participants, and the confidence interval crosses the no effect threshold.

[10]Inconsistency: downgraded 2 points for very serious concerns regarding heterogeneity in effect size, which is relatively large and statistically significant. Heterogeneity does not seem to be well explained by investigated effect moderators.

[11]Imprecision: downgraded 1 point for serious concerns related to imprecision because the analysis is based on fewer than 400 participants; however the confidence interval does not cross the no effect threshold.

Table 6: Cognitive stimulation

Author(s): Stephanie Wong, Karen Watson
Date: 2022
Question: Do cognitive stimulation interventions compared to usual care (Saragih et al, 2022; Cafferata et al 2021) or active control of group interaction and/or structured activities (Cafferata et al 2021) improve outcomes for people with dementia?
Setting: Day centres, nursing homes, psychogeriatric centres, hospital, rehabilitation centres, residential homes, long term care facilities, health centre, home run by Social Services Department Residential Community, neurology polyclinic
Population: People with mild to moderate dementia (Saragih et al 2022); People with a diagnosis of any type of dementia (Cafferata et al 2021)
Reference List:
Saragih, I. D., Tonapa, S. I., Saragih, I. S., & Lee, B. O. (2022). Effects of cognitive stimulation therapy for people with dementia: A systematic review and meta-analysis of randomized controlled studies. International Journal of Nursing Studies, 128, 104181. https://doi.org/10.1016/j.ijnurstu.2022.104181
Cafferata, R. M., Hicks, B., & von Bastian, C. C. (2021). Effectiveness of cognitive stimulation for dementia: A systematic review and meta-analysis. Psychological Bulletin, 147(5), 455-476. https://doi.org/https://dx.doi.org/10.1037/bul0000325

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Cognitive Function (Saragih et al., 2022) – Lower scores indicate more severe cognitive decline												
11	Randomized controlled trials	Serious[2]	Serious[3]	Not serious	Not serious	Moderate heterogeneity noted between studies	315	302		SMD 0.97 [0.66, 1.28]	⨁⨁◯◯ Low	Critical
Cognitive Function (post-test) (Cafferata et al., 2021) – Higher scores indicate more severe cognitive decline												
42	Randomized controlled trials	Not serious	Serious[3]	Not serious	Not serious	Evidence from 69% studies ambiguous. Effect size did not differ between active and passive controls	Not reported	Not reported		Hedge's g 0. 49, [0.35, 0.63]	⨁⨁◯◯ Low	Critical
Cognitive Function (follow up) (Cafferata et al., 2021) – Higher scores indicate more severe cognitive decline												

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
9	Randomized controlled trials	Not serious	Not serious	Not serious	Serious[6]		Not reported	Not reported		Hedge's g .22, [–0.09, 0.54]	⊕◯◯◯ Very low	Critical
Cognitive Function (Memory) (Cafferata et al., 2021) – Higher scores indicate more severe cognitive decline												
15	Randomized controlled trials	Not serious	Serious[3]	Not serious	Not serious		Not reported	Not reported		Hedge's g .34, [0.06, 0.62]	⊕⊕◯◯ Low	Critical
Cognitive Function (Language) (Cafferata et al., 2021) – Higher scores indicate more severe cognitive decline												
14	Randomized controlled trials	Not serious	Serious[3]	Not serious	Serious[6]		Not reported	Not reported		Hedge's g .10, [–0.47, 0.67]	⊕◯◯◯ Very low	Critical
BPSD (Anxiety) (Cafferata et al., 2021) – Higher scores indicate more severe anxiety												
5	Randomized controlled trials	Not serious	Not serious	Not serious	Serious[6]		Not reported	Not reported		Hedge's g .25, [–0.28, 0.77]	⊕⊕⊕◯ Moderate	Critical
BPSD (Behaviour) (Cafferata et al., 2021) – Higher score indicates more severe behaviour level												
11	Randomized controlled trials	Not serious	Serious[3]	Not serious	Serious[6]	Small number of studies prevented from testing moderator effects	Not reported	Not reported		Hedge's g .28, [–0.60, 1.17]	⊕⊕◯◯ Low	Critical
BPSD (Depression) (Saragih et al., 2022) – Higher scores indicate more severe depressive state												
3	Randomized controlled trials	Serious[2,5]	Not serious	Not serious	Not serious		370	370		SMD −0.18 [−0.33, −0.04]	⊕⊕⊕◯ Moderate	Critical
BPSD (Neuropsychiatric symptoms) (Saragih et al., 2022) – Higher score indicates more severe Neuropsychiatric symptoms												
3	Randomized controlled trials	Serious[2]	Not serious	Not serious	Serious[4]		187	192		SMD −0.12 [−0.32, 0.08]	⊕⊕◯◯ Low	Critical

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Everyday Function (ADL) (Cafferata et al., 2021) – Higher score indicates better functional ability												
14	Randomized controlled trials	Not serious	Not serious	Not serious	Not serious	Two studies provided substantial evidence favouring opposing hypothesis. Evidence from other studies is reported as ambiguous	Not reported	Not reported		Hedge's g 0.17, [0.02, 0.32]	⊕⊕⊕⊕ High	Important
Quality of life (Cafferata et al., 2021) – Higher scores indicate better quality of life												
11	Randomized controlled trials	Not serious	Not serious	Not serious	Serious[6]	Evidence supported absence of effect but was ambiguous	Not reported	Not reported		Hedge's g 0.16, [–0.16, 0.48],	⊕◯◯◯ Very low	Important
Dementia ratings (Cafferata et al., 2021) – Higher scores indicate more severe cognitive decline												
7	Randomized controlled trials	Not serious	Serious[3]	Not serious	Not serious		Not reported	Not reported		Hedge's g 0.66, [0.02, 1.29]	⊕⊕⊕◯ Moderate	Important

BPSD: Behaviours and psychological symptoms of dementia; CI: confidence interval; SMD: standardized mean difference.

[1]4 categories of quality of evidence: ⊕⊕⊕⊕ (High), ⊕⊕⊕◯ (Moderate), ⊕⊕◯◯ (Low), ⊕◯◯◯ (Very low). Examples are provided in the table.3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[2]Less than half of the studies had concealed allocation; Outliers were identified in some analyses.

[3]Substantial degree of heterogeneity present as suggested by an I^2 greater than 50%.

[4]The 95% CI ranged from lower to higher scores, which is likely to translate into different decisions if either was the true effect.

[5]Suspected publication bias based on visual inspection of the funnel plot

[6]The confidence interval crosses the no effect threshold

Table 7: Music therapy

Author(s): Stephanie Wong, Karen Watson
Date: 2022
Question: Do music therapy interventions compared to usual care or active controls improve outcomes for people with dementia?
Comparators: Active controls 1. dancing to music 2. making music (musical instruments), 3. active singing and 4. passive listening to music
Setting: Nursing homes or hospitals
Population: People with mild to severe dementia
Reference List: Moreno-Morales, C., Calero, R., Moreno-Morales, P., & Pintado, C. (2020). Music Therapy in the Treatment of Dementia: A Systematic Review and Meta-Analysis. Frontiers in Medicine, 7, 160. https://doi.org/https://dx.doi.org/10.3389/fmed.2020.00160

Certainty assessment							№ of patients		Effect			
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)	Certainty[1]	Importance[1]
Cognitive Function (post-intervention) – Higher scores indicate more severe cognitive decline)												
8	Randomized controlled trials	Very serious[2,3]	Serious[4]	Not serious	Serious[5]	Authors report observing shorter intervention and passive intervention of (listening to music) appear more effective than other interventions.	694	692		SMD –0.23 [–0.44, –0.02]	⨁◯◯◯ Very low	Critical
BPSD (Depression, post-intervention) – Higher score indicates more severe depressive state												
5 (7 comparisons)	Randomized controlled trials	Serious[3]	Serious[4]	Not serious	Serious[5,6]		168	174		SMD 0.16 [–0.54, 0.87]	⨁◯◯◯ Very low	Important
BPSD (Depression, state 6 months after intervention) – Higher score indicates more severe depressive state												
4 (6 comparisons)	Randomized controlled trials	Serious[3]	Serious[4]	Not serious	Serious[5,6]		140	150		SMD –0.25 [–0.68, 0.18]	⨁◯◯◯ Very low	Important
Quality of life (post intervention) – Higher score indicates lower QoL												

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[1]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
3	Randomized controlled trials	Serious[3]	Not serious	Not serious	Serious[5]		138	148		SMD – 0.36 [– 0.62, – 0.10]	⨁◯◯◯ Very low	Important
Quality of life (6 months after intervention) – Higher score indicates lower QoL												
2 (4 comparisons)	Randomized controlled trials	Serious[3]	Not serious	Not serious	Serious[5,6]		78	88		SMD – 0.34 [– 0.78, – 0.10]	⨁◯◯◯ Very low	Important

CI: confidence interval; QoL: Quality of life; SMD: standardized mean difference.

[1]4 categories of quality of evidence: ⨁⨁⨁⨁ (High), ⨁⨁⨁◯ (Moderate), ⨁⨁◯◯ (Low), ⨁◯◯◯ (Very low). Examples are provided in the table.3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[2]Multiple outcome variables from the same participants included as separate outcome variables in the meta-analysis

[3]Most studies did not have concealed allocation or blinded assessors

[4]Substantial degree of heterogeneity present as suggested by an I^2 greater than 50%.

[5]Very small sample size in one study (n=8 in intervention group)

[6] The 95% CI ranged from substantially lower to substantially higher scores, which is likely to translate into different decisions if either was the true effect.

Table 8: Physical activity vs no physical activity (exercise intervention)

Author(s): Edwin Tan & Margaret MacAndrew
Date: 2022
Question: Does physical activity vs no physical activity improve global cognition and activities of daily living in adults with Alzheimer's Disease?
Setting: Not specified
Reference List: Zhou, S., Chen, S., Liu, X., Zhang, Y., Zhao, M., & Li, W. (2022). Physical Activity Improves Cognition and Activities of Daily Living in Adults with Alzheimer's Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *International Journal of Environmental Research and Public Health*, *19*(3), 1216. https://doi.org/https://dx.doi.org/10.3390/ijerph19031216

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Cognitive Function (Global Cognition) – Higher score indicated better cognition												
16	Randomized controlled trials	Not serious	Not serious[1]	Not serious[2]	Not serious[3]	None	926[4]		SMD 0.41 [0.24, 0.58]		⨁⨁⨁⨁ High[5]	Critical
Everyday Function (ADL) – Higher scores indicated better activities of daily living												
8	Randomized controlled trials	Not serious	Not serious[1]	Not serious[2]	Not serious[3]	None	449[4]		SMD 0.56 [0.32, 0.79]		⨁⨁⨁⨁ High[5]	Important

ADL: Activity of daily living; CI: confidence interval; SMD: standardized mean difference.
*4 categories of quality of evidence: ⨁⨁⨁⨁ (High), ⨁⨁⨁◯ (Moderate), ⨁⨁◯◯ (Low), ⨁◯◯◯ (Very low). Examples are provided in the table. 3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.
[1]I sq < 50%
[2]Meta-analysis by intervention
[3]Sample size > 400
[4]Sample reported as total
[5]No serious limitations identified

Table 9: Assistive technology vs treatment as usual

Author(s): Edwin Tan & Margaret MacAndrew
Date: 2022
Question: Does assistive technology vs no assistive technology improve outcomes related to safety (care home admission, falls, depression, and agitation) for people with dementia living in the domestic setting?
Setting: Domestic
Reference List: Brims, L., & Oliver, K. (2019). Effectiveness of assistive technology in improving the safety of people with dementia: a systematic review and meta-analysis. *Aging & Mental Health*, *23*(8), 942-951. https://doi.org/https://dx.doi.org/10.1080/13607863.2018.1455805

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Depression) – Lower scores indicate improved depression												
1	Randomized controlled trial	Not serious	Not serious [6]	Serious[6]	Very serious[7]	None	11	11	SMD 0.28 higher (0.55 lower to 1.13 higher)		⨁◯◯◯ Very low[8]	Critical
BPSD (Agitation) – Lower scores indicate reduced agitation												
1	Randomized controlled trial	Not serious	Not serious [6]	Serious[6]	Very serious[7]	None	11	11	SMD 0.16 lower (1.00 lower to 0.68 higher)		⨁◯◯◯ Very low[8]	Critical
Everyday function (Changes in level of care needs) – Lower scores indicate better function												
1	Randomized controlled trial	Not serious	Not serious[6]	Serious[6]	Very serious[7]	None	11	11	SMD 0.27 lower (1.11 lower to 0.57 higher)		⨁◯◯◯ Very low[8]	Important
Falls (falls at home) – Lower score indicates fewer falls												
2	Randomized controlled trials	Serious[1]	Not serious[2]	Not serious[3]	Serious[4]	None	60	58	0.50 [0.32, 0.78]		⨁⨁◯◯ Low[5]	Important

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Hospital/aged care home admission (Care home admission) – Lower scores indicate fewer admissions												
2	Randomized controlled trials	Serious[1]	Not serious[2]	Not serious[3]	Serious[4]	None	119	104	RR 0.85 [0.37, 1.97]		⨁⨁◯◯ Low[5]	Important

BPSD: Behaviours and psychological symptoms of dementia; CI: confidence interval; SMD: standardized mean difference.

*4 categories of quality of evidence: ⨁⨁⨁⨁ (High), ⨁⨁⨁◯ (Moderate), ⨁⨁◯◯ (Low), ⨁◯◯◯ (Very low). Examples are provided in the table. 3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[1]50% included paper unclear risk of bias

[2] sq < 50%

[3]significant differences not identified

[4]Sample size < 400

[5]two serious limitations; downgraded x2

[6]Single study

[7]Sample < 100

[8]Very serious and serious limitation; downgrade x 3

Table 10: Mindfulness-based interventions vs control

Author(s): Edwin Tan & Margaret MacAndrew
Date: 2022
Question: Do short (6-10 weeks) and long (11 weeks – 6 months) mindfulness-based interventions vs no intervention improve outcomes for people with dementia and mild cognitive impairment?
Setting: not stated
Reference List: Nagaoka, M., Hashimoto, Z., Takeuchi, H., & Sado, M. (2021). Effectiveness of mindfulness-based interventions for people with dementia and mild cognitive impairment: A meta-analysis and implications for future research. PloS one, 16(8), e0255128. https://doi.org/10.1371/journal.pone.0255128

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Cognitive Function (pooled results, 6-10 weeks) – Higher scores indicate improved cognition												
1	Randomized controlled trial	Serious[1]	Not serious[6]	Not serious[6]	Very serious[7]	None	20	8	SMD 0.35 (-0.48, 1.17)		⨁◯◯◯ Very Low[8]	Critical
Cognitive Function (pooled results, 11 weeks-6 months) – Higher scores indicate improved cognition												
1	Randomized controlled trial	Serious[1]	Not serious[6]	Not serious[6]	Very serious[7]	None	41	29	SMD 1.19 (0.68, 1.71)		⨁◯◯◯ Very low[8]	Critical
BPSD (Anxiety: pooled results, 6-10 weeks) – Higher scores indicate greater anxiety												
4	Randomized controlled trials	Serious[1]	Not serious[2]	Very serious[3]	Serious[4]	None	73	60	SMD 0.09 (-0.26, 0.44)		⨁◯◯◯ Very Low[5]	Critical
BPSD (Anxiety: pooled results, 11 weeks-6 months) – Higher scores indicate greater anxiety												

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
1	Randomized controlled trial	Serious[1]	Not serious[6]	Not serious[6]	Very serious[7]	None	23	22	SMD 0.09 (-0.50, 0.67)		⨁◯◯◯ Very low[8]	Critical
BPSD (Depression: pooled results, 6-10 weeks) – Higher scores indicate more severe depression												
3	Randomized controlled trials	Serious[1]	Not serious[2]	Very serious[3]	Very serious[7]	None	53	39	SMD 0.20 (-0.22, 0.62)		⨁◯◯◯ Very Low[5]	Critical
BPSD (Depression: pooled result, 11 weeks-6 months) – Higher scores indicate more severe depression												
1	Randomized controlled trial	Serious [1]	Not serious[6]	Not serious[6]	Very serious[7]	None	23	22	SMD 0.07 (-0.52, 0.65)-		⨁◯◯◯ Very Low[8]	Critical
Everyday function (ADL: 11 weeks-6 months) – Higher scores indicate greater disability												
1	Randomized controlled trial	Serious[1]	Not serious[6]	Not serious[6]	Very serious[7]	None	41	29	SMD -1.20 (-1.84, -0.56)		⨁◯◯◯ Very low[8]	Important
Quality of Life (pooled results, 6-10 weeks) – Higher scores indicate better QoL												
2	Randomized controlled trials	Serious[1]	Serious[9]	Very serious [3]	Very serious[7]	None	43	30	SMD 0.35 (-0.40, 1.10)		⨁◯◯◯ Very low[10]	Important
Quality of Life (pooled results, 11 weeks-6 months) – Higher scores indicate better QOL												
1	Randomized controlled trial	Serious[1]	Not serious[6]	Not serious[6]	Very serious[7]	None	23	22	SMD 0.19 (-0.40, 0.77)		⨁◯◯◯ Very Low[8]	Important

CI: confidence interval; QoL: Quality of life; SMD: standardized mean difference.

*4 categories of quality of evidence: ⊕⊕⊕⊕ (High), ⊕⊕⊕◯ (Moderate), ⊕⊕◯◯ (Low), ⊕◯◯◯ (Very low). Examples are provided in the table. 3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[1]Authors rated risk of bias as unclear or high

[2]I sq < 50%

[3]Three outcome measures used; dementia not separated from MCI/amnestic MCI

[4]Sample < 400

[5]Very Serious and 2xserious limitations identified; downgrade x 4

[6]Single study

[7]Sample size < 100

[8]Very serious and serious limitations identified; downgrade x 3

[9]Isq>50%

[10]Very serious x 2, serious x2; downgrade x 5

Three populations included: dementia in three studies, MCI in three studies, and amnestic MCI in two studies – analysis did not differentiate population; pooled results

Table 11: Psycho-behavioural educative interventions, multimodal intervention & art therapy vs usual care

Author(s): Edwin Tan & Margaret MacAndrew
Date: 2022
Question: Do non-pharmacological interventions (psycho-behavioural education or art therapy) vs usual care or active comparator improve depression in community dwelling people with mild cognitive dementia or mild dementia?
Setting: Community
Reference List: Lin, R. S. Y., Yu, D. S. F., Li, P. W. C., & Masika, G. M. (2021). The effectiveness of non-pharmacological interventions targeting neuropsychiatric symptoms among persons with preclinical and mild dementia: A systematic review and network meta-analysis. International Journal of Geriatric Psychiatry, 36(4), 479-492. https://doi.org/http://dx.doi.org/10.1002/gps.5460

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Depression: Psycho-behavioural educative interventions vs usual care (pooled results MCI and mild dementia)) – Higher scores indicate more severe depression												
8	Randomized controlled trials	Not serious	Serious[1]	Very serious[2]	Not serious[3]	None	357	353	SMD -0.27 [-0.70, 0.17]		⨁◯◯◯ Very Low[4]	Critical
BPSD (Depression: Multimodal Intervention (combination of cognitive training and psycho-behavioural educative intervention) vs usual care (pooled results MCI and mild dementia)) – Higher scores indicate more severe depression												
5	Randomized controlled trials	Not serious	Serious[1]	Very serious[2]	Serious[5]	None	90	55	SMD-0.47 [-0.84, -0.10]		⨁◯◯◯ Very Low[6]	Critical
BPSD (Depression: Art therapy vs active comparator (mild dementia)) – Higher scores indicate more severe depression												
1	Controlled study	Not serious	Not serious[9]	Not serious[9]	Very serious[7]	None	20	19	SMD 0 [-0.63, 0.63])[10]		⨁⨁◯◯ Low[8]	Critical

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Apathy: Art therapy vs active comparator (mild dementia)) – Higher scores indicate more severe apathy												
1	Controlled study	Not serious	Not serious[9]	Not serious[9]	Very serious[7]	None	20	19	SMD 0.13 [-0.50, 0.75][10,11]		⨁⨁◯◯ Low[8]	Critical
BPSD (Overall neuropsychiatric symptoms: Art therapy vs active comparator (mild dementia)) – Higher scores indicate more severe BPSD												
1	Controlled study	Not serious	Not serious[9]	Not serious[9]	Very serious[7]	None	20	19	SMD 0.18 (-0.45, 0.81][10]		⨁⨁◯◯ Low[8]	Critical

CI: confidence interval; MCI: Mild cognitive impairment; SMD: standardized mean difference.

*4 categories of quality of evidence: ⨁⨁⨁⨁ (High), ⨁⨁⨁◯ (Moderate), ⨁⨁◯◯ (Low), ⨁◯◯◯ (Very low). Examples are provided in the table. 3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[1]I sq > 50%

[2]Multiple outcome measures used; pooled MCI and mild dementia

[3]Sample size > 400

[4]Serious and very serious limitation identified; downgrade x 3

[5]Sample size <400

[6]Very serious and 2 serious limitations identified; downgrade x 3
imprecision and indirectness

[7]Sample size <100

[8]Very serious limitation identified; downgrade x2

[9]1 study included

[10]Effect sizes calculated from reported data

[11]A significant improvement in apathy was observed from pre to post intervention within groups

Table 12: Cognitive Behavioural therapy & Supportive and counselling interventions vs treatment as usual

Author(s): Edwin Tan & Margaret MacAndrew
Date: 2022
Question: Efficacy of CBT and supportive and counselling interventions vs treatment as usual to improve health outcomes for people with dementia (any type) or MCI?
Setting: community and LTC
Reference List: Orgeta, V., Leung, P., Del-Pino-Casado, R., Qazi, A., Orrell, M., Spector, A. E., & Methley, A. M. (2022). Psychological treatments for depression and anxiety in dementia and mild cognitive impairment. The Cochrane database of systematic reviews, 4(4), CD009125. https://doi.org/10.1002/14651858.CD009125.pub3

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
Cognitive Function (Cognitive behavioural therapies (pooled dementia and MCI)) –Higher scores indicate better cognition												
5	Randomized controlled trials	Not serious[14]	Not serious[1]	Very serious[15]	Not serious[3]	None	275	260	SMD 0.13 [-0.04, 0.30]		⨁⨁◯◯ Low[9]	Critical
Cognitive Function (Supportive and counselling interventions (pooled dementia and MCI)) – Higher scores indicate better cognition												
6	Randomized controlled trials	Not serious[14]	Not serious[1]	Very serious[15]	Not serious[3]	None	352	378	SMD 0.11 [-0.03, 0.26]		⨁⨁◯◯ Low[9]	Critical
BPSD (Depressive symptoms: Cognitive behavioural therapies (dementia only)) – Higher scores indicate more severe depression												
10	Randomized controlled trials	Not serious[14]	Not serious[1]	Serious[2]	Not serious[3]	None	292	262	SMD -0.04 [-0.57, -0.23]		⨁⨁⨁◯ Moderate[4]	Critical
BPSD (Depression Remission: Cognitive behavioural therapies (dementia only)) – Higher scores indicate more severe depression												

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
2	Randomized controlled trials	Not seriouss[14]	Not serious[1]	Serious[2]	Serious [5]	None	79	67	SMD 1.84 [1.18, 2.88]		⊕⊕◯◯ Low[6]	Critical
BPSD (Anxiety: Cognitive behavioural therapies (pooled dementia and MCI)) – Higher scores indicate more severe anxiety												
3	Randomized controlled trials	Not serious[14]	Not serious[1]	Very serious[15]	Serious[6]	None	72	71	SMD -0.03 [-0.36, 0.30)		⊕◯◯◯ Very low[7]	Critical
BPSD (Neuropsychiatric symptoms: Cognitive behavioural therapies (dementia only)) – Higher scores indicate more and more severe neuropsychiatric symptoms												
5	Randomized controlled trials	Not serious[14]	Serious[10]	Serious[2]	Not serious[3]	None	208	193	SMD -0.06 [-0.26, 0.14]		⊕⊕◯◯ Low[6]	Critical
BPSD (Depressive symptoms: Supportive and counselling interventions (pooled dementia and MCI)) – Higher scores indicate more severe depression												
9	Randomized controlled trials	Not serious[14]	Not serious[1]	Very serious[15]	Not serious[3]	None	504	490	SMD -0.05 [-0.18, 0.07]		⊕⊕◯◯ Low[9]	Critical
BPSD (Anxiety: Supportive and counselling interventions (early stage dementia)) – Higher scores indicate more severe anxiety												
1	Randomized controlled trial	Not serious[14]	Not serious[11]	Serious[11]	Very serious[12]	None	13	11	MD -0.80 [-3.07, 1.47]		⊕◯◯◯ Very low[7]	Critical
BPSD (Neuropsychiatric symptoms: Supportive and counselling interventions (pooled dementia and MCI)) – Higher scores indicate more and more sever neuropsychiatric symptoms												
3	Randomized controlled trials	Not serious[14]	Not serious[1]	Very serious[15]	Not serious[3]	None	275	263	SMD 0.11 [-0.06, 0.29]		⊕⊕◯◯ Low[9]	Critical
Everyday Function (Cognitive behavioural therapies (dementia only)) – Higher scores indicate better performance on ADL												

Certainty assessment							№ of patients		Effect		Certainty*	Importance*
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
4	Randomized controlled trials	Not serious[14]	Not serious[1]	Serious[2]	Not serious[3]	None	180	166	SMD -0.31 [-0.52, -0.09]		⊕⊕⊕◯ Moderate[4]	Important
Everyday function (Activities of daily living: Supportive and counselling interventions (pooled dementia and MCI)) – Higher scores indicate better performance on ADL												
3	Randomized controlled trials	Not serious[14]	Not serious[1]	Very serious[15]	Not serious[3]	None	240	271	SMD 0.17 [-0.01, 0.34]		⊕⊕◯◯ Low[9]	Important
Quality of life (Cognitive behavioural therapies (pooled dementia and MCI)) – Higher scores indicate better QoL												
7	Randomized controlled trials	Not serious[14]	Not serious[1]	Very serious[15]	Not serious[3]	None	235	224	SMD 0.31 [0.13, 0.50]		⊕⊕◯◯ Low[9]	Important
Quality of Life (Supportive and counselling interventions (pooled dementia and MCI)) – Higher scores indicate better QoL												
8	Randomized controlled trials	Not serious[14]	Not serious[1]	Very serious[15]	Not serious[3]	None	476	459	SMD 0.15 [0.02, 0.28]		⊕⊕◯◯ Low[9]	Important

CI: confidence interval; MCI: Mild cognitive impairment; QoL: Quality of life; SMD: standardized mean difference.

*4 categories of quality of evidence: ⊕⊕⊕⊕ (High), ⊕⊕⊕◯ (Moderate), ⊕⊕◯◯ (Low), ⊕◯◯◯ (Very low). Examples are provided in the table. 3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[1]I sq < 50%

[2]Varied measures and interventions

[3]Sample > 400

[4]Serious limitation identified, Downgrade x1

[5]Sample <400

[6]2 serious limitations, downgrade 2 x

[7]Very serious and serious limitation; Downgrade x 3

[9]Very serios limitation; downgrade x 2

[10]I sq > 50%
[11]Single study
[12]Sample < 100
[13]Good effect size
[14]>60% trial low risk of bias
[15]Pooled dementia and MCI population and varied interventions and measures used

Table 13: Horticultural therapy vs usual care

Author(s): Edwin Tan & Margaret MacAndrew
Date: 2022
Question: Does horticultural therapy vs no horticultural therapy (usual care) improve outcomes in people with dementia?
Setting: Institutional/health care settings
Reference List: Lu, L. C., Lan, S. H., Hsieh, Y. P., Yen, Y. Y., Chen, J. C., & Lan, S. J. (2020). Horticultural Therapy in Patients With Dementia: A Systematic Review and Meta-Analysis. American Journal of Alzheimer's Disease & Other Dementias, 35, 1533317519883498. https://doi.org/https://dx.doi.org/10.1177/1533317519883498

Certainty assessment							№ of patients		Effect		Certainty *	Importance *
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Agitation) – Higher scores indicate more severe agitation												
5	Observational (Pre-post studies)	No serious [1]	No serious	Serious[2]	No serious	None	237	233	SMD -0.59 (-0.77, -0.40)		⊕⊕⊕◯ Moderate[6]	Critical
Other (Time spent engaged in activity) – Higher score indicate greater engagement												
3	Observational (comparative studies)	No serious [3]	Serious[4]	Serious[2]	Serious[5]	None	73	69	MD 45.10 (7.27, 82.92); SMD 3.54 (3.02, 4.08)		⊕◯◯◯ Very Low[7]	Important
Other (Inactivity status) – Higher scores indicate greater inactivity												
3	Observational (comparative studies)	No serious [3]	Serious[4]	Serious[2]	Serious[5]	None	73	69	MD -29.36 (-51.85, -6.87); SMD -1.27 (-1.63, -0.91)		⊕◯◯◯ Very Low[7]	Important

CI: confidence interval; SMD: standardized mean difference.

*4 categories of quality of evidence: ⊕⊕⊕⊕ (High), ⊕⊕⊕◯ (Moderate), ⊕⊕◯◯ (Low), ⊕◯◯◯ (Very low). Examples are provided in the table. 3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[1] 4 studies rated as medium quality and 1 study as high quality using JBI tool

[2] Different interventions and settings assessed
[3] 2 studies rated as medium quality and 1 study as high quality using JBI tool
[4] I^2 >50%
[5] sample size <400 people
[6]Serious limitation identified; downgrade x 1
[7]3 serious limitation; downgrade x 3

Table 14: Reminiscence Therapy compared to control groups (usual care or alternative care) on depressive symptoms in older adults with dementia

Author(s): Hyobum Jang, Mirim Shin
Date: 2022
Question: Are reminiscence therapy interventions effective for improving depressive symptoms in older adults with dementia?
Setting: Community
Reference List: Kim, K., & Lee, J. (2019). Effects of Reminiscence Therapy on Depressive Symptoms in Older Adults with Dementia: A Systematic Review and Meta-Analysis. Journal of Korean Academy of Nursing. Vol. 49(3). Korean Society of Nursing Science. Pages 225-240. https://doi.org/10.4040/jkan.2019.49.3.225

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[2]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Depressive symptoms (Overall)) – Higher scores indicate more severe depressive symptoms												
22	Randomized controlled trials	Not serious[3]	Serious[4]	Serious[5]	Not serious	None[6]	735	728		Hedge's g -0.62 (-0.92, -0.31), p<0.001	⊕⊕◯◯ Low	Critical
BPSD (Depressive symptoms (subgroup*: age ≤ 80y)) – Higher scores indicate more severe depressive symptoms												
14	Randomized controlled trials	Serious[7]	Serious[8]	Serious[5]	Not serious	None[6]	396	395		Hedge's g -0.83 (-1.24, -0.42), p<0.001	⊕◯◯◯ Very low	Critical
BPSD (Depressive symptoms (subgroup*: age ≥ 81y)) – Higher scores indicate more severe depressive symptoms												
8	Randomized controlled trials	Not serious[3]	Serious[8]	Serious[5]	Serious[9]	None[6]	339	395		Hedge's g -0.31 (-0.81, 0.20), p=0.244	⊕◯◯◯ Very low	Critical
BPSD (Depressive symptoms (subgroup: Severity of dementia: Mild-Moderate)) – Higher scores indicate more severe depressive symptoms												
6	Randomized controlled trials	Not serious[3]	Serious[8]	Serious[5]	Serious[10]	None[6]	87	91		Hedge's g -0.77 (-1.38, -0.16), p=0.013	⊕◯◯◯ Very low	Critical

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[2]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Depressive symptoms (subgroup: Severity of dementia: Mild-Severe)) – Higher scores indicate more severe depressive symptoms												
16	Randomized controlled trials	Not serious[3]	Serious[8]	Serious[5]	Not serious	None[6]	648	637		Hedge's g -0.57 (-0.91, -0.22), p=0.001	⊕⊕◯◯ Low	Critical
BPSD (Depressive symptoms (subgroup: Group intervention)) – Higher scores indicate more severe depressive symptoms												
19	Randomized controlled trials	Not serious[11]	Serious[8]	Serious[5]	Not serious	None[6]	646	639		Hedge's g -0.67 (-1.00, -0.36), p<0.001	⊕⊕◯◯ Low	Critical
BPSD (Depressive symptoms (subgroup: Individual intervention)) – Higher scores indicate more severe depressive symptoms												
3	Randomized controlled trials	Not serious[12]	Serious[8]	Serious[5]	Serious[13]	None[6]	89	89		Hedge's g -0.34 (-1.14, 0.46), p=0.407	⊕◯◯◯ Very low	Critical
BPSD (Depressive symptoms (subgroup*: Length of intervention: <40 min)) – Higher scores indicate more severe depressive symptoms												
3	Randomized controlled trials	Not serious[11]	Serious[8]	Serious[5]	Serious[10]	None[6]	66	65		Hedge's g -1.07 (-1.85, -0.30), p=0.007	⊕◯◯◯ Very low	Important
BPSD (Depressive symptoms (subgroup*: Length of intervention: 40-49 min)) – Higher scores indicate more severe depressive symptoms												
7	Randomized controlled trials	Not serious[15]	Serious[8]	Serious[5]	Serious[10]	None[6]	172	173		Hedge's g -0.77 (-1.27, -0.27), p=0.003	⊕◯◯◯ Very low	Important
BPSD (Depressive symptoms (subgroup*: Length of intervention:50-59 min)) – Higher scores indicate more severe depressive symptoms												
1	Randomized controlled trial	Not serious[11]	Serious[8]	Serious[5]	Very serious[14]	None[6]	29	29		Hedge's g -0.50 (-1.73, 0.74), p=0.433	⊕◯◯◯ Very low	Important

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[2]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Depressive symptoms (subgroup*: Length of intervention: 60-69 min)) – Higher scores indicate more severe depressive symptoms												
7	Randomized controlled trials	Not serious[11]	Serious[8]	Serious[5]	Serious[13]	None[6]	128	123		Hedge's g -0.29 (-0.76, 0.18), p=0.227	⊕◯◯◯ Very low	Important
BPSD (Depressive symptoms (subgroup*: Length of intervention: 90-99 min)) – Higher scores indicate more severe depressive symptoms												
2	Randomized controlled trials	Not serious[12]	Serious[8]	Serious[5]	Serious[13]	None[6]	180	180		Hedge's g -1.26 (-2.75, 0.22), p=0.096	⊕◯◯◯ Very low	Important
BPSD (Depressive symptoms (subgroup*: Length of intervention: 100+ min)) – Higher scores indicate more severe depressive symptoms												
1	Randomized controlled trial	Not serious[15]	Serious[8]	Serious[5]	Very serious[16]	None[6]	7	7		Hedge's g -2.49 (-4.29, -0.69), p=0.007	⊕◯◯◯ Very low	Important
BPSD (Depressive symptoms (subgroup*: Number of interventions: ≤8)) – Higher scores indicate more severe depressive symptoms												
9	Randomized controlled trials	Not serious[11]	Serious[8]	Serious[5]	Serious[10]	None[6]	185	180		Hedge's g -0.74 (-1.24, -0.24), p=0.004	⊕◯◯◯ Very low	Important
BPSD (Depressive symptoms (subgroup*: Number of interventions: 9-18)) – Higher scores indicate more severe depressive symptoms												
11	Randomized controlled trials	Not serious[3]	Serious[8]	Serious[5]	Not serious	None[6]	371	372		Hedge's g -0.66 (-1.11, -0.21), p=0.004	⊕⊕◯◯ Low	Important
BPSD (Depressive symptoms (subgroup*: Number of interventions: 19+)) – Higher scores indicate more severe depressive symptoms												
1	Randomized controlled trial	Not serious[11]	Serious[8]	Serious[5]	Very serious[14]	None[6]	26	25		Hedge's g -0.39 (-1.81, 1.03), p=0.599	⊕◯◯◯ Very low	Important

CI: confidence interval; SMD: standardized mean difference.
[1]4 categories of quality of evidence: ⊕⊕⊕⊕ (High), ⊕⊕⊕◯ (Moderate), ⊕⊕◯◯ (Low), ⊕◯◯◯ (Very low). Examples are provided in the table.
[2]3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.
[3]50-60% of included studies had low risk and the proportion of high risk was less than 25%.
[4]Based on the I^2 values (≥50% downgraded)
[5]Varied population (age groups, severity of dementia), measurements and/or types/modality/length/number of interventions (no standard protocols).
[6]Based on all 22 papers they reviewed, Egger: bias = -3.66 ($p<0.01$), Nfs=429
[7]The proportion of studies with high/low/unclear was all lower than 50% and the proportion of high risk was greater than 25%.
[8]No I^2 reported for subgroup analysis
[9]The confidence interval crosses the no effect threshold
[10]The study had a small sample size ($n<400$) which did not meet the requirements of optimal information size (OIS)
[11]The proportion of studies with high/low/unclear was all lower than 50% and the proportion of high risk was less than 25%.
[12]The vast majority of trials (>60%) are low risk.
[13]The study had a small sample size ($n<400$) which did not meet the requirements of optimal information size (OIS) and the confidence interval crosses the no effect threshold.
[14]The study had a small sample size ($n<100$) and the confidence interval crosses the no effect threshold.
[15]The proportion of studies with unclear risk was between 50-60% and the proportion of high risk was less than 25%.
[16]The study had a small sample size ($n<100$).
*There was no significant difference between sub-groups: by age, p=0.222; by number of interventions. p=0.558; by length of intervention: p=0.909. No p-value was reported for severity group and the types of intervention.

Table 15: Aromatherapy compared to control groups (usual care) on agitation in older adults with dementia

Author(s): Hyobum Jang, Mirim Shin
Date: 2022
Question: Are aromatherapy interventions effective for improving agitation in people with dementia?
Setting: Nursing home/care facility, hospital, or community
Reference List: Kim, EK, Park, H., Lee, CH, & Park, E. (2019). Effects of Aromatherapy on Agitation in Patients with Dementia: A Systematic Literature Review and Meta-analysis. Journal of Korean Academy of Community Health Nursing. Korean Academy of Community Health Nursing. Pages 183-194. https://doi.org/10.12799/jkachn.2019.30.2.183

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[2]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Agitation (Overall)) – Higher score indicates greater agitation												
9	Randomized controlled trials	Not serious[3]	Serious	Serious[4]	Not serious	NR[5]	267	255		SMD -0.56 (-0.83, -0.30), p=0.001	⨁⨁◯◯ Low	Critical
BPSD (Agitation (subgroup: Mild to moderate dementia)) – Higher score indicates greater agitation												
2	Randomized controlled trials	Not serious[6]	Not serious	Not serious	Very serious[7]	NR[5]	41	32		SMD -0.37 (-0.78, 0.04)	⨁⨁◯◯ Low	Critical
BPSD (Agitation (subgroup: Severe dementia)) – Higher score indicates greater agitation												
4	Randomized controlled trials	Not serious[6]	Not serious	Serious[4]	Serious[8]	NR[5]	134	137		SMD -0.86 (-1.23, -0.49)	⨁⨁◯◯ Low	Critical
BPSD (Agitation (subgroup: Period of intervention ≤ 4 weeks)) – Higher score indicates greater agitation												
5	Randomized controlled trials	Not serious[6]	Not serious	Serious[4]	Serious[8]	NR[5]	151	140		SMD -0.76 (-1.11, -0.42)	⨁⨁◯◯ Low	Critical
BPSD (Agitation (subgroup: Period of intervention > 4 weeks)) – Higher score indicates greater agitation												
4	Randomized controlled trials	Not serious[6]	Not serious	Serious[4]	Serious[8]	NR[5]	116	115		SMD -0.37 (-0.69, -0.06)	⨁⨁◯◯ Low	Important
BPSD (Agitation (subgroup*: Application method: Massage)) – Higher score indicates greater agitation												
5	Randomized controlled trials	Not serious[6]	Not serious	Serious[4]	Serious[8]	NR[5]	125	112		SMD -0.37 (-0.63, -0.11)	⨁⨁◯◯ Low	Critical

Certainty assessment							№ of patients		Effect		Certainty[1]	Importance[2]
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Interventions	Control	Relative (95% CI)	Absolute (95% CI)		
BPSD (Agitation (subgroup*: Application method: Others)) – Higher score indicates greater agitation												
4	Randomized controlled trials	Not serious[6]	Not serious	Serious[4]	Serious[8]	NR[5]	142	143		SMD -0.98 (-1.25, -0.71)	⨁⨁◯◯ (Low)	Critical
BPSD (Agitation (subgroup: Type of aroma: Lavender)) – Higher score indicates greater agitation												
7	Randomized controlled trials	Not serious[6]	Not serious	Serious[4]	Serious[8]	NR[5]	199	188		SMD -0.65 (-0.86, -0.44)	⨁⨁◯◯ (Low)	Critical
BPSD (Agitation (subgroup: Type of aroma: Melissa)) – Higher score indicates greater agitation												
2	Randomized controlled trials	Not serious[6]	Serious[4]	Not serious	Serious[8]	NR[5]	68	67		SMD -0.69 (-1.08, -0.30)	⨁⨁⨁◯ (Moderate)	Critical

CI: confidence interval; MCI: Mild cognitive impairment; SMD: standardized mean difference.

[1]4 categories of quality of evidence: ⨁⨁⨁⨁ (High), ⨁⨁⨁◯ (Moderate), ⨁⨁◯◯ (Low), ⨁◯◯◯ (Very low). Examples are provided in the table.

[2]3 categories of importance: critical for decision making (Critical), important but not critical for decision making (Important), Not important for decision making – of lower importance to people living with dementia.

[3]The vast majority of trials (>60%) are low risk.

[4]Different population (severity of symptoms) or setting (most of study was done in nursing home/care facility but one study was done in hospital setting, and one study was done in the community)

[5]Not reported of any publication bias

[6]The risk of bias for the primary studies in this analysis could not be estimated. Therefore, the aggregated risk of bias across all included studies was taken.

[7]The study had a small sample size (n<100) and the confidence interval crosses the no effect threshold.

[8]The study had a small sample size (n<400) which did not meet the requirements of optimal information size (OIS)

*There was a significant difference between application methods (massage vs other) (p=0.001). There was no significant difference between other sub-groups.

3.3.1 Additional evidence not mentioned in GRADE tables

Watt et al., 2019: This systematic review and network meta-analysis contrasted pharmacological vs non-pharmacological interventions for treating aggression and agitation in adults with dementia. A total of 163 studies (21 143 participants) were included in the network meta-analysis. Across five outcomes of treatment efficacy for aggression and agitation in persons with dementia, three non-pharmacologic interventions were clinically efficacious compared with usual care: multidisciplinary care (SMD, –0.5 [95% credible interval {CrI}, –0.99 to –0.01]), massage and touch therapy (SMD, –0.75 [CrI, –1.12 to –0.38]), and music combined with massage and touch therapy (SMD, –0.91 [CrI, –1.75 to –0.07]). Due to missing outcome data, 46% of studies were at high risk of bias. Non-pharmacologic interventions may be efficacious because behaviour has meaning, which needs to be uncovered through multidisciplinary assessments and care that addresses underlying needs.

Watt et al., 2021: This systematic review and network meta-analysis compared the efficacy of pharmacological vs non-pharmacological interventions for reducing symptoms of depression in people with dementia who experience depression as a neuropsychiatric symptom of dementia or have a diagnosis of a major depressive disorder. A total of 256 studies (28 483 participants) were included. The network meta-analysis found that in dementia patients with symptoms of depression, seven interventions were associated with a greater reduction in symptoms of depression compared with usual care: cognitive stimulation (mean difference −2.93, 95% credible interval −4.35 to −1.52), cognitive stimulation combined with a cholinesterase inhibitor (−11.39, −18.38 to −3.93), massage and touch therapy (−9.03, −12.28 to −5.88), multidisciplinary care (−1.98, −3.80 to −0.16), occupational therapy (−2.59, −4.70 to −0.40), exercise combined with social interaction and cognitive stimulation (−12.37, −19.01 to −5.36), and reminiscence therapy (−2.30,−3.68 to −0.93). Comparisons of interventions in subgroups of patients who had co-morbid major depressive disorder were not conducted due to clinical and methodological heterogeneity. Overall, non-pharmacological approaches were associated with a meaningful reduction in symptoms of depression in people with dementia and without a diagnosis of a major depressive disorder. Drug approaches alone, however, were not more efficacious than usual care.

Wong et al., 2021: This systematic review and meta-analysis focused on the effects of cognitive stimulation on cognition, depressive symptoms, and quality of life in people with mild to moderate dementia. Twenty RCTs (parallel or cross-over designs) with a total of 1251 participants (intervention group: 674; control group: 577) were included for meta-analysis. Compared to inactive controls (no active treatment, waitlist control, or treatment as usual), cognitive stimulation had a significant positive small-to-moderate effect on cognition. Intervention effects on depressive symptoms and quality of life were inconclusive. The quality of evidence was limited by the methodological quality of included studies and unexplained heterogeneity. Future studies with more robust methodology establishing evidence of its efficacy are required.

Doris et al., 2021: This systematic review and meta-analysis focused on the effects of music participation on cognitive functioning, emotional well-being, and social engagement. Twenty-one randomized controlled trials (parallel or crossover) with a total of 1472 participants were included in the qualitative synthesis. Nine RCTs with total 492 participants were included for meta-analysis for cognitive functioning. Compared to controls (of no active treatment, waitlist control, or treatment as usual), the meta-analysis demonstrated music making to have a small but statistically significant improvement on cognitive function. Intervention effects from individual studies reported potential positive effects for quality of life (6 studies) and mood (3 studies). Intervention effects from individual study results for depression (6 studies), anxiety (5 studies) was inconclusive. No positive effect was reported on social engagement (2 studies). The quality of evidence was limited by the methodological quality (incomplete data for reporting effect sizes) of all studies.

Sun et al., 2021: This systematic review and meta-analysis focused on the effects of group cognitive stimulation therapy (group CST), maintenance cognitive stimulation therapy (MCST), and individual cognitive stimulation therapy (iCST) on cognition and QoL in people with dementia. Seventeen RCTs with 1680 participants compared differences among the three types of cognitive stimulation therapy (CST; MCST; iCST) or a control group (of no treatment, usual care compared with the control group, MSCT (SMD 1.39, 95% CI 0.86, 1.91; low-quality evidence] and group CST (SMD 0.62, 95% CI 0.39, 0.84; very low-quality evidence) on improvement in cognitive function. MCST (SMD 1.00, 95% CI 0.16, 1.85; low-quality evidence) and group CST (SMD 0.53, 95% CI 0.13, 0.92; low-quality evidence) demonstrated a statistically significantly effect in improving QoL, while iCST was not significantly inferior to the control condition. None of the treatments were significantly different from each other with respect to acceptability. The quality of evidence was limited by the methodological quality of included studies and small recruitment. Future studies with more robust methodology establishing evidence of its efficacy are required, particularly in MCST and iCST.

Dauwan et al., 2021: This systematic review performed meta-analysis to synthesis evidence related to the effect of physical exercise interventions on quality of life, depression, and cognitive function in people with chronic brain disorder including people with Alzheimer's disease. One-hundred and twenty-two studies were included with 14 of these relevant to people with Alzheimer's disease specifically. While there were issues with heterogeneity of studies when individual brain disorders were synthesized, by combining the range of brain disorders with commonalities, this was overcome. Similarly, included studies had small sample sizes impacting the risk of bias and quality of evidence which was improved by combining participant groups. Findings indicate a significant medium-size effect (ES=0.40) of exercise as an add-on therapeutic intervention on QoL (k=64, n=4334), a large effect (ES=0.78) on depressive symptoms (k = 60, n = 2909) and a small but significant effect (ES=0.12–0.24) on improving function in several cognitive domain. Global cognition showed a trend of improving in fifteen studies n (ES = 0.30, 95% CI − 0.03 to 0.63, p = 0.076) and when outliers (n = 2), small studies (n = 3) and a study with high risk of bias were excluded from the analysis, significance was shown (k = 10, n = 620, ES = 0.39, 95% CI 0.09–0.68, p = 0.010). The limitations of this review included having to exclude studies from the cognitive meta-analysis which impacted overall effect size, and inconsistency in outcome measures and types of interventions included as well as publication bias have impacted the strength of evidence. To improve the health status of people with chronic brain disorder, physical exercise should be an add on to treatment.

Saul, S. F., 2019: The aim of this meta-analysis was to examine the effects of exercise interventions (sole intervention) on cognitive function in people with dementia. Twenty-one trials were included in the review and found a positive effect on cognitive function a (SMD = 0.49, 95% CI [0.24 - 0.75], P = 0.0002). However, 6/21 studies did not find a positive effect on cognitive function, there was substantial heterogeneity, and the studies were rated as low quality.

Ali, N., 2022: The review carried out by Ali et al., 2022, identified 21 RCTs meeting the inclusion criteria (containing 2221 participants). Dual-task training (simultaneous or subsequent combined physical and cognitive training) resulted in change in global cognitive function; SMD = 0.24, (P = 0.002), memory; SMD = 0.28, (P = 0.000), executive function; SMD = 0.35, (P = 0.000), attention; SMD = −0.19, (P = 0.1), gait speed; SMD = 0.26, (P = 0.007), dual-task cost; SMD 0.56, (P = 0.000), and balance; SMD 0.36, (P = 0.004). Overall, a small-to-medium positive effect of dual-task training interventions on cognitive functions and medium-to-large positive effect on gait functions and balance was observed. Limitations of this review include the inconsistencies in intervention, duration, frequency, settings, and the classification of cognitive impairment; and the complexity of the dual-task and systematic differences between population groups base statistics makes the findings prone to bias and differential outcome.

Russ, J., 2021: The review carried out by Russ et al., 2021, identified nine RCTs meeting the inclusion criteria (containing 456 participants). These RCTs were from three large-scale research projects which were based on the high-intensity functional exercise (HIFE) program incorporating strength, balance, and mobility exercises of the lower limbs. There was an overall good study quality (mean PEDro score= 7.6± 0.7). Compared to seated control activities, strength, and balance high-intensity training (HIT) resulted in statistically significant but small positive effects on balance performance (MD = 2.31, 95% CI = 0.44–4.17, p = 0.02; I2 = 73%) and on the abilities to independently perform ADLs (SMD = 0.28, 95% CI = 0.12–0.44, p = 0.0006; I2 = 0%). No differences were found in cognitive function, depressive symptoms and QoL. Limitations of this review include that studies were from 3 large-scale research projects which may limit generalisability, and potential publication bias.

4. From Evidence to Recommendations

4.1. Summary of findings

Table 16: Summary of findings table

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
GRADE Table 1 Animal-assisted therapy (AAT) compared to no AAT (standard care, reminiscing activities, cooking, or exercise therapy)	Lai et al. 2019	BPSD (Depression)	2	MD –2.87 [CI –5.24, –0.50] SMD -0.52 (-0.96, -0.08)	⊕⊕◯◯ Low
		BPSD (Agitation or irritability)	3	SMD –0.39 [CI –0.89, 0.1]	⊕◯◯◯ Very low
		BPSD (Behaviour)	3	SMD –0.34 [–0.98, 0.30]	⊕◯◯◯ Very low
		Everyday function (Social functioning)	1	MD –0.4 [CI –3.41, 2.61]	⊕⊕◯◯ Low
		Everyday function (Physical functioning)	1	MD 4.65 [CI –16.05, 25.35]	⊕⊕◯◯ Low
		Everyday function (Physical functioning: self-care ability)	1	MD 2.2 [CI –1.23, 5.63]	⊕⊕◯◯ Low
		Quality of life (Health-related quality of life)	3	MD 0.45 [CI –1.28, 2.18]	⊕⊕⊕◯ Moderate
		Other (Adverse events)	0	-	-
GRADE Table 2 Personally tailored activities compared to usual care and attention control	Möhler et al. 2020	BPSD (Affect)	1	MD –0.47 [CI –1.37, 0.43]	⊕⊕◯◯ Low
		BPSD	4	SMD –0.44 [CI –0.77, –0.1]	⊕⊕◯◯ Low
		BPSD (Depression)	2	Two studies found little or no difference of personally tailored activities compared	⊕⊕◯◯ Low

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
				with usual care or an attention control group on depression	
		Quality of life	2	Meta-analysis not performed due to pronounced baseline differences in Novelli 2018).	⊕⊕◯◯ Low
GRADE Table 3 Dance-based interventions compared to no treatment, usual care or waiting list group	Wang et al. 2022	BPSD (Depression)	5	SMD –0.42 [CI –0.6, –0.23]	⊕⊕⊕◯ Moderate
		BPSD (Anxiety)	1	MD –0.63, [CI –2.36, 1.10, p = 0.47]	⊕⊕◯◯ Low
GRADE Table 4 Cognitive training compared to passive, active or alternative treatment control	Bahar-Fuchs et al. 2019	Cognitive Function (Global cognition (composite) – immediately post intervention)	27	SMD 0.42 [CI 0.23, 0.62]	⊕⊕⊕◯ Moderate
		Cognitive Function (Global cognition – immediately post intervention)	20	SMD 0.65 [CI 0.26, 1.05]	⊕⊕◯◯ Low
		Cognitive Function (Global cognition (composite) - 3 to 12 months post intervention)	8	SMD 0.65 [CI 0.11, 1.2]	⊕◯◯◯ Very low
		Cognitive Function (memory - Immediately post-intervention)	11	SMD 0.81 [CI 0.29, 1.32]	⊕◯◯◯ Very low
		Cognitive Function (memory - 3 to 12 months post intervention)	4	SMD 0.97 [CI 0.02, 1.92]	⊕◯◯◯ Very low
		Cognitive Function (screening - 3 to 12 months post intervention)	6	SMD 1.33 [CI 0.31, 2.34]	⊕◯◯◯ Very low

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
		BPSD (mood - Immediately post-intervention)	8	SMD 0.72 [CI – 0.1, 1.54]	⊕◯◯◯ Very low
		BPSD (mood - 3 to 12 months post intervention)	2	SMD 0.21 [CI –0.54, 0.96]	⊕⊕◯◯ Low
		Everyday Function (ADL - Immediately post-intervention)	10	SMD 0.12 [CI –0.11, 0.35]	⊕⊕◯◯ Low
		Everyday Function (ADL – 3 to 12 months post intervention	3	SMD 0.22 [CI –0.5, 0.94]	⊕⊕◯◯ Low
		Other (Participant burden (retention rates) - Immediately post-intervention)	17	OR 0.73 [0.37, 1.43]	⊕⊕◯◯ Low
		Other (Disease progression - 3 to 12 months post intervention)	3	SMD 0.55 [CI 0.12, 0.98]	⊕◯◯◯ Very low
GRADE Table 5 Cognitive stimulation therapy compared to treatment as usual, active control (group interaction and/or structured activities) or passive control (usual care)	Saragih et al. 2019 Cafferata et al. 2021	Cognitive Function (Saragih et al., 2022)	11	SMD 0.97 [CI 0.66, 1.28]	⊕⊕◯◯ Low
		Cognitive Function (post-test) (Cafferata et al., 2021)	42	Hedge's g 0. 49 [CI 0.35, 0.63]	⊕⊕◯◯ Low
		Cognitive Function (follow up) (Cafferata et al., 2021)	9	Hedge's g 0.22 [CI –0.09, 0.54]	⊕◯◯◯ Very low
		Cognitive Function (Memory) (Cafferata et al., 2021)	15	Hedge's g 0.34 [CI 0.06, 0.62]	⊕⊕◯◯ Low
		Cognitive Function (Language) (Cafferata et al., 2021)	14	Hedge's g 0.10 [CI –0.47, 0.67]	⊕◯◯◯ Very Low
		BPSD (Anxiety) (Cafferata et al., 2021)	5	Hedge's g 0.25 [CI –0.28, 0.77]	⊕⊕⊕◯ Moderate
		BPSD (Behaviour) (Cafferata et al., 2021)	11	Hedge's g 0.28 [CI –0.60, 1.17]	⊕⊕◯◯ Low

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
		BPSD (Depression) (Saragih et al., 2022)	3	SMD −0.18 [CI −0.33, −0.04]	⊕⊕⊕◯ Moderate
		BPSD (Neuropsychiatric symptoms) (Saragih et al., 2022)	3	SMD −0.12 [CI −0.32, 0.08]	⊕⊕◯◯ Low
		Everyday function (Cafferata et al., 2021)	14	Hedges g 0.17 [CI 0.02, 0.32]	⊕⊕⊕⊕ High
		Quality of life (Cafferata et al., 2021)	11	Hedge's g 0.16 [CI –0.16, 0.48]	⊕◯◯◯ Very low
		Dementia ratings (Cafferata et al., 2021)	7	Hedge's g 0.66 [CI 0.02, 1.29]	⊕⊕⊕◯ Moderate
GRADE Table 6 Music therapy compared to active controls (dancing to music, making music using musical instruments, active singing) or passive listening to music	Moreno-Morales et al. 2020	Cognitive function	8	SMD −0.23 [CI −0.44, −0.02]	⊕◯◯◯ Very low
		BPSD (Depressive state)	2	SMD 0.16 [CI −0.54, 0.87]	⊕◯◯◯ Very low
		BPSD (Depressive state 6 months after the intervention)	4	SMD −0.25 [CI 0.68, 0.18]	⊕◯◯◯ Very low
		Quality of life	3	SMD −0.36 [CI −0.62, 0.10]	⊕◯◯◯ Very low
		Quality of life (6 months after intervention)	2	SMD −0.34 [CI −0.78, 0.10]	⊕◯◯◯ Very low
GRADE Table 7 Physical activity (PA) compared to no physical activity (usual medical treatment)	Zhou et al. 2022	Cognitive function (Global cognition)	16	SMD 0.41 (0.24, 0.58)	⊕⊕⊕⊕ High
		Everyday function (ADL)	8	SMD 0.56 (0.32, 0.79)	⊕⊕⊕⊕ High
GRADE Table 8 Assistive technology (AT) compared to no	Brims et al. 2019	BPSD (Depression)	1	SMD 0.28 (-0.55, 1.13)	⊕◯◯◯ Very low
		BPSD (Agitation)	1	SMD -0.16 (-1.00, 0.68)	⊕◯◯◯ Very low

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
assistive technology (usual treatment)		Everyday function	1	SMD -0.27 (-1.11, 0.57)	⊕◯◯◯ Very low
		Falls	2	RR 0.5 (0.32, 0.78)	⊕⊕◯◯ Low
		Aged care home admission	2	RR 0.85 (0.37, 1.97)	⊕⊕◯◯ Low
GRADE Table 9 Mindfulness-based intervention compared to no intervention	Nagaoka et al. 2021	Cognitive functioning (6-10 weeks)	1	SMD 0.35 (-0.48, 1.17)	⊕◯◯◯ Very low
		Cognitive functioning (11 weeks – 6 months)	1	SMD 1.19 (0.68, 1.71)	⊕◯◯◯ Very low
		BPSD (Anxiety symptoms (6-10 weeks))	4	SMD 0.09 (-0.26, 0.44)	⊕◯◯◯ Very Low
		BPSD (Anxiety symptoms (11 weeks – 6 months))	1	SMD 0.09 (-0.50, 0.67)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (6-10 weeks))	3	SMD 0.20 (-0.22, 0.62)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (11 weeks – 6 months))	1	SMD 0.07 (-0.52, 0.65)	⊕◯◯◯ Very low
		Everyday function (ADL)	1	SMD -1.20 (-1.84, -0.56)	⊕◯◯◯ Very low
		Quality of life (6-10 weeks)	2	SMD 0.35 (-0.40, 1.10)	⊕◯◯◯ Very low
		Quality of life (11 weeks – 6 months)	2	SMD 0.19 (-0.40, 0.77)	⊕◯◯◯ Very low
GRADE Table 10 Psycho-behavioural educative interventions, multimodal intervention or art	Lin et al. 2021	BPSD (Depression, Psycho-behavioural educative interventions)	8	SMD -0.27 [-0.70, 0.17]	⊕◯◯◯ Very Low
		BPSD (Depression, Multimodal Intervention)	5	SMD -0.14 [-0.84, -0.10]	⊕◯◯◯ Very low
		BPSD (Depression, Art therapy)	1	SMD 0 [-0.63, 0.63]	⊕⊕◯◯ Low

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
therapy compared to usual care		BPSD (Apathy, Art therapy)	1	SMD 0.13 [-0.50, 0.75]	⊕⊕◯◯ Low
		BPSD (Neuropsychiatric symptoms, Art therapy)	1	SMD 0.18 (-0.45, 0.81]	⊕⊕◯◯ Low
GRADE Table 11 Cognitive behavioural therapy (CBT) or supportive and counselling (S&C) interventions compared to usual treatment	Orgeta et al. 2022	Cognitive function (CBT)	5	SMD 0.13 [-0.04, 0.30]	⊕⊕◯◯ Low
		Cognitive function (S&C)	6	SMD 0.11 [-0.03, 0.26]	⊕⊕◯◯ Low
		BPSD (Depressive symptoms, CBT)	10	SMD -0.04 [-0.57, -0.23]	⊕⊕⊕◯ Moderate
		BPSD (Depression Remission, CBT)	2	SMD 1.84 [1.18, 2.88]	⊕⊕◯◯ Low
		BPSD (Anxiety, CBT)	3	SMD -0.03 [-0.36, 0.30)	⊕◯◯◯ Very low
		BPSD (Neuropsychiatric symptoms, CBT)	5	SMD -0.06 [-0.26, 0.14]	⊕⊕◯◯ Low
		BPSD (Depressive symptoms, S&C)	9	SMD -0.05 [-0.18, 0.07]	⊕⊕◯◯ Low
		BPSD (Anxiety, S&C)	1	MD -0.80 [-3.07, 1.47]	⊕◯◯◯ Very low
		BPSD (Neuropsychiatric symptoms, S&C)	3	SMD 0.11 [-0.06, 0.29]	⊕⊕◯◯ Low
		Everyday function (ADL, CBT)	4	SMD -0.31 [-0.52, -0.09]	⊕⊕⊕◯ Moderate
		Everyday function (ADL, S&C)	3	SMD 0.17 [-0.01, 0.34]	⊕⊕◯◯ Low
		Quality of life (CBT)	7	SMD 0.31 [0.13, 0.50]	⊕⊕◯◯ Low
		Quality of life (S&C)	8	SMD 0.15 [0.02, 0.28]	⊕⊕◯◯ Low

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
GRADE Table 12 Horticultural therapy compared to no horticultural therapy (usual care)	Lu et al. 2020	BPSD (Agitation)	5	SMD -0.59 (-0.77, -0.40)	⊕⊕⊕◯ Moderate
		Other (Time spent engaged in activity)	3	MD 45.10 (7.27, 82.92) SMD 3.54 (3.02, 4.08)	⊕◯◯◯ Very low
		Other (Inactivity status)	3	MD -29.36 (-51.85, -6.87) SMD (-1.27 (-1.63, -0.91)	⊕◯◯◯ Very low
GRADE Table 13 Reminiscence therapy compared to usual care or alternative care	Kim & Lee 2019	BPSD (Depressive symptoms (Overall))	22	Hedge's g -0.62 (-0.92, -0.31)	⊕⊕◯◯ Low
		BPSD (Depressive symptoms (subgroup: age ≤ 80y))	14	Hedge's g -0.83 (-1.24, -0.42)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: age ≥ 81y))	8	Hedge's g -0.31 (-0.81, 0.20)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: Severity of dementia: Mild-Moderate))	6	Hedge's g -0.77 (-1.38, -0.16)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: Severity of dementia: Mild-Severe))	16	Hedge's g -0.57 (-0.91, -0.22)	⊕⊕◯◯ Low
		BPSD (Depressive symptoms (subgroup: Group intervention))	19	Hedge's g -0.67 (-1.00, -0.36)	⊕⊕◯◯ Low
		BPSD (Depressive symptoms (subgroup: Individual intervention))	3	Hedge's g -0.34 (-1.14, 0.46)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: Length of intervention: <40min))	3	Hedge's g -1.07 (-1.85, -0.30)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: Length of intervention: 40-49 min))	7	Hedge's g -0.77 (-1.27, -0.27)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: Length of intervention: 50-59 min))	1	Hedge's g -0.50 (-1.73, 0.74)	⊕◯◯◯ Very low

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
		BPSD (Depressive symptoms (subgroup: Length of intervention: 60-69 min))	7	Hedge's g -0.29 (-0.76, 0.18)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: Length of intervention: 90-100 min))	2	Hedge's g -1.26 (-2.75, 0.22)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: Length of intervention: 100+ min))	1	Hedge's g -2.49 (-4.29, -0.69)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: Number of interventions: ≤ 8))	9	Hedge's g -0.74 (-1.24, -0.24)	⊕◯◯◯ Very low
		BPSD (Depressive symptoms (subgroup: Number of interventions: 9-18))	11	Hedge's g -0.66 (-1.11, -0.21)	⊕⊕◯◯ Low
		BPSD (Depressive symptoms (subgroup: Number of interventions: 19+))	1	Hedge's g -0.39 (-1.81, 1.03)	⊕◯◯◯ Very low
GRADE Table 14 Aromatherapy compared to usual care	Kim et al. 2019	BPSD (Agitation (Overall))	9	SMD -0.56 (-0.83, -0.30)	⊕⊕◯◯ Low
		BPSD (Agitation (subgroup: Mild to moderate dementia))	2	SMD -0.37 (-0.78, 0.04)	⊕⊕◯◯ Low
		BPSD (Agitation (subgroup: Severe dementia))	4	SMD -0.86 (-1.23, -0.49)	⊕⊕◯◯ Low
		BPSD (Agitation (subgroup: Period of intervention ≤ 4 weeks))	5	SMD -0.76 (-1.11, -0.42)	⊕⊕◯◯ Low
		BPSD (Agitation (subgroup: Period of intervention > 4 weeks))	4	SMD -0.37 (-0.69, -0.06)	⊕⊕◯◯ Low

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
		BPSD (Agitation (subgroup: Application method: Massage))	5	SMD -0.37 (-0.63, -0.11)	⊕⊕◯◯ Low
		BPSD (Agitation (subgroup: Application method: Others))	4	SMD -0.98 (-1.25, -0.71)	⊕⊕◯◯ Low
		BPSD (Agitation (subgroup: Type of aroma: Lavender))	7	SMD -0.65 (-0.86, -0.44)	⊕⊕◯◯ Low
		BPSD (Agitation (subgroup: Type of aroma: Melissa))	2	SMD -0.69 (-1.08, -0.30)	⊕⊕⊕◯ Moderate

AAT: Animal-assisted therapy; BPSD: Behaviours and psychological symptoms of dementia; CBT: Cognitive behavioural therapy; CI: confidence interval; S&C: Strength and conditioning; SMD: standardized mean difference; MD: mean difference

4.2. Evidence to decision table

Table 17: Evidence to decision table
Please note * indicates evidence from overarching qualitative review by Gronholm et al, 2023.

Criteria, questions		Judgement	Research evidence	Additional considerations
Priority of the problem	Is the problem a priority? The more serious a problem is, the more likely it is that an option that addresses the problem should be a priority (e.g. diseases that are fatal or disabling are likely to be a higher priority than diseases that only cause minor distress). The more people who are affected, the more likely it is that an option that addresses the problem should be a priority.			
	• Are the consequences of the problem serious (that is, severe or important in terms of the potential benefits or savings)? • Is the problem urgent? • Is it a recognized priority (such as based on a political or policy decision)? [Not relevant when an individual patient perspective is taken]	☐ No ☐ Probably no ☐ Probably yes ☒ **Yes** ☐ Varies ☐ Don't know	More than 55 million people currently live with dementia worldwide, with an estimated 10 million new cases per year (WHO, 2021). Dementia is the 7th leading cause of death and is one of the major causes of disability and dependency amongst older adults worldwide. No disease-modifying cures exist. Pharmacological interventions are also limited. Antipsychotic medications used to manage behavioural and psychological symptoms of dementia hold heightened potential risk for physical and further cognitive decline. There is an urgent need for effective non-pharmacological interventions to support people with dementia.	None
Desirable Effects	How substantial are the desirable anticipated effects? The larger the benefit, the more likely it is that an option should be recommended.			
	• Judgements for each outcome for which there is a desirable effect • How substantial (large) are the desirable anticipated effects (including health and other benefits) of the option (taking into account the severity or importance of the desirable consequences and the number of people affected)?	☐ Trivial ☐ Small ☒ **Moderate** ☐ Large ☐ Varies ☐ Don't know	**Physical activity (moderate effect)** Small effect on cognition and medium effect on ADL/IADL function **Cognitive interventions (moderate effect)** • Cognitive stimulation: small to large effects on cognition; medium effect on dementia severity rating; negligible effects on depressive symptoms and ADL/IADL function.	Bar reminiscence and aromatherapy, subgroup analyses for patients with different stages of dementia (e.g. mild, moderate, or severe) were not performed due to insufficient data on

Criteria, questions	Judgement	Research evidence	Additional considerations
		• Cognitive training: small to large effects on cognition; medium effects on disease severity. • Reminiscence: medium to large on depressive symptoms. **Psychological interventions (moderate effect)** • CBT: small effects on ADL/IADL function and quality of life; negligible effects on depressive symptoms • Mindfulness-based interventions: large effects on cognition and ADL/IADL function (based on single RCT). **Other nonpharmacological interventions (moderate effect)** • These interventions are primarily studied in the context of BPSD. • Small to medium effects on agitation and depressive symptoms. • Aromatherapy has also large effect on agitation in some sub-sample analysis. • Music therapy has a small effect on cognition. **Cognitive functioning (global cognition)** The following interventions have a **large effect** towards improving cognitive functioning (global cognition): cognitive training (based on a screening measure at 3-12 months post intervention), cognitive stimulation and mindfulness-based intervention (at 11 weeks-6 months post intervention).	disease severity. On average, participants in the included studies were classified as having mild to moderate dementia. For reminiscence therapy, its effect on reducing depressive symptoms was larger for people with mild to moderate stages of dementia, compared to those with severe dementia. However, the certainty of evidence was very low. On the other hand, for aroma therapy its effect on reducing agitation was larger for people with severe dementia compared to those with mild to moderate dementia.

Criteria, questions	Judgement	Research evidence	Additional considerations
		The following interventions have a **medium effect** towards improving cognitive functioning (global cognition): cognitive training (immediately post intervention and based on a composite measure at 3-12 months post intervention). The following interventions have a **small effect** towards improving cognitive functioning (global cognition): cognitive training (based on a composite measure immediately post intervention), cognitive stimulation (at post-test), music therapy and physical activity. The following interventions have **no effect** towards improving cognitive functioning (global cognition): cognitive stimulation (at follow up), mindfulness-based interventions (at 6-10 weeks post intervention), CBT and supportive and counselling interventions. **Cognitive functioning (delayed memory/memory)** Cognitive training has a **large effect** towards improving cognitive functioning (delayed memory/memory) immediately post-intervention and at 3-12 months post-intervention. Cognitive stimulation has a **small effect** towards improving cognitive functioning (delayed memory/memory). **Cognitive functioning (language)** Cognitive stimulation has **no effect** towards improving cognitive functioning (language).	

Criteria, questions	Judgement	Research evidence	Additional considerations
		BPSD (affect/mood) The following interventions have **no effect** towards improving BPSD (affect/mood): personally tailored activities and cognitive training (immediately post intervention and at 3-12 months post-intervention). **BPSD (anxiety)** The following interventions have **no effect** towards improving BPSD (anxiety): dance-based interventions, cognitive stimulation mindfulness-based intervention (at 6-10 weeks post-intervention and 11 weeks-6 months post intervention), CBT and supportive and counselling. **BPSD (agitation or irritability)** The following interventions have a **large effect** towards improving BPSD (agitation or irritability): aromatherapy (for people with severe dementia and other application methods rather than massage). The following interventions have a **medium effect** towards improving BPSD (agitation or irritability): horticultural therapy and aromatherapy (for overall, for intervention less than 4 weeks and for either using Lavender or Melissa). Aromatherapy (for intervention greater than four weeks and application method by massage) has a **small effect** towards improving BPSD (agitation or irritability). The following interventions have **no effect** on BPSD (agitation or irritability): animal-assisted therapy,	

Criteria, questions	Judgement	Research evidence	Additional considerations
		assistive technology, and aromatherapy (for people with mild to moderate dementia). **BPSD (apathy)** Art therapy has **no effect** towards improving BPSD (apathy). **BPSD (behaviour)** Personally tailored activities have a **small effect** towards improving BPSD (behaviour). The following interventions had **no effect** towards improving BPSD (behaviour): animal-assisted therapy and cognitive stimulation. **BPSD (depression)** The following interventions have a **large effect** towards improving BPSD (depression): reminiscence therapy (for older adults aged under 80 and for therapy which lasted more than 100 minutes or less than 40 minutes). The following interventions have a **medium effect** towards improving BPSD (depression): animal-assisted therapy and reminiscence therapy (for overall, for people with mild-moderate or mild-severe dementia, for group intervention, for therapy which lasted between 40-49 minutes and for less than 18 times of reminiscence therapy). The following interventions have a **small effect** towards improving BPSD (depression): dance-based interventions, music therapy (6 months post-intervention), art therapy.	

Criteria, questions	Judgement	Research evidence	Additional considerations
		The following interventions have a **negligible effect** towards improving BPSD (depression): cognitive stimulation, multi-modal interventions, and CBT. The following interventions have **no effect** on BPSD (depression): personally-tailored activities, music therapy (immediately post intervention), assistive technology, mindfulness-based intervention (6-10 weeks post intervention and 11 weeks-6 months post intervention), psycho-behavioural educative interventions, art therapy and supportive and counselling interventions, reminiscence therapy (aged over 81, individual intervention and length of intervention between 50-59minutes, 60-69minutes or 90-100minutes). **BPSD (depression remission)** CBT has a **large effect** towards improving BPSD (depression remission). **BPSD (Neuropsychiatric symptoms)** The following interventions have **no effect** towards improving BPSD (neuropsychiatric symptoms): cognitive stimulation, art therapy, CBT, and supportive and counselling interventions. **Everyday functioning (ADLs)** Mindfulness-based interventions have a **large effect** towards improving everyday functioning (ADLs) both at 6-10 weeks post intervention and 11 weeks-6 months post intervention.	

Criteria, questions	Judgement	Research evidence	Additional considerations
		Physical activity has a **medium effect** towards improving everyday functioning (ADLs). CBT has a **small effect** towards improving everyday functioning (ADLs). Cognitive stimulation has a **negligible effect** towards improving everyday functioning (ADLs). The following interventions have **no effect** on everyday functioning (ADLs): cognitive training (immediately post-intervention and 3-12 months post-intervention), assistive technology and supportive and counselling interventions. **Everyday functioning (social functioning)** Animal-assisted therapy has **no effect** on everyday functioning (social functioning). **Everyday functioning (physical functioning)** Animal-assisted therapy has **no effect** on everyday functioning (physical functioning). **Everyday functioning (physical functioning: self-care ability)** Animal-assisted therapy has **no effect** on everyday functioning (physical functioning: self-care ability). **Quality of Life** CBT has a **small effect** towards improving quality of life. Supportive and counselling interventions have a **negligible effect** towards improving quality of life.	

Criteria, questions		Judgement	Research evidence	Additional considerations
			The following interventions have **no effect** towards improving quality of life: cognitive stimulation, music therapy (immediately and 6 months post-intervention) and mindfulness-based interventions (6-10 weeks post intervention and 11 weeks months post intervention). **Quality of Life (health related quality of life)** Animal-assisted therapy has **no effect** on quality of life (health related quality of life). **Self-efficacy** NOTE: No interventions reported self-efficacy as an outcome **Falls** The use of assistive technology was associated with reduced risk of falls (50% lower). **Hospital/aged care home admission** The use of assistive technology was not associated with changes in hospital/aged care home admission [RR 0.85 (0.37, 1.97)]. ***Other outcomes (not listed on PICO table)*** **Participant burden (retention rates)** Cognitive training was associated with retention rates immediately post-intervention [OR 0.73 (0.37, 1.43)]. **Disease progression**	

Criteria, questions		Judgement	Research evidence	Additional considerations
			Cognitive training has a **medium effect** towards delaying disease progression at 3-12 months post-intervention. **Dementia ratings** Cognitive stimulation has a **medium effect** towards reducing dementia ratings. **Time spent engaged in activity/inactivity status** Horticultural therapy has a **large** effect towards time spent engaged in activity/inactivity status.	
Undesirable Effects	How substantial are the undesirable anticipated effects? The greater the harm, the less likely it is that an option should be recommended.			
	• Judgements for each outcome for which there is an undesirable effect • How substantial (large) are the undesirable anticipated effects (including harms to health and other harms) of the option (taking into account the severity or importance of the adverse effects and the number of people affected)?	☐ Large ☐ Moderate ☒ **Small** ☐Trivial ☐ Varies ☐ Don't know	**Physical activity (small effect)** Potential risks and adverse events include injuries/falls; though not consistently reported across studies (Di Lorito et al, 2020; Borges-Machado et al, 2021) **Cognitive interventions (small effect)** • Cognitive stimulation: small to large effects on cognition; medium effect on dementia severity rating; negligible effects on depressive symptoms and ADL/IADL function. • Cognitive training: small to large effects on cognition; medium effects on disease severity. • Reminiscence: medium to large on depressive symptoms. **Psychological interventions (small effect)** • CBT: small effects on ADL/IADL function and quality of life; negligible effects on depressive symptoms.	None of the studies reported adverse outcomes or any harms as a result of any of the interventions. Overall, it is anticipated that an adverse impact from these non-pharmacological interventions would be minimal, and the potential benefits would outweigh any added burden that participation may entail.

Criteria, questions		Judgement	Research evidence	Additional considerations
			• Mindfulness-based interventions: large effects on cognition and ADL/IADL function (based on single RCT). **Other nonpharmacological interventions (small effect)** • These interventions are primarily studied in the context of BPSD. • Small to medium effects on agitation and depressive symptoms. • Aromatherapy has also large effect on agitation in some sub-sample analysis. • Music therapy has a small effect on cognition.	
Certainty of evidence	What is the overall certainty of the evidence of effects? The less certain the evidence is for critical outcomes (those that are driving a recommendation), the less likely that an option should be recommended (or the more important it is likely to be to conduct a pilot study or impact evaluation, if it is recommended).			
	• What is the overall certainty of this evidence of effects, across all of the outcomes that are critical to making a decision? • See GRADE guidance regarding detailed judgements about the quality of evidence or certainty in estimates of effects	☐ Very low ☒ **Low** ☐ Moderate ☐ High ☐ No included studies	**Physical activity (high)** The evidence for the use of physical activity to support people with dementia is high certainty. **Cognitive interventions (low)** • Cognitive stimulation therapy: The evidence for cognitive stimulation therapy to support people with is dementia is a high to very low certainty. • Cognitive training: The evidence for cognitive training to support people with dementia is moderate to very low certainty. • Reminiscence therapy: The evidence for the use of reminiscence therapy to support people with dementia is low certainty (and very low for subgroup analysis).	

Criteria, questions		Judgement	Research evidence	Additional considerations
			Psychological interventions (very low) • Cognitive behavioural therapy: The evidence for CBT and supportive counselling is moderate to very low certainty. Overall, the certainty is very low. • Mindfulness-based interventions: The evidence for the use of mindfulness-based interventions to support people with dementia is very low certainty. **Other nonpharmacological interventions (very low)** • Horticultural therapy: moderate to very low certainty. Overall, very low. • Aroma therapy: low certainty. • Animal-assisted therapy: moderate to very low certainty. Overall, very low. • Personally tailored activities: low certainty. • Assistive technology: low to very low certainty. Overall, very low. • Multimodal intervention including art therapy: low to very low certainty. Overall, very low. • Dance-based interventions: moderate to low certainty. Overall, low. • Music therapy: very low certainty. **Animal-assisted therapy:** The evidence for the use of animal assisted therapy to support people with dementia is moderate to very low certainty. Overall, the certainty is very low.	

Criteria, questions	Judgement	Research evidence	Additional considerations
		Personally tailored activities: The evidence for the use of personal activities to support people with dementia is low certainty. **Dance-based interventions:** The evidence for the use of dance-based therapy to support people with dementia is moderate to low certainty. Overall, the certainty is low. **Cognitive training:** The evidence for cognitive training to support people with dementia is moderate to very low certainty. Overall, the certainty is very low. **Cognitive stimulation therapy:** The evidence for cognitive stimulation therapy to support people with is dementia is a high to very low certainty. Overall, the certainty is very low. **Music therapy:** The evidence to support the use of music therapy to support people with dementia is very low certainty. **Assistive technology:** The evidence for the use of assistive technology to support people with dementia is low to very low certainty. Overall, the certainty is very low. **Physical activity:** The evidence for the use of physical activity to support people with dementia is high certainty. **Psychological interventions:** The evidence for the use of psychological interventions to support people	

Criteria, questions	Judgement	Research evidence	Additional considerations
		with dementia is moderate to very low certainty. Overall, the certainty is very low. **Psycho-behavioural educative interventions, multimodal intervention, or art therapy:** The evidence for the use of psycho-behavioural educative interventions, multimodal intervention or art therapy to support people with dementia is low to very low certainty. Overall, the certainty is very low. **Mindfulness meditation:** The evidence for the use of mindfulness-based interventions to support people with dementia is very low certainty. **Horticultural therapy:** The evidence for the use of horticultural therapy to support people with dementia is moderate to very low certainty. Overall, the certainty is very low. **Reminiscence therapy:** The evidence for the use of reminiscence therapy to support people with dementia is low certainty (and very low for subgroup analysis). **Aroma therapy**: The evidence for the use of aroma therapy to support people with dementia is low certainty.	

Criteria, questions		Judgement	Research evidence	Additional considerations
Values	Is there important uncertainty about or variability in how much people value the main outcomes? The more likely it is that differences in values would lead to different decisions, the less likely it is that there will be a consensus that an option is a priority (or the more important it is likely to be to obtain evidence of the values of those affected by the option). Values in this context refer to the relative importance of the outcomes of interest (how much people value each of those outcomes). These values are sometimes called 'utility values'.			
	• Is there important uncertainty about how much people value each of the main outcomes? • Is there important variability in how much people value each of the main outcomes?	☐ Important uncertainty or variability ☐ Possibly important uncertainty or variability ☒ **Probably no important uncertainty or variability** ☐ No important uncertainty or variability	A qualitative systematic review (Gronholm et al., 2023) was conducted to assess values, resources, cost effectiveness, health equity quality and non-discrimination, feasibility and human rights related factors in mental health care and mental health services. Overall, the studies reviewed highlighted importance and recognition of importance of mental health interventions and the outcomes of those interventions on people's mental health and well-being. The utility value could be limited by certain factors and barriers present in the health systems. For instance, low awareness, poor funding and poor political buy-in, or other social barriers. Social networks or raising awareness can facilitate adoption and recognition of mental health issues and the perceived value of the interventions.	
Balance of effects	Does the balance between desirable and undesirable effects favour the intervention or the comparison? The larger the desirable effects in relation to the undesirable effects, taking into account the values of those affected (i.e. the relative value they attach to the desirable and undesirable outcomes) the more likely it is that an option should be recommended.			
	• Judgements regarding each of the four preceding criteria • To what extent do the following considerations influence the balance between the desirable and undesirable effects: - How much less people value outcomes that are in the future compared to outcomes that occur now (their discount rates)?	☐ Favours the comparison ☐ Probably favours the comparison ☐ Does not favour either the	**Physical activity (favours)** Positive effects are small to medium; potential risks and adverse events include injuries/falls; though not reported in this review and not consistently reported across other studies (Di Lorito et al, 2020; Borges-Machado et al, 2021). **Cognitive interventions (probably favours)**	

Criteria, questions		Judgement	Research evidence	Additional considerations
	- People's attitudes towards undesirable effects (how risk averse they are)? - People's attitudes towards desirable effects (how risk seeking they are)?	intervention or the comparison ☒ **Probably favours the intervention** ☐ Favours the intervention ☐ Varies ☐ Don't know	Small to large effects reported for these interventions; no adverse events reported; potential risks include for example fatigue, frustration, stress, discomfort; benefits are expected to outweigh the risks. **Psychological interventions (probably favours)** Small to large effects are likely to outweigh the potential undesired effects such as discomfort, sadness, stress. **Other nonpharmacological interventions (probably favours)** None of the studies reported adverse outcomes. The overall small to medium beneficial effects likely outweigh the potential adverse events/effects: agitation, frustration, stress, injuries. *Probably favours the intervention.* While the evidence for non-pharmacological interventions to improve outcomes for people living with dementia is variable, none of the studies reported adverse outcomes or any harms identified as a result of any of the interventions. Therefore, it is probable that the potential benefits would outweigh any added burden that participation may entail.	
Resources required	How large are the resource requirements (costs)? The greater the cost, the less likely it is that an option should be a priority. Conversely, the greater the savings, the more likely it is that an option should be a priority.			
	• How large is the difference in each item of resource use for which fewer resources are required? • How large is the difference in each item of resource use for which more resources are required?	☐ Large costs ☐ Moderate costs ☐ Negligible costs and savings	**Physical activity (varies)** No studies identified discussed cost. However, some interventions may require more resources than others.	

Criteria, questions		Judgement	Research evidence	Additional considerations
	• How large an investment of resources would the option require or save?	☐ Moderate savings ☐ Large savings ☒ **Varies** ☐ Don't know	**Cognitive interventions (varies)** • No studies identified discussed cost. However, some interventions may require more resources than others. • NHS report focused on the cost of providing CST. They found that, combining health care cost savings and quality of life improvements; CST could generate a net benefit of nearly £54.9 million per year for the NHS. **Psychological interventions (varies)** No studies identified discussed cost. However, some interventions may require more resources than others. **Other nonpharmacological interventions (varies)** No studies identified discussed cost. However, some interventions may require more resources than others.	
Certainty of evidence of required resources	What is the certainty of the evidence of resource requirements (costs)?			
	• Have all-important items of resource use that may differ between the options being considered been identified? • How certain is the evidence of differences in resource use between the options being considered (see GRADE guidance regarding detailed judgements about the quality of evidence or certainty in estimates)? • How certain is the cost of the items of resource use that differ between the options being considered? • Is there important variability in the cost of the items of resource use that differ between the options being considered?	☐ Very low ☐ Low ☐ Moderate ☐ High ☒ **No included studies**	No studies identified provided evidence on resources.	

Criteria, questions		Judgement	Research evidence	Additional considerations
Cost effectiveness	Does the cost-effectiveness of the intervention favour the intervention or the comparison? The greater the cost per unit of benefit, the less likely it is that an option should be a priority.			
	• Judgements regarding each of the six preceding criteria • Is the cost effectiveness ratio sensitive to one-way sensitivity analyses? • Is the cost effectiveness ratio sensitive to multivariable sensitivity analysis? • Is the economic evaluation on which the cost effectiveness estimate is based reliable? • Is the economic evaluation on which the cost effectiveness estimate is based applicable to the setting(s) of interest?	☐ Favours the comparison ☐ Probably favours the comparison ☐ Does not favour either the intervention or the comparison ☐ Probably favours the intervention ☐ Favours the intervention ☐ Varies ☒ **No included studies**	No reviews examining cost effectiveness were identified. Limited evidence from narrative reviews and primary research studies investigating individual nonpharmacological interventions suggests their cost-effectiveness (e.g. Burley et al, 2020; CST cost effectiveness data)	
Health equity, equality, and non-discrimination	What would be the impact on health equity, equality and non-discrimination? (WHO INTEGRATE) Health equity and equality reflect a concerted and sustained effort to improve health for individuals across all populations, and to reduce avoidable systematic differences in how health and its determinants are distributed. Equality is linked to the legal principle of non-discrimination, which is designed to ensure that individuals or population groups do not experience discrimination on the basis of their sex, age, ethnicity, culture or language, sexual orientation or gender identity, disability status, education, socioeconomic status, place of residence or any other characteristics. All recommendations should be in accordance with universal human rights standards and principles. The greater the likelihood that the intervention increases health equity and/or equality and that it reduces discrimination against any particular group, the greater the likelihood of a general recommendation in favour of this intervention.			
	• How are the condition and its determinants distributed across different population groups? Is the intervention likely to reduce or increase existing health inequalities and/or health inequities? Does the intervention prioritise and/or aid those furthest behind? • How are the benefits and harms of the intervention distributed across the population? Who carries the	☐ Reduced ☐ Probably reduced ☐ Probably no impact ☒ **Probably increased**	There was no direct evidence to evaluate impact on health equity, equality and non-discrimination. The qualitative review (Gronholm et al., 2023) noted considerations for ensuring mental, neurological and substance use interventions are equitable, equally available and non-discriminatory:	

Criteria, questions		Judgement	Research evidence	Additional considerations
	burden (e.g. all), who benefits (e.g. a very small sub-group)? • How affordable is the intervention for individuals, workplaces or communities? • How accessible - in terms of physical as well as informational access - is the intervention across different population groups? • Is there any suitable alternative to addressing the condition, does the intervention represent the only available option? Is this option proportionate to the need, and will it be subject to periodic review?	☐ Increased ☐ Varies ☐ Don't know	• Accessibility, physical/practical considerations • time & travel constraints. • Accessibility, informational barriers • Affordability - treatment costs • These factors may be exacerbated for certain groups: • People with low education/literacy (e.g., written instructions, psychoeducation materials) • Women - travel restrictions, stronger stigma/shame, caregiving responsibilities • Low resource settings - affordability/cost considerations exacerbated.	
Feasibility	Is the intervention feasible to implement? The less feasible (capable of being accomplished or brought about) an option is, the less likely it is that it should be recommended (i.e. the more barriers there are that would be difficult to overcome).			
	• Can the option be accomplished or brought about? • Is the intervention or option sustainable? • Are there important barriers that are likely to limit the feasibility of implementing the intervention (option) or require consideration when implementing it?	☐ No ☐ Probably no ☒ **Probably yes** ☐ Yes ☐ Varies ☐ Don't know	There was no direct evidence to evaluate feasibility to implement the interventions. The qualitative review (Gronholm et al., 2023) also considered feasibility, and how this can be enhanced in the following areas: • Acceptability of interventions for stakeholders - requires increased engagement with specialist staff, increased visibility of the task-sharing workforce within health facilities, perception of usefulness by providers and service users (e.g., via positive feedback), context-specific interventions, standardised implementation	

Criteria, questions		Judgement	Research evidence	Additional considerations
			steps for simpler decision-making and delivery • Health worker workload, competency - requires training, refreshers, supervision; networking with others in same role • Availability of a task-sharing workforce • Participant education and literacy requires verbal explanations/tasks • Logistical issues - such as e.g., mobile populations, affordability of travel to receive care, lack of private space • Limited resources/mental health budget Sustainability considerations identified were: • Training and supervision • Integrating into routine clinical practice	
Human rights and sociocultural acceptability	Is the intervention aligned with human rights principles and socioculturally acceptable? (WHO INTEGRATE) This criterion encompasses two distinct constructs: The first refers to an intervention's compliance with universal human rights standards and other considerations laid out in international human rights law beyond the right to health (as the right to health provides the basis of other criteria and sub-criteria in this framework). The second, sociocultural acceptability, is highly time-specific and context-specific and reflects the extent to which those implementing or benefiting from an intervention as well as other relevant stakeholder groups consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention. The greater the sociocultural acceptability of an intervention to all or most relevant stakeholders, the greater the likelihood of a general recommendation in favour of this intervention.			
	• Is the intervention in accordance with universal human rights standards and principles? • Is the intervention socioculturally acceptable to patients/beneficiaries as well as to those implementing it? To which extent do patients/beneficiaries value different non-health outcomes? • Is the intervention socioculturally acceptable to the public and other relevant stakeholder groups? Is the	☐ No ☐ Probably no ☒ **Probably yes** ☐ Yes ☐ Varies ☐ Don't know	There was no direct evidence to evaluate alignment with human rights principle and socio-cultural acceptability. The qualitative review (Gronholm et al., 2023) noted several considerations which would impact the right to health and access to healthcare. (e.g., stigma and discrimination and lack of confidentiality could affect the helpseeking among service users).	

Criteria, questions		Judgement	Research evidence	Additional considerations
	intervention sensitive to sex, age, ethnicity, culture or language, sexual orientation or gender identity, disability status, education, socioeconomic status, place of residence or any other relevant characteristics? • How does the intervention affect an individual's, population groups or organization's autonomy, i.e. their ability to make a competent, informed and voluntary decision? • How intrusive is the intervention, ranging from low intrusiveness (e.g. providing information) to intermediate intrusiveness (e.g. guiding choices) to high intrusiveness (e.g. restricting or eliminating choices)? Where applicable, are high intrusiveness and/or impacts on the privacy and dignity of concerned stakeholders justified?		• The importance of socio-cultural acceptability of mental, neurological and substance use interventions was clearly expressed. Pre-intervention considerations that consider cultural and social aspects improve the acceptability of implemented interventions. • When interventions were perceived as appropriate for the culture and target group, the content and medium of the intervention received more positive feedback from service users and caregivers Also, considerations of age, sex and language have been highlighted as important to acceptability and accessibility. Mitigating steps to improve sociocultural acceptability include: • To train health workers in non-judgemental care • Integrate preventative mental health awareness messages to reduce the stigma • Train acceptable counsellors for the local settings and target groups	

ADL: Activities of daily living; BPSD: Behaviours and psychological symptoms of dementia; CST: Cognitive stimulation therapy; IADL: Instrumental activities of daily living; RR: Risk ratio; NHS: National health services; CBT: Cognitive behavioural therapy

4.3. Summary of judgements

Table 18: Summary of judgements

Priority of the problem	- Don't know	- Varies		- No	- Probably No	- Probably Yes	✓ **Yes**
Desirable effects*	- Don't know	- Varies		- Trivial	- Small	✓ **Moderate**	- Large
Undesirable effects*	- Don't know	- Varies		- Large	- Moderate	✓ **Small**	- Trivial
Certainty of the evidence*	- No included studies			- Very low	✓ **Low**	- Moderate	- High
Values				- Important uncertainty or variability	- Possibly important uncertainty or variability	✓ **Probably no important uncertainty or variability**	- No important uncertainty or variability
Balance of effects*	- Don't know	- Varies	- Favours comparison	- Probably favours comparison	- Does not favour either	✓ **Probably favours intervention**	- Favours intervention
Resources required*	- Don't know	✓ **Varies**	- Large costs	- Moderate costs	- Negligible costs or savings	- Moderate savings	- Large savings
Certainty of the evidence on required resources	✓ **No included studies**			- Very low	- Low	- Moderate	- High
Cost–effectiveness	✓ **No included studies**	- Varies	- Favours comparison	- Probably favours comparison	- Does not favour either	- Probably favours intervention	- Favours intervention
Equity, equality and non-discrimination	- Don't know	- Varies	- Reduced	- Probably reduced	- Probably no impact	✓ **Probably increased**	- Increased
Feasibility	- Don't know	- Varies		- No	- Probably No	✓ **Probably Yes**	- Yes
Human rights and sociocultural acceptability	- Don't know	- Varies		- No	- Probably No	✓ **Probably Yes**	- Yes

✓ Indicates category selected, - Indicates category not selected.

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6. Glossary (definitions of interventions used in the reviews)

Animal assisted therapy
Animal assisted therapy refers to the use of an animal that is considered suitable to work with human care recipients in the treatment of human physical or psychological disorders, co-ordinated by a human professional with in-depth knowledge of the animal(s) involved and who has been formally certified. Animal assisted therapy is designed to promote improvements in human physical, social, emotional, or cognitive functions, and can be provided in individualized or group settings, with documentation and evaluation of the process and outcomes.

Personally tailored activities
Personally tailored activities are interventions aimed at improving psychosocial outcomes like BPSD or quality of life in people with dementia living in the community rather than interventions aimed exclusively at improving particular skills (e.g. basic activities of daily living, or cognitive function). Activities should be personally tailored, which means they should be chosen after assessing the individual preferences or interests of the participants and could also be adapted to their cognitive and functional status. Interventions could be based on specific models or concepts, such as the principles of Montessori or the concept of person-centred care.

Dance-based interventions
Dance-based interventions are any type of movement-with music activity, such as tango, waltz, ballroom, polka, jazz, foxtrot, cha-cha, rumba, samba, bolero, and salsa. Dance-based interventions focused on dynamic balances of the physical movements with music's rhyme and rhythm (e.g. yoga and meditation focus on the posture of the static body, and thus they do not belong to dance-based interventions).

Cognitive training
Cognitive training is an umbrella term referring to a group of non-pharmacological interventions in which a range of techniques are applied to engage thinking and cognition with various degrees of breadth and specificity. The goals include improving or maintaining cognitive processes or addressing the impact of impairment in cognitive processes on associated functional ability in daily life.

Cognitive stimulation
Cognitive stimulation is a nonpharmacological intervention often involving group activities and social interaction used to treat cognitive declines in people with dementia. It encompasses a variety of approaches including reality orientation, validation, and/or reminiscence. Cognitive stimulation aims to improve global cognition and maintain function by stimulating multiple cognitive functions simultaneously, typically with group activities emphasizing social interaction. This approach is different from cognitive training, which targets isolated cognitive functions (e.g. memory) with individual, repetitive practice of standardized cognitive tasks.

Music therapy
Music therapy refers to interventions involving music, such as listening to music and making music (playing an instrument or singing). Music therapy may be active, passive, individual- or group-based.

Assistive Technology
Assistive technology is any product, equipment, or device, usually electronic or mechanical and aims to help those with a disability to remain as independent for as long as possible and experience a good quality of life. The technology should assist the individual with daily living tasks, reduce harm and enhance communication.

Physical Activity
Physical activity involving aerobic (cardiovascular conditioning) and anerobic (strength training) exercises.

Mindfulness-based interventions
Mindfulness based interventions or meditation involve 'paying attention in a particular way: on purpose, in the present moment, and non-judgmentally'.

Cognitive Behavioural therapy
Cognitive behavioural therapy (CBT) is an umbrella term covering a wide range of psychological approaches that aim to improve affective function. CBT focuses on the process of thought rather than content to help people accept their thoughts.

Horticultural therapy
Horticultural therapy involves activities involving plants and gardens and allows participants to watch, touch, and become close to nature. Horticultural therapy involves multisensory stimulation and can give the individual a sense of responsibility and achievement. The scope of Horticultural therapy is diverse ranging from gardening activities to viewing horticultural scenes on video.

Reminiscence Therapy
Reminiscence therapy is a treatment that uses various sensory methods that help persons with dementia recall and review past life events, people and places that are usually positive and rewarding.

Aroma Therapy
Aromatherapy is the use of pure essential oils, highly fragrant essences extracted from plants by distillation. Lavender oil is most commonly used and often in oil burners, soaked into pillows and tissues or massaged into the skin.

Appendix I: mhGAP process note

mhGAP Guideline Update: Notes on process for identifying level of evidence review required v1_0 (09/11/2021)

This document is intended to provide guidance to focal points on the level of evidence review required as part of the evidence retrieval process for the mhGAP guideline update process. As a general rule, the update process should be informed by existing high quality systematic reviews. The process for evidence retrieval and synthesis is fully outlined in chapter 8 of the WHO handbook for guideline development https://apps.who.int/iris/handle/10665/145714.

Three main categories of evidence review are proposed in this document:

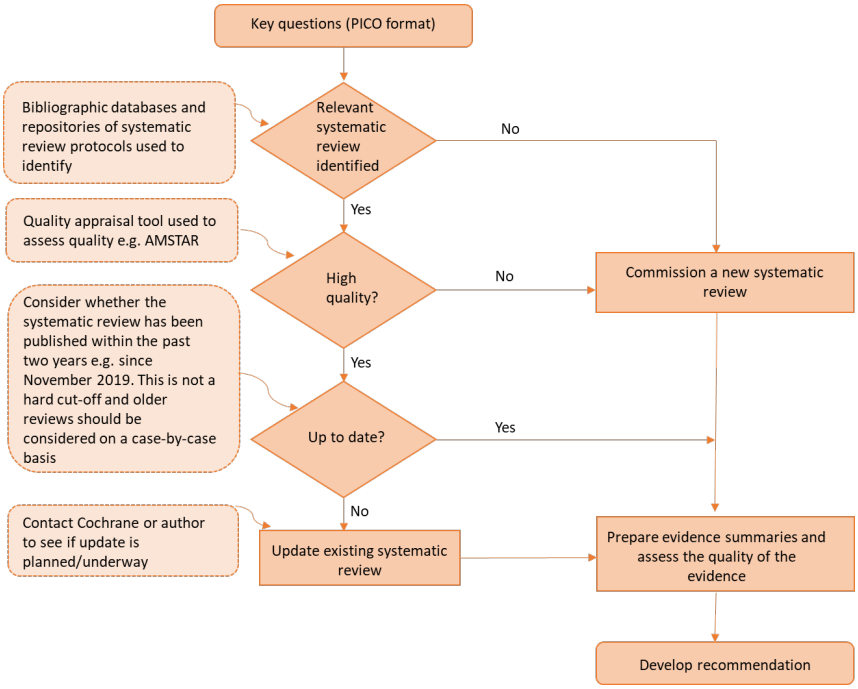
i) Existing relevant, up to date, high quality systematic review(s) provide the evidence required. **An existing systematic review is sufficient to prepare the evidence summaries**. It may be possible to include more than one systematic review for the same PICO, as different reviews may match different outcomes of a PICO. However, if more than one systematic review is available for the same PICO outcome, one review should be selected, based on quality, relevance, search comprehensiveness and date of last update. The selection process should be transparently reported, with justification of choices.

ii) Existing high quality systematic reviews are either out of date or do not fully address the PICO, though it is considered that the review can be updated to meet these requirements. **An update of an existing systematic review is required before the evidence summaries can be prepared**. The update process may require addition of new studies published after the review, or inclusion of outcomes not covered by the existing reviews.

iii) Existing systematic reviews are either not of sufficiently high quality or cannot be updated to fully address the PICO. **A new systematic review is required before the evidence summaries can be prepared.**

Figure 1 below details the process to identify which level of evidence review is required to support the evidence retrieval process for a PICO.

Figure 1: Is a new systematic review needed?



Subsequent steps include the following:

i) **Identify and evaluate existing systematic reviews**: Identify one or more systematic review(s) to address each PICO question. Existing systematic reviews will inform the guideline development process, whether or not a new systematic review or an update of an existing review is required, and the evidence review team will detail existing systematic reviews in each case. The method for identifying existing systematic reviews should be fully detailed in the evidence summary and include the following sources:

a. Search of bibliographic databases, such as PubMed/Medline, EMBASE, PsycInfo, Cochrane Central Register of Controlled Trials (CENTRAL), CINAHIL, Scopus, African Index Medicus, Index Medicus for the Eastern Mediterranean Region, Index Medicus for the South-East Asian Region, Latin American and Caribbean Health Sciences Literature, and Western Pacific Region Index Medicus.

b. Search of repositories of systematic reviews protocols, including PROSPERO, Open Science Framework (OSF), and Cochrane.

ii) **Assess if systematic review is up to date:** It is preferred that identified systematic reviews have been published within the past two years e.g. since November 2019. This is not a hard cut-off and older reviews should be considered on a case-by-case basis, particularly those covering the time period since the last update of the mhGAP guideline in 2015. It is acknowledged that COVID has led to a pausing of many mental health research activities over the past two years, and this may also impact the availability of systematic reviews within the preferred two-year period. For any reviews that fall outside the two-year period, the guideline methodologist will advise on suitability.

iii) **Appraise quality of systematic review:** Use the AMSTAR quality appraisal tool to assess the quality of the identified systematic review(s) https://amstar.ca/Amstar_Checklist.php . This includes

consideration of the extent to which the PICO is fully addressed by the systematic review(s) identified.

By following the process outlined in figure 1, and steps 1-3 above, the focal pointand evidence review team will have sufficient evidence to assess which of the three main categories of evidence review apply to each PICO under consideration:

i) Existing systematic reviews are sufficient to prepare the evidence summaries.

ii) An update of an existing systematic review is required before the evidence summaries can be prepared.

iii) A new systematic review is required before the evidence summaries can be prepared.

Appendix II: Search terms used to identify systematic reviews

Overview of results

Database	Result	Date
MEDLINE	363	02/02/2022
CINAHL	203	02/02/2022
Embase	614	02/02/2022
SCOPUS	499	02/02/2022
Cochrane Library	174	02/02/2022
PsyINFO	133	02/02/2022
Global Index Medicus	31	02/02/2022
EPISTEMONIKOS	78	02/02/2022
Total (with Duplicate)	**2095**	

Search strategy (pico table / concept mapping table)

CONCEPT1	CONCEPT 2	CONCEPT3	CONCEPT4
Dementia	Cognitive-behavioural therapy	Systematic Review	Systematic Review
Alzheimer	Counseling Behavioural activation Interpersonal therapy Psychosocial intervention Cognitive stimulation Cognitive rehabilitation Reality orientation Reminiscence therapy Self-help devices Assistive technology Art therapy Horticultural therapy Physical activity Dancing Cognitive intervention Multisensory treatment Communication treatment Sleep treatment Meditation Relaxation therapy Environmental intervention Exercise Music Self-help devices	Meta-Analysis	Meta-Analysis

Database results

1.1 DATABASE: Medline via OVIDSP

Database: Ovid MEDLINE(R) ALL <1946 to January 31, 2022>

Search Strategy:

---

1 exp Dementia/ (186349)
2 Dementia*.mp. (145062)
3 Alzheimer*.mp. (181123)
4 1 or 2 or 3 (289947)
5 Cognitive Behavioral Therapy/ (28382)
6 (cognitive-behavio* therap* or cognitive behavio* therap*).mp. (36322)
7 Counseling/ (38156)
8 Counsel*.mp. (147295)
9 behavio* activation*.mp. (2177)
10 Interpersonal therap*.mp. (412)
11 Psychosocial Intervention/ (520)
12 psycho* intervention*.mp. (17239)
13 interpersonal therap*.mp. (412)
14 cognitive stimulation*.mp. (1001)
15 cognitive rehabilit*.mp. (2016)
16 Reality orientation*.mp. (234)
17 reminiscence*.mp. (2386)
18 Self-Help Devices/ (5383)
19 Self-Help Device*.mp. (5429)
20 assistive technolog*.mp. (2981)
21 Art Therapy/ (1664)
22 art therap*.mp. (2481)
23 Horticultural Therapy/ (81)
24 (Horticultural Therap* or Gardening therap*).mp. (137)
25 physical activit*.mp. (133810)
26 Dancing/ (3251)
27 dance*.mp. (6664)
28 cognitive intervention*.mp. (1348)
29 (multisensory treatment* or multi-sensory treatment* or multi sensory treatment*).mp. (5)
30 Communication treatment*.mp. (106)
31 sleep treatment*.mp. (176)
32 Meditation/ or meditat*.mp. (8317)
33 Relaxation Therapy/ (6510)
34 Relaxation therap*.mp. (6887)
35 Environmental intervention*.mp. (1139)
36 Music*.mp. (29374)
37 exp Exercise/ (225365)
38 Exercis*.mp. (427516)
39 exp Self-Help Devices/ (12526)
40 (Self-Help Device* or Self Help Device* or assistive device*).mp. (7696)
41 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 (800634)
42 "systematic review"/ (183799)
43 Systematic review*.mp. (261890)

44 "systematic review".pt. (183799)
45 Systematic Reviews as Topic/ (7363)
46 Primarily systematic review*.mp. (2)
47 meta-analysis/ (151896)
48 meta?analysis*.mp. (1826)
49 42 or 43 or 44 or 45 or 46 or 47 or 48 (331636)
50 4 and 41 and 49 (818)
51 limit 50 to yr="2019 -Current" (363)

1.2 DATABASE: CINAHL via EBSCO Host

#	Query	Results
S45	S4 AND S36 AND S43 Limiters - Published Date: 20190101-20221231	203
S44	S4 AND S36 AND S43	619
S43	S37 OR S38 OR S39 OR S40 OR S41 OR S42	
S42	meta-?analysis*	
S41	(MH "Meta Analysis")	
S40	Primarily systematic review*	
S39	"Systematic Reviews as Topic"	
S38	"Systematic review*"	
S37	(MH "Systematic Review")	
S36	S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34 OR S35	
S35	(MH "Exercise+")	
S34	"Music*" OR (MH "Music Therapy")	
S33	"Environmental intervention*"	
S32	"Relaxation therap*"	
S31	(MH "Meditation") OR "meditat*"	
S30	"sleep treatment*"	
S29	"Communication treatment*"	
S28	"multisensory treatment*" OR "multi-sensory treatment*" OR "multi sensory treatment*"	
S27	"cognitive intervention*"	
S26	danc*	
S25	(MH "Dancing+")	
S24	physical activit*	

S23	(MH "Physical Activity")
S22	"Horticultural Therap*"OR "Gardening therap*"
S21	"Horticultural Therap* OR Gardening therap*"
S20	art therap*
S19	(MH "Art Therapy")
S18	(MH "Assistive Technology Devices+") OR "assistive technolog*"
S17	"Self-Help Device*" OR "Self Help Device*" OR OR "assistive device*"
S16	"reminiscence*" OR (MH "Reminiscence Therapy")
S15	"Reality orientation*"
S14	"cognitive rehabilit*" OR (MH "Rehabilitation, Cognitive")
S13	"cognitive stimulation*"
S12	"psycho* intervention*"
S11	(MH "Psychosocial Intervention")
S10	"Interpersonal therap*"
S9	"behavio* activation*"
S8	Counsel*
S7	(MH "Counseling+")
S6	"cognitive-behavio* therap*" OR "cognitive behavio* therap*"
S5	(MH "Cognitive Therapy+")
S4	S1 OR S2 OR S3
S3	Alzheimer*
S2	Dementia*
S1	(MH "Dementia+")

1.3 DATABASE: Embase via OVID SP

Database: Embase Classic <1947 to 1973>, Embase <1974 to 2022 January 31>
Search Strategy:
---
1 exp dementia/ (402294)
2 Dementia*.mp. (228352)
3 Alzheimer*.mp. (272225)
4 1 or 2 or 3 (470164)
5 cognitive behavioral therapy/ (17874)
6 (cognitive-behavio* therap* or cognitive behavio* therap*).mp. (36752)
7 counseling/ (74585)
8 Counsel*.mp. (248885)
9 behavio* activation*.mp. (2781)

10 Interpersonal therap*.mp. (693)
11 psychosocial intervention/ (742)
12 psycho* intervention*.mp. (24684)
13 Interpersonal therap*.mp. (693)
14 cognitive stimulation*.mp. (1398)
15 cognitive rehabilitation/ or cognitive rehabilit*.mp. (4691)
16 Reality orientation*.mp. (330)
17 reminiscence*.mp. (2323)
18 self help device/ (2146)
19 Self-Help Device*.mp. (2312)
20 assistive technology/ or assistive technolog*.mp. (5449)
21 art therapy/ (4378)
22 art therap*.mp. (5076)
23 Horticultural Therapy/ (143)
24 (Horticultural Therap* or Gardening therap*).mp. (187)
25 physical activity/ or physical activit*.mp. (250163)
26 dancing/ (5780)
27 dance*.mp. (9088)
28 cognitive intervention*.mp. (1814)
29 (multisensory treatment* or multi-sensory treatment* or multi sensory treatment*).mp. (6)
30 Communication treatment*.mp. (167)
31 sleep treatment*.mp. (387)
32 meditation/ (8311)
33 Meditat*.mp. (13317)
34 Relaxation therap*.mp. (1081)
35 Environmental intervention*.mp. (1429)
36 music therapy/ or Music*.mp. (36834)
37 exp Exercise/ (397545)
38 Exercis*.mp. (601302)
39 self help device/ (2146)
40 (Self-Help Device* or Self Help Device* or assistive device*).mp. (5961)
41 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 (1137860)
42 "systematic review"/ (330175)
43 Systematic review*.mp. (429336)
44 "systematic review (topic)"/ (28139)
45 Primarily systematic review*.mp. (2)
46 meta analysis/ (236152)
47 meta?analysis*.mp. (9697)
48 42 or 43 or 44 or 45 or 46 or 47 (523720)
49 4 and 41 and 48 (1549)
50 limit 49 to yr="2019 -Current" (614)

1.4 DATABASE: Scopus via Elsivier

499 document results
(TITLE-ABS-KEY (dementia* OR alzheimer*) AND TITLE-ABS-KEY ("cognitive-behavio* therap*" OR "cognitive behavio* therap*" OR counsel* OR "behavio* activation*" OR "Interpersonal therap*" OR "psycho* intervention*" OR "interpersonal therap*" OR "cognitive stimulation*" OR "cognitive rehabilit*" OR "Reality orientation*" OR "Reality orientation*" OR "reminiscence*" OR "Self-Help

Device*" OR "assistive technolog*" OR "art therap*" OR "Horticultural Therap*" OR "Gardening therap*" OR "physical activit*" OR dance* OR "cognitive intervention*" OR "multi?sensory treatment*" OR "Communication treatment*" OR "sleep treatment*" OR meditation* OR "Relaxation therap*" OR "Environmental intervention*" OR "Music*" OR exercis* OR "Self?Help Device*" OR "assistive device*") AND TITLE-ABS-KEY ("Systematic review*" OR "Primarily systematic review*" OR "meta?analysis*")) AND (LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019))

1.5 DATABASE: Cochrane Library via OVID-SP

Database: EBM Reviews - NHS Economic Evaluation Database <1st Quarter 2016>, EBM Reviews - Health Technology Assessment <4th Quarter 2016>, EBM Reviews - Cochrane Methodology Register <3rd Quarter 2012>, EBM Reviews - Cochrane Database of Systematic Reviews <2005 to January 26, 2022>, EBM Reviews - ACP Journal Club <1991 to January 2022>, EBM Reviews - Database of Abstracts of Reviews of Effects <1st Quarter 2016>, EBM Reviews - Cochrane Clinical Answers <January 2022>, EBM Reviews - Cochrane Central Register of Controlled Trials <December 2021>
Search Strategy:

---

1 Dementia*.mp. (16813)
2 Alzheimer*.mp. (14008)
3 1 or 2 (24702)
4 (cognitive-behavio* therap* or cognitive behavio* therap*).mp. (19897)
5 Counsel*.mp. (29633)
6 behavio* activation*.mp. (1124)
7 Interpersonal therap*.mp. (340)
8 psycho* intervention*.mp. (7844)
9 interpersonal therap*.mp. (340)
10 cognitive stimulation*.mp. (501)
11 cognitive rehabilit*.mp. (1372)
12 Reality orientation*.mp. (70)
13 reminiscence*.mp. (460)
14 Self-Help Device*.mp. (277)
15 assistive technolog*.mp. (295)
16 art therap*.mp. (605)
17 physical activit*.mp. (39420)
18 dance*.mp. (1236)
19 cognitive intervention*.mp. (909)
20 (multisensory treatment* or multi-sensory treatment* or multi sensory treatment*).mp. (1)
21 Communication treatment*.mp. (96)
22 sleep treatment*.mp. (305)
23 Meditat*.mp. (3868)
24 Relaxation therap*.mp. (2009)
25 Environmental intervention*.mp. (333)
26 Music*.mp. (6236)
27 Exercis*.mp. (127631)
28 (Self-Help Device* or Self Help Device* or assistive device*).mp. (899)
29 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 (204484)
30 Systematic review*.mp. (69210)
31 "systematic review".pt. (8873)
32 Primarily systematic review*.mp. (2)
33 meta-analysis/ (23)

34 meta?analysis*.mp. (1357)
35 30 or 31 or 32 or 34 (70946)
36 3 and 29 and 35 (550)
37 limit 36 to yr="2019 -Current" (174)

1.6 DATABASE: PsycInfo via OVID-SP

Database: APA PsycInfo <1806 to January Week 4 2022>
Search Strategy:
---
1 exp Dementia/ (84392)
2 Dementia*.mp. (81942)
3 Alzheimer*.mp. (71165)
4 1 or 2 or 3 (118370)
5 cognitive behavior therapy/ (21959)
6 (cognitive-behavio* therap* or cognitive behavio* therap*).mp. (33566)
7 exp Counseling/ (80453)
8 Counsel*.mp. (134742)
9 behavio* activation*.mp. (3069)
10 Interpersonal therap*.mp. (848)
11 Psychosocial Intervention*.mp. (6581)
12 psycho* intervention*.mp. (19936)
13 exp Interpersonal Psychotherapy/ (1453)
14 interpersonal therap*.mp. (848)
15 cognitive stimulation*.mp. (953)
16 exp Cognitive Rehabilitation/ (3255)
17 cognitive rehabilit*.mp. (3539)
18 Reality orientation*.mp. (316)
19 reminiscence*.mp. (3260)
20 Self-Help Device*.mp. (940)
21 exp Assistive Technology/ (11440)
22 assistive technolog*.mp. (3423)
23 exp Art Therapy/ (5218)
24 art therap*.mp. (6456)
25 Horticulture Therapy/ (142)
26 (Horticultural Therap* or Gardening therap*).mp. (118)
27 Physical Activity/ (23083)
28 physical activit*.mp. (44827)
29 Dance/ (2600)
30 danc*.mp. (9472)
31 cognitive intervention*.mp. (1826)
32 (multisensory treatment* or multi-sensory treatment* or multi sensory treatment*).mp. (9)
33 Communication treatment*.mp. (96)
34 Sleep Treatment/ or sleep treatment*.mp. (787)
35 exp Meditation/ (5188)
36 Meditat*.mp. (11044)
37 Relaxation Therapy/ (2940)
38 Relaxation therap*.mp. (5334)
39 Environmental intervention*.mp. (660)
40 Music Therapy/ (5237)
41 Music*.mp. (43584)

42 exp Exercise/ (29301)
43 Exercis*.mp. (87952)
44 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 (402326)
45 "systematic review"/ (681)
46 Systematic review*.mp. (38795)
47 Systematic Reviews as Topic.mp. (86)
48 Meta Analysis/ (5137)
49 meta?analysis*.mp. (460)
50 45 or 46 or 47 or 48 or 49 (43606)
51 4 and 44 and 50 (377)
52 limit 51 to yr="2019 -Current" (133)

1.7 EPISTEMONIKOS (https://www.epistemonikos.org)

78 results
(title:((title:(dementia* OR alzheimer*) OR abstract:(dementia* OR alzheimer*)) AND (title:("cognitive-behavio* therap*" OR "cognitive behavio* therap*" OR counsel* OR "behavio* activation*" OR "Interpersonal therap*" OR "psycho* intervention*" OR "interpersonal therap*" OR "cognitive stimulation*" OR "cognitive rehabilit*" OR "Reality orientation*" OR "Reality orientation*" OR "reminiscence*" OR "Self-Help Device*" OR "assistive technolog*" OR "art therap*" OR "Horticultural Therap*" OR "Gardening therap*" OR "physical activit*" OR dance* OR "cognitive intervention*" OR "multi?sensory treatment*" OR "Communication treatment*" OR "sleep treatment*" OR meditation* OR "Relaxation therap*" OR "Environmental intervention*" OR "Music*" OR exercis* OR "Self?Help Device*" OR "assistive device*") OR abstract:("cognitive-behavio* therap*" OR "cognitive behavio* therap*" OR counsel* OR "behavio* activation*" OR "Interpersonal therap*" OR "psycho* intervention*" OR "interpersonal therap*" OR "cognitive stimulation*" OR "cognitive rehabilit*" OR "Reality orientation*" OR "Reality orientation*" OR "reminiscence*" OR "Self-Help Device*" OR "assistive technolog*" OR "art therap*" OR "Horticultural Therap*" OR "Gardening therap*" OR "physical activit*" OR dance* OR "cognitive intervention*" OR "multi?sensory treatment*" OR "Communication treatment*" OR "sleep treatment*" OR meditation* OR "Relaxation therap*" OR "Environmental intervention*" OR "Music*" OR exercis* OR "Self?Help Device*" OR "assistive device*"))) OR abstract:((title:(dementia* OR alzheimer*) OR abstract:(dementia* OR alzheimer*)) AND (title:("cognitive-behavio* therap*" OR "cognitive behavio* therap*" OR counsel* OR "behavio* activation*" OR "Interpersonal therap*" OR "psycho* intervention*" OR "interpersonal therap*" OR "cognitive stimulation*" OR "cognitive rehabilit*" OR "Reality orientation*" OR "Reality orientation*" OR "reminiscence therap*" OR "Self-Help Device*" OR "assistive technolog*" OR "art therap*" OR "Horticultural Therap*" OR "Gardening therap*" OR "physical activit*" OR dance* OR "cognitive intervention*" OR "multi?sensory treatment*" OR "Communication treatment*" OR "sleep treatment*" OR meditation* OR "Relaxation therap*" OR "Environmental intervention*" OR "Music therap*" OR exercis* OR "Self?Help Device*" OR "assistive device*") OR abstract:("cognitive-behavio* therap*" OR "cognitive behavio* therap*" OR counsel* OR "behavio* activation*" OR "Interpersonal therap*" OR "psycho* intervention*" OR "interpersonal therap*" OR "cognitive stimulation*" OR "cognitive rehabilit*" OR "Reality orientation*" OR "Reality orientation*" OR "reminiscence therap*" OR "Self-Help Device*" OR "assistive technolog*" OR "art therap*" OR "Horticultural Therap*" OR "Gardening therap*" OR "physical activit*" OR dance* OR "cognitive intervention*" OR "multi?sensory treatment*" OR "Communication treatment*" OR "sleep treatment*" OR meditation* OR "Relaxation therap*" OR "Environmental intervention*" OR "Music therap*" OR exercis* OR "Self?Help Device*" OR "assistive

device*")))) AND abstract:("Systematic review*" OR "Primarily systematic review*" OR "meta?analysis*")

1.8 Global Health Medicus

31 results
(tw:(dementia)) AND (tw:(Therapy or Therapies)) AND (tw:(Systematic*)) AND 2019-2022

Appendix III: Choosing a database: comparative table

Database	**Scope**	**Coverage**	**Bibliographic / Full-Text**	**Includes Subject Headings (Thesaurus)**	**Citation limit when exporting to Endnote**
Medline via OvidSP	Biomedical	1946 – present 18,000,000 references indexing over 5,200 journals	Bibliographic (full text access for subscribed e-Journals)	Medical Subject Headings (MeSH)	999
Embase via OvidSP	Pharmacy and biomedical	1947 – present 20,000,000 references indexing 7,000 journals	Bibliographic	Emtree	999
PubMed (free version of Medline)	Biomedical plus some general science, chemistry and molecular biology.	1946 (some earlier) – present 21,000,000 references indexing over 23,000 journals. Contains in-process citations for articles before they are indexed for Medline	Bibliographic (full text access for subscribed e-Journals)	MeSH for material from Medline	Not recommended for systematic review searches
Web of Science	Multi-disciplinary including Science, social Science, and arts and humanities	1900 – present (science related material) 46,000,000 references indexing over 12,000 journals and 148,000 proceedings	Bibliographic (full text access for subscribed e-Journals)	WOS doesn't have a thesaurus or list of subject terms. Key concepts need to be identified and linked together.	500
Scopus	Multi-disciplinary including chemistry, science, and arts and humanities	1996- present Over 21,500 titles (Over 21,500 peer-reviewed journals (including 4,200 full open access journals); Over 60 million records • Patents: • More than 27 million patent records from five patent offices	Bibliographic (full text access for subscribed e-Journals	Scopus doesn't have a thesaurus or list of subject terms. Key concepts need to be identified and linked together	2000
Cinahl via Ebsco	Nursing, biomedicine, health sciences, alternative/ complementary medicine, consumer health and 17 allied health disciplines	1982- present Provides indexing for over 2,928 journals from the fields of nursing and allied health	Bibliographic (full text access for subscribed e-Journals	Enter the search terms in the Find field, check the Suggest Subject Terms box and click Search. Note: You can also browse CINAHL or MeSH Headings by clicking the link in the top toolbar.	Add 50 at a time to the Folder, then export from Folder

4. Differences in search syntax: Medline vs CINAHL

Syntax feature	Medline	Symbol	CINAHL	Symbol	Scopus	Symbol
Subject	MeSH (Explode or Focus) – searches only the subject headings field. Tick box 'Map to Subject Headings'	MeSH	Searches only the subject headings field. Automatically explodes the term. To use, tick box 'Suggested Subject Terms' and type in search term		No subject	
Keyword	Textword search: Title and Abstract only Multipurpose search: Title, abstract, original title, name of substance word, subject heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier No need to untick Map to subject headings, just add **.mp** or **.tw** to the search term and click **Search**	.tw .mp	Untick "suggested subject terms" mapping option and type in the search term. Searches: Title, abstract, original title, name of substance word, subject heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier Alternatively, use Field codes IN FRONT of keywords, eg. **TX keyword**	TX keyword (in CINAHL) = keyword .mp (in Medline)	Nested search <u>Example:</u> (dogs OR cats) AND (house OR apartment)	
Adjacency	Finds words or phrases within selected number of words from one another in either order, e.g. health adj3 promotion find health promotion and promotion of health	adj*(number)*	Finds words or phrases within selected number of words from one another in either order, e.g. health N3 promotion finds health promotion and promotion of health	N*(number)*	Finds words or phrases within selected number of words from one another in either order, e.g. health W/3 promotion finds promotion of health	W/number
Optional Wildcard	Replaces 0-1 character e.g. p?ediatric finds pediatric or paediatric	?	Replaces 0-1 character, e.g. p#ediatric finds pediatric or paediatric	#	n/a	
Mandated Wildcard	Replaces 1 character e.g. wom#n finds woman or women	#	Replaces 1 character, e.g. wom?n finds woman or women	?	Replaces 1 character, e.g. wom?n finds woman or women; not essential (Scopus does it automatically anyway)	?
Truncation	Finds any extension of the root term – unlimited characters, e.g. imag* will find image, images, imaging or imagination	*OR $	Finds any extension of the root term – unlimited characters; e.g imag* will find image, images, imaging or imagination	*	Finds any extension of the root term – unlimited characters; e.g imag* will find image, images, imaging or imagination	*
Phrases	Phrases ONLY need be enclosed in quotation marks if they contain words such as AND, OR, NOT, OF etc.(stop words)		Use quotation marks to search for phrases	"-"	Use quotation marks to search for phrases	"-" OR {}

Appendix IV: Decision Tree used to evaluate ROB GRADE item and other GRADE decisions[3]

- No data available for risk of bias → serious
- When vast majority (>60%) of trials are low risk → not serious
- When low risk is between 50-60%:
  - High risk <25% → not serious
  - High risk >25% → serious
- When vast majority (>60%) is high risk → very serious
- When high risk is between 50-60%:
  - Low risk <25% → very serious
  - Low risk >25% → serious
- When vast majority is unclear risk (>60%) → serious
- When unclear risk is between 50-60%:
  - High risk <25% → not serious
  - High risk >25% → serious
- If unclear/high/low risk are all < 50%:
  - High risk <25% → not serious
  - High risk >25% → serious

- **Risk of bias (RoB):** We extracted the RoB ratings from the individual studies included in the meta-analyses (when available). We calculated the percentage of trials rated at low, high, and unclear risk of bias. Based on this information, and in order to take consistent decisions across the available evidence, we rated the RoB GRADE item using a decision tree above . This decision tree can be accessed in the appendix.

- **Inconsistency:** We judged inconsistency by examining heterogeneity statistics: I2, which indicates the percentage of heterogeneity between effect sizes, and its 95% confidence interval (95% CI). When the 95% CI of the I^2 is not reported, we computed it and used it in our judgements. We judged inconsistency as serious when I^2 was over 75% and its 95% CI substantially overlaps with the category of considerable heterogeneity (above 75%). Substantial overlap was estimated with the median of the 95% CI. If the 95% CI was not available or could not be calculated, we rated it as serious if heterogeneity was larger than 50% (category of substantial heterogeneity). If I^2 was not reported and could not be calculated, we rated it as serious.

- **Indirectness**: Direct evidence was derived from research that directly compares the interventions which we are interested in, delivered to the participants in which we are interested, and that measures the outcomes important to patients. We rated for each particular comparison how indirect the reviewed evidence was in terms of population, intervention, and outcomes.

[3] Figure and decision notes are based on the information from the DEP4 report. In adults with moderate-severe depressive disorder, what is the effectiveness and safety of antidepressant medication (ADM) in comparison with psychological treatment?)

- **Imprecision**: We rated this item based on a standard power calculation (α 0.05 and β 0.20) for detecting an effect size of 0.2, which requires a sample size of 400 participants in total. We judged as serious for all analyses that included less than 400 participants. Analyses including less than 100 participants was rated as very serious. A rating of serious was given when the number of participants included in the analyses was not available.

- **Other considerations**: For this item we explored publication bias. We rated it as serious if there was evidence for publication bias in the meta-analyses, based on statistical tests. However, we did not downgrade the evidence if a meta-analysis did not investigate it.