

# Effective Nonpharmacological Interventions to Decrease Agitation and Promote Occupational

## Engagement in Long Term Care Residents with Dementia

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### Background

- More than five million Americans live with Alzheimer's Disease (Alzheimer's Association, 2020).
- Evidence on the effectiveness and the use of nonpharmacological interventions with persons with dementia is growing (Gitlin, Kales, and Lyketsos, 2012)
- Occupation-based interventions are strongly supported within evidence-based practice for individuals with dementia to reduce behavioral and psychological symptoms (Padilla, 2011).
- Research supports that the promotion of engagement in functional and meaningful activities decreases agitation in individuals with dementia (Livingston et al., 2014).

### Objectives

At the conclusion of this activity, participants will be able to:

- Identify nonpharmacological occupation-based interventions effective in decreasing agitation in long term care residents with dementia
- Identify which interventions provided additional improvements in occupational engagement

### Methods

**Databases:** CINAHL, EBSCO, Academic Search Elite, Sage Journals, PsychInfo, OTseeker, MEDLINE, PubMed, Cochrane Controlled Trials Register, National Library of Medicine

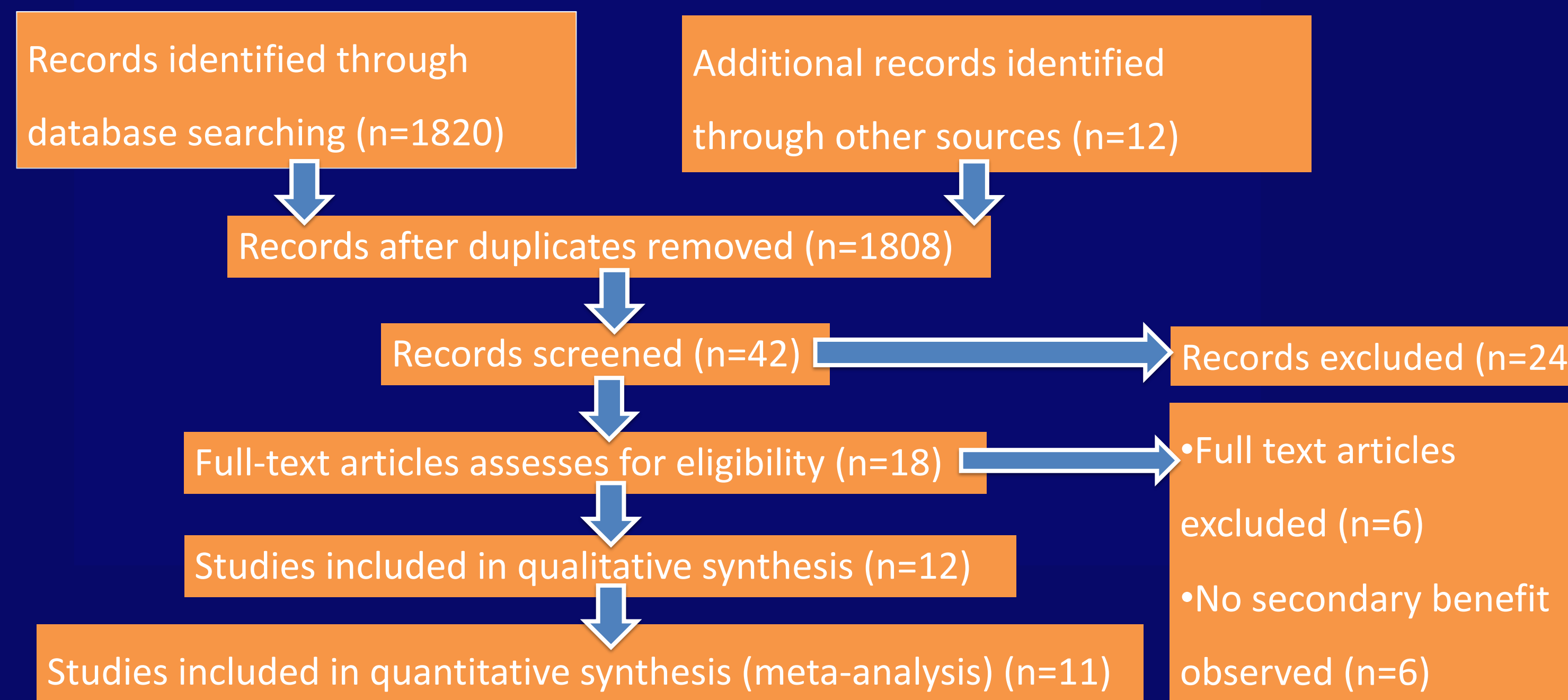
**Quality assessment:** Research quality assessed using the National Heart, Lung, and Blood Institute (2021) assessment tool

**Key terms:** dementia, agitation, nonpharmacological interventions & long term care

**Inclusion criteria:** adults with dementia over 55 living in supported care settings, qualitative or quantitative studies, and OT appropriate interventions

**Exclusion criteria:** end stage dementia, delirium, and pharmacological interventions

### The PRISMA Group Flow Diagram (2009)



### Results

Table 1. Nonpharmacological intervention, length of intervention period, cognitive impairment level of participants, and concluded effects by research study

Author/Year	Nonpharmacological Intervention and Duration/Frequency of Intervention	Dementia Outcome Measure and Severity of Cognitive Impairment	Agitation Outcome Measure Score and Clinical or Statistical Improvement of Agitation
Collins et al. (2020)	<ul style="list-style-type: none"> <li>• Sensory gardening</li> <li>• 60-minute sessions/5x a week for 2 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• Six-item screener (SIS)</li> <li>• SIS mean score = 1.25</li> </ul>	<ul style="list-style-type: none"> <li>• Agitated Behavior Mapping Instrument (ABMI)</li> <li>• Sensory gardening was moderately clinically effective in reducing agitation</li> </ul>
Hsiao et al. (2020)	<ul style="list-style-type: none"> <li>• Reminiscence therapy and art therapy</li> <li>• 30–45-minute sessions/1x a week for 12 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• Mini-Mental State Examination (MMSE)</li> <li>• MMSE average = 15.7</li> <li>• Moderate cognitive impairment</li> </ul>	<ul style="list-style-type: none"> <li>• Cohen Mansfield Agitation Inventory (CMAI)</li> <li>• Reminiscence immediately reduced agitation with statistical significance (p&lt;0.001), but had no sustained effect over time</li> <li>• Art therapy decreased agitation after 6 weeks with statistical significance (p&lt;.05), but had no sustained effect over time</li> </ul>
Telenius et al. (2015)	<ul style="list-style-type: none"> <li>• High intensity strength and balance exercise</li> <li>• 1-hour sessions/2x a week, for 6 months</li> </ul>	<ul style="list-style-type: none"> <li>• MMSE average = 15.6</li> <li>• Moderate cognitive impairment</li> </ul>	<ul style="list-style-type: none"> <li>• NPI agitation score</li> <li>• Exercise decreased agitation after 6 months</li> <li>• Statistical significance concluded (p&lt;.0045)</li> </ul>
Connell et al. (2007)	<ul style="list-style-type: none"> <li>• Outdoor activities</li> <li>• 1-hour sessions/5x times a week, for 2 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• MMSE average = 15.3</li> <li>• Moderate cognitive impairment</li> </ul>	<ul style="list-style-type: none"> <li>• CMAI</li> <li>• Outdoor activity was effective in reducing agitation</li> <li>• Statistical significance concluded (p= .01)</li> </ul>
Lin et al. (2011)	<ul style="list-style-type: none"> <li>• Music therapy</li> <li>• 30-minute sessions/1x week for 6 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• MMSE average = 12.8</li> <li>• Moderate cognitive impairment</li> </ul>	<ul style="list-style-type: none"> <li>• Chinese CMAI</li> <li>• Music therapy reduced agitation with statistical significance over 3 sessions: 6<sup>th</sup> session (p&lt;0.001), At 12<sup>th</sup> session (p&lt;0.001), and 1 month after study (p&lt;0.001)</li> </ul>
Van Weert et al. (2005)	<ul style="list-style-type: none"> <li>• <i>snoezelen</i>-based approaches</li> <li>• 24-hour daily care for 18 months</li> </ul>	<ul style="list-style-type: none"> <li>• DSM-3 criteria (n=125)</li> <li>• Moderate to severe dementia</li> </ul>	<ul style="list-style-type: none"> <li>• Dutch CMAI</li> <li>• <i>snoezelen</i>-based approaches were significantly effective in reducing agitation</li> <li>• Statistical significance concluded (p&lt;.05)</li> </ul>
Van Haitsma et al. (2015)	<ul style="list-style-type: none"> <li>• Individualized positive psychosocial intervention (IPPI)</li> <li>• 10-minute sessions/ 3x times a week for 3 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• MMSE average = 9.0</li> <li>• Severe cognitive impairment</li> </ul>	<ul style="list-style-type: none"> <li>• Multidimensional Observation Scale for Elderly Subjects (MOSES)</li> <li>• IPPI was clinically effective in reducing agitation</li> </ul>
Majić et al. (2013)	<ul style="list-style-type: none"> <li>• Animal-assisted therapy (AAT)</li> <li>• 45-minute sessions/1x a week, for 4 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• MMSE average = 7.0</li> <li>• Severe cognitive impairment</li> </ul>	<ul style="list-style-type: none"> <li>• CMAI</li> <li>• AAT was clinically effective in reducing agitation</li> </ul>
Lin et al. (2007)	<ul style="list-style-type: none"> <li>• Aromatherapy</li> <li>• 60-minute sessions/5x a week, for 2 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• Chinese-MMSE (CMMSE)</li> <li>• CMMSE average = 7.88</li> <li>• Severe cognitive impairment</li> </ul>	<ul style="list-style-type: none"> <li>• Chinese CMAI</li> <li>• Aromatherapy was effective in reducing agitation</li> <li>• Statistical significance concluded (p&lt;0.001)</li> </ul>
van der Ploeg et al. (2013)	<ul style="list-style-type: none"> <li>• Montessori activity</li> <li>• 30-minute sessions/2x a week, for 2 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• MMSE average = 6.0</li> <li>• Severe cognitive impairment</li> </ul>	<ul style="list-style-type: none"> <li>• CMAI</li> <li>• Montessori activities were effective in reducing agitation</li> <li>• Statistical significance concluded (p&lt;0.001)</li> </ul>
Sung et al. (2006)	<ul style="list-style-type: none"> <li>• Music and movement</li> <li>• 30-minute sessions/7x a week, for 8 weeks total (including washout period)</li> </ul>	<ul style="list-style-type: none"> <li>• Global Deterioration Scale (GDS)</li> <li>• GDS = range from 3-6</li> <li>• Range of mild cognitive impairment to moderately severe dementia (n=65)</li> </ul>	<ul style="list-style-type: none"> <li>• Modified CMAI</li> <li>• Intervention reduced agitation over 2 time periods:</li> <li>• Statistical significance concluded after 2 weeks (p=0.001)</li> <li>• Statistical significance concluded after 4 weeks (p=.001)</li> </ul>

### Discussion

Table 2. Major areas of improved occupational engagement by research studies

Areas of Improved Occupations and/or Meaningful Engagement	Research Studies with Concluded Statistical or Clinical Secondary Results
Social participation	Majić et al. (2013), van der Ploeg et al. (2013), Van Weert et al. (2005), Lin et al. (2011), & Hsiao et al. (2020)
Leisure	Van Haitsma et al. (2015), van der Ploeg et al. (2013), Van Weert et al. (2005), & Collins et al., 2020
Rest and sleep	Hsiao et al. (2020), Lin et al. (2007), & Connell et al. (2007)
Health management	Sung et al. (2006) & Telenius et al. (2015)
Play	Majić et al. (2013)
Activities of daily living	Van Weert et al. (2005)
Meaningful engagement	Van Weert et al. (2005), Van Haitsma et al. (2015), van der Ploeg et al. (2013), Lin et al. (2011), Sung et al. (2006), Hsiao et al. (2020), & Collins et al., 2020

### Application to Practice

- Nonpharmacological occupation-based interventions for dementia may provide potential secondary functional, social, and occupational engagement measures are possible gains
- OT practitioners may provide a wide variety of approaches to individuals with dementia: such as environment-based sensory interventions, cognitively stimulating interventions, movement-based, or task-oriented approaches
- The American Occupational Therapy Association provides extensive guidance to OT practitioners related to Alzheimer's Disease and dementia

### Conclusion

Using some nonpharmacological interventions with individuals with dementia may be beneficial to decrease agitation and improve areas of occupation in long term care.

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