



Non-Pharmacological Interventions for Pain Management of Cognitively Impaired Nursing Home Residents: A Systematic Review

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BACKGROUND

- Greater than 50% of nursing home (NH) residents are cognitively impaired, of which 45-80% experience pain on a daily basis.^{11,34,36}
- Current evidence indicates suboptimal pain management of cognitively impaired older adults.^{11,18,21,24,30,32,36}
- As residents with moderate to severe cognitive impairment are often unable to self-report pain, this subpopulation is at high risk for suffering.^{11,19,29,31}
- This problem paired with age-related physiological changes that place older adults at risk for adverse reactions to pain medication suggests a need for non-pharmacological interventions.^{12,28}

PURPOSE

In this systematic review, studies of non-pharmacological interventions to reduce pain in cognitively impaired NH residents were reviewed. Study findings were assessed 1) to determine what interventions to reduce pain have been studied in cognitively impaired NH residents 2) to evaluate the effectiveness of these interventions, and 3) to assess the potential for these interventions to be implemented in NHs.

METHODS

- The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guided this systematic review.^{20,23}
- Included studies were published in English after January 1, 2001, as JCAHO first established standards for pain assessment and treatment in 2001.⁵
- End of life interventions, single case studies, and dissertations were excluded.
- PubMed, CINAHL, and Embase databases were searched on September 19, 2016.
- A standardized data abstraction tool was utilized.
- The quality of each study was evaluated regarding sample size, attrition, randomization, control, and blinding.
- Data synthesis was conducted by using standardized vote counting within themes.

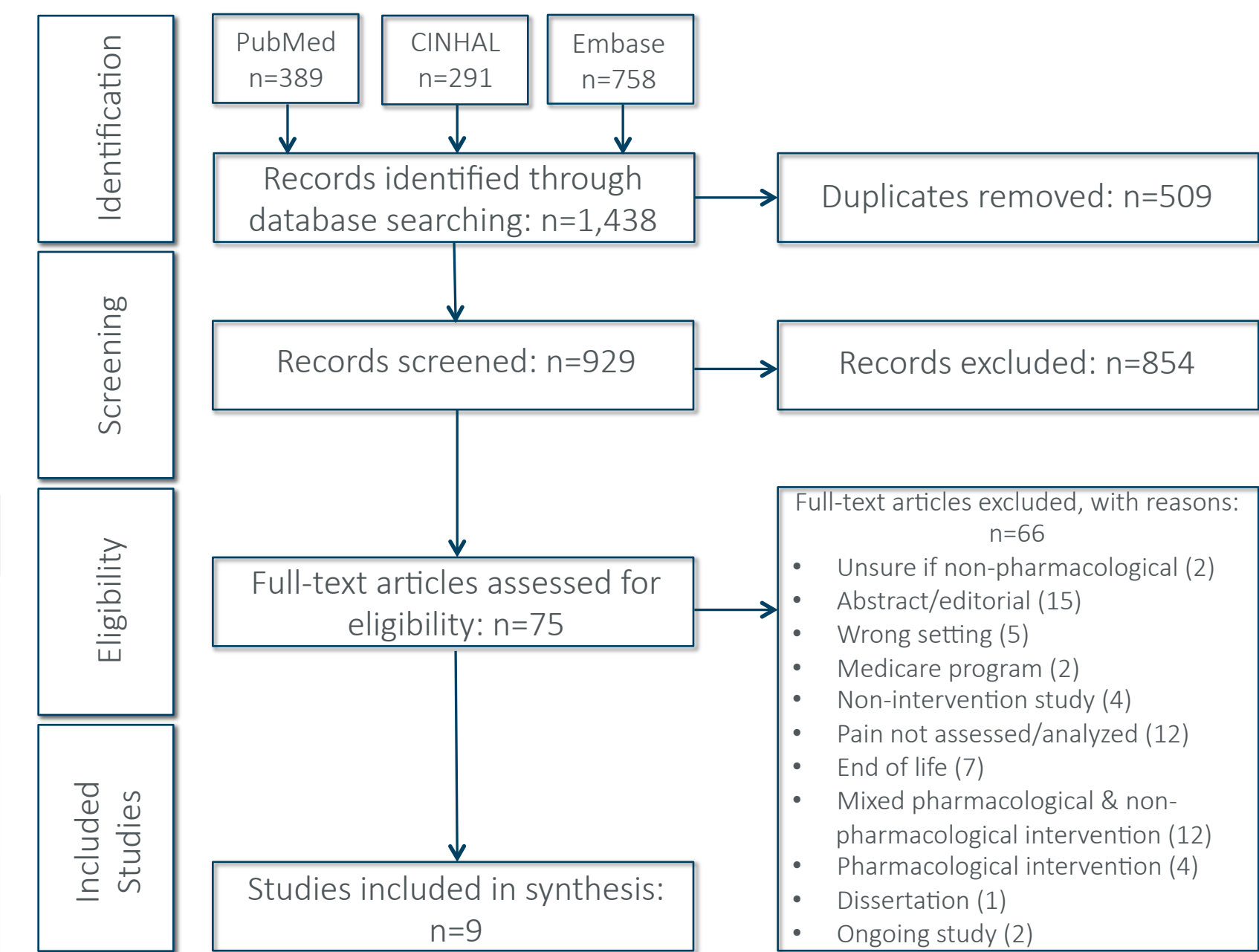
RESULTS

Across the 9 studies, there were 7 different measures of cognitive impairment and 8 different measures of pain. Studies reported 3 different categories of interventions: specialized dementia care units, training and tools to support pain assessment, and non-pharmacological therapies. Both studies of specialized dementia care units reported that residents on these units receive less pain medication than residents on open units. 2 of 4 interventions involving training and tools to support assessment were associated with decreased pain. The non-pharmacological therapies of reflexology, Passive Movement Therapy (PMT), and Namaste were all associated with a decrease in pain, but long-term maintenance of efficacy is unknown. The Namaste study was the only study to require nursing staff reorganization. In addition to the training required to implement pain assessment systems, interventionists of the 3 non-pharmacological therapies required training. No study noted the cost of implementation.

Table 1: Main Findings

Study	Design	Setting	Sample Size (Final)	Intervention	Main Outcomes
Alexander et al. (2005)	Non-randomized non-controlled trial	1 NH, US	55(41)	Training & Tools to Support Assessment	<ul style="list-style-type: none"> • Nursing & provider education was associated with increased pain medication use/decreased pain target behaviors on the dementia unit & stable medication use/decreased pain target behaviors on the open unit • Majority of residents on dementia unit & open unit were unable to use verbal tool (n=18, 75%; n=12, 70.59%), but all residents were able to use non-verbal tool
Achterberg et al. (2007)	Non-randomized non-controlled trial	65 NHs, Netherlands	562 (562)	Specialized Dementia Care Unit	<ul style="list-style-type: none"> • Specialized dementia care units were significantly associated with having less pain (adjusted for cofounders: OR 0.38, 95% CI 0.23-0.62, p<0.001) & receiving less pain medication (adjusted for intensity: OR 0.41, 95% CI 0.25-0.67, p<0.001)
Fuchs-Lacelle et al. (2008)	RCT	12 NHs, Canada	181 (101)	Training & Tools to Support Assessment	<ul style="list-style-type: none"> • Systematic pain assessment was associated with an increase in PRN pain medications (at a rate of 0.005/assessment time) but not scheduled pain medications • PACSLAC scores showed a statistically significant decrease (-0.01 for each unit of time, SE 0.00, p=0.03)
Hodgson et al. (2008)	RCT	1 NH, US	23 (21)	Non-Pharmacological Therapy	<ul style="list-style-type: none"> • Reflexology was associated with a statistically significant decrease in distress, as measured by salivary amylase (F=4.37, p=0.049) • Reflexology was associated with a statistically significant decrease in observed pain (F=5.45, p=0.031)
Hobbelen et al. (2011)	RCT	12 NHs, Netherlands	110 (101)	Non-Pharmacological Therapy	<ul style="list-style-type: none"> • PMT group was associated with an increase in paratonia in arms (β=2.01, 95% CI -0.31, 4.34, p=0.09) & legs (β=1.37, 95% CI -0.15, 2.88, p=0.08) • PMT group was associated with decreased pain but control group was associated with greater decrease (mean change in pain score: PMT -0.4 (2.4), control -0.8 (2.5), 95% CI -1.4, 0.6)
Cadigan et al. (2012)	Non-randomized non-controlled trial using mixed methods	22 NHs, US	323 (323)	Specialized Dementia Care Unit	<ul style="list-style-type: none"> • Specialized dementia care units (SCUs) were significantly associated with less pain treatment, in facilities with a SCU (OR 1.07; 95% CI 1.04, 1.10) & without a SCU (OR 2.43; 95% CI 1.26, 4.70)
Zwakhalen et al. (2012)	Non-randomized non-controlled trial using mixed methods	1 NH, Netherlands	22 (22)	Training & Tools to Support Assessment	<ul style="list-style-type: none"> • Systematic pain assessment using an observational scale was associated with high compliance, with 237/264 (90%) scheduled assessments completed, but only 27/57 (47.4%) follow-up assessments were completed (weekly compliance of scheduled assessments ranged from 80-100% & follow-up ranged from 0-77%) • Mean PACSLAC-D score was 2.2 (SD 2.8, range 0-17) but 60/264 PACSLAC-D assessments were ≥ 4 (mean 6.3, SD 3.1, range 4-17), of which 44% (n=17) resulted in no intervention & 56% (n=22) resulted in non-pharmacological intervention (comfort or distraction n=19, 49%)
Cohen-Mansfield et al. (2014)	RCT	6 NHs, US	89 (89)	Training & Tools to Support Assessment	<ul style="list-style-type: none"> • Decreased agitation during TREA interventions was associated with speech impairment (r= -0.47, p<0.001), cognitive functioning (r= 0.36, p<0.001), talking difficulties (r= -0.36, p<0.001), ADL difficulties (r= -0.29, p<0.01), lack of responsiveness (r= -0.28, p<0.01), & communication difficulties (r= -0.23, p<0.05) • Pain was associated with less reduction in agitation (r= -0.21, p<0.05)
Stacpoole et al. (2015)	Non-randomized non-controlled trial using mixed methods	5 NHs, UK	37 (30)	Non-Pharmacological Therapy	<ul style="list-style-type: none"> • Namaste was associated with decreased NPI-NH scores after initiation (p<0.001) but increased scores between 3rd & 4th assessments (behavioral p<0.001, disruptiveness p<0.001) • At 3rd & 4th assessments, mean Doloplus-2 scores were < 5 in 4/5 NHs

Figure 1: PRISMA Diagram



CONCLUSIONS

The findings of this systematic review provide limited evidence of the effectiveness of systematic pain assessment, reflexology, PMT, and Namaste in reducing cognitively impaired NH residents' pain. The limited number of non-pharmacological interventions studied in NHs is consistent with the lack of literature on complementary and alternative therapies to treat pain in older adults.¹

IMPLICATIONS

Findings of the review identify needs for future research, such as the need for randomized controlled trials with larger sample sizes and independent observation, and measurement challenges of assessing pain in the cognitively impaired. Measurement work is necessary to objectively capture the outcome of pain in this population.

REFERENCES

See handout