A systematic review of the clinical effectiveness and cost-effectiveness of sensory, psychological and behavioural interventions for managing agitation in older adults with dementia

Livingston G, Kelly L, Lewis-Holmes E, Baio G, Morris S, Patel N, Omar RZ, Katona C, Cooper C

CRD summary
This review concluded that person-centred care, communication skills and dementia care mapping (all with supervision), sensory therapy, activities, and structured music therapy reduced agitation in care-home residents with dementia. The authors' conclusions were a fair reflection of the available evidence, but some uncertainty remains about the extent of treatment effectiveness.

Authors' objectives
To evaluate the effectiveness of non-pharmacological interventions for reducing agitation in people with dementia.

Searching
MEDLINE, EMBASE, CINAHL, The Cochrane Library and several other databases (including grey literature) were searched in June 2012 for studies in any language. Relevant reviews and reference lists of included studies were searched. Study authors were contacted to identify any further relevant studies.

Study selection
Studies of psychological, behavioural, sensory or environmental interventions to manage behavioural agitation in patients with dementia were eligible. Studies had to report quantitative agitation results and have a comparator group; before-and-after studies were eligible. All patients had to be aged 50 years or older. Studies of interventions that included psychotropic drugs to control agitation were excluded.

Just under half of the included studies did not record the type of dementia; around a third recruited patients with mixed dementia; and around a fifth recruited patients with Alzheimer's disease. Most studies were based in care homes; none were based in hospital; a few studies were in people’s homes. Just under half of the studies were set in the USA. Various interventions were studied including music therapy, light therapy, exercise, training family caregivers in behaviour management or therapy, dementia care mapping, activities, and sensory interventions.

It appears that two reviewers independently selected studies for inclusion.

Assessment of study quality
Study quality was evaluated using the Centre for Evidence-based Medicine's criteria, with a maximum score of 14. Seven of the criteria evaluated the quality of randomised trials; those that fulfilled all seven criteria were judged to be high quality. Details of all the criteria were provided.

Two reviewers independently assessed study quality, with disagreements resolved by a third reviewer.

Data extraction
The data were extracted to calculate standardised mean differences, with 95% confidence intervals. It appears that two reviewers extracted the data.

Methods of synthesis
Meta-analysis was used to pool the study data, where there was sufficient homogeneity (a Bayesian random-effects model was used to account for different time points in the studies). Otherwise, study data were summarised in a narrative synthesis, using standardised mean difference ranges.

Results of the review
One hundred and sixty studies were included; 33 of them were randomised trials that had more than 45 participants.
There were 97 higher-quality studies. Supervised person-centred care and communication skills (SMD range –1.8 to –0.3) and modified dementia care mapping with implementation plans (SMD range –1.4 to –0.6) were reduced clinically significant agitation in care-home residents, both immediately and at up to six months. In care-home residents, during intervention, but not at follow-up, activities (SMD range –0.8 to –0.6) and music therapy (SMD range –0.8 to –0.5) reduced agitation. Sensory interventions reduced mean, clinically significant symptoms (SMD range –1.3 to –0.6).

There were no statistically significant differences for aromatherapy, light therapy, therapeutic touch, and individualised activity. Training family carers in behavioural or cognitive interventions did not decrease severe agitation. The few studies reporting activities of daily living or quality of life found no improvement, even when agitation had improved.

The results for the lower-quality studies were reported.

**Cost information**
Among the 11 interventions that used the Cohen-Mansfield Agitation Inventory (CMAI), the incremental cost per unit reduction in CMAI score ranged from £162 to £3,480 for activities, £4 for music therapy, £24 to £143 for sensory interventions, and £6 to £62 for training paid caregivers in person-centred care or communication skills, with or without behavioural management training and dementia care mapping.

**Authors’ conclusions**
Person-centred care, communication skills, and dementia care mapping (all with supervision), sensory therapies, and structured music therapy reduced agitation in care-home residents with dementia.

**CRD commentary**
The review addressed a clear question and was supported by reproducible eligibility criteria. Attempts to identify all relevant studies, in any language, were undertaken by searching electronic databases and checking references. Suitable methods were used to reduce the risks of reviewer error and bias throughout the review.

The quality assessment tool seems to have been limited, in that it was possible that studies with important biases (such as selection bias from inadequate allocation concealment) could be rated as high quality. A narrative synthesis of the data was undertaken; this was appropriate given the evident clinical differences between studies.

The authors’ conclusions were a fair reflection of the available evidence, but the limitations of the review’s quality assessment tool mean that some uncertainty remains about the extent of treatment effectiveness. Limited details were provided on how the clinical significance of the study results was defined, making some of the review results difficult to interpret.

**Implications of the review for practice and research**

**Practice**: The authors stated that person-centred care, communication, and feedback of dementia care mapping with a plan implemented, all seemed to have similar effectiveness and, with supervision, were effective for more severe agitation. The effects lasted over a few months.

**Research**: The authors recommended the evaluation of the implementation of the interventions that they had found to be effective, with an emphasis on changing care-home culture, and on evaluating which interventions would be useful in everyday practice. Further recommendations were made.

**Funding**
Funded by the NIHR Health Technology Assessment programme, UK.

**Bibliographic details**

**PubMedID**
24947468
Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.