Non-pharmacological interventions for aggressive behavior in older adults living in long-term care facilities


CRD summary
The review assessed non-pharmacological interventions for managing aggressive behaviour in older adults living in long-term care facilities. The authors concluded that non-pharmacological interventions seem to be effective; staff training and changes in the environment might be the most effective strategies. The strength of the evidence in this area is weak and the conclusions may not be reliable.

Authors' objectives
To determine the effectiveness of non-pharmacological interventions for managing aggressive behaviour in institutionalised older adults.

Searching
PsycINFO (1967 to 2003), CINAHL (1982 to 2003), AgeLine (1978 to 2003), MEDLINE (1960 to 2003) and Current Contents (2003) were searched; the search terms were not reported. The reference lists in selected papers and reviews were used to identify additional studies.

Study selection
Study designs of evaluations included in the review
The inclusion criteria specified the use of a control group, baseline assessment or pre-test assessment.

Specific interventions included in the review
Non-pharmacological interventions were eligible for inclusion. The interventions reviewed were assigned to one of eight categories adapted from another paper (see Other Publications of Related Interest): staff training programmes, environmental modifications, sensory stimulation, behavioural management, structured activities, special care units and psychosocial interventions.

Participants included in the review
Studies of adults living in long-term care facilities were eligible for inclusion if the individual or mean age of the participants was at least 60 years. Studies in residential homes or in the community were excluded. Studies were also excluded if the participants had only a diagnosis of psychiatric illness such as schizophrenia. Most of the studies reviewed were conducted in nursing homes, long-term care units and other facilities for people with dementia. Other settings included psychiatric facilities, hospital geriatric units, continuing-care centres, veteran medical centres, foster care homes and national health service care facilities. The participants in studies that included entire care units and those described in case reports had various diagnoses. A few of the included studies did not specify the population. Men and women were included.

Outcomes assessed in the review
Studies reporting measures of change in aggressive behaviour were eligible for inclusion. Studies were excluded if the outcome measures mixed aggressive behaviour with other problematic behaviours. Outcome measurement tools included direct observation; various questionnaires and behaviour rating scales (completed by nursing staff, family caregivers or research assistants), and charts and medical records. Physical and verbal aggressive behaviours were reported.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.
Assessment of study quality
The validity of the included studies was assessed according to sample size, study design, verification of treatment integrity, control for confounding, control for psychotropic medication, validation and reliability of the outcome assessment methods, assessor blinding, and whether statistical tests were used to analyse the results. The authors did not state how the validity assessment was performed.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

The data extracted from each study included the methods used to measure treatment effect and the findings reported. Treatment effect was designated as a statistically significant improvement (p<0.05) or as a marked behavioural improvement (defined as 'very improved' on a clinical improvement rating scale or at least a 50% reduction in aggressive behaviour).

Methods of synthesis
How were the studies combined?
The studies were grouped according to the type of intervention and a narrative synthesis was undertaken. A histogram of the number of studies that reported statistically significant improvement, marked behavioural improvement, both or neither, allowed tentative comparisons between the effectiveness of different types of interventions. A tally of studies showing statistically or behaviourally significant reductions in aggressive behaviour was used to summarise the effectiveness of non-pharmacological interventions overall.

How were differences between studies investigated?
In addition to grouping studies by intervention in the narrative synthesis, individual study characteristics were similarly grouped and tabulated for comparison.

Results of the review
Forty-one studies were included. The total number of patients was at least 2,132 (some studies involved entire units, while others reported the number of staff involved and not the number of patients).

There were five parallel-group or crossover, randomised controlled trials (RCTs; 287 patients), one controlled clinical trial (88 patients), seven quasi-experimental studies of various designs (at least 825 patients; two studies were conducted in units and the number of patients was not reported), six pre-test post-test studies (at least 333 patients), one prospective longitudinal study (172 patients), two time series (65 patients), four repeated measures (at least 116 patients), seven non-randomised crossover studies of various designs (94 patients), one nested partial crossover study (105 patients), one multiple single-subject study (27 patients), one case series (4 patients), one recurrent institutional cycle study (11 patients) and five single-person case reports (5 patients).

Eight studies had more than 100 participants, eight had between 20 and 99 participants, and twenty-five had less than 30 participants.

Most of the included studies had small sample sizes, a non-experimental study design and lacked verification of treatment integrity. Almost half of the studies had no control group. Other methodological problems included lack of blinding of the outcome assessment and lack of control for confounding factors. About 40% of the studies did not report a statistical analysis.

Overall, 27 of the 41 included studies reported a statistically or behaviourally significant reduction in aggressive behaviour with the intervention.

Staff training programmes.
Ten studies evaluated training nursing staff. All six studies that used statistical analysis found a significant reduction in
aggressive behaviour, and four reported a marked improvement in behaviour. Aggression was reduced by at least 50% in two of four studies that did not use statistical tests.

Environmental modifications.

Ten studies evaluated various forms of environmental modification. Two studies that used statistical analysis found a significant reduction in target behaviours. Four studies that did not use statistical tests reported a marked reduction in aggressive behaviour. One study reported statistically and behaviourally significant improvement.

Sensory stimulation.

Eight studies evaluated various forms of sensory stimulation. Three studies, one a placebo-controlled RCT of aromatherapy, reported a statistically significant reduction in aggressive behaviour. In one other study aggressive behaviour was reduced by half. The other RCT among this group of studies found no difference between bright light therapy and control in people with dementia.

Behavioural management.

Four studies evaluated various behavioural management strategies. Two studies showed a marked improvement in aggressive behaviour.

Structured activities.

Four studies evaluated participation in structured activities. One study showed a statistically significant difference in aggressive behaviour.

Special care units.

Three studies evaluated long-term special care units for people with dementia. One study showed a significant reduction in verbal aggressive behaviour after 6 months in a behaviour management unit. A study that compared a 21-day inpatient programme for treating agitation with a continuum of care programme found a significant reduction in physical and verbal aggression in both groups. Special care units were not found to be effective in one study.

Psychosocial interventions.

Three studies evaluated various psychosocial interventions. In one study simulated presence therapy reduced verbal aggressive behaviour. One study found no consistent difference between validation group therapy and a social contact group compared with usual care. An RCT found no difference between a psychosocial intervention, an activities-of-daily-living intervention and a combination of both.

**Authors’ conclusions**

Non-pharmacological interventions seem to be effective for managing aggressive behaviour in older adults living in long-term care facilities. The most effective strategies appeared to be staff training and environmental modifications.

**CRD commentary**

The review addressed a broad question and, although inclusion and exclusion criteria were described, steps to reduce selection bias were not reported. Several appropriate sources were searched for relevant studies. Study quality was assessed systematically but methods to minimise bias and errors in the assessment and data extraction were not reported. Details of the individual included studies were well presented and the narrative synthesis was appropriate. However, a tally of studies showing significant effects in which studies are given equal weight regardless of study design and other indicators of study quality is not a robust approach to summarising evidence of effectiveness. In this review, the methodological limitations of the studies were summarised separately from the evidence of effectiveness and the questionable reliability of most of the evidence was not fully taken into account when interpreting the findings. The authors’ conclusion regarding the effectiveness of non-pharmacological interventions might not, therefore, be
reliable. There was insufficient robust evidence presented in the review to support a conclusion about which strategies were most effective.

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

Practice: The authors stated that staff training and environmental modifications can be implemented generally on units and adapted as part of individualised treatment plans.

Research: The authors stated that further research is needed to determine the optimal interventions for managing physical and verbal aggressive behaviour; to compare non-pharmacological with pharmacological interventions; and to assess the effectiveness of combined interventions. Determinants of response to non-pharmacological interventions have yet to be identified. There is also a need to examine how patients, staff and patients’ families perceive non-pharmacological and pharmacological interventions.

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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.