Nonpharmacologic interventions for inappropriate behaviors in dementia: a review, summary, and critique

Cohen-Mansfield J

Authors' objectives
To assess the impact of non-pharmacologic interventions for inappropriate behaviours in dementia.

Searching
PsycLIT, MEDLINE and a nursing subset of MEDLINE were searched, although no details of the search terms or dates were given. The author was searching specifically for published articles so no attempt was made to retrieve unpublished research. There were no language restrictions reported.

Study selection
Study designs of evaluations included in the review
The chosen interventions were published as an article in a scientific book or journal; presentations, abstracts and reports were excluded. The study design used most often was either a comparison of baseline with intervention, or a comparison of baseline, intervention and a post-intervention period. Very few studies used a control group or a control condition. The duration of treatment varied with the type of treatment. The studies varied greatly in the time period for which the impact was examined.

Specific interventions included in the review
There were no stated inclusion criteria for interventions. The interventions reported were as follows.

- Sensory intervention (for stimulation or relaxation), including music, massage or touch, white noise and sensory stimulation.
- Social contact (real or simulated), including one-on-one interaction, pet visits and simulated presence therapy and videos.
- Behaviour therapy, including differential reinforcement, cognitive and stimulus control.
- Staff training.
- Activities, including structured activities, outdoor walks and physical activities.
- Environmental interventions, including wandering areas, natural or enhanced environments and reduced-stimulation environments.
- Medical or nursing care interventions, including light or sleep therapy, pain management, hearing aids and removal of restraints.
- Combination therapies, including individualised and group treatments.

Participants included in the review
The participants were at least 60 years old and suffered from dementia or cognitive impairment. The majority of the studies (76%) were conducted in residential facilities, primarily nursing homes, with the rest in hospitals, the community or other types of residential arrangements.

Outcomes assessed in the review
Studies were included if a measure of the behaviour or of change was recorded. The reported outcome measures were varied; some studies included an average of ratings of different constructs such as delusions, hallucinations,
suspiciousness and violence, whilst others concentrated on specific behaviours such as aggressive behaviours or disruptive vocalisations.

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The author does not report the method used to assess validity, or how the validity assessment was performed.

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

Data were extracted for the following categories: type and subtype of intervention; number and age of participants; location; intervention details; and findings. A coding system was devised to describe the studies in terms of behaviour, participants, setting, design, intervention and findings.

Methods of synthesis
How were the studies combined?
A narrative synthesis was undertaken. The author discussed the major types and subtypes of intervention. The author was aware of publication bias, although this was not controlled for in the review.

How were differences between studies investigated?
The author was aware that it was impossible to make a valid comparison of treatments used in the different studies, because of the heterogeneity in methods and treatment applications.

Results of the review
The review included 83 studies, one of which did not report the number of participants (N=2,206 for 82 studies).

The majority (91%) of the interventions included in this review had a positive, albeit not always significant, impact. Fifty-three per cent of all the studies reported a significant improvement from baseline to the treatment condition. For each category of intervention, there were also studies that either (1) found no statistically-significant difference; (2) did not use a statistical analysis to examine the change from baseline to treatment; or (3) showed mixed results. An overview of the results, arranged by type and subtype of intervention, was presented.

Cost information
The author stated that the vast majority of the studies did not estimate the cost of intervention. One study costed the intervention at $8.94 per patient per day (see Other Publications of Related Interest), but did not appear to adjust for possible reduction in the costs of nursing care, physical restraints and medication.

Authors’ conclusions
A better matching of the available interventions to the patients’ needs and capabilities may result in greater benefits to the patients and their caregivers. The research supports the following:

medical and nursing care that effectively address limitations in functioning, including pain, sensory limitations, sleep problems and limitations on autonomy, such as physical restraints;

provision of social contact;
provision of meaningful stimuli or activity;

tailoring the intervention to the individual;

staff training to improve care and reduction in stressful stimuli; and

increasing relaxation during care activities.

**CRD commentary**

A clear review question was addressed by the stated inclusion criteria. The literature search was very limited in its reporting of the search criteria and dates. Unpublished material was not included, thus there is a risk of publication bias in the results. Any language restrictions were not stated so, overall, it is possible that additional studies were missed. The author did not state how the papers were assessed for validity. A variety of study designs were included, many of which did not include a control group. The studies were grouped and summarised appropriately in a narrative synthesis.

The author was aware of the heterogeneity of the methods, treatment applications and outcome measures used in the studies. Thus, it was decided to synthesise the literature rather than perform comparisons between studies. This is a very useful overview of the field, which highlights the need for larger, better designed trials to measure more accurately the effectiveness of non-pharmacologic interventions.

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

**Practice:** The author states that there is a need to overcome the barriers to non-pharmacologic interventions, namely, financial limitations, caregivers' lack of knowledge and inherent barriers in the system.

**Research:** The author states that previous research has been limited in terms of participants, system and caregiver restrictions, and the more limited funding in relation to pharmacologic interventions. Larger, better-designed studies would help answer questions of the appropriateness of the interventions, the characteristics of the interventions (e.g. timing, duration, location and intensity), cost-effectiveness, best practice and system change.

**Bibliographic details**


**PubMedID**

11739063

**Other publications of related interest**


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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.