Strategies for managing behavioural symptomatology associated with dementia of the Alzheimer type: a systematic overview

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Authors' objectives
To assess and summarise research evidence on the effectiveness of strategies within the scope of nursing in managing the behavioural symptomatology associated with dementia of the Alzheimer type in elderly individuals.

Searching
MEDLINE, CINAHL, PsycINFO, Sociofile, Ageline, HealthSTAR, Dissertation Abstracts, Government Documents (First Search), and CAN Research Index were searched from January 1985 to April 1997. The search terms were provided. Key journals such as The Gerontologist and the Journal of the American Geriatrics Society were manually searched and several key informants were contacted for their published and unpublished papers. Relevant references from each article were identified, retrieved and reviewed.

Study selection
Study designs of evaluations included in the review
Included studies had to incorporate a control group or a pretest-posttest design with a sample size greater than one. Study designs were only given for the seven articles rated as strong or moderate. They were: pretest/posttest (3 studies), random allocation (2 studies), randomised controlled trial (RCT) (1 study) and repeated measures within subject (1 study).

Specific interventions included in the review
Music (27.1%) was the most frequent form of intervention, followed by skills training (18.8%) and visual barriers (10.4%). The remaining interventions were: exercise (8.3%), bright-light therapy (6.3%), pet therapy (6.3%), sensory integration (6.3%), reality orientation (4.2%), presence (4.2%), hand massage (2.1%), and white noise therapy (2.1%).

Participants included in the review
Individuals aged 65 or older with dementia of the Alzheimer type, or their caregivers.

Outcomes assessed in the review
The most commonly addressed outcomes were: social interaction (29.6%), agitation (14.8%), wandering (14.8%), self-care ability (13.0%), physically violent behaviour (9.3%), vocally disruptive behaviour (7.4%), day/night disturbances (5.6%), and eating problems (5.6%).

How were decisions on the relevance of primary studies made?
The first 20 articles were independently reviewed by two readers, and the level of agreement beyond chance was found to be 86% (kappa = 0.857); thus the second reader was not considered necessary for the remaining 25 articles.

Assessment of study quality
The development of a validity tool was guided by previous systematic research reviews and reviews of interventions to manage the symptoms of dementia (see Other Publications of Related Interest). The validity tool, dictionary, and rating scale were developed, pretested and revised. External, internal and statistical conclusion validity were assessed using the following 6 categories: design and allocation to intervention, inclusion, attrition, control of confounders, data collection and statistical analysis. For a strong rating, at least four of the criteria had to "pass" and none could "fail". For a moderate rating, no criteria could fail and no more than four could pass. For a weak rating, one or two criteria had to fail, and for a poor rating, more than two criteria had to fail. Two readers independently assessed the validity of the first 20 articles. Although the level of agreement was high (kappa = 0.762) the two raters independently completed the validity ratings for all of the relevant studies. There were 13 discrepancies related to oversight or differences in interpretation of the criteria; these differences were discussed and a consensus was reached on the rating of all articles.
Data extraction
The number of reviewers who extracted data from the primary studies was The authors do not state how the data were extracted for the review, or how many of the authors performed the data extraction.

A data extraction tool was developed, pretested and revised and the categories of data extracted are reported in the paper.

Methods of synthesis
How were the studies combined?
Studies were combined narratively. Studies rated as poor were not included in the analyses.

How were differences between studies investigated?
The authors do not state how differences between the studies were investigated. Studies rated as strong, moderate and weak were described and critiqued within the following outcome categories:

- aggressive, agitated, and disruptive behaviours;
- social interaction;
- self-care ability;
- day/night disturbances;
- wandering.

Results of the review
Forty-five articles were included in the review. The total number of participants was not stated, however, there were 190 participants at baseline in the seven strong or moderately rated studies.

Of the 45 articles reviewed, one was rated as strong, six moderate, 20 weak, and 18 poor. Those rated as poor were not included in the overview.

All of the following strategies (each tested in a separate study) showed promise in managing aggressive, agitated or disruptive behaviour: planned walking programme, simulated presence therapy (a personalised audiotape of a family member's telephone conversation about cherished memories), bright light therapy, calming music, classical and favourite music. Informal caregivers’ use of written cues was shown to be effective in decreasing repetitive vocalizations. Hand massage and therapeutic touch did not result in a significant decrease in agitated behaviours. The study examining planned walking was rated as moderate validity, and the remaining studies were rated as weak.

In terms of social interaction, the only study rated as strong in the overview demonstrated that a programme of walking while engaged in conversation improved communicative function. One study rated as moderate found that an attention-focusing programme improved participation in group activities and another (also rated as moderate) found that the presence of a pet dog on a special-care AD unit significantly increased social behaviours.

One study rated moderate found that a skills-training programme appeared to improve self-care ability. Two studies (one moderate, one weak) found that soothing music resulted in the patients eating by themselves more often and being fed by others significantly more often.

Three studies that examined the effect of bright light and music on day/night disturbances were rated as weak. Two of these studies reported that bright-light therapy appears to normalise disturbed sleep during the treatment period, with more severe behavioural disorders at baseline predicting greater clinical improvement. The third study demonstrated that music appears to increase the number of hours of productive sleep in patients with AD.
One study, rated as weak, concluded that a floor grid pattern in front of a door is effective in limiting potentially dangerous exiting in many individuals with dementia. A study rated as moderate supported these findings for participants diagnosed with AD and with Parkinson's disease but did not find this study effective with other forms of dementia. Two studies rated as weak found that visual barriers (such as a cloth panel) camouflaging the doorknob are effective controls for reducing hazardous exiting in residents with dementia. One weak study found that the ineffectiveness of the grid was related to the presence of glass windows in the doors. Another study (weak validity) found that significant personal memorabilia displayed outside bedrooms was helpful in assisting some residents with mild to moderate levels of dementia to find their bedrooms.

Authors’ conclusions
Strategies such as planned walking, pet therapy, an attention-focusing programme, functional skills training, music, and visual barriers demonstrated promising results in improving:

a. Aggressive, agitated, and disruptive behaviours.

b. Social interaction.

c. Self-care ability.

d. Day-night disturbances.

e. Wandering.

The findings indicate that there is existing research, although in its infancy, to support the use of strategies for managing the behavioural symptomatology associated with dementia of the Alzheimer type.

CRD commentary
The review focuses on a well defined question. The search is very thorough and involves an attempt to search for both published and unpublished literature. Five inclusion criteria were presented, and articles had to meet all of these to be included. The validity of included studies was adequately assessed and studies were discussed in terms of their rating (studies rated poor were not included in the overview). The primary studies were summarised appropriately.

Details of individual studies were only presented for studies rated as strong or moderate. It would also have been useful to provide details of studies rated as weak, because these were included in the results section.

This is a very thorough review in which the conclusions follow from the results. However, both the results and conclusions should be interpreted with caution, since only one of the studies was rated as methodologically strong and six as moderate (the remaining 38 were weak or poor).

Implications of the review for practice and research
Practice: The author states that behaviour symptoms associated with dementia of the Alzheimer type have detrimental effects on the physical and mental status of the individuals and their caregivers. The management of many of these behaviours has traditionally included chemical and physical restraints. However, concerns have been raised that such interventions may create adverse physical and psychological problems. Moreover, the shortage of health care professionals in long-term care facilities makes it difficult to implement the high staff/resident ratio necessary to ensure the safe management of problematic behaviours. Alternative interventions are needed to manage the behavioural symptomatology associated with dementia of the Alzheimer type.

Research: The author suggests that further research should address the following questions.

1. What is the optimal duration and intensity of interventions?

2. What specific aspects of the interventions contribute to the outcomes?
3. Can an organisational structure ensure that the most appropriate care provider implements the strategy?

Several suggestions are made to enable researchers to enhance the reliability and validity of their studies when examining these issues.

The author also suggests that replicating the studies with individuals diagnosed with a variety of dementias and with different levels of cognitive impairment would help to determine which strategies are appropriate for each particular person. Conducting studies at multiple sites would help build confidence in the generalisability of the results. Longitudinal studies would help in assessing long-term effectiveness in preventing or delaying the progression of the disease and in reducing caregiver stress. The cost-effectiveness of implementing the interventions requires further study and might be of particular interest to policy makers and administrators.

Systematic overviews that include other research methods, such as qualitative approaches, would help our understanding of the meaning of the disease process and the effectiveness of the interventions from the perspective of persons with dementia and their caregivers. Research targeting quality of care and the quality of life of the recipients of care will be necessary for the design and conduct of high-quality studies using samples of adequate size.

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**Other publications of related interest**


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the reliability of the review and the conclusions drawn.