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## Animal-assisted therapy for dementia: a review of the literature

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### CRD summary

The authors concluded that animal-assisted therapy offers promise as a psychosocial intervention for people with dementia, though further research is needed. Given the methodological weaknesses in the review and in the available evidence, the reliability of the authors' conclusions is unclear.

### Authors' objectives

To evaluate the impact of animal-assisted therapy (AAT) on behavioural and psychological symptoms in people with dementia.

### Searching

MEDLINE, PsycINFO and CINAHL were searched from 1960 to 2005; the search terms were reported. The bibliography of an article was screened for relevant papers published between 1996 and 2001 (see Other Publications of Related Interest). References of relevant publications were also checked.

### Study selection

Studies of AAT in people with dementia were eligible for inclusion. The included studies were of visiting pets with a facilitator, residents pets or aquaria, toy animals or robotic pets. The frequency and duration of exposure to pets varied considerably between the studies. The included studies were of people with dementia across the range of severity; some studies were only of patients with Alzheimer's and one study also included a patient with schizophrenia. The included studies were set in day programmes, extended care facilities, private homes, nursing homes and psychiatric wards, and were carried out in the USA, Japan and Australia. Primary outcomes eligible for inclusion were behavioural and psychological symptoms of dementia. The outcomes reported in the included studies were agitation, aggression, social behaviour, behavioural disturbances, use of medication, blood-pressure, heart rate, cognitive function, caregiver burden, anxiety, amount of food intake and weight. These outcomes were measured using a variety of standardised scales, caregiver report and behavioural observations. Inclusion criteria for the study design were not specified. Descriptive reports and reports of uncontrolled studies or informal observations were excluded. The included studies appeared to be within-subjects design, controlled parallel studies, matched-subjects design, quasi-experimental studies and surveys.

The authors did not state how the studies were selected for the review, or how many reviewers performed the study selection.

### Assessment of study quality

The authors did not state that they assessed validity. However, aspects of methodological quality were discussed for each study.

### Data extraction

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

### Methods of synthesis

The results were combined in a narrative, with further information tabulated.

### Results of the review

Eleven studies (n=289) were included in the review: one parallel controlled study (n=27), seven within-subjects designs (n=105), one matched-controls design (n=14), one quasi-experimental study (n=79) and one survey design (n=64).

Validity was not formally assessed, although the authors highlighted several methodological limitations: use of non-blinded raters, rating of behaviours by facility staff, small sample sizes, limited duration of the intervention and limited

follow-up, lack of matched control and baseline groups, and poor response rate.

Agitation and aggressive behaviours (six studies).

Five studies found a significant reduction in aggression, agitation or behavioural disturbances in patients exposed to visiting AAT or resident animals (no data reported for one study, p-values ranged from  $p < 0.05$  to  $p = 0.001$ ). In one study levels of agitation rose significantly after the intervention ended ( $p = 0.000$ ).

Social behaviour (four studies).

Three studies reported significantly greater frequency of social behaviours in the presence of a therapeutic animal ( $p = 0.009$ ,  $p < 0.001$ , no data available for one study). The fourth study reported greater frequency of words, meaningful information units and verbal initiations, however, no data were available and it was not reported whether this increase was significant.

Nutrition (one study).

One quasi-experimental study found that the introduction of aquaria into the dining room of special care units was associated with significantly increased food intake ( $p < 0.001$ ) and resident weight ( $p < 0.000$ ) in comparison with units without aquaria.

Pet substitutes (two studies).

One study found significantly decreased physical ( $p = 0.036$ ) and overall agitation ( $p = 0.046$ ) with a plush cat but not with a robotic cat. Residents demonstrated significantly increased pleasure and interest with the robotic cat ( $p = 0.007$  and  $p = 0.028$ , respectively). The other study reported higher levels of responsiveness to a toy dog compared with a robotic dog, although it is unclear whether these differences were significant and no data were provided.

Other outcomes showing significant changes following the introduction of AAT were: reduction in heart rate (one study  $p = 0.021$ ), ward noise (one study,  $p = 0.001$ ), caregiver burden (one study  $p = 0.047$ ) and anxiety ( $p = 0.004$ ). Use of medication and cognitive function did not significantly change. Three studies found that severity of dementia was not associated with responsiveness to AAT. One study of robotic and toy substitutes found decreasing engagement as severity of dementia increased.

### **Cost information**

A formal cost-benefit analysis was not conducted. The author of one study reported that the increased food intake associated with the introduction of the aquaria would result in savings on nutritional supplements.

### **Authors' conclusions**

AAT offers promise as a psychosocial intervention for people with dementia. However, current research is limited and further research is needed.

### **CRD commentary**

Inclusion criteria for the intervention, population and outcome were broad but adequately defined, whereas those for study design were not stated. Three databases were searched but, since there were no apparent attempts to identify unpublished studies and it is unclear whether any language restrictions were applied, publication bias may have been introduced and language bias cannot be ruled out. There was insufficient information to determine whether appropriate steps were taken to minimise the possibility of reviewer error and bias in the study selection and data extraction processes. A formal validity assessment was not conducted, though aspects of quality were commented on within the review and several methodological weaknesses were identified. However, the studies appear to have been evaluated by only one reviewer, thereby introducing the possibility of error and bias. The narrative synthesis of studies was appropriate given the clinical heterogeneity between them. Given the methodological weaknesses in the review and in the available evidence, the reliability of the authors' conclusions is unclear.

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

**Practice:** The authors stated that residents with dog fur allergy, fear of dogs, or aggression in the presence of dogs should not be exposed to AAT. Individual and cultural differences in the acceptance of pets, the added responsibility of care, and the impact on the caregiver also need consideration.

**Research:** The authors stated that further research is needed, with blind raters, larger sample sizes and randomised designs where possible. The characteristics of those people who respond to AAT, the most effective mode of AAT, and the differential impact of dog and handler also warrant further investigation.

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### **Other publications of related interest**

Barker SA, Rogers RS, Turner JW, Karpf AS Suthers-McCabe HM. Benefits of interacting with companion animals. *Am Behav Sci* 2003;47:94-9.

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