CASE REPORT

Pet therapy in elderly patients with mental illness

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Abstract

Background: To evaluate the effects of pet therapy on cognitive function, mood and perceived quality of life on elderly inpatients (mean age 84.7 years; 95.2% women) affected by dementia, depression and psychosis.

Methods: Mini-Mental State Examination (MMSE) and 15-items Geriatric Depression Scale (GDS) were administered to 10 patients (pet group) and 11 controls (control group) together with a self-perceived quality-of-life questionnaire, before and after a pet therapy intervention that lasted 6 weeks. MMSE and GDS mean scores were compared between and within groups by Student's *t*-test.

Results: Both the pet group and control group improved on GDS and MMSE. Within the pet group, GDS symptoms decreased by 50% (from 5.9 to 2.7, *P* = 0.013), whereas mean MMSE score increased by 4.5 (*P* = 0.060). The between group comparison showed a positive effect of pet therapy intervention on GDS (*P* = 0.070). Most of the participants reported an improvement of their perceived quality of life.

Conclusions: Pet therapy is efficient in improving depressive symptoms and cognitive function in residents of long-term care facilities with mental illness.

INTRODUCTION

The beneficial effect of animal company on persons at any age is well known.[1] Increasing emphasis has also been given to the healthy role of animal company on persons affected by both somatic and mental disorders. Pet therapy plays an important role in psychological, educational and physical rehabilitation, and aims to improve the well-being of patients as a whole and improve their quality of life.[1] The idea of dogs or other animals as co-therapists, with the role of 'emotional mediator' and 'catalyst' of a social process, dates back to the 1960s and was introduced by the psychiatrist Boris Levinson. In the late 1970s, the therapeutic use of pets had lost its experimental connotation and nowadays it follows specific operational protocols.

The favorable role of pet therapy has been observed, particularly among elderly.[2–5] The frequent co-occurrence of cognitive and mood disorders, psychotic and anxiety symptoms make elderly persons especially suitable for treatments based on affective–emotional motivation and psychological stimulation. Unfortunately, this therapeutic approach has very little scientific data supporting its effectiveness. This might be a result of difficulties in designing and carrying out research with animals.[6]

Two case–control studies[4,7] explored the effects of pet therapy on demented elderly patients. One study[7] suggested a beneficial effect on Behavioural and Psychological Symptoms of Dementia (BPSD) and

the other found a statistically significant effect of pet intervention on behaviour.[3]

Conversely, another study[2] did not find a difference in behaviour between cases and controls, but showed more social interaction during the dog visits. Negative results were documented by other studies with uncontrolled design carried out in elderly patients affected by mental disorders other than dementia.[4,7–9]

The present study aims to evaluate the effects of a pet therapy intervention on elderly patients affected by different psychiatric diseases, living in a nursing home in a wealthy area of northern Italy. Main outcomes are cognitive function, mood and subjective perception of quality of life.

METHODS

Study population

After distributing an instructive brochure about the project, an informative meeting was organized with all residents of a nursing home, their families and the staff members.

Inclusion criteria were: age > 65 years; institutionalization for at least 2 months; being affected by mental illness (Alzheimer's disease, vascular dementia, secondary dementia, mood disorder, psychotic disorders) as declared by their medical records. Diagnoses were based on the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10)[10] criteria. Exclusion criteria were being deaf/blind or unable to interact with the staff. Ten persons were assigned to a pet therapy group (9 women and 1 man) and 11 subjects to a control group (all women). Cases and controls were selected on the basis of sociodemographic and clinical features with the purpose of drawing two similar groups.

In order to assess baseline cognitive status and depressive symptoms, participants underwent the Mini-Mental State Examination (MMSE)[11] and the 15-items Geriatric Depression Scale (GDS),[12] respectively. A brief questionnaire concerning 2 weeks self-perceived quality of life was administered to all participants. Using easily understandable questions, elderly patients were asked about their satisfaction in personal relationships and friends support, sleeping and appetite habits, and engagement in daily activities. Multiple choice answers included: 'good', 'bad', 'neither bad nor good'. The whole assessment was carried out by a trained physician, blind to cases and controls. The working team also included four dog educators and a psychologist.

Out of 25 eligible persons who took part in the meeting, one refused to participate in the study and three were excluded because the did not meet the inclusion criteria, leaving a study population of 21 elderly, mainly women (95.2%). The study was approved by the Local Ethical Committee. After study protocol explanation, informed consent was signed by all participants or, in the case of cognitively impaired persons, by a proxy.

Pet therapy intervention

The intervention lasted for 6 weeks and took place in the nursing home (both outdoor and indoor). The pet activity (90 min, once a week) consisted in bringing dogs in contact with all participants. Cases were required to hold, stroke, walk, talk to and play with the animals, under the supervision of dog educators. Conversely, control group subjects were allowed to see the animals coming into the nursing home, but they were not allowed to interact with them, although informal and unstructured contacts were not prohibited.

The dogs (three Golden Retrievers and a Pincher) were temperament tested and checked by veterinarians to ensure their health and current vaccination status. Dogs were professionally trained to execute basic commands and were made accustomed to joining the pet therapy session. They were also trained to be unaffected by sudden noises, being gently and roughly caressed, and being brushed. Dogs were already familiar with people affected by somatic and mental diseases, and with subjects using locomotion equipment.

All criteria suggested by the Italian declaration of values and principles of pet relationships ('Carta Modena 2002') were fulfilled.

Evaluation and data analysis

At enrolment (Time 0), MMSE and GDS were administered to all participants as well as the quality-of-life questionnaire. After pet intervention (Time 1), the tests were re-administered together with a questionnaire on perception of the intervention.

During the pet session, the dog educator, the psychologist and the staff responsible for the nursing home were blind to the results obtained in the assess-

Table 1 Sociodemographic and clinical features of the study population

	Control	Pet therapy	P*	P**
Female *n* (%)	11 (100)	9 (90)	0.476	
Mean age (mean ± SD)	83 ± 10.3	86.5 ± 9.6	0.433	
Educational level (mean ± SD)	4.5 ± 3.2	3.6 ± 3.7	0.577	
Length of the institutionalization (mean ± SD)	12.4 ± 11.2	6.1 ± 8.7	0.170	
Alzheimer's disease *n* (%)	2 (18.2)	3 (30)	0.635	
Vascular dementia *n* (%)	1 (9.1)	2 (20)	0.586	
Secondary dementia *n* (%)	1 (9.1)	1 (10)	1	
Mood disorder *n* (%)	2 (18.2)	2 (20)	1	
Psychotic disorders *n* (%)	5 (45.5)	2 (20)	0.361	
GDS Time 0 (mean ± SD)	7.4 (3.9)	5.9 (4.7)	0.448	0.240
GDS Time 1 (mean ± SD)	5.4 (3.3)	2.7 (3.1)	0.070	0.013
MMSE Time 0 (mean ± SD)	18.3 (8.8)	15.3 (9.7)	0.472	0.475
MMSE Time 1 (mean ± SD)	20.1 (8.9)	19.8 (8.3)	0.941	0.060

P-value for differences between groups; **P*-value for differences within each group before and after pet therapy. GDS, Global Deterioration Scale; MMSE, Mini-Mental State Examination.

ment. The physician administering MMSE and GDS was blind to assignments to the case or the control group.

Independent and paired sample tests were used to compare frequencies and means between and within groups, respectively.

RESULTS

The mean age ± standard deviation (SD) of the overall sample was 84.7 ± 9.9 years. Mean schooling level was 4.0 ± 3.4 years. Dementia was the most frequent diagnosis (47.6%), followed by psychotic disorders (33.3%) and depression (19.0%). Table 1 describes the sociodemographic characteristics of cases and controls.

Control and pet groups were similar in regard to sex, age, educational level and length of institutionalization. Mean MMSE and GDS scores, before and after the pet activity, are shown in Table 1. Concerning mood disorders, an improvement on GDS was clear in both groups. In the pet group, the mean score on GDS decreased from 5.9 ± 4.7 to 2.7 ± 3.1 (within group comparison: $P = 0.013$; between group comparison: $P = 0.070$). However, the between groups comparison showed a tendency of improvement ($P = 0.070$). Similarly, an improvement on cognitive function, as measured by the MMSE, was observed between Time 0 and Time 1 in persons engaged in pet activity (mean increase 4.5 scores, $P = 0.06$). The MMSE scores in the control-group increased by two points, but differences were not statistically significant ($P = 0.0941$).

A positive effect on self-perceived quality of life was observed in five subjects belonging to the pet group and in two participants enrolled in the control group.

In the satisfaction questionnaire administered at the end of the pet session, all participants reported the experience as enjoyable and interesting. Nine out of ten persons reported that the animals had a calming effect and one subject reported recalling past memories. They all recommend the same experience to other older people. Finally, 80% of participants wanted to continue the pet experience.

DISCUSSION

There are several non-pharmaceutical therapies for the elderly, including reminiscence therapy[13,14] and cognitive rehabilitation.[15,16]

Our findings showed that pet therapy improved depressive symptoms in residents in a long-term care facility by 50%. Furthermore, we showed a tendency towards improvement of mean MMSE scores twofold higher in the pet-group than observed for controls. Self-perceived quality of life was also greatly improved.

The beneficial effect of pet therapy on elderly patients affected by different psychiatric disorders further strengthens currently available literature, suggesting a positive influence on depressive symptoms, both in otherwise healthy elderly[17] and in subjects with chronic age-related disabilities.[18] Only one study, which enrolled eight demented patients with no

control-group, failed to show significant effects of a brief animal-assisted therapy (AAT) on GDS score.[19]

We also found a clinically relevant, although marginally significant, effect of pet intervention on cognitive function. Indeed, the pet group gained on average 4.5 scores at MMSE; the mean increase was twofold higher in the pet-group than in the control-group. In agreement with the present findings, a study-population,[5] consisting of 10 institutionalized elderly subjects affected by dementia found a significant improvement in cognitive functions and also in motivational and emotional aspects. Otherwise, other studies[17,19] reported no effect of pet therapy on cognitive functioning. The different sociodemographic and clinical characteristics of the examined populations could explain such discrepant results.

The present study has some limitations. First, the study design was not randomized nor double blinded and the sample size was small. Second, we carried out only a short-term evaluation and we cannot determine whether GDS improvement was persistent over time. Third, we used a limited neuropsychological battery and we did not collect information on behavioral disturbances. Finally, because the therapeutic effect of pet therapy might depend on the interaction with the animal as well as with the handler,[5] we cannot distinguish between the differential impact of the dog and the handler on participants. A specific advantage of the present study is the clinical heterogeneity of our sample and the fact that the physician making the assessment was blinded to cases and control. Finally, although the generalizability of the present findings might be limited as all but one participant were women with a poor educational background, these sociodemographic characteristics are the most typical of Italian long-term facility residents.

The beneficial effect of pet therapy has different possible explanations.[1] According to the affective–emotional mechanism hypothesis,[20,21] a relaxing human–animal bond acts on adrenal and other corticosteroid hormones inducing a reduction of arterial pressure and cardiorespiratory rates. The psychological stimulation[22] induced by the presence of an animal and its need for care induces persons to take care of themselves. The game system theory[20,21] suggests that playing with an animal can increase defence and augment recovery potentialities; furthermore, an effective, emotional, psychological stimulation is known to solve important psychosomatic problems.

In conclusion, our data support the evidence in favor of efficacy of pet therapy on elderly patients affected by cognitive disorder as well as other psychiatric disturbances.

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