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Review

Animal-assisted interventions for elderly patients affected by dementia or psychiatric disorders: A review

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ABSTRACT

Objective: The aim of this literature review was to assess the effects of Animal-Assisted Interventions (AAI) on elderly patients with dementia or various psychiatric disorders.
Methods: We conducted a comprehensive literature search using the online PubMed network of the US National Library of Medicine & National Institutes of Health, Embase, PsycINFO, with the purpose of investigating AAI effects on cognitive functions, mood, and behaviour.
Results: A total of 18 articles on dementia and 5 on psychiatric disorders were included in the present review. AAI were found to have positive influences on demented patients by reducing degree of agitation and by improving degree and quality of social interaction. Few studies have assessed the effects of AAI on mood, and even fewer have assessed its consequences on cognitive functions. The results that are available indicate a positive effect on communication and coping ability, but none on cognitive performance. A substitute pet robot yielded encouraging results, but its use requires further investigation. The few studies conducted for elderly patients presenting a variety of psychiatric diagnoses produced controversial findings.
Conclusions: In spite of the encouraging results of AAI, much more research examining the issue of optimal AAI duration, frequency of sessions, and suitable target group is needed.

1. Introduction

Domestic animals were found to increase patient self-control, play an “emotional mediator” role, and serve as “social facilitator” and “catalyst” for social interaction (Wilson and Netting, 1983). These observational data were further confirmed by experimental studies showing higher neurochemical levels associated with attention-seeking behaviours during positive human–animal interaction (Odendaal, 2000).

The purposeful use of animals as an aid in treating mental and physical health disorders dates back to 1792. Animal-assisted interventions (AAI) include animal-assisted activities (AAA), animal-assisted therapy (AAT), and service animal programs (SAP) (Muñoz Lasa et al., 2011). Given the lack of agreement on the terminology (Kruger and Serpell, 2006), in the present article we adopt the broadest concept of AAI as the result of teamwork involving various types of expertise (Khan and Farrag, 2000; Banks et al., 2008; Williams and Jenkins, 2008). AAI have several important applications (Ballarini, 2003) in activities conducted with single individuals or groups and with either real animals or robotic pets. The most frequently employed animals in this approach are dogs, given their training potential and typically social nature (Jofre, 2005).

Not only do animals keep people company (Ryder, 1985), but they also enhance their health status (McNicholas et al., 2005; Edwards and Beck, 2002; Halm, 2008), provide sensory stimulation and emotional support, and a sense of physical and psychological well-being thereby (Jofre, 2005).

More recent research in the field has investigated the healthy effects of animals on people suffering from psychological distress or somatic diseases, including both sub-acute and chronic disorders (Stasi et al., 2004). For example, a case–control study examining 30 adult out patients with mild to moderate depression showed a greater reduction in depressive symptoms in the group exposed

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to AAI, as compared to the control group (Antonioli and Reveley, 2005). AAI positively impact patients' degree and quality of socialization and can produce a variety of psychological benefits (Rossetti and King, 2010). It has also been found to be useful in the rehabilitation of schizophrenic patients living in institutional settings (Kovacs et al., 2004). Moreover, AAI may have a useful role in psychiatric and medical procedures that are anxiety-inducing or have negative socially perceived connotations, such as Electro-Convulsive Therapy (Barker et al., 2003).

Older persons are frequently burdened by high co-morbidity and poly-pharmacological treatment, and are more likely to experience severe disability and/or institutionalization, which may lead to a poorer quality of life. In elderly individuals receiving assistance in long-term care settings, AAI increase verbal interactions and socialization (Fick, 1993) and alleviate participants' feeling of loneliness (Calvert, 1989; Banks et al., 2008). Indeed, treatments based on affective-emotional motivation and psychological stimulation are particularly suitable for individuals suffering the co-occurrence of cognitive disturbances, mood disorders, anxiety, and psychotic symptoms in later life.

AAI present no specific age limits but the most of the available data refer to children/adolescents or adults. Conversely, the amount of data on elderly, especially with mental disorders, is scant. Furthermore, the available literature review on AAI are not systematic (Rossetti and King, 2010; Cozza et al., 1994), refer to children/young persons (Barker and Wolen, 2008; Friedmann and Son, 2009; Cirulli et al., 2011; Endenburg and van Lith, 2011; Muñoz Lasa et al., 2011), are not up-dated (Natoli, 1997; Dossey, 1997) or have narrow inclusion/exclusion criteria (Shibata and Wada, 2011; Filan and Llewellyn-Jones, 2006).

The purpose of the present work was to review the current literature concerning the beneficial and (if any) harmful effects of AAI in elderly patients affected by Dementia or Psychiatric Disorders.

2. Methods

2.1. Search strategy and selection criteria

The US National Library of Medicine National Institute of Health (www.pubmed.org), Embase, PsycINFO, were resourced to identify original publications describing the effects of AAI in the elderly with Dementia or Psychiatric Diseases. Since there is no full agreement in literature on the more appropriate terminology to define the therapeutic use of animals, we included the following search terms: *"Animal Assisted Interventions"/"Animal Assisted Activities"/"Animal Assisted Therapy"/"Pet-Therapy"*. The search further included *"elderly" [MeSH] AND "dementia"/"Alzheimer disease"/"cognitive impairment"/"cognitively impaired"/"mental disease"/"psychiatric disease"/"geriatric psychiatric patients"/"psychiatric elderly person"*. The search was supplemented by additional relevant papers identified through a manual search of the reference lists in all the retrieved articles. The following limits were established: English language, 65 years and over, human being, published between January 1st, 1995 and February 1st, 2012. The choice of 1995 is related to the International Conference entitled "Animals, Health and quality of life" announcing the principles for Animal Assisted Therapy (Geneve in 1995).

3. Results

The search retrieved 56 original articles and three reviews (selection procedure shown in Fig. 1). We excluded 47 articles, because they were not relevant to our purpose (reports on uncontrolled and/or informal observations, studies on inpatients without mental diseases or descriptive articles; see Fig. 1).

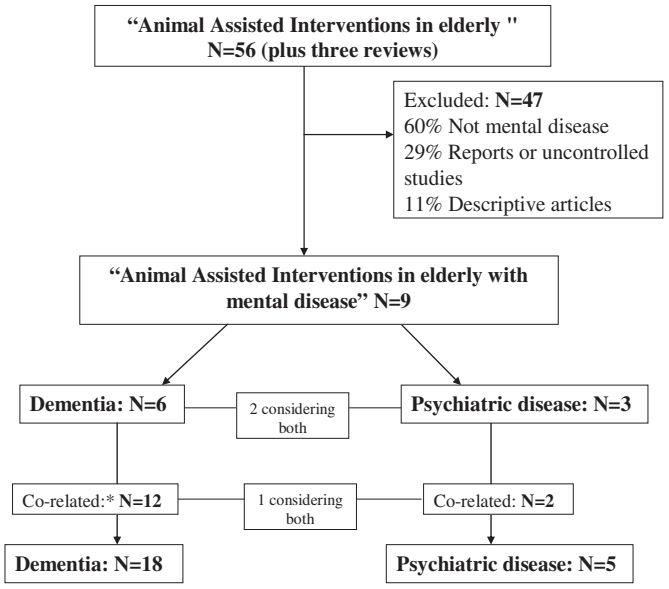

Fig. 1. Description of the selection procedure. *Co-related: additional relevant papers identified through a manual search of the reference lists in all the retrieved articles.

We found 9 articles examining AAI effects in elderly patients with mental diseases. Out of 9 articles, 6 studies were conducted with patients presenting Dementia, 3 on persons with Psychiatric Diseases, and 2 articles considered a miscellaneous group of patients. We used the reference list for all the selected articles to further retrieve 12 original articles on Dementia and 2 on Psychiatric Diseases (one study considered both). Upon conclusion of the selection procedures, we obtained a total of 18 articles on Dementia and 5 on Psychiatric Disorders (See Tables 1–3, for a detailed study description). The main results of the studies listed in the tables are divided according to outcomes (cognitive functions, depressive symptoms, behaviour, and others).

3.1. Animal assisted interventions in elderly with dementia

Out of 18 articles retrieved, 5 were case–control studies (Walsh et al., 1995; Zisselman et al., 1996; Kanamori et al., 2001; Edwards and Beck, 2002; Moretti et al., 2010) (Table 1) and 13 studies used a repeated measures design (Marx et al., 2010; Batson et al., 1998; Churchill et al., 1999; Greer et al., 2001; Kanamori et al., 2002; McCabe et al., 2002; Richeson, 2003; Libin and Cohen-Mansfield, 2004; Naoyasu et al., 2004; Tamura et al., 2004; Sellers, 2005; Kawamura et al., 2007; Mossello et al., 2011) (Table 2). Five studies with robot or toy-pets as an animal substitutes are listed separately in Table 3 (Kanamori et al., 2002; Libin and Cohen-Mansfield, 2004; Tamura et al., 2004; Wada et al., 2004; Wada et al., 2005).

In the following paragraphs we provide results on the effects of AAI on Behavioural and Psychological Symptoms of Dementia (BPSD), on depressive symptoms and on Cognitive Functions among patients with Dementia.

3.1.1. Effects of AAI on BPSD among patients with dementia

AAI effects on BPSD were investigated in 10 studies. Three out of 10, had a case–control design (Walsh et al., 1995; Zisselman et al., 1996; Kanamori et al., 2001), but only 2 reported statistical comparison details.

Walsh et al. (1995) compared 7 elderly patients to a similar control group (six with Dementia and one with Schizophrenia) and found no significant differences in scores on either the London Psycho-Geriatric Rating Scale (LPRS) (Hersch et al., 1978), or on the