Research on Benefits of Canine-Assisted Therapy for Adults in Nonmilitary Settings

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ABSTRACT

Research has examined the physiological and psychosocial impact of animal-assisted activities (AAA) and animal-assisted therapy (AAT). The current review article summarizes the benefits of AAA and AAT for hospitalized patients with medical disorders, psychiatric patients, and residents of nursing homes and long-term care facilities. The literature regarding inclusion of animals in business and organizational settings is also reviewed. Although there is clear evidence of improved physical and psychological health from AAA and AAT in the civilian population, there is a dearth of published findings of the evaluation of such benefits for military personnel.

There is a growing body of literature that has examined the physiological and psychosocial impact of pet ownership, animal-assisted activities (AAA), and animal-assisted therapy (AAT) employed in a variety of settings and with various patient populations such as those with cardiovascular disease, cancer, stroke, dementia, and psychiatric disorders. Additionally, new interest is seen within the workplace. In general, there is evidence demonstrating improvement in anxiety, fear, depression, and loneliness with associated physiological changes following animal-assisted therapy which has important implications for use of such therapy with military personnel suffering from combat stress, posttraumatic stress disorder, and other disorders similar to those listed above. Although there are several AAT programs employed by the military, there have been no published empirical investigations of these programs. The purpose of this paper is to present an overview of research conducted in nonmilitary settings including hospitals, psychiatric facilities, nursing homes/assisted living centers, and the workplace.

BENEFITS OF AAT FOR HOSPITALIZED PATIENTS WITH MEDICAL DISORDERS

The benefits of AAT for patients hospitalized with heart failure was investigated by Cole who compared a 12-minute AAT visit with a 12-minute volunteer only visit and treatment as usual. Seventy-six patients were randomly assigned to one of the 3 groups and physiological and self-report measures of anxiety were measured. Change from baseline indicated a significant decrease in systolic pulmonary artery pressure and pulmonary capillary wedge pressure both during (8 minutes) and after (16 minutes) the AAT visit compared with the other 2 study groups. Compared to the volunteer only group, significant decreases in epinephrine and norepinephrine levels were measured both during and after AAT. There was also a significantly greater decrease in reported anxiety for the AAT group compared with those who received the 12-minute volunteer visit as measured by Spielberger’s State-Trait Anxiety Inventory.*

A study conducted with a similar sample of patients with a primary diagnosis of heart failure employed a hybridized intervention combining AAT and an early ambulation program, thus deemed canine-assisted ambulation (CAA). Sixty-nine hospitalized cardiac patients, physician-ordered and approved for ambulation, were prompted to ambulate by a restorative aide. If the patients refused, they were approached a second time with the proposal of ambulating while accompanied by a therapy dog. To prevent bias from study effects, consent to have the individual’s data be included was obtained after the ambulatory activity or after the patient’s second refusal. Distance ambulated (in steps) was calculated by pedometer, and patient satisfaction with CAA was measured by a Likert scale survey composed of 5 items. As compared to a stratified historical sample of which 28% of patients refused ambulation, only 7.2% of the study sample refused ambulation completely. Moreover, 18.9% of the experimental group patients reversed their initial refusal to ambulate when given the opportunity to participate in CAA. Those that engaged in CAA walked almost twice (96% more) as many steps as the ambulating patients.

Another study evaluated a one-hour AAA session with oncolgy patients while they were receiving chemotherapy in a day hospital. Self-report measures of anxiety, depression, somatic symptoms, and aggression were collected as well as heart rate, arterial oxygen saturation, and blood pressure. The AAA session was divided into three 20-minute segments involving patients watching the dog exercise with the handler, playing with the dog, and feeding or holding the dog. Unlike the controls, patients in the AAA group demonstrated a significant decrease in depression and increase in arterial oxygen saturation. Significant reductions in anxiety, aggression, and blood pressure were also reported however no group differences were noted. Johnson, investigating mood and self-perceived physical and emotional health, compared AAA visits to volunteer visits and reading group visits that were all 15 minutes in duration, 3 times a week for 4 weeks immediately prior to radiation treatment. Changes in mood assessed before the first and after the last session were compared within and between groups. No significant differences were found for any of the subscales of the Profile of Mood States or physical and emotional health ratings, however, trends of decreased anxiety and improved emotional health were reported. The lack of significant changes and between group differences may be due in part to the small sample size (n=10 for each group), disease progression, or time of assessment. An exit survey revealed that some patients in all groups rated the intervention as helpful and the majority indicated they would recommend it to another patient.

Benefits of AAT for Psychiatric Symptoms and Settings

While a comprehensive literature search yielded no published research on the effects of AAT in military psychiatric settings, findings from civilian studies provide support for investigating this complementary approach with military populations and suggest benefits that may extend to military personnel experiencing psychiatric symptoms. This section will focus on research investigating the effect of AAT on adult civilians receiving psychiatric care and adults under stressful conditions.

A number of studies report benefits of AAT in inpatient psychiatric settings. At Virginia Commonwealth University’s Center for Human-Animal Interaction (CHAI), researchers completed a series of studies exploring the effect of AAT on dysphoria in hospitalized psychiatry patients. In their initial study of 231 acute psychiatric patients participating in a single session of traditional recreational therapy (RT) and RT incorporating a therapy dog, the investigators found a significant reduction in anxiety following both conditions. However, reduced anxiety in the traditional TR condition was only found for patients with mood disorders compared with anxiety reductions in the AAT group that were found for those with mood disorders, psychotic disorders, and cognitive and other disorders. Only the patients with primary substance abuse disorders showed no significant change in anxiety, under either condition, perhaps due to their acute stage of physiological withdrawal.

The CHAI researchers also conducted 2 studies investigating the effect of AAT on patient dysphoria prior to undergoing electroconvulsive therapy (ECT). In the first study, 42 patients were placed in rooms with and without a fish tank prior to ECT and were assessed pre- and postcondition on measures of fear, anxiety, depression, frustration, blood pressure, and heart rate. No significant differences were found for either condition on any of the variables, although a trend toward reduced anxiety was noted. A follow-up study was conducted with 35 ECT patients, comparing a single 15-minute session of AAT involving a therapy dog with 15 minutes of reading/looking through magazines on anxiety, fear, and depression. A significant 37% reduction in fear and (nonsignificant) 18% reduction in anxiety were found in the AAT condition. Although no significant differences were found for anxiety or depression, the majority of patients reported on a postintervention interview that they believed AAT reduced their anxiety and depression.

Other researchers investigated the effect of 4 weeks of AAT on 69 hospitalized psychiatric patients and reported increased social behaviors and responsiveness to surroundings in the AAT group compared with a control group. Similarly, increased interactions associated with 4 weeks of AAT, compared with photographic sessions, were reported for a sample of 37 elderly psychiatric patients. Addressing the appeal of AAT for hospitalized psychiatric patients, another study found that including AAT in occupational therapy groups significantly improved group attendance and attracted isolated individuals to the group regardless of diagnosis.

Focusing specifically on patients diagnosed with schizophrenia, researchers in Spain conducted a study of 21
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schizophrenic patients assigned to a treatment group with or without AAT. While the AAT group showed significant improvements in social contact and positive and negative symptoms after 25 sessions, there were no significant differences between the groups. However, the study was limited by the small sample size and a 14% dropout rate. An Israeli study of AAT with 20 elderly schizophrenia patients residing in long-term care facilities also reported benefits after 12 months of weekly AAT. Those in the AAT group had significantly improved social functioning compared with the control group.

Other studies have focused on the effect of AAT on depression. A recent meta-analysis reviewed these studies to determine the effectiveness of AAT in reducing depressive symptoms. Focusing on studies that included randomization, a control or comparison condition, and self-report measure of depression, the authors reported a significant, medium effect size based on 5 studies meeting their inclusion criteria, concluding that AAT is associated with fewer depressive symptoms.

While most of the AAT interventions in studies with psychiatric populations involve companion animals, typically dogs, Berget and colleagues explored the effect of a 12-week intervention with farm animals on self-efficacy, coping ability, and quality of life on 90 Norwegian patients with a variety of psychiatric diagnoses. Results indicated significant improvements in self-efficacy and coping ability, but not quality of life 6 months following the intervention for those in the treatment group compared with the control group.

As part of a major longitudinal study (the Study of Transition and Recovery Strategies) conducted in Oregon and Washington on individuals’ recovery from mental illness, perceptions of the roles pets played in recovery from serious mental illness were qualitatively analyzed. Interviews with 177 pet owning individuals revealed perceptions that pets assisted in individuals’ recovery by “(a) providing empathy and therapy; (b) providing connections that can assist in redeveloping social avenues; (c) serving as ‘family’ in the absence of or in addition to human family members; and (d) supporting self-efficacy and strengthening a sense of empowerment.”

The above studies provide evidence of benefits of AAT with clinical samples of civilian adults with psychiatric symptoms or disorders which may extend to active military and veterans with similar symptoms and disorders. The accumulating civilian literature serves to emphasize the dearth of research conducted with military samples. Similarly, the civilian research supporting the role of pets and AAT as buffering the impact of stressful events has particular relevance for the military population, and yet no studies have been published with military samples.

A series of studies conducted by Allen and colleagues provide evidence of the positive effect of pets on cardiovascular reactivity in response to stressful conditions. Studying 45 female dog owners completing a mental stress task with their dog, close friend, or alone showed little or no cardiovascular stress reactivity during the task with the dog present, but significantly increased activity with the close friend present. In a related study of 240 pet-owning and non-pet-owning married couples, pet (dog or cat) owners had lower resting heart rate (HR) and systolic and diastolic blood pressure (SBP and DBP); showed less HR, SBP, and DBP reactivity during psychological and physiological stress tasks; and showed faster return to baseline than non-pet owners. For pet owners, lowest physiological reactivity and the quickest return to baseline occurred when the pet was present, compared with when a spouse or friend was present. Adding further support to the stress-buffering effects of pets, Allen and colleagues randomly assigned hypertensive stock brokers starting angiotensin-converting enzyme (ACE) inhibitor therapy to acquire a pet or to a 6-month wait list control condition. Pet owners showed higher performance on a mental task and lower physiological reactivity (HR, BP, and renin activity) than those in the control condition. The ACE inhibitor therapy significantly reduced only resting BP.

Also looking at the buffering effect of pet presence on physiological response to stress, other researchers found pet presence was associated with lower blood pressure during a stressful task for older hypertensive adults, and reduced HR and mean arterial pressure in a sample of normotensive adults who completed mental stressors. An Australian study found no effect of dog presence on cardiovascular responses to stress, but reported a cardiac autonomic profile most favorable for dog owners when a dog was present and for non-dog owners when a dog is absent. A more recent exploratory study assessed autonomic, endocrine, and neurophysiologic stress indicators in a small group of healthy adult dog owners interacting with their own or an unfamiliar therapy dog following a mental stress task and reported consistent patterns of relaxation shown in cortisol, HR, BP, brain wave activity, and self-reported anxiety and stress responses. Adding further physiological evidence of the relaxation effect of AAT, Barker and colleagues reported reduced salivary and serum cortisol in healthcare professionals, in the absence of a stress task, following as little as 5 minutes of AAT.
BENEFITS OF AAT FOR RESIDENTS OF NURSING HOMES/ LONG-TERM CARE FACILITIES

There are a number of empirical studies that have been conducted with residents of long-term care facilities. Research suggests that the use of AAA or AAT with this population may reduce depression and increase social interaction. For example, Fick evaluated social interaction in 36 residents in a nursing home care unit at a Veterans Administration medical center. Dogs were present for 15 minutes at the beginning or end of four 30-minute group therapy sessions. Behaviors were assessed 15 times during 10 minutes with and without the dog per session. Both verbal and nonverbal person interactions doubled when the dog was present compared to observations recorded when the dog was not present. Similar findings were reported for 15 nursing home residents randomly assigned to treatment as usual, pet-facilitated psychotherapy, or no treatment. Following 4 weeks of two 45- to 90-minute sessions per week, social interactions in the pet therapy condition were twice that of the no pet group, and significant reductions in depression were reported for the treatment as usual and pet therapy group. Another study measured changes in mood in residents of nursing homes with a visiting dog, with a resident dog, and without a dog. The Profile of Mood States questionnaire was administered prior to the dog being introduced to the facility and again at five 3-month intervals. Significant mood changes were reported by residents with a dog living at the facility including decreased tension, confusion, depression, and fatigue. A decrease in fatigue was also reported by residents of the facility with a visiting dog. The control group exhibited significant decreases in depression, and increases in vigor were reported by residents in all 3 groups.

Additional studies have focused on loneliness in the elderly. Banks and Banks evaluated loneliness in 45 long-term care facility residents randomly assigned to three 30-minute AAT sessions per week, one 30-minute AAT session per week, or no AAT. Sessions were conducted for 6 weeks and the UCLA Loneliness Scale was administered before the first and last session. Significant reductions in loneliness scores were observed for both the one and 3 sessions per week AAT groups compared to control, however, there was no difference between the 2 AAT groups. A follow-up study was designed to compare the relative contribution of socialization and human-animal bond as the means by which AAT reduces loneliness. Eighteen residents received individual AAT sessions (human-animal bond) and 19 residents received group AAT sessions (human-human bond) with 2 to 4 participants. Although a decrease in loneliness for both groups was measured after 6 weeks of weekly 30-minute sessions, only those residents receiving individual AAT sessions reported a statistically significant reduction. The investigators suggest the lack of facilitation of human-human socialization in this study might be due to subject/setting characteristics such as hearing loss, incompatible backgrounds, or established familiarity between residents.

Several studies have investigated possible benefits of pet presence and AAT for those with Alzheimer’s disease and dementia, specifically (see Filan and Llewellyn-Jones for a review). Using an observation checklist, one study reported an increase in the number of total social behaviors in 12 Alzheimer’s patients when pets were present in an institutionalized setting, and another found less verbal aggression and anxiety in a sample of Alzheimer’s patients living at home and exposed to companion animals compared to those not exposed. No significant differences were found in cognitive decline or frequency of reported psychiatric, mood, or psychomotor disorders. However, secondary analyses found those more attached to their pets had significantly fewer mood disorders. An Australian study with 14 dementia patients in a psychiatric unit reported no differences in daily functioning and blood pressure, but decreased heart rate and ward noise was found during AAT over a 12-week period. While another study with institutionalized patients with Alzheimer’s disease reported increased socialization behaviors, no significant differences were found on physiological stress indicators. A more recent Japanese study involved semistructured interviews with 8 elderly women with varying stages of dementia who participated in AAT twice a month for 2 years. Themes pertaining to the women’s AAT experience included the ability to develop interest in self, others, and the environment resulting from the calming effect of AAT and the opportunity to interact with the volunteer component of the AAT team.

The accumulating evidence supporting the effectiveness of AAT in mediating the physiological stress response, reducing anxiety and depressive symptoms, and increasing social behaviors in civilian populations underscores the need for testing these effects with military populations. AAT is practiced globally and is typically provided by community volunteers who have trained their dogs, or other pets, and have met the requirements for therapy dog certification by an external credentialing organization. Thousands of civilians, both clinical and nonclinical populations of adults and children, participate in AAT each year. Extending the benefit of AAT to military personnel represents a low-cost, therapeutic intervention with powerful potential and virtually no side effects. While the incorporation of AAT into treatment...
programs for active duty and veterans with anxiety and depressive disorders may appear most obvious, the potential of AAT to mediate stress associated with physical disabilities and acute and chronic illnesses remains largely untested and worthy of evaluation.

**ANIMALS AND THEIR INCLUSION IN BUSINESS AND ORGANIZATIONAL SETTINGS**

As has been demonstrated, there is an emerging interest in including animals in hospitals, nursing homes, and other healthcare facilities, but few empirical studies have looked at the effect in the business setting. Companies such as Google, AOL, Autodesk, Proctor and Gamble’s Pet Care division IAMs, and others either allow animals in the workplace or in a nearby dog care facility. Griffin reports anecdotal evidence that organizational support of this kind creates positive benefits such as lower worker turnover rates and more productive and satisfied employees. Findings from a 2003-2004 survey by The American Pet Products Manufacturers Association, a not-for-profit trade organization serving the interests of pet product manufacturers, also support the inclusion of pets in the business setting. Seventy-three percent of those surveyed believe having pets in the workplace create a more productive environment; 27% believe they reduce absenteeism; 100% say they relax employees; 73% believe pets increase creativity of employees; and 96% believe pets create a more positive environment than not having them present.

Using an author-developed questionnaire, Wells and Perrine surveyed employee perceptions in several small companies permitting pets. Eighty-four percent of employees who brought pets to work in these companies responded and all were business owners or managers. The greatest perceived benefit was a lowering of stress, with some suggesting improved health and organizational satisfaction.

In 2004, the American Psychological Association began presenting awards for healthy workplace settings. The companies were drawn from many types of industries representing new work-life benefit programs, such as those directly benefiting employees, supporting families, and encouraging healthy practices. One Vermont electronics company permitting pets in the workplace was found to be appropriate for this yearly recognition. “The company tries to build a close-knit team that is motivated to be productive…Every time we hire an employee, it’s like bringing in a new family member” indicated Don Mayer, owner of the company.

Product advertising and the entertainment industry have also used animals to portray characteristics deemed important to the company or product. Classic images of well-known US and global icons, including Lassie, Rin Tin Tin, Benji, Garfield, Felix the Cat, mighty Mouse, Bugs Bunny, and Mickey and Minnie Mouse, signify strength, love, connection, and identity. These images have been used primarily for entertainment purposes but they have also been used to brand their products. Examples of animals used as brands are the gecko lizard for the US insurance company GEICO, the yellow tail kangaroo for the Australian vineyard Yellow Tail, the greyhound for Greyhound Bus in the United States and Canada, and the winged griffin for Perugina European Chocolate. Permitting pets in the workplace takes such branding one step further, perhaps in an attempt to solidify the positive attributes associated by their brands and exemplify organizational culture values.

The increased acceptance of pets in the workplace may be explained in part by the research of Holbrook and colleagues. They found the human-animal relationship to be more than pet as an object of ownership. These researchers found that consumers’ relationships with animal companions are not necessarily a means to an end. This market research also found that buying pet products and services suggests that pets are now perceived as sacred rather than as possessions.

Two other studies using student samples looked at animals in a simulated workplace setting. The first study by Perrine surveyed undergraduate students using a questionnaire and picture slides of offices with and without dogs and cats. While no significant differences existed between dogs and cats, there were some interesting findings. Students perceived that the presence of the animal in the office enhanced an occupants’ mood and social interaction. They also perceived the office to be less professional, less busy, less clean and safe. The second study was an experiment conducted by researchers at Central Michigan University. In looking at work team collaboration, they found that those teams that had a dog present rated teammates higher in trust, cohesion, and intimacy.

A recently completed preliminary study conducted in the workplace setting investigated the effect of employees’ dogs’ presence at work on stress and organizational perceptions. Comparisons were made between employees who bring their dogs to work, employees who do not bring their dogs to work, and employees without pets on physiological and perceived stress, perceptions of job satisfaction, organizational affective commitment, and perceived organizational support. Among the key findings was that the 3 combined groups scored significantly
higher on multiple job satisfaction subscales than the reference norm group for these scales. No significant differences were found between the groups on physiological stress (measured by early morning cortisol levels) or perceived organizational support. Although perceived stress was similar at baseline, stress was lower for the group with their dogs present and increased for owners without their dogs present and the non-pet owner groups over the course of the day. Interestingly, the group who do not bring their dogs to work had significantly higher stress levels at the end of the day than the group with their dogs present. A significant difference was found in the stress patterns for the group who bring their dogs to work on days their dogs were present compared with days their dogs were absent. On days without their dogs, owners’ stress increased throughout the day, mirroring the pattern of the group who do not bring their dogs to work.

Given research momentum from a variety of disciplines as identified in the previous section, Barker’s63 conceptual research called for more interdisciplinary focus on this important and pioneering focus. His article integrated the research of psychology, social psychology, medicine, veterinary medicine, business, communication, management, and marketing, calling for future research in areas including:

- Communication among and between employees and between employees and managers when companion animals are present in the workplace…

- Companion animals as a form of social support that does or does not buffer stress in the workplace…

- Companion animals in the workplace as a means to increase or decrease their employee owners’ health and quality of work life…

- The welfare of the animal in the workplace…

Other settings are also identified as an important next step in this research area. 53(pp309-312)

While no published studies have investigated the impact of pet presence in military settings, the research presented in this section suggests a number of implications, including dogs in theater, that warrant future investigation and comparisons. Many organizations in the business and healthcare areas have developed policies for allowing animals to accompany their owners to work. Perhaps the military could investigate the possibility of this kind of activity as a beginning point. It would also be possible to investigate similar variables identified above. The stress, communication, health, and well-being of the Soldier and the animal are prime opportunities for future study.

SUMMARY

There is substantial evidence of improved health and well-being of individuals in various health care and business settings through animal-assisted intervention. The research reviewed above demonstrates both physiological responses (stress-buffering effect) and psychosocial improvements as a result of human-animal interaction. The evaluation of such outcomes needs to be expanded to military personnel. There are a number of venues in which animals are employed in the military (several of which the authors will describe in subsequent articles), the benefits of which are largely unknown.

REFERENCES


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