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Pet-facilitated occupational therapy : efficacy in a psychiatric setting

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UMI

**PET-FACILITATED OCCUPATIONAL THERAPY: EFFICACY IN A
PSYCHIATRIC SETTING**

A Thesis

Presented to

The Faculty of the Department of Occupational Therapy

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

by

Ciara Cox

August

1999

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ABSTRACT

PET-FACILITATED OCCUPATIONAL THERAPY: EFFICACY IN A PSYCHIATRIC SETTING

By Ciara Cox

The purpose of this study was to explore the effects of a 1-hour pet-facilitated occupational therapy group on the levels of depression, anxiety, and pain self-reported by inpatients on a psychiatric unit. Visual analog scales (VAS) were used to collect self-reported levels of the above variables from patients in the study group and a control group. VAS were effective instruments for collecting multiple self-reports from patients, except for patients with vision deficits or confusion.

Results included a statistically significant decrease in the study group's self-reported level of anxiety, and statistically significant decreases in self-reported levels of depression and anxiety for study group patients with mood disorders. These findings support the effectiveness of using pets as therapeutic adjuncts to occupational therapy, and contribute to the existing literature on the effectiveness of pet-facilitated therapy in a psychiatric setting.

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How lucky can a person be? My life has been blessed with great family and friends. I owe a great debt of thanks to my friends who put up with my lack of time but were always there, cheerleading; Alicia, Barbara, Betty and Chad, Dagmar, Dave, Jane, Jim (R.I.P.), Jim, Joan, Kathy, Ken and Linda, Michael, Nancy, and Sally.

My inspiration for this study came from KD, our beautiful, bright, blonde Labrador. She has worked beside me for six years as a dog therapist and has taught me the true meaning of therapeutic use of self. I thank her for the balance she brings to my life and work. I thank our other dog Blazer for his late night company while I worked on this thesis; he refused to go to bed before me.

I have no words that can express my thanks to my parents Tom and Nóirín. They have always given me unconditional love and allowed me to grow into myself. They have been role models for the importance of growth and the value of opening your mind to other possibilities. They gave me three great siblings, Alan, Peter and Rónadh, who have loved and encouraged me. Special thanks to Peter, for all of your phone calls, interest, and support.

Laura, my partner in life has been my rock, editor-in-chief and person who brought KD into my life. She would wake up in the morning to a red pen and a copy of my latest draft. She fed me, looked after me, and has always been my greatest champion. Her brilliance and kindness feed my soul.

For my parents
Tom and Nóirín

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CHAPTER 1

Introduction

Purpose of Study

This was an outcome study of the Pet Assisted Wellness at Stanford (PAWS) group which is conducted bi-weekly by the occupational therapy staff on the inpatient psychiatric units at Stanford Hospital. The purpose of this study was to explore the effects of a 1-hour pet- facilitated occupational therapy group on the levels of depression, anxiety, and pain self-reported by inpatients on a psychiatric unit.

Statement of the Problem

Much of the research on pet-facilitated therapy has been anecdotal. These studies confirm the widely held understanding that animals make us feel good (Jorgenson, 1997). The aim of this study was to contribute to the body of more systematic knowledge and to establish the relative benefit of this practice at Stanford Hospital. This was accomplished by comparing visual analog scales measuring the self reported levels of depression, anxiety, and pain, of patients attending, versus not attending a pet-facilitated group. A demonstrated effect could lead to a more extensive use of pet-facilitated therapy programs in psychiatric and other settings.

Although many health care facilities now allow animal visits and/or have pet- facilitated therapy programs, the therapeutic use of animals is still often viewed with skepticism ("JAMA asks," 1995). Further study is needed to

build a body of useful knowledge for practice, and to clarify the difference between pet visitation and pet-facilitated therapy.

The occupational therapy literature includes several articles on pet-facilitated therapy (Collins, 1996; Darrah, 1996; Fick, 1993; McQuillan, 1985; Roenke & Mulligan, 1998; Scott, 1997; Smith, 1995; Walsh, Mertin, Verlander & Pollard, 1995; Zisselman, Rovner, Shmueli & Ferrie, 1996). The majority of these articles have been published in the last four years, indicating a growing interest in this subject by the profession.

Research Question

What effect does participation in a 1-hour pet-facilitated occupational therapy group have on the levels of depression, anxiety, and pain self-reported by inpatients on a psychiatric hospital unit?

Operational Definitions

Pet-Facilitated Therapy: Pet-facilitated therapy is "a goal-directed intervention in which an animal meeting specific criteria is an integral part of the treatment process" (Jorgenson, 1997, p. 252). In this study, pet-facilitated therapy includes several dogs in a group setting.

Geriatric: A person who is 65 years old, or older.

Conceptual Definitions

During the study, when patients asked for definitions of the dependent variables they were given the following conceptual definitions:

Anxiety: "painful or apprehensive uneasiness of mind [usually] over an impending or anticipated ill" (Webster's, 1990, p. 93).

Depression: "A state of feeling sad... feelings of dejection and hopelessness" (Webster's, 1990, p. 341).

Pain: "localized physical suffering associated with bodily disorder" (Webster's, 1990, p. 846).

Significance of this Study

This was an outcome study designed to measure the effectiveness of a pet-facilitated occupational therapy group for psychiatric inpatients. The first goal of the study was to measure the effectiveness of this intervention by comparing self-reported levels of depression, anxiety, and pain between a control and study group.

Much of the research on pet-facilitated therapy has been anecdotal. The second goal of this study was to contribute to the body of more systematic knowledge of pet-facilitated therapy. A demonstrated effect of this occupational therapy group could lead to a more extensive use of pet-facilitated therapy programs in psychiatric and other settings.

Assumptions

1. Patients attended the occupational therapy group to improve their ability to function in their environments, and to decrease the symptoms of their disorder/ disease.
2. Patients who did not enjoy the company of dogs did not attend the pet-facilitated therapy group.
3. Patients had been accurately diagnosed with psychiatric diagnoses.
4. Patients filled out the visual analog scale forms honestly.

CHAPTER 2

Literature Review

Conceptual Framework

This study was anchored in the framework of the model of human occupation. Cara and MacRae (1998) define human occupation as " the ordinary tasks of human existence in which people create their self-image and identity" (p. 669). Kielhofner (1995) describes the focus of the model of human occupation as "the motivation for occupation, the patterning of occupational behavior into routines and lifestyles, the nature of skilled performance, and the influence of environment on occupational behavior" (p. 2). The environment "is seen as intimately linked to the performance of occupation" (MacRae, Falk-Kessler, Julin, Padilla & Schultz, 1998, p. 104). The model of human occupation emphasizes the importance of a person's environment on his/her health.

Many studies link positive benefits to the presence of animals in a person's environment. Studies show that people with noticeable physical handicaps who own dogs receive more social greetings, smile more, and are engaged in more conversation (Jorgenson, 1997). A 1987 National Institutes of Health (NIH) study concluded that the effect of animals on human health is so strong that all future studies of human health should consider the presence or absence of a pet in the subjects' environment.

Each person has his/her own occupational behaviors; these are based on individual life experiences, beliefs, preferences, culture, and environments. Pets are an important part of many people's environments. There are more pets in American households than children, and more than half of American households have a companion animal (National Institutes of Health, 1987).

The model of human occupation suggests that people's environments greatly affect their functional ability. The goal of occupational therapy is to help patients maximize their functional abilities in their own environment. Feeding, exercising, grooming, and petting animals are all meaningful activities that can be incorporated into occupational therapy treatments. Occupational therapists on an inpatient psychiatric unit treat patients outside of the patient's natural environment. The use of animals in this setting "is a way of bringing the home environment into the acute care setting" (Proulx, 1998, p. 80).

Occupational therapy "practice requires therapists to imagine how persons might find their ways out of states of dysfunction and achieve better lives" (Kielhofner, 1995, p. 1). When animals are used as part of an occupational therapy session, the therapist may gain a better understanding of how patients interact in a more personal environment. Animals can facilitate interactions that are perceived as relatively safe by the patients, because animals offer warmth and love without making the kinds of complex relational demands that other people make on them (Friedmann, Katcher, Lynch, & Thomas, 1980). Patients may be more apt to feel comfortable with an

animal than with unfamiliar humans (Roenke & Mulligan, 1998). Katcher (1988) considers pets to improve the well-being of humans, especially related to intimacy, touch and nurturance. In summary animals can be good for patients directly, and they may also provide the therapist with a window into the patients' functionality.

Historical Perspective of Therapeutic Use of Pets

Pets/domesticated animals have been part of our natural environment for many thousands of years. Cave paintings dating back several millennia document wolves and people together around campfires. Cats were so important to the ancient Egyptians that they were entombed with their masters (Gammonley & Yates, 1991).

The first recorded therapeutic animal use was at the York Retreat in England in 1792. The care of small animals was incorporated in the treatment of psychiatric patients at this facility. This facility was used as a model against the horrendous conditions of other psychiatric facilities at that time (Beck & Katcher, 1983). In 1860, Florence Nightingale observed that "a small pet is often an excellent companion for the sick, for long chronic cases especially" (Nightingale, 1969, p. 103). Bethel, a German hospital founded in 1867 for people with epilepsy, has always used pets as part of the treatment protocol. Its founders believed in the therapeutic benefits of pets and the animal therapy program now includes farm animals and a wild game park (Bustad & Hines, 1984). In the United States, the first extensive use of therapeutic animals was in 1944 at an Army Air Corps Convalescent Hospital in New

York. Patients worked at the hospital farm and were encouraged to interact with and take responsibility for farm animals and pets (McCulloch, 1983; NIH, 1987).

Pet-Facilitated Therapy versus Pet Visitation

There are many names used to describe animals working in therapy. They include; pet therapy, animal therapy, pet-assisted therapy, animal-assisted therapy, and animal-facilitated therapy. Pet-facilitated therapy was the term used for this thesis. Pet-facilitated therapy was the first documented term (Levinson, 1969), and best describes the intervention being studied. Pet-facilitated therapy involves the use of animals in "facilitating patients' progress toward therapeutic goals" (Barker & Dawson, 1998, p. 797).

The literature does not always differentiate between pet visitation, and pet-facilitated therapy. Pet-facilitated therapy "differs from animals used as entertainment in that [pet-facilitated therapy] is considered to be an applied science using animals to solve a human problem. It is an interdisciplinary approach using animals as an adjunct to other therapies. It is goal-oriented, using assessment and evaluation procedures" (Gammonley & Yates, 1991, p. 13).

Draper, Gerber and Layng (1990) stated that many studies lack specification of the role of the animals and effectiveness of their use. However, along with studies of pet-facilitated therapy, studies investigating the effects of pet ownership and pet visitation reinforce the notion that pets are an important part of the environment. They are therefore worthy of study

to help explain the therapeutic benefits of pet-facilitated therapy.

Pet Visitation

Kongable, Buckwalter and Stolley (1989) found that the presence of a dog increased the number of social behaviors of people with Alzheimer's disease in institutional care. The study size was small (N=12) and the data were collected via observation over three sets of two five-minute periods. There was no comparison between social behavior during interaction with the dog and interaction with a human.

Kongable, Stolley and Buckwalter (1990) reported that a dog provided a positive, safe, and nonthreatening diversion for patients with Alzheimer's disease. The presence of the dog created a more natural, homelike environment at the facility. The dog provided a common ground on which the patients could relate to their families and the staff. This in turn created a more optimal level of social behavior and resulted in a more meaningful personal environment.

Perelle and Granville (1993) studied the effect of a pet visitation program on the social behavior of nursing home residents. The subjects were self-selected, and attended a weekly two-hour pet visit for ten weeks. The investigators found significant improvement in social behavior by the participants between the pre- and post-test. The instrument, the Patient Social Behavior Scale, was developed for this study and was not tested for validity or reliability. Also there was no control group, and therefore the results may have been a result of positive attention.

Francis, Turner and Johnson (1985) studied care-home residents with chronic mental illness. They reported decreased depression in residents after visits by puppies, when compared with the control group. Jorgenson (1997) states that research has shown that companion animals can improve the emotional and physical health of people. Benefits include improved self-esteem, increased social interaction, and decreased blood pressure and heart rate. She also discusses the need for more research into using the human-animal bond and its relationship to stress reduction as a therapeutic modality.

Physiological Benefits of Pets

Stress is a contributing factor to cardiovascular disease. Researchers have hypothesized that pets may lower levels of stress and thereby lower risk of cardiovascular disease (Davis, 1988). Much of the statistical data available on the benefits of pets is physiological. Nagengast, Baun, Megal and Leibowitz (1997) reported decreased systolic and mean arterial pressure, heart rate, and behavioral distress in children during a physical exam when a dog was present.

Friedmann, et al. (1980) conducted a follow-up study of patients a year after cardiac surgery. The study controlled for exercise, and found that 28% of non-pet owners had died, as compared to only 6% of pet owners. Survival rates among married patients were not higher than survival rates for those patients living alone. The investigators reported an actual effect of having a pet in one's environment, rather than simply having companionship.

Anderson, Reid and Jennings (1992) studied the relationship between

pet ownership and cardiovascular disease (CVD) in Australia. The study of 5,741 subjects, between 20 and 60 years old, found significantly lower triglyceride levels and blood pressure (systolic) in pet owners when compared to subjects that did not own pets. The study controlled for cigarette smoking, body mass index, diet, and socioeconomic status. Interestingly, pet owners reported taking significantly more exercise (associated with lowering CVD risk factors), but eating more red meat, fast food and drinking more alcohol (associated with raising CVD risk factors). The investigators found the increased exercise assumed to be present with dog ownership was not responsible for the lower triglyceride levels and blood pressure. There was no significant difference in triglyceride levels, blood pressure or amount of exercise between dog owners and those who owned other pets. The investigators noted that the limitation of this type of study is that the correlations described may be due to pet ownership, but could also be due to some unknown confounding factor.

Studies have demonstrated a greater physiological effect when the participant has a preexisting bond with the pet as opposed to interacting with a stranger animal. Baun, Bergstrom, Langston and Thoma (1984) found a decrease in blood pressure, heart rate, and respiratory rate when participants stroked a dog. The decrease in blood pressure was greater when subjects were familiar with the dog that they were petting.

Benefits of Pet-Facilitated Therapy

Over the past 30 years there have been many studies looking at the physiological, psychological, and behavioral effects of pets on humans. Boris Levinson recognized the benefits of pets and used them as an adjunct to his psychology practice. He named this intervention pet-facilitated therapy (Levinson, 1969). Many researchers point to the benefits of pet-facilitated therapy as an adjunct to facilitating interaction and communication between client and therapist (Arnold, 1995; Voelker, 1995). Perhaps, as Vormbrock and Grossberg (1988) suggest, physical contact with a dog reduces patients' anxiety, and the pet provides a sense of safety and comfort not found in other therapies.

Darrah (1996) conducted a pilot survey of pet-facilitated therapy in nursing homes. Nursing home administrators in California and South Dakota answered mailed questionnaires about benefits of pet-facilitated therapy in their facilities. The administrators "identified sensory stimulation, facilitation of resident social interaction, stress reduction, and companionship as the top four therapeutic purposes" (p. 38) for using pet-facilitated therapy. Darrah recommended that occupational therapists participate in further research to demonstrate the efficacy of pet-facilitated therapy. The author calls for occupational therapists to become more involved with the use of pet-facilitated therapy in treatment.

Pet-Facilitated Therapy in Psychiatric Settings

Walsh, et al. (1995) studied a pet-facilitated therapy program on a locked unit of a psychiatric hospital. The effect of regular contact with a dog on a selected group of patients with dementia was assessed over a 12-week period. The control group was from a similar locked unit. Variables measured included global measures of daily functioning, blood pressure, heart rate, and a measure of general noise level on the ward. Their results indicated significant decreases in heart rate, and a substantial drop in noise levels on the experimental ward when the dog was present. Brickel (1980) conducted a survey of case histories and pilot studies of pet-facilitated therapy. The author concluded that as "therapeutic adjuncts, pet animals facilitate rapport and otherwise enrich the treatment milieu" (p. 119).

Zisselman, et al. (1996) conducted a pilot study to evaluate the effects of a pet-facilitated occupational therapy group on geriatric psychiatry inpatients. Fifty-eight patients were assigned to a pet-facilitated therapy intervention group or to an exercise control group for 1 hour a day for 5 consecutive days. Each subject was blindly evaluated with the Multidimensional Observation Scale for Elderly Subjects (MOSES) before and after the intervention week. The investigators found no significant differences in MOSES scores between groups after the interventions. They did find a nonsignificant tendency towards less irritable behavior in subjects who received the pet intervention. They concluded that there is a need for further research on pet-facilitated

interventions with hospitalized elderly persons.

Barker and Dawson (1998) studied whether a session of pet-facilitated therapy reduced the anxiety levels of psychiatric patients hospitalized at an urban medical center. The 313 adult psychiatric patients referred for therapeutic recreational therapy during an 8-month period in 1996 were eligible for the study. The investigators collapsed the patients' diagnoses into four categories: mood disorders, psychotic disorders, substance abuse disorders, and all other disorders, including anxiety, cognitive, personality, and somatization disorders. The study used a pre-treatment and post-treatment crossover design. The instrument used was the state scale of the State-Trait Anxiety Inventory, which is a self-report scale used to measure current level of anxiety. Changes in anxiety ratings were compared for the same patients after a single pet-facilitated therapy group session and after a single therapeutic recreation group session.

The pet-facilitated therapy session consisted of about 30 minutes of group interaction with a therapy dog and the dog's handler. The dog moved freely about the room interacting with patients and demonstrating obedience commands, while the group discussed the dog and patients' pets. The comparison condition was a therapeutic recreation group session conducted on the day before or following the pet-facilitated therapy session. The recreational groups varied in content, from education about how to spend leisure time, to music and art activities.

Of the 313 patients who were eligible for the study, 230 attended at

least one of the two sessions and also completed a pre- and a post-treatment measure for at least one of the sessions. Only 50 patients completed a pre- and a post-treatment measure for both types of sessions. The investigators cited time conflicts with medical treatments and patient discharges as primary reasons for patients' failure to complete all four measures. For the pet-facilitated therapy group, the pretreatment scale was completed before the dog entered the room. The investigators do not comment on whether or not the subjects knew that they were about to be in a pet-facilitated group, and for the recreational group, whether they knew what the agenda was.

The investigators found significant differences within each of the groups. Only the patients with mood disorders had a significant decrease in anxiety after participating in the therapeutic recreation group. Whereas, patients with mood, psychotic, or "other" disorders had a significant decrease in anxiety after participating in the pet-facilitated therapy group. These findings suggest that pet-facilitated therapy decreased anxiety for a wider range of patients than the comparison therapeutic recreation group. Patients with psychotic disorders had reduced anxiety scores that were twice as great after pet-facilitated therapy as after therapeutic recreation. This suggests that pet-facilitated therapy "may offer patients with psychotic disorders an interaction that involves fewer demands compared with traditional therapies" (Barker & Dawson, 1998, p. 800). The investigators called for further studies of the effect of pet-facilitated therapy in psychiatric settings to increase our understanding of the therapeutic benefits of human-animal interaction.

Potential Risks of Pet Facilitated Therapy

As with any therapeutic intervention, it is important to be aware of any risks involved with the treatment. Kongable, et al. (1990) interviewed nurses at an Alzheimer's care-facility where there was a therapy dog in residence. While the nurses' response to the resident dog were positive overall, they pointed out some potential and actual risks associated with a pet program. These included: hazard to the dog, hazard to the patient, sensory overload, dislike of the pet, and added responsibility placed on staff to manage the program. The most commonly cited risk of having a resident dog was for the safety of the animal. The nurses gave examples of the dog being kicked and being grabbed by its tail.

The nurses' fears of potential safety hazards for the patients included risk of falling over the animal, and the possible transmission of micro-organisms from the animal to the residents. They also reported a concern about patients who might dislike animals. No patients reported a dislike for pets at the time of the study; however the nurses felt it would be unfair to future patients who disliked dogs.

Hubbert (1984) discussed the potential for transmission of infection from pets to humans but gave no report of actual infection resulting from a pet-facilitated therapy program. Stryler-Gordon, Beall and Anderson (1985) studied 284 Minnesota nursing homes that had visiting or live-in pet programs. They reported no cases of pet-related infection over a 1-year

period. In Canada in 1989, a dogcatcher brought a friendly dog to a nursing home for its pet therapy program. It was discovered later that the dog had rabies. Forty-nine people at the home had been exposed, but there were no infections (Waltner-Toews, 1993). This case highlights the need for proper screening and training of animals.

Waltner-Toews (1993) conducted a study about zoonotic disease transmission in pet-facilitated therapy programs. The study included 118 nursing homes, schools, and hospitals in the US and Canada. Half of the facilities had concerns about disease control. The most common diseases of concern were rabies, ringworm, and external parasitism. Five facilities reported the experience of ringworm in their programs. No facilities reported incidents with rabies or intestinal infections. Although it has been estimated that 5.3% of the US population has a sensitivity to animal dander only two facilities reported experience with allergies in their programs (Waltner-Toews, 1993).

There are case study reports of people tripping over or being pulled by their dogs, resulting in a fall and broken hip (Hubbert, 1984; Venske, Mayhew, & Burris, 1990). However, the literature has no documented incidence of a patient falling as the result of a pet-facilitated therapy intervention.

Transmission of disease from animals in the context of a pet-facilitated therapy program is very uncommon. The explanation for this is that most people involved in pet-facilitated therapy programs take reasonable precautions in preventing disease. As pet-facilitated therapy programs

increase in number, we need to ensure that they are under the direction of a health professional to maintain the simple and straightforward measures required to prevent the occurrence of zoonotic diseases (Waltner-Toews, 1993).

Visual Analog Scales

Ahearn (1997) conducted a comprehensive, meta-analysis of the use of visual analog scales (VAS) in mood disorders. She states that a visual analog scale is a useful tool for the measurement of mood and cites studies that show visual analog scales to be both reliable and valid. She noted that there is often concern expressed about the procedural validity of the visual analog scale when it is given to patients with psychotic features or cognitive disorganization. She states that “actual data relevant to this concern have not been reported” (p. 576). Ahearn also states that the visual analog scale promotes high compliance because of its simplicity. She notes that “while clinician-rated measurements of mood are an accepted standard, self-report of symptoms provides complementary and important information about the course and variability of illness from the patient's perspective” (p. 569).

According to Ahearn (1997), the standard length of a visual analog scale is 100 mm. “While there is no clear scientific reason for this standard length, there is historical precedent... and this length of scale allows for easy quantitative reading” (p. 570). Similarly, the standard visual analog scale is a straight line without interruptions, marks, or breaks. She states that a visual analog scale usually has anchor words at the beginning and end of the line.

These should be simple and concrete words that describe the extremes of the variable. The visual analog scale is generally oriented horizontally. Ahearn cites studies that have established the superiority of the horizontal visual analog scale as opposed to the vertical visual analog scale.

Ahearn (1997) stated that "multiple visual analog scales have been constructed to go beyond global mood assessment for the rating of individual symptoms or dimensions of mood" (p. 572). She cites a study by Ahles, Ruckdeschel, and Blanchard (1984) that used visual analog scales to measure depression, anxiety, and pain in a study of cancer patients. These are the variables that were measured in this thesis.

Nyenhuis, Stern, Yamamoto, Luchetta and Arruda (1997) report that VAS have been used as a measure of mood with psychiatric patients since first introduced in 1969. The investigators encourage to use of VAS for "research protocols that require multiple, brief examinations" (p. 413). Collins (1995) reports widespread use of VAS in the social and behavioral sciences, measuring subjective psychological phenomena including pain and mood. Collins reported that "although there has been some debate [in the literature] most investigators have found the VAS to be a valid and reliable measurement" (p. 101). The VAS yields a ratio level of measurement rather than an ordinal level as in Likert scales. Therefore it is very well suited for repeated measures because prior ratings are less likely to influence present ratings because numbers are not used (Carlson, et al., 1990).

Summary

A review of the literature reveals studies of pet-facilitated therapy across disciplines, especially by occupational therapy and nursing. The patient populations studied tend to be nursing home residents or patients on inpatient psychiatric units, and they are mainly elderly and/or have a psychiatric diagnosis. Many studies confirm that there are benefits to pet-facilitated therapy and recommend further research into its efficacy (Barker & Dawson, 1998; Brickel, 1980; Darrah, 1996; Jorgenson, 1997; Zisselman, et al., 1996).

There is a paucity of clinical studies showing clear clinical benefits of pet-facilitated therapy. There is a call for replacing anecdotal reports of successful pet-facilitated therapy with research published in academic journals ("JAMA asks," 1995; Voelker, 1995). Over the last two decades, research in animal-human interaction has demonstrated that there is a relationship between the presence of a pet and lower blood pressure, triglyceride levels and decreased use of medical services. The biggest challenge for pet-facilitated therapy is to prove that it actually improves outcome ("JAMA asks," 1995).

The model of human occupation offers a conceptual explanation of why pets are a beneficial element of people's environments and how pets contribute to people's functionality and health. This model is useful in

explaining the results of empirical studies of the effects of pet-facilitated therapy on psychiatric patients.

The literature also provides studies that support the validity and reliability of visual analog scales as a measure for assessing a patient's mood and pain. These studies supply standard parameters for visual analog scales (Ahearn, 1997; Ahles, et al., 1984).

CHAPTER 3

Methodology

Research Design

This was an outcome study using a quasi-experimental design and a nonequivalent control group. The dependent variables were the self-reported levels of depression, anxiety, and pain of psychiatric inpatients. The independent variable was attendance at a 1-hour pet-facilitated occupational therapy Pet Assisted Wellness at Stanford (PAWS) group.

Subjects

The data were collected at the locked and unlocked inpatient psychiatric units at Stanford Hospital, Stanford, California. All psychiatric inpatients at Stanford Hospital on 11/6/98, 11/20/98, and 12/4/98 were candidates. The patient populations included chronic pain, eating disorders, geriatric psychiatry, and acute psychiatry patients. Exemptions from the Human Subjects Review Board at Stanford University (Appendix A) and at San Jose State University (Appendix B) were received.

Sampling

Patients were invited to attend the PAWS group. Geriatric patients on either unit were given first choice to attend. The non-geriatric patients on the units were invited following an alternating schedule, i.e., locked unit this time, and unlocked unit next time. Participation in the PAWS group was voluntary. Any patient who had group privileges, was not allergic to dogs, and

expressed a wish to attend the group was accommodated. Patients excluded from the study were not excluded from the group.

There were 72 patients available for the study. The study group consisted of 22 patients who attended the PAWS group. The control group consisted of the 39 patients who did not attend the PAWS group. Eleven patients were excluded from the study (Table 3-1). The only exclusion criterion for this study was if a patient did not self-report the dependent variables using the VAS forms.

Table 3-1
Reasons for Exclusion from Study

	Refused	Unable: Vision	Unable: Confused	Unable: Catatonia	Percentage of excluded group
Geriatric	1	1	6	1	82%
Non-Geriatric	2	0	0	0	18%

The patients' ages ranged from 18 to 89 years old. This study categorized patients as either geriatric (65 or over), or non-geriatric (Table 3-2).

Table 3-2
Age of Patients

	Study group	Control group	Excluded group
Geriatric	32%	13%	82%
Non-Geriatric	68%	87%	18%
Mean age	53.1	40.0	69.7
Standard deviation	20.6	15.8	21.6

For the purposes of this study, the patients' diagnoses were collapsed into two diagnostic categories, mood disorders and other (Table 3-3). The mood disorder category included 48 patients with bipolar affective disorder or depression. The 'other' category included 24 patients with psychosis, obsessive-compulsive disorder, schizoaffective disorder, dissociative identity disorder, dementia, chronic pain, or an eating disorder. In the case of dual diagnoses, the patient's main diagnosis was used to categorize the patient.

Table 3-3

Diagnosis by Group

	Study group	Control group	Excluded group	Total population
Mood disorders	68%	62%	82%	67%
Other	32%	38%	18%	33%

Note: Total population means all patients available for the study, and represents a total of the study, control, and excluded groups.

Instrumentation

Patients at Stanford's inpatient psychiatric units make a daily report of levels of depression, anxiety, and pain. Visual analog scales (VAS) were the instruments used to collect the data for this study. VAS are both reliable and valid (Ahearn, 1997; Collins, 1995), and promote high compliance because of their simplicity (Ahearn, 1997). Multiple VAS go beyond global mood assessment for the rating of individual symptoms or dimensions of mood. A study by Ahles, et al. (1984) used visual analog scales to measure the same dependent variables as measured in this study, i.e., depression, pain and anxiety. Researchers encourage using of VAS for studies that require multiple, brief examinations (Carlson, et al., 1990; Nyenhuis, et al., 1997). VAS produce a ratio level of measurement rather than an ordinal level as in Likert scales. Therefore, they are suited for use in studies with repeated measures because present ratings are less likely to be influenced by prior ratings as there are no numbers on the scale (Carlson, et al., 1990).

All psychiatric inpatients were asked to self-report their levels of depression, anxiety, and pain using visual analog scales. They were given a form with simple instructions and the VAS on it, one for each variable being tested (Appendix C). Each visual analog scale was a straight horizontal 100-mm line without interruption, marks, or breaks. This length allows for easy quantitative reading (Ahearn, 1997). At the beginning and end of each line, there were simple and concrete anchor words that described the extremes of the variable in question. These anchor words were: for depression, Not

depressed and Very depressed; for anxiety, Not anxious and Very anxious; and for pain, No pain and Extreme pain (Appendix C).

Note: The form also included a VAS for happiness. The happiness scale had been included because of previous comments from two patients asking why they were asked only to report levels of negative feelings. This study does not include the variable of happiness in its results, as happiness is not a variable customarily reported in patient medical records at Stanford.

Procedures

The PAWS group took place once every two weeks on a Friday. It started at 11:00 a.m. and lasted approximately 1 hour. Patients were required to sign a consent form (Appendix D) to attend the group. If patients wanted to have their picture taken with the dogs, they signed the photographic consent portion of the consent form. The group met at the occupational therapy room on the unlocked psychiatric unit. The room was set up with a large non-skid rug in the middle of the floor with chairs around the perimeter of the rug.

Volunteer dog owners brought three to four dogs. The dogs and owners met hospital guidelines for participating in pet-facilitated therapy (Appendix E), including documentation of the dog's current vaccinations, controllability, and temperament. The dogs were free of disease, clean, supervised and protected while at the facility. The group was conducted in accordance with Stanford Hospital's policy and procedures for the PAWS program (Appendix F).

The PAWS group was conducted by an occupational therapist. The group consisted of 45 minutes to an hour of group interaction with the therapy dogs. At the beginning of the group, the occupational therapist welcomed everyone. She asked the patients and dog-handlers to introduce themselves and to tell the group about a current or past pet. After the introductions, the handlers kept the dogs on leashes but allowed them to move about the room, interacting with patients and demonstrating obedience commands and tricks. Some of the dogs got up on chairs and sat beside a patient when the patient requested. The patients were encouraged to get down on the rug with the dogs when they wanted to. The group ended with the patients thanking the dogs and handlers and commenting on what they liked and did not like about the group.

During the time that the PAWS group was in session, the patients in the control group had no specific group activity. They may have been visited by their doctors, social worker, psychologist, physical or occupational therapist, nurses, friends, or family. They may have been asleep, reading, watching television, outside on the patio, or engaged in some other activity. Their activity between 11:00 am and 12 noon was not recorded. Throughout the day members of the control and study groups were not treated differently. Their access to the other resources available on the units was not influenced by whether they attended the PAWS group.

Customary practice on the psychiatric units at Stanford Hospital, requires that all patients be evaluated daily for self-reported levels of

depression, anxiety, and pain. This study compares these symptom levels for patients who attended the PAWS group with the patients who did not. Since attendance in the PAWS group is voluntary, no selection of subjects for inclusion in either group was made in anticipation of this study. Data for three consecutive PAWS group sessions were analyzed. The patients indicated their self-determined levels of depression, anxiety and pain on VAS at the approximate times of 8:00 a.m. (morning), 10:30 a.m. (late morning), 12:00 noon (afternoon), and 3:00 p.m. (late afternoon) each day.

Efforts were made to have patients fill out the late morning VAS before they knew about or were invited to the PAWS group. This was done to try to rule out any effect of anticipation of the group on the late morning scores. These efforts were not completely successful. The group was extremely popular with staff and patients, and it was talked about on the unit, on the day of, and the days preceding the group. Therefore we cannot rule out an anticipatory effect on the late morning study group scores.

The VAS was scored by using a metal ruler calibrated in millimeters to measure the distance from the minimal endpoint to the mark made by the subject. This assigned numerical values to the variables. Marks made before the start of the scale were recorded as zero. Marks made after the end of the scale were recorded as ten. The instruments were scored twice for accuracy.

To insure confidentiality, patient names were not recorded on data collection sheets and all data was reported in the aggregate. The following

data points were harvested from patient records for all psychiatric inpatients in the census on PAWS group days:

1. Demographics: Age, gender, diagnoses.
2. Control variables: Attendance at PAWS group.
3. Outcome variables: Levels of depression, anxiety, and pain, self-reported in the morning, late morning, afternoon and late afternoon.

Methods

Inferential statistical analyses were performed on the data. Paired *t*-tests compared the average difference of VAS scores of the control and study groups. Confidence intervals were constructed to establish whether, after the PAWS intervention, there was a statistically significant difference in the levels of depression, anxiety, and/or pain of the subjects in the study group as compared to the control group. Difference between the late morning and early afternoon VAS scores, and between the early morning and late afternoon VAS scores were analyzed.

CHAPTER 4

Results

Data

The purpose of this study was to explore the effects of a 1-hour pet-facilitated occupational therapy group on the levels of depression, anxiety, and pain self-reported by inpatients on a psychiatric unit. The study group were participants in the Pet Assisted Wellness at Stanford (PAWS) program, and are referred to as the PAWS group. Data for depression, anxiety, and pain were collected from visual analog scales (VAS) completed by the patients in the PAWS group and by the patients in the control group. Patients completed the VAS in the early morning, late morning, early afternoon and late afternoon. The PAWS intervention occurred between the late morning and early afternoon self-reports. The VAS had a minimum score of zero and a maximum score of ten.

Average VAS scores were analyzed for the 22 patients in the PAWS group and the 39 patients in the control group. The largest diagnostic category represented in this study were patients with mood disorders. The mood disorder category included patients with primary diagnoses of bipolar affective disorder or depression. There were 15 patients with mood disorders in the PAWS group and the 24 patients with mood disorders in the control group (Table 3-3). In order to examine possible effects of the PAWS intervention on patients with mood disorders average VAS scores for patients with mood

disorders were analyzed separately. Table 4-1 records the average scores for depression, anxiety, and pain, at each time of day, for the PAWS and control groups, and for the patients with mood disorders in the PAWS and control groups.

Table 4-1

Average Self-Reported Scores

	PAWS group			Control group		
	Depression	Anxiety	Pain	Depression	Anxiety	Pain
AM	3.17	3.81	3.1	4.42	4.88	4.33
Late AM	2.64	2.79	2.56	4.63	4.92	3.47
PM	1.89	2.4	2.22	4.6	5.69	4.25
Late PM	2.15	2.82	2.43	5.02	5.52	4.11
	PAWS - mood diagnoses			Control- mood diagnoses		
	Depression	Anxiety	Pain	Depression	Anxiety	Pain
AM	3.96	4.87	3.1	5.59	5.42	4.93
Late AM	3.23	3	2.07	5.76	5.41	3.91
PM	2.59	2.52	1.94	5.49	5.70	4.6
Late PM	2.21	2.8	1.77	6.39	6.34	4.67

Paired *t*-tests compared the average difference of VAS scores of the control and study groups. Confidence intervals were constructed to establish whether, after the PAWS intervention, there was a statistically significant difference in the levels of depression, anxiety, and/or pain of the subjects in the study group as compared to those in the control group.

To explore possible effects of the PAWS group on self-reported levels of depression, anxiety, and pain, two comparisons of the data were made. First,

the difference between late morning and early afternoon VAS scores were compared (Table 4-2). Not all of the patients in the control group were available for both the late morning and early afternoon self-reports. The number of VAS available for analyses for these two time periods were as follows:

1. Overall control group 30.
2. Overall PAWS group 22.
3. Mood disorder - control group 19.
4. Mood disorder - PAWS group 15.

Table 4-2

Late Morning Scores Compared to Early Afternoon Scores

	Mean difference	Standard deviation difference		Mean difference	Standard deviation difference	Mean difference between groups	P < .05
Overall control group			Overall PAWS group				
Depression	0.10	2.61	Depression	(0.75)	1.15	0.85	◆
Anxiety	1.14	2.31	Anxiety	(0.39)	1.39	1.53	
Pain	0.57	1.51	Pain	(0.34)	1.08	0.91	
Mood disorder - control			Mood disorder- PAWS				
Depression	(0.22)	0.94	Depression	(0.63)	1.24	0.42	
Anxiety	0.42	1.81	Anxiety	(0.48)	1.68	0.90	
Pain	0.44	1.90	Pain	(0.13)	1.16	0.56	

The second comparison of the data involved comparing the difference between early morning and late afternoon VAS scores (Table 4-3). Not all of the patients in the PAWS or control groups were available for both the late morning and early afternoon self-reports. The number of VAS available for analyses for these two time periods were as follows:

1. Overall control group 26.
2. Overall PAWS group 18.
3. Mood disorder - control group 18.
4. Mood disorder - PAWS group 12.

Table 4-3

Early Morning Scores Compared to Late Afternoon Scores

	Mean difference	Standard deviation difference		Mean difference	Standard deviation difference	Mean difference between groups	P < 0.05
Overall control group			Overall PAWS group				
Depression	0.08	1.44	Depression	(1.15)	3.14	1.23	
Anxiety	0.23	1.44	Anxiety	(0.98)	3.49	1.21	
Pain	(0.28)	3.08	Pain	(0.64)	2.91	0.37	
Mood disorder - control			Mood disorder - PAWS				
Depression	(0.10)	1.62	Depression	(2.27)	2.82	2.18	◆
Anxiety	0.27	1.59	Anxiety	(2.34)	2.57	2.61	◆
Pain	(0.24)	3.52	Pain	(1.43)	3.01	1.19	

Figure 4-1

Graph of average levels of depression reported by the PAWS group and the control group

The patients in the PAWS group started the day with lower average self-reported levels of depression than patients in the control group and maintained a lower average level throughout the day. For patients in the PAWS group, the average self-reported level of depression decreased until

early afternoon and then increased slightly in the late afternoon. Their late afternoon level of depression remained lower than either of their morning/pre-group levels. For patients in the control group, the average self-reported level of depression fluctuated, increasing and decreasing throughout the day. Their late afternoon self-reported level of depression was higher than either of their morning/pre-group levels. During the time period that included the PAWS intervention (late morning to early afternoon), both the study and control groups' average self-reported level of depression decreased. For the variable of depression, no statistically significant difference was found between the two groups (Table 4-2); however there was a positive trend for decreased self-reported depression in the PAWS group (Figure 4-1).

Figure 4-2

Graph of average levels of anxiety reported by the PAWS group and the control group

The patients in the PAWS group started the day with lower average self-reported levels of anxiety than patients in the control group and maintained a lower average level throughout the day. For patients in the PAWS group, the average self-reported level of anxiety decreased until early

afternoon and then increased in the late afternoon. Their late afternoon self-reported level of anxiety remained lower than their early morning level, but was slightly higher than their late morning level. For patients in the control group, the average self-reported level of anxiety increased until early afternoon and then decreased in the late afternoon. Their late afternoon self-reported level of anxiety was higher than either of their morning/ pre-group levels. During the time period that included the PAWS intervention (late morning to early afternoon), the study group had a decrease in their average self-reported level of anxiety while the control group had an increase in their average self-reported level of anxiety (Figure 4-2). This difference was statistically significant (Table 4-2).

Figure 4-3

Graph of average levels of pain reported by the PAWS group and the control group

The patients in the PAWS group started the day with lower average self-reported levels of pain than patients in the control group and maintained a lower average level throughout the day. For patients in the PAWS group, the average self-reported level of pain decreased until early afternoon and

then increased in the late afternoon. Their late afternoon self-reported level of pain remained lower than either of their morning/pre-group levels. For patients in the control group, the average self-reported level of pain fluctuated, increasing and decreasing throughout the day. Their late afternoon self-reported level of pain was lower than their early morning level. During the time period that included the PAWS intervention (late morning to early afternoon), the study group had a decrease in their average self-reported level of pain while the control group had an increase in their average self-reported level of pain. For the variable of pain, no statistically significant difference was found between the two groups (Table 4-2); however, there was a positive trend for decreased pain in the PAWS group (Figure 4-3).

Figure 4-4

Graph of average levels of depression reported by patients with mood disorders in the PAWS and control groups

The patients with mood disorders in the PAWS group started the day with lower average self-reported levels of depression than patients with mood disorders in the control group and maintained a lower average level throughout the day. For patients with mood disorders in the PAWS group,

the average self-reported level of depression decreased throughout the day. For patients with mood disorders in the control group, the average self-reported level of depression fluctuated, increasing and decreasing throughout the day. For patients with mood disorders in the control group, the late afternoon self-reported level of depression was higher than either of their morning/pre-group levels. During the time period that included the PAWS intervention (late morning to early afternoon), patients with mood disorders in the study and control groups had decreased average self-reported levels of depression (Figure 4-4). From early morning to late afternoon, PAWS group patients with mood disorders had a decrease in their average self-reported level of depression, while their counterparts in the control group had an increase in their average self-reported level of depression (Figure 4-4). This difference was statistically significant (Table 4-3).

Figure 4-5

Graph of average levels of anxiety reported by patients with mood disorders in the PAWS and control groups

The patients with mood disorders in the PAWS group started the day with lower average self-reported levels of anxiety than patients with mood disorders in the control group and maintained a lower average level throughout the day. For patients with mood disorders in the PAWS group,

the average self-reported level of anxiety decreased until the early afternoon and increased in the late afternoon. Their late afternoon self-reported level of anxiety was lower than either of their morning/pre-group levels. For patients with mood disorders in the control group, the average self-reported level of anxiety decreased very slightly between early and late morning and then increased until late afternoon. Their late afternoon self-reported level of anxiety was higher than either of their morning/pre-group levels.

During the time period that included the PAWS intervention (late morning to early afternoon), average self-reported levels of anxiety decreased for PAWS group patients with mood disorders, and average self-reported levels of anxiety increased for their control group counterparts (Figure 4-5). This difference was not statistically significant (Table 4-2). From early morning to late afternoon, PAWS group patients with mood disorders had a decrease in their average self-reported level of anxiety, while their counterparts in the control group had an increase in their average self-reported level of anxiety (Figure 4-5). This difference was statistically significant (Table 4-3).

Figure 4-6

Graph of average levels of pain reported by patients with mood disorders in the PAWS and control groups

The patients with mood disorders in the PAWS group started the day with lower average self-reported levels of pain than patients with mood disorders in the control group and maintained a lower average level throughout the day. For patients with mood disorders in the PAWS group,

the average self-reported level of pain decreased throughout the day. For patients with mood disorders in the control group, the average self-reported level of pain decreased between early and late morning, and then increased through the late afternoon. Their late afternoon self-reported level of pain was lower than their early morning level. During the time period that included the PAWS intervention (late morning to early afternoon), the patients with mood disorders in the study group had a decrease in their average self-reported level of pain, while the patients with mood disorders in the control group had an increase in their average self-reported level of pain. For the variable of pain, no statistically significant difference was found between the two groups (Table 4-3); however, there was a positive trend for decreased pain in the PAWS group (Figure 4-6).

Summary

Analysis of the data yielded the following results:

- For the time period of the PAWS intervention (late morning to early afternoon), the average self-reported level of anxiety decreased for the PAWS group and increased for the control group. This difference was found to be statistically significant.
- From early morning to late afternoon the average self-reported level of depression decreased for patients with mood disorders in the PAWS group and increased for their counterparts in the control group. This difference was found to be statistically significant.
- From early morning to late afternoon the average self-reported level of anxiety decreased for patients with mood disorders in the PAWS group and increased for their counterparts in the control group. This difference was found to be statistically significant.
- There was a positive trend for decreased average self-reported levels of depression, anxiety, and pain throughout the study for the patients in the PAWS group, and also for patients with mood disorders in the PAWS group.
- The patients in the PAWS group and the patients with mood disorders in the PAWS group began the study with lower average self-reported levels of depression, anxiety, and pain than their counterparts in the control group. They maintained this difference throughout the study.

- Average self-reported levels of depression, anxiety, and pain for the PAWS group decreased from early morning through early afternoon, until they increased in the late afternoon. Their average self-reported levels of the above variables were never higher than their early morning average. The patients with mood disorders in the PAWS group followed the same pattern.
- Average self-reported levels of depression and anxiety decreased throughout the entire study day for patients with mood disorders in the PAWS group.
- For the overall control group and the patients with mood disorders in the control group, the average self-reported levels of depression and anxiety were higher in the late afternoon than in the early morning. Their average self-reported pain level fluctuated, but remained lower than their early morning level throughout the day.

CHAPTER 5

Discussion

Introduction

The purpose of this study was to explore the effects of a 1-hour pet-facilitated occupational therapy group on the levels of depression, anxiety, and pain self-reported by inpatients on a psychiatric unit. The group that was used for this study is referred to as the Pet Assisted Wellness at Stanford (PAWS) group. A review of the literature found that statistical inquiry into the effects of pet-facilitated therapy has been limited. The aim of this study was to contribute to the body of systematic knowledge. This was accomplished by statistically comparing the mean visual analog scale (VAS) scores measuring the self-reported levels of depression, anxiety, and pain, of patients in the PAWS group to the mean scores of patients not attending the group.

Effectiveness of the Pet-Facilitated Occupational Therapy Group

The research question posed was: What effect does participation in a 1-hour pet-facilitated occupational therapy group have on the levels of depression, anxiety, and pain self-reported by inpatients on a psychiatric hospital unit? This study answered this question by comparing self-reported levels of depression, anxiety, and pain between the PAWS group and a non-equivocal control group. An analysis of the data revealed: For the time period of the PAWS intervention (late morning to early afternoon), there was a significant difference

between the overall study group's decreased self-reported level of anxiety and the overall control group's increased self-reported level of anxiety. From early morning to late afternoon, there were statistically significant differences between the decreased self-reported levels of depression and anxiety for the PAWS group patients with mood disorders, and the increase in these levels for their control group counterparts.

The time period from early morning to late afternoon, included the early morning, late morning, and early afternoon scores. For PAWS group patients with mood disorders, there was a large decrease in their average self reported depression (Figure 4-4) and anxiety (Figure 4-5) scores between early and late morning. Their counterparts in the control group had an increase in self-reported depression (Figure 4-4) and a very slight decrease in self reported anxiety (Figure 4-5). Despite efforts to have patients fill out the late morning VAS before they knew about or were invited to the PAWS group, some patients had prior knowledge of the group. Therefore we cannot rule out an anticipatory effect on the late morning PAWS group scores. Since there was no difference in the routine or treatment between the PAWS group and the study group, the decrease in self-reported levels of anxiety and depression between early and late morning for patients in the PAWS group, may be due to positive anticipation of the pet-facilitated occupational therapy group

The data analysis revealed that for the overall control group and the control group patients with mood disorders, self-reported pain levels fluctuated but remained lower than their early morning level. However, their

self-reported levels of depression and anxiety were higher in the late afternoon than in the early morning. By comparison, patients in the overall PAWS group, and PAWS group patients with mood disorders, had positive trends for decreased self-reported levels of depression, anxiety, and pain. Self-reported levels of depression, anxiety, and pain for patients in the overall PAWS group and PAWS group patients with mood disorders were never higher than their early morning level. These positive trends were not always significant due to the large variances within the group. For all the statistically non-significant results, the standard deviation of the differences between scores within the groups was larger than the mean difference between the groups (Table 4-2 and 4-3).

Relating Results to Existing Knowledge

Participation in the PAWS group was associated with statistically significant decreased self-reported levels of depression for all of the patients who attended the group, and with statistically significant decreased self-reported levels of anxiety and depression for patients with mood disorders. These decreases in depression and anxiety are consistent with studies that link positive benefits to the presence of animals in a person's environment.

Researchers have hypothesized that pets may lower levels of stress (Davis, 1988). Perhaps, as Vormbrock and Grossberg (1988) suggest, physical contact with a dog reduces patients' anxiety, and the pet provides a sense of safety and comfort not found in other therapies. Comments made by patients in the PAWS group support these theories. One patient commented that she

felt less anxious "because the dogs were real and warm and silky and soft." Another stated that the "dogs took me back to the good old days." Another commented, "I am a little unhappy thinking about the pets I have loved and lost... [but] this group was the most pleasurable and real of any group I have been in." When animals are used as an adjunct to occupational therapy, they can facilitate interactions that are perceived as relatively safe by the patients. They offer the therapist a more natural environment in which to build a therapeutic relationship, and therefore the possibility of a more effective intervention.

Barker and Dawson (1998) studied whether a session of pet-facilitated therapy reduced the anxiety levels of psychiatric patients hospitalized at an urban medical center. The pet-facilitated group that they studied was very similar to the PAWS group. The investigators collapsed the patients' diagnoses into four categories: mood disorders, psychotic disorders, substance abuse disorders, and all other disorders, including anxiety, cognitive, personality, and somatization disorders. The comparison condition was the patients' attendance at a recreation group session conducted on the day before or following the pet-facilitated therapy session. Their results found that patients with mood disorders, psychotic disorders and other disorders (excluding substance use disorders) had a significant decrease in anxiety after participating in the pet-facilitated therapy group. Barker and Dawson called for future studies to attempt to replicate their results. The results of this PAWS study complement their findings.

Of the 313 patients who were eligible for the Barker and Dawson study only 16% of patients completed a pre- and a post-treatment measure for both types of sessions. The investigators cited time conflicts with medical treatments and patient discharges as primary reasons for patients' failure to complete all four measures. The instrument used was the state scale of the State-Trait Anxiety Inventory, which is a self-report scale consisting of 20 items related to feelings associated with anxiety (Barker & Dawson, 1998). Perhaps if they had used a shorter, easier-to-use measure such as a VAS they would have had better patient compliance.

Effectiveness of Visual Analog Scales

The visual analog scales (VAS) were an effective instrument in the measurement of depression, anxiety, and pain. Several patients commented on the ease of filling them out. Comments included: "That's sure easy enough" and "I really like this." Compliance was high, with only 4% of patients refusing to complete the forms. One problem encountered using VAS in this study was that patients with poor vision or confusion were unable to complete the forms. This affected the participation of geriatric patients in the study: one-third of geriatric patients available for the study were excluded because of inability to fill out the VAS secondary to confusion or poor vision (Table 3-2).

Ahern (1997) noted that VAS may be limiting to some patients. She stated that the patients may feel that their level of the variable is more extreme than the VAS anchor words. Three of the patients with mood disorders in the

study group found the VAS limiting, and indicated that their self-reported levels of depression were off the scale. One of these patients also marked past the end of the scale for anxiety, and before the beginning of the scale for pain. In these cases the patients were given the highest score (10) for marking past the end of the scale and the lowest score (0) for marking before the beginning of the scale.

Limitations of Study

This study had several limitations. Participation in a 1-hour group every two weeks was not an optimal application of pet-facilitated therapy. This may not have been an adequate exposure to demonstrate a lasting measurable effect. Thus, this study focused only on immediate and same day effects of pet-facilitated therapy.

The use of visual analog scales (VAS) excluded some patients with confusion or visual deficits from the study, as they were unable to complete the form. Also asking patients to complete four forms in an 8-hour period may have frustrated some patients. One patient asked: "Why is this every 10 minutes?" This frustration may have increased the self-reported level of depression, anxiety and/or pain reported on the VAS.

This was not a randomized experiment. Some of the patients in the control group were not given the option of coming to the group due to other appointments or lack of group privileges. Patients' participation in the PAWS group was voluntary; self-selection potentially introduced a bias. The study group and the control group were heterogeneous. Patients who chose to be in

the study group had lower beginning self-reported levels of depression, anxiety, and pain than those in the control group. This may indicate that the patients who self-selected to participate in the PAWS group were “less sick” and therefore more able or more willing to initiate participation in a group or activity that would potentially have a positive effect on their health. If the hospital’s policy allowed dogs to visit patients rooms to encourage the patients to attend the PAWS group, more of the “sicker” patients may be encouraged to attend the group. This could possibly lead to more homogeneous study and control groups.

This study did not compare the effects of a pet-facilitated group with the effects of any other group. The lack of a specific activity for the control group at the same time as the PAWS group introduces a potentially confounding factor. It raises the question as to whether the benefits of attending the PAWS group were due to the attention given to the patients (regardless of whether pets are involved or not) versus the potential lack of attention received by the control group.

There was no statistically significant result for the effect of the PAWS group on self-reported levels of pain by the PAWS group or the PAWS group patients with mood disorders. The sample size for patients with diagnoses of chronic pain was too small to assess the effects of the PAWS group on the self-reported levels of pain of patients with chronic pain diagnoses.

Suggestions for Further Research

To date the literature has not always differentiated between pet visitation and pet-facilitated therapy. Pet-facilitated therapy is a goal-oriented intervention in which the pet is an adjunct to the therapeutic process. Both pet visitation and pet-facilitated therapy contribute to the patients' environment, but the literature should distinguish between the two so that the specific benefits of each can be better understood.

A better design of this study would include random assignment to the study and control groups of patients volunteering to receive pet-facilitated therapy. This would provide more homogenous groups. Another improvement to this study's design would be to use the study group as its own control group, as in the Barker and Dawson (1997) study. This study focused only on immediate and same day effects of pet-facilitated therapy. Further research should be conducted to measure longer-term benefits that may result from more optimal intervention of pet-facilitated therapy.

This study did not assess the therapeutic benefits of including a dog in the patient-therapist relationship. Nor did it explore the amount and/or value of additional information gained by the therapist about the patient by observing the patient interact in a pet-facilitated therapy group. Finally, this study does not measure the effect of dogs in the workplace on staff morale, or the effect of improved morale on patient care. These are all areas that require further study.

Conclusion

In the changing world of health care, it is important to seek out efficient, cost effective methods of treatment that allow us to treat the client as a whole person. The model of human occupation suggests that people's environments greatly affect their ability to function. Pets have been part of our natural environment for many thousands of years. The goal of occupational therapy is to help patients maximize their functional abilities in their own environment. Patients at inpatient psychiatric units are not in their natural environment; using pets as therapeutic adjuncts is a way to make the hospital setting more natural and less institutional.

This study demonstrates clear clinical benefits of pet-facilitated therapy for psychiatric patients. For the study group, there was a statistically significant decrease in the average self-reported level of anxiety directly following the PAWS intervention. For study group patients with mood disorders there were statistically significant decreases in the average self-reported levels of depression and anxiety three to four hours after the pet intervention. These findings support the effectiveness of using pets as therapeutic adjuncts to occupational therapy, and contributes the existing literature on the effectiveness of pet-facilitated therapy in a psychiatric setting.

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APPENDIX A**STANFORD HOSPITAL INSTITUTIONAL REVIEW BOARD APPROVAL**

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DAVID D. OAKES, M.D.
CHAIR, PANEL ON MEDICAL HUMAN SUBJECTS
c/o Administrative Panel's Office

(650) 723-8244
(650) 725-8013 (fax)

INSTITUTIONAL REVIEW BOARD CERTIFICATION

NOTICE OF EXEMPT REVIEW

DATE: April 6, 1999

TO: L.C. Wise, R.N., D.N.Sc.
and C. Cox
Department of Pt. Care Services

FROM: Chairman, Administrative Panel
on Human Subjects in Medical Research

PROTOCOL ENTITLED:
Pet Assisted Wellness at Stanford (PAWS) Study:
Outcome Study of Pet Facilitated Occupational Therapy Group.

The Human Subjects Panel reviewed your research protocol on April 6, 1999.

If this proposal is used in conjunction with any other human experimentation or if it is modified in any way, it must be re-reviewed for these special circumstances. In addition, the Panel requests prompt notification of any complications which may occur during any experimental procedure.

Please remember that all data including all signed consent form documents must be retained for a minimum of three years past the completion of this research. Additional requirements may be imposed by your funding agency, your department, or other entities. (Policy on Retention of and Access to Research Data, Research Policy Handbook, <http://www-portfolio.stanford.edu/105793>)

David D. Oakes, M.D., Chairman

Funding Agency: (Un-sponsored) (N)

Exempt Under Paragraph Number: 1

Assurance Number: M1272

IRB #01

APPENDIX B
SAN JOSE STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD
APPROVAL

San José State
UNIVERSITY

Office of the Academic
Vice President
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E-mail: avp@sjstate.edu

TO: Ciara Cox
139 San Carlos Ave.
Redwood City, CA 94061

FROM: Nabil Ibrahim,
Acting AVP, Graduate Studies & Research

DATE: April 21, 1999

The Human Subjects-Institutional Review Board has approved your request to use human subjects in the study entitled:

"Outcome Study of a Pet Facilitated
Occupational Therapy Group"

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to any and all data that may be collected from the subjects. The Board's approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Nabil Ibrahim, Ph.D., immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised that all subjects need to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate, or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact me at
(408) 924-2480

APPENDIX C
VISUAL ANALOG SCALE FORM

Room Number: _____ Initials: _____ Date: _____ Time: _____

Please place a mark on the following lines at the point, which best describes how you are feeling right now.

Not depressed Very depressed

Not anxious Very anxious

No pain Extreme pain

Not happy Very happy

APPENDIX D
STANFORD HOSPITAL'S CONSENT FORM FOR PAWS
PARTICIPATION AND PHOTOGRAPHY

**PET ASSISTED WELLNESS @ STANFORD
(PAWS PROGRAM)**

CONSENT FOR PARTICIPATION AND PHOTOGRAPHY

I understand that I will be holding and/or petting animals and that all pets in this program have received physical examinations by a doctor of veterinary medicine and behavioral examinations by a Peninsula Pet Assisted Therapy Team Leader.

I understand that, despite precautions taken by Stanford Health Services, there are risks associated with participation in the P.A.W.S. program, including but not limited to, scratching, biting or other unanticipated action by the pets. These risks have been fully explained to me but I feel that the benefits of my participation in this program outweigh the risks. Therefore, I hereby release, discharge and agree to hold harmless Stanford Health Services, its medical staff and employees from any liability arising from my participation in this program.

To the best of my knowledge, I am not allergic to nor do I have a fear of dogs, cats or other animals, nor do I have any open skin wounds.

I have read this consent, understand its content, and voluntarily request to participate in the Pet Assisted Wellness Program at Stanford.

_____
(signature of patient)

_____
(date)

_____
(witness)

_____
(date)

PHOTOGRAPHIC CONSENT:

You may be photographed at some point while participating in this program. These photographs may be used in the future for promotion of this program and may include publication in public media.

_____
(Patient's signature consent to photograph)

_____
(date)

☐ I DO NOT WISH TO BE PHOTOGRAPHED

APPENDIX E
STANFORD HOSPITAL'S GUIDELINES FOR
PAWS HANDLERS AND DOGS

**STANFORD UNIVERSITY HOSPITAL
COMMUNITY AND PATIENT RELATIONS**

TITLE:

**Pet Assisted Wellness @ Stanford
PAWS Handler**

**STATEMENT OF
PURPOSE:**

To provide Stanford University Hospital patients the opportunity to have direct contact with animals and their handlers.

JOB SUMMARY:

PAWS Handlers will bring his/her dog or cat that have passed specific screening criteria into Stanford University Hospital to visit patients. PAWS Handlers will be participating in structured groups in which patients are given the opportunity to have contact with animals in order to promote a sense of well-being, reduce stress, and provide opportunities to increase socialization, cognition, sensory-motor skills and leisure skills.

QUALIFICATIONS:

PAWS Handlers must complete an initial Stanford Health Services volunteer screening. If appropriate, the volunteer and his/her pet will be referred to the Peninsula Pet Assisted Therapy Team (PPATT) to be evaluated using the guidelines established by Therapy Dogs, Inc. Animal clearing procedures include: physical exams, vaccinations and fecal exams by a licensed veterinarian as well as an evaluation of the animal's social behavior by a PPATT Team Leader. The pet must be clean, well groomed and parasite free for all visits; the PAWS Handlers must be clean and well groomed as well. All rules and regulations pertaining to the PAWS Program must be strictly adhered to by the handlers and their pets. Animals will become members of Therapy Dogs, Inc.

TIME COMMITMENT:

Hospital visits will be arranged according to the individual patient care area's need. Visits will usually last no longer than 1 hour.

SUPERVISION:

There will be a Stanford Health Services employee member during each animal visit.

**PLEASE CONTACT/
SEND APPLICATION
TO:**

Francie Souza, Sr. Patient Representative
Community & Patient Relations
Stanford University Hospital, 300 Pasteur Dr. #H1401
Stanford, CA 94305 (415) 723-7167

300 Pasteur Drive • Room H1401 • Stanford, California 94305
(415) 723-7167 • Fax (415) 725-8907

APPENDIX F
STANFORD HOSPITAL'S POLICY AND PROCEDURES
FOR PAWS PROGRAM

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