

AN EVALUATION OF AN ANIMAL-ASSISTED THERAPY PROGRAM IN
AN ADULT INPATIENT HOSPITAL REHABILITATION UNIT

A DISSERTATION SUBMITTED TO THE FACULTY OF
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BY

KRISTEN M. MARKOVICH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
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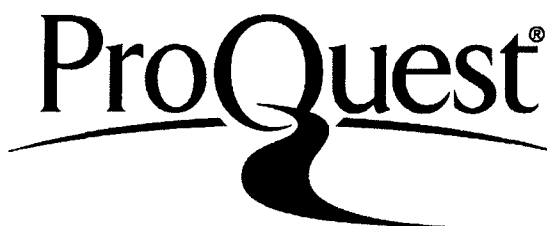
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Abstract

This dissertation evaluated an Animal-Assisted Therapy (AAT) program recently implemented in an adult inpatient hospital rehabilitation unit. The program evaluation included (a) a qualitative analysis of patient feedback surveys and (b) an analysis of data from a measurement log created and used to assess changes in mobility and ambulation goals in traditional therapy sessions versus AAT sessions. The hospital provided AAT Patient Feedback Surveys for analysis. A coding system was developed to find common themes. Themes included overall program satisfaction, enjoyable physical and emotional interaction with the dog, distraction from pain or discomfort, dogs' assistance in therapy goals, and suggestions for program continuation. From these results a Likert scale was developed to facilitate data collection efficiency for future program evaluations. The measurement log provided preliminary data from patients who participated in a same-day traditional session and AAT session. Of the standing tolerance participants, 85% improved with AAT, and averaged 88.4% change, whereas only 42% of mobility participants improved, averaging 23% change. Limitations to the study include a small sample size, lack of control group, and variability in data collection methods and interventions. Future studies must examine differences between effectiveness of AAT with specific therapy goals to determine how to best use the power of the human-animal bond in the human healing process.

Dissertation Committee

Christine Bard, Ph.D., Core Faculty, Program Director of M.A. in Counseling
Psychology, Specialization in Rehabilitation Counseling, Adler School of
Professional Psychology

Josefina Alvarez, Ph.D., Core Faculty, Adler School of Professional Psychology

Mark Bilkey, Psy.D., Core Faculty, Program Director of M.A. in Gerontological
Counseling; Department Co-Chair of M.A. in Counseling Psychology,
Adler School of Professional Psychology

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Curriculum Vitae
Kristen Markovich, M.A.

EDUCATION

Adler School of Professional Psychology, Chicago, IL 2006-Present
-Master of Arts (M.A.) in Counseling Psychology
-Certificate in Adlerian Psychotherapy

DePaul University, Chicago, IL 2002-2006
-Bachelor of Arts in Psychology with Honors
-Bachelor of Arts in Spanish
-Liberal Arts and Sciences Honors Program

PRE-DOCTORAL TRAINING

South Campus Therapeutic Day School, Palatine, IL 2010-2011

Clinical Internship

Provide individual, group and family therapy for children and adolescents (ages 7 to 19) with severe behavioral and emotional disorders in a therapeutic day school setting. Initiated use of Animal-Assisted Therapy as a therapeutic intervention in individual, group and milieu therapy. Collaborate as multi-disciplinary team member in developing and implementing Individualized Education Plans (IEP). Lead and co-lead psychoeducation and support workshops for parents. Supervisors: Beth Becker, Psy.D., Sol Rappaport, Ph.D. and John Schuler, Psy.D.

Dreikurs Psychological Services Center (PSC), Chicago, IL 2009-2010

Advanced Therapy Practicum

Provided individual, couples, group, and family psychotherapy for under-represented populations at an APA accredited internship site and outpatient behavioral health center located within Adler. Provided individual and group therapy services in milieu setting for formally incarcerated men located at St. Leonard's Ministries. Group topics included life skills, anger management, and parenting skills. Led an eight-week process group for 8th graders in a school. Supervisor: Leigh Johnson-Migalski, Psy.D.

South Campus Therapeutic Day School, Palatine, IL 2008-2009

Therapy Practicum

Provided individual, group, and family therapy services for children and adolescents with severe behavioral and emotional disorders in a therapeutic day school. Served as a caseworker and advocate for children as part of a multidisciplinary team. Assisted in coaching and supporting school sports team. Supervisor: Beth Becker, Psy.D.

United Stand Family Counseling Services, Chicago, IL 2007-2008

Diagnostic Practicum

Administered psycho-educational batteries consisting of cognitive, achievement, and personality measures for children in the Catholic Schools of Chicago and at the Archdiocesan Center for Inclusive Education. Selected to orient several incoming diagnostic externs in test administration, scoring, data analysis, and report writing under the supervision of Dr. Mis. Assisted in emergency grief counseling at elementary school.

Supervisor: Sister Kim Mis, Psy.D.

Haymarket Center, Chicago, IL 2007

Parenting Course Facilitator

Planned and facilitated an Adlerian/Dreikurs-based sequence of six parenting sessions to a diverse group of women in a rehabilitation unit for drug and alcohol abuse and dependence. Utilized group role-play to practice effective methods of communication, mediated intra-group conflict, and provided emotional support.

Lawrence Hall Youth Services, Chicago, IL 2007

Community Service Practicum, Volunteer Coordinator Assistant

Reorganized the volunteer database. Recruited fundraising event volunteers and sponsors. Created a volunteer appreciation project for National Volunteer Week. Attended Junior Board meetings.

TEACHING EXPERIENCE

Adler School of Professional Psychology, Chicago, IL 2006-2007

Teaching Assistant for Basic Intervention and Assessment Course

Assisted the development of the syllabus and led class sessions on diagnosis of psychopathology and developmental disorders. Created and graded assignments.

RESEARCH EXPERIENCE

DePaul University, Chicago, IL 2006

Child and Adolescent Stress and Coping Project: Research Assistant

Supervisor: Kathryn Grant, Ph.D.

DePaul University, Chicago, IL 2005

Oxford House Project: Research Assistant

Supervisors: Elizabeth Horin, M.A.; Joseph Ferrari, Ph.D.

PRESENTATIONS

- Markovich, K.M. (2011, January). Animals in therapy. Presentation at the in-service training for staff of South Campus, Palatine, IL.
- Markovich, K. M., Hailey, T. & Viscogliosi, C. (2010, November). *An evaluation of an Animal-Assisted Therapy program in an adult inpatient hospital rehabilitation unit*. Poster Session presented at the Illinois Occupational Therapy Association (IOTA) State Conference Poster Presentation Session, Springfield, IL.
- Markovich, K. M. & Campbell, R. (2007, September). *North American Society of Adlerian Psychology (NASAP) Affiliate Information*. Common hour presented at the Adler School of Professional Psychology of Chicago, IL.
- Markovich, K. M. (2007, June). *Volunteer appreciation project: Encouragement to volunteers to continue serving their community*. Poster session presented at the annual Adler School of Professional Psychology Community Service Practicum Poster Session, Chicago, IL.
- Markovich, K. M., Holzer, K., Meager, M. (2007, October). *Lifestyles of the Rich and the Famous*. Common Hour presented at the Adler School of Professional Psychology of Chicago, IL.
- Khan, S. A., Carrigg, E., Markovich, K. M., Madura, C., Mentzel, J. (2006, May). *Making 'cents' of it: The role of financial stress on parent-child stress and marital stress*. Poster session presented at the annual Psychology Night of DePaul University of Chicago, IL.

MEMBERSHIPS AND AFFILIATIONS

Therapy Dogs International, Inc. Therapy Dog Handler	2011
American Psychological Association, Student Member (APAGS)	2010-Present
NASAP Affiliate President	2009
NASAP Affiliate Vice President	2008
Illinois Psychological Association (IPA), Student member	2006-present
North American Society of Adlerian Psychology (NASAP)	2006-present

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CHAPTER I

INTRODUCTION

Introduction to Animal-Assisted Therapy (AAT)

“The dog is man’s best friend.”

-Ogden Nash, *An Introduction to Dogs*

This popular verse from the Ogden Nash’s 20th century poem is easily understood by anyone who ever experienced a joyful interaction or companionship with a dog. The impact of human relationships with dogs is becoming a growing interest in the field of psychology. Therapists in a variety of medical, mental health, and educational settings are observing human-animal interactions as beneficial to humans (Kawamura, Niiyama, & Niiyama, 2007; Morrison, 2007; Pichot & Coulter, 2007; Virués-Ortega & Buéla-Casal, 2006). Although the relatively novel idea of incorporating dogs into therapy with humans is not as well-known as other therapies, its popularity is gaining immense interest as researchers continue to investigate its benefits (Morrison, 2007; Parshall, 2003; Souter & Miller, 2007; Virués-Ortega & Buéla-Casal, 2006). Among the existing research, many physiological, psychological, and social effects have been observed as a result of using animals, specifically dogs, in therapeutic interventions.

The use of animals as therapeutic tools has been referred to by several different terms including Animal-Assisted Therapy (AAT), Animal-Assisted

Activities (AAA), Animal-Assisted Interventions (AAI), pet therapy, pet interaction, pet-facilitated therapy, animal-facilitated therapy, and animal visitation (Burch, 1996; Morrison, 2007; Souter & Miller, 2007; Wilson, 1991). The most common terms used are AAT and AAA, although their definitions differ (Burch, 1996; Morrison, 2007).

AAT is a structured intervention involving the use of a certified therapy animal and handler team to assist a person in meeting pre-established therapy goals related to physical health, mental health, and education (Burch, 1996; Morrison, 2007; Souter & Miller, 2007). AAT distinguishes itself as separate from AAA and AAI because it is conducted by a trained professional, the goals and objectives are established prior to therapy, data is collected, and record-keeping is expected (Burch, 1996; Delta Society, 2009, *AAA/T at a Glance*; Morrison, 2007; Pichot & Coulter, 2007; Souter & Miller, 2007). AAA differs because its primary goal is to enhance the quality of life, it can be facilitated by professionals or non-professionals, and it is not mandatory to maintain records or data of the animal visits (Burch, 1996; Delta Society, 2009, *AAA/T at a Glance*; Morrison, 2007; Souter & Miller, 2007). Although many types of animals are used in AAT, dogs are most common (Burch, 1996; Morrison, 2007).

AAT is becoming a more familiar practice in medical centers and hospitals due to the physiological, psychological, emotional and social benefits shown in research (Granger & Kogan, 2006). Physical, occupational and speech

therapists use AAT to assist patients with their therapy goals. For example, an occupational therapist may help a patient focus on building fine motor skills by having the patient brush the dog with controlled hand and arm movements (Pichot & Coulter, 2007). To integrate the use of AAT in traditional medical settings, AAT programs are being created, developed, and evaluated. Program evaluations should examine if the AAT programs are increasing patient satisfaction and facilitating patients' progress with therapy goals

AAT Program Evaluations

The hospital being evaluated in this dissertation is an example of a medical center that has recently implemented an AAT program as an adjunct to their traditional rehabilitation therapy in the adult inpatient rehabilitation unit. It is suggested that when establishing an AAT program, annual evaluations should assess the performance and effectiveness of the program (Chandler, 2005; Pichot & Coulter, 2007; Stanley-Hermanns & Miller, 2002). A program evaluation is a systematic method that uses data collection and analysis to examine a program's strengths, needs, and overall functioning with the intention of providing feedback for program improvement (Metz, 2007; Rossi, Lipsey, & Freeman, 2003). Program evaluations often aim to evaluate the effectiveness of the program, assessing whether it is meeting its goals set at initiation (Greene, 1994; Rossi et al. 2003).

Metz (2007) finds that program evaluations can usually be divided into two categories: process evaluations and outcome evaluations. Process evaluations examine whether the program implemented its intervention or model as it originally intended. They also determine if the targeted population received the intended intervention, and it identifies barriers and successes in the implementation process. Outcome evaluations differ in that they assess any changes that occurred as a result of the intervention. They also assess whether the changes were due to the specific intervention

The U.S. Department of Health and Human Services, Center for Disease Control and Prevention (2005) described in the self-study guide for program evaluations a hierarchy for a suggested sequence of evaluating outcomes. Near the bottom of the hierarchy is assessing the participants' reactions to the program by examining their opinions, skills, or ideas about future programming. Based upon participant responses, actions can be taken to expand the program's benefits to promote "long-term health outcomes of the community" (p. 21).

Statement of Problem

The hospital's adult inpatient rehabilitation unit implemented an AAT program in February of 2009 to serve as an adjunct to traditional rehabilitation therapy. The goals of this program are to facilitate AAT, quantifiably measure improved outcomes in achievement of rehabilitation goals and objectives, and increase patient satisfaction. The population served in the rehabilitation unit

includes patients who have experienced stroke, brain injuries, neuromuscular diseases, other physical injuries, and/or recently underwent surgery.

After facing a traumatic brain injury (TBI), spinal cord injury (SCI) or stroke, people experience resulting life changes. TBI, SCI, and stroke can debilitate a person's physical and mental functioning, which may negatively impact emotional, psychological, and social functioning as well. Studies have found up to 30-40% of stroke patients have a comorbid diagnosis of stroke and post-stroke onset of depression (Robinson, 1997; Sims et al., 2009). Depression symptoms can result from adjustment to physical impairments from the stroke and an altered perception of one's quality of life. Depression can negatively interfere with rehabilitation due to a person's low motivation, low energy, and hopelessness. Depression symptoms that occur in an acute phase after stroke were found to be related to depression and mortality after one year (Kouwenhoven, Kirkevold, Engedal, & Hesook, 2011). This finding identifies the importance of recognizing signs of depression directly following a stroke and taking preventative measures through appropriate interventions to reduce depression. AAT program is an example of an intervention that aims to reduce the negative psychological impact on patient's well-being.

Migliorini, Tonge, and Taleporos (2008) examined the prevalence of mental health problems in a population ($N=433$) with spinal cord injuries. The participants filled out a self-report measure for anxiety, depression, and stress.

The results found 37% of participants scored within the clinical range for depression, 30% endorsed clinical anxiety, 25% indicated significant stress levels, and 8% reported suffering from post-traumatic stress disorder. The researchers found that improvement in health and amount of time passed since the injury lessened the probability the person reported psychopathology. The severity of the injury also affected the likelihood of reporting depression, anxiety, and stress. The researchers concluded that the medical field must be mindful of assessing mental health in persons with spinal cord injuries to determine if mental health treatment is necessary.

The use of animals in rehabilitation programs can assist in physical improvement. Patients recovering from stroke can enhance strength and condition muscles through brushing a dog (Stanley-Hermanns & Miller, 2002). Goals worked on in rehabilitation settings include improving strength, motor skills, range of motion, balance, memory, sensory stimulation, and speech (Connor & Miller, 2000; Mullet, 2008; Stanley-Hermanns & Miller, 2002). In a patient with hemiplegia, brushing the dog or throwing a ball for the dog to fetch can build upper body strength. For example, to develop speech in a patient with expressive aphasia, the patient can work on naming body parts of an animal, pronouncing words and commands to the animal, and exercising facial muscles (Stanley-Hermanns & Miller).

Due to the extent of life changes experienced in persons who have suffered a TBI, stroke, or SCI, mental health must be closely observed and interventions must be implemented to prevent and treat long-term effects such as depression, anxiety, and stress. Following an injury, AAT can be a creative intervention used to help prevent and reduce symptoms of depression, anxiety, and stress, which can facilitate the rehabilitation process. This researcher aims to examine the hospital's AAT program impact on mental health and progress in functional therapy goals among patients who are recovering from life-changing health concerns. There is minimal research on the benefits of AAT in the medical field of rehabilitation.

Statement of Purpose

The purpose of this dissertation was to conduct an outcome evaluation to examine the recently implemented AAT program. The AAT process guidelines from the hospital indicate the program was in its fifth step of its developmental process: "measuring program efficacy." This step involved collecting outcomes data via rehabilitation therapists and patient surveys to assess efficacy and identify process improvement opportunities.

To assess the level of patient satisfaction for participants of the AAT program, an AAT Patient Feedback Survey was developed by rehabilitation therapists on staff. This survey was administered by the unit's occupational and recreational therapists following the completion of each AAT session from

February 2009 to March 2010. The surveys were utilized as the first part of the program evaluation.

This dissertation's qualitative analysis and summary aimed to provide a comprehensive examination of the responses provided in the surveys to assess if patients were satisfied with the AAT program. Following the themes generated by the data and summary, a Likert scale was created by this researcher and made available for future AAT program evaluations at the hospital's rehabilitation unit. This survey will assist the hospital in generating quantitative results in future program evaluations.

The second component of the program evaluation aimed to assess the efficacy of the AAT program with patient functional therapy goals including standing tolerance and mobility. This researcher collaboratively developed a measurement tool with the rehabilitation therapists to collect preliminary data regarding the patients' functional goals of ambulation and standing tolerance in AAT sessions versus traditional (non-AAT) sessions. The measurement tool aimed to measure improvement with functional goals (standing tolerance and mobility) in an AAT session compared to a traditional therapy session. The occupational and recreational therapists on the unit gathered preliminary data with the new measurement tool. This researcher then analyzed the data and provided results from the preliminary data. Feedback and suggestions were provided to the staff regarding the development of a research design for future program

evaluations that would incorporate the use of a control group. The measurement tool aimed to enable the staff to document and evaluate the efficacy of the program in future program evaluations.

Significance and Clinical Rationale

Due to many of the challenges in developing research designs to assess the impact of AAT, this dissertation intends to create a systematic, structured design to measure the differences between AAT and traditional therapy in a rehabilitation setting. Additionally, the results from the analysis of the AAT Patient Feedback Surveys intend to shed light on common themes found in patients' responses to AAT. The results will guide the program, as well as other AAT programs, in recognizing and maximizing the beneficial components of AAT. These thematic findings will benefit future clinical research methods on AAT with selecting relevant measurement tools, such as loneliness scales, mood scales, and self-esteem scales. The program evaluation aims to provide other hospitals and AAT programs with assessment tools for patient satisfaction and a comparison tool for progress made in therapy with AAT versus traditional therapy. The findings can be shared with other rehabilitation programs in effort to support AAT as an innovative approach to reducing the risk of mental illness among patients. Finally, this dissertation intends to spark interest and motivate others to consider implementing AAT programs in their occupational settings.

CHAPTER II

REVIEW OF THE LITERATURE

History of Animals as Therapeutic Adjuncts

Although research in the field of psychology on the human-animal interaction is still in its infancy, historical accounts have identified animals as therapeutic tools dating much further back than the past few decades (Burch, 1996; Pichot & Coulter, 2007). In 900 B.C., Homer wrote about the Greek god of healing, Asklepios, who was believed to use sacred dogs that healed people by licking them (Burch, 1996; Serpell, 2010). Since the 9th century, people in Gheel, Belgium have used animals in therapeutic treatment of persons with physical disabilities (Burch, 1996; Morrison, 2007). In the late 18th century, farm animals were used at an English Quaker retreat (the York Retreat) to benefit the mental health of residents (Parshall, 2003). William Tuke, the relative of the founder of the York Retreat wrote in his *Description of the Retreat* (1813, p. 96) that the animals on the land seemed to “awaken the social and benevolent feelings” of the patients (Serpell, 2010).

In 1859, Florence Nightingale recognized the benefits of using animals in nursing through her observation that small pets are “often an excellent companion for the sick, for long chronic cases especially” (Nightingale, 1969). Florence Nightingale suggested that caring for animals seemed to assist in the patients’ recovery.

St. Elizabeth's Hospital in Washington, D.C., began using animals in its mental health program for men in 1919, and continues today (Burch, 1996; Macauley, 2006). In the 1940s, the New York City Air Force Convalescent Hospital used animals therapeutically to increase patients' well-being (Parshall, 2003). Advances in using animals in therapy were most notably made when psychologist Boris Levinson, the founder of "pet-facilitated therapy," stumbled upon the significant benefit of his dog "Jingles" on a disturbed child who refused to talk. He left the child alone with Jingles briefly and upon his return he discovered the child talking with the dog (Banks & Banks, 2002; Burch, 1996; Chandler, 2005; Macauley, 2006; Morrison, 2007; Parshall, 2003; Serpell, 2010; Wilson, 1991).

Boris Levinson was the first mental health professional to formally present the idea of using animals as adjuncts to therapy at an American Psychological Association (APA) conference in the 1960s (Coren, 2010). To his disappointment, his presentation was not well-received by his colleagues. However, soon after Levinson's ill-received presentation, several biographies of Sigmund Freud were released to the public 15 years after Freud's death (Coren). In Freud's letters and journals he described his interactions with dogs in therapy. Freud identified the positive impact of the dog in psychoanalysis, especially during the resistance stage of therapy. He found that the presence of a dog in psychoanalysis had more noticeable benefits for children and adolescents (Coren).

Following Freud's newly released information supporting the use of animals in psychotherapy, the field of psychology expanded its horizons to consider this novel intervention. Coren reported the number of AAT programs has grown from less than 20 in 1980, to more than 1,000 in year 2000. The acceptance of the use of animals as therapeutic tools continues to grow.

The non-profit organization, Delta Society, was founded in 1977 by Leo Bustad, Dr. Michael McCulloch, Dr. Dean Katcher and Terry Ryan (Delta Society, 2009, "History and Founders: Delta Society . . . The Early Years," para. 2- 4). The Delta Society's mission involves the use of therapy animals in facilitating positive human-animal interactions to enhance the overall health and well-being of humans. The Delta Society is now a reputable national organization that offers workshops on AAT, membership benefits, certification programs, volunteer opportunities, research projects, and fundraising.

In 1980, Friedmann, Katcher, Lynch and Thomas were among the first to publish a study that documented the health benefits of pet ownership in a medical journal. Their study found that pet owners had better survival rates one year after discharge from a coronary care unit than non-pet owners. The results of the study kindled interest in the field of research that examines the use of animals in therapeutic, medical, and educational settings. In the past thirty years there has been an increase in the amount of research conducted in this area.

AAT in Hospital Settings

Many hospital programs utilize AAT as part of the rehabilitation process. For example, several highly regarded hospitals in the United States with AAT programs are The National Institutes of Health in Washington, D.C.; Warm Springs Rehabilitation Hospital in San Antonio, Texas; and Summa Health Systems in Akron, Ohio, and Mount Sinai Hospital in New York City (Chandler, 2005). Voelker (1995) examined the benefits of AAT in local Chicago health care facilities, including the Rehabilitation Institute of Chicago, Schwab Rehabilitation Hospital and Care Network, Grant Hospital, and Shriner's Hospital for Crippled Children.

The use of AAT in hospital settings has gained popularity because patients often feel isolated and lonely, and the interaction with a therapy dog can create a warm atmosphere that may be comforting in a sterile hospital environment (Chandler, 2005). The therapy dog can serve as a distraction from the patient's physical pain and discomfort (Chandler). Voelker (1995) found that nearly half of patients in one survey reported that the opportunity to participate in AAT sessions would help influence their decision of hospital choice. Animals can provide a sense of "normalcy" and a feeling of "being at home" to hospitalized patients who suffer from illness and are separated from family (Cangelosi & Embrey, 2006, p. 20). Dogs in a hospital setting provide a change in the normal routine, encourage conversation among patients as a common interest, and

provide something exciting for patients to anticipate during their hospital stay (Cangelosi & Embrey).

Several studies examined the effects of AAT on patients' verbal communication skills and stress levels that occur in hospital settings. Granger and Kogan (2006) found that AAT sessions assisted patients' verbal abilities, memory, motor skills, coping skills, communication, and social interactions. They also observed reduced stress levels that often occur in hospital settings by the animals serving as a distraction for the patients.

Kaminski, Pellino, and Wish (2002) studied the effects of AAT on 70 hospitalized children in a pediatric hospital setting. They examined self-reported mood and mood reports from parent observations of the child, displayed affect, amount of touch, salivary cortisol levels, heart rate, and blood pressure. The researchers compared the pet-therapy programs to the child-life therapy programs. Findings indicated that both groups had children and parent reports of enhanced mood. However, heart rates, parent ratings of the child's mood, display of positive affect, and observed touch occurred significantly more in the pet-therapy group.

Kaminski et al. (2002) expected heart rates in the pet-therapy group to be lower than in the child-life group, but the findings instead showed they were higher. The researchers considered the research design factor in which the heart rates were not taken during the pet-therapy, and speculated that the heart rates

may have been elevated before the therapy due to anticipatory excitement of the dog activity. Also, the measures were not taken immediately prior or after the pet-therapy groups, so the measures may have been influenced by extraneous events occurring in the hospital. Also, in other studies that found lower blood pressure in patients and pet therapy, the participants were exposed to a stressful activity, such as a physical examination (Kaminski et al.). In this study, the children were not being faced with a stressful activity. Future research should examine whether pet-therapy is more likely to lower blood pressure and heart rate during stressful activities opposed to neutral activities.

The research finding by Kaminski et al. (2002) discovered that touch (physical contact) occurred more in the pet-therapy group than in the child-life group, possibly due to social expectations regarding touch. It may be more socially acceptable to pet a dog than it is for children to touch other children and staff in a hospital setting. Hospitalized patients may achieve the human need for touch through pet-therapy, especially when the patients are away from family for long lengths of time and have less opportunity for physical contact. Kaminski et al. concluded that pet therapy provides a source of unconditional companionship, makes hospitalized settings more homelike, and serves as a helpful distraction.

AAT has many benefits for patients in hospital settings including: assistance towards therapy goals, improved mood, decreased blood pressure, and increased physical contact. Research has also shown physiological,

psychological, and social benefits from AAT among medical and non-medical settings.

Physiological Benefits of AAT

Several studies have demonstrated the physiological benefits of AAT, including changes in blood pressure, heart rate, stress hormones, neurological functioning, survival rates post-surgery, immune functioning, and physical improvement in rehabilitation settings. Cole, Gawlinski, Steers, & Kotlerman (2007) examined the effects of a 12-minute therapy dog visit with 76 hospitalized patients with advanced heart failure. A three group randomized repeated-measures experimental design was used, with one group receiving a 12-minute visit from a volunteer with a therapy dog, the second group receiving a 12-minute visit from a volunteer only, and the control group receiving the standard care. The dog/volunteer visit group had significantly greater decreases in blood pressure. In comparison to the volunteer only and control groups, the dog/volunteer group showed the greatest decrease from baseline in state anxiety levels (Cole et al.)

Cole et al. (2007) concluded AAT benefits cardiopulmonary pressures, neurohormone levels, and anxiety in hospitalized patients with heart failure. There were no significant differences found among the groups for heart rate, blood pressure, cardiac index and systemic vascular resistance. Cole et al. postulated two possible reasons for there being no decreases in blood pressure

with AAT: severe pre-existing cardiac dysfunction could dull the changes, and many patients were taking medication that affects blood pressure response. A strength of the study was the thorough approach to data collection and sharp attention to detail to ensure consistency. The consistency among the dog/volunteer visits and data collection helped lessen the influence of extraneous variables on the data. The researchers suggested that based upon the findings, AAT may modulate anxiety-provoking situations related to hospitalization and illness by providing a distraction from present stressors, comfort, and social support (Cole et al.)

Stasi, et al. (2004) measured the impact of AAT with a cat in a nursing home with elderly residents. The research design involved random assignment of participants into a control group and pet-therapy group. The pet-therapy group had three weekly visits for six weeks and the control group received the standard program activities. The participants' blood pressure was measured before the study began and after the six weeks ended. The pet therapy group showed significant improvement ($p < .05$) in systolic and diastolic blood pressure when compared to the control group (Stasi, et al).

Another study reflected improvement in blood pressure following AAT. Luptak and Nuzzo (2004) studied the impact of AAT on blood pressure levels in a sample of 15 elderly women. The women received AAT for ten minutes in a group setting with five others and two small dogs. They also spent three to five

minutes alone with the dogs. Significant improvement was found in the elderly women's systolic blood pressure ten minutes after the AAT intervention (Luptak & Nuzzo).

Charnetski, Riggers, and Brennan (2004) examined the effects of petting a dog on college students' ($N=55$) immune functioning. The three randomized groups in the experiment included a control group with participants who sat quietly, a group that pet a stuffed animal dog, and a group that pet a live dog. The group that pet the real dog showed significantly higher levels of immune functioning (immunoglobulin A [IgA]) post-intervention in comparison to the other two groups (Charnetski et al.). This study suggested that petting dogs may increase the ability for humans to fight off infection.

Anderson, Reid, and Jennings (1992) conducted a study in Australia with a large community sample ($N=5,741$ participants) that showed pet owners had significantly lower blood pressure and lower triglyceride levels than non-pet owners. This finding suggested that owning a dog or other pet may benefit physiological functioning in a community sample.

A study by Wilson (1991) found that college student dog owners reported that after petting their dogs they felt better when feeling physically ill, and they felt more cheerful when sad. The effect of a dog on state and trait anxiety related to school stress was examined in a repeated-measures quantitative study. The three groups included reading quietly, reading aloud, and petting a friendly dog.

Blood pressure levels, heart rate, and mean arterial pressure was measured pre- and post-intervention. Talking to the dog while petting it was not controlled. The results indicated the presence of a friendly dog had a relaxing or anxiety-reducing effect similar to quiet reading. Pet ownership did not affect results. Quiet reading was less anxiety-producing than reading aloud and less stressful than petting a dog. Future studies should eliminate the confound variable of talking and should use participants with hypertension, rather than having average levels of blood pressure and heart rates. The study may serve as a counterargument to those who believe AAT is effective due to its novelty effect, because most of the study's participants were pet owners (Wilson).

Pet ownership may moderate physiological anxiety and stress symptoms as well. Allen et al. (2001) conducted a study that utilized a random selection of stockbrokers who lived alone, had high blood pressure and high work-related stress. One group was assigned to adopt a dog or cat from an animal shelter and take the blood pressure medication, Lisinopril. The control group took the medication alone without adopting and owning a pet. They predicted the pet ownership/medication group to be more resistant to stress than the non-pet ownership group. Results found the medication successfully lowered blood pressure for both groups, but the pet ownership group had less increased blood pressure when under stress than the control group. Allen et al. also found that the participants who reported the least amount of social interaction with others

benefited the most from owning a pet. This study suggested that medication assists in lowering blood pressure, but having a pet can serve as a buffer for increased blood pressure when exposed to stress (Allen et al.). Future studies should examine the differences among animal types for pets and the influence on the owner's stress levels.

Friedmann and Thomas (1995) conducted a longitudinal study with 369 randomly selected individuals who recently underwent acute myocardial infarction, had ventricular arrhythmias, and subsequently had life-threatening irregular heartbeats. The study examined the individual effects of pet ownership, social support, disease severity, and psychosocial factors on one-year survival rates post-myocardial infarction. The study found that the dog owners were significantly less likely to die within a year than non-dog owners. More specifically, dog owners were 8.6 times more likely to be alive in one year versus those who were not dog owners. The study identified pet ownership ($p=.085$) and social support ($p<.068$) as significant predictors of survival, independent of the severity of condition, demographic factors, and other psychological or social factors (Friedmann & Thomas). This study supported previous findings that found people with coronary artery disease may have better survival rates when owning a pet.

Not only are there physiological benefits for humans when interacting with dogs, but research has supported the idea that both the dog and human have

physiological changes when interacting. South African researchers, Odendaal and Meintjes (2003), conducted a study to determine if dogs experienced similar neuro-endocrine responses as humans do when there is a human-companion animal interaction. Their study found that quietly stroking a dog released “feel good” hormones in both the dog and human, including: beta endorphin (runner’s high), oxytocin (happiness), prolactin (nurture), beta-phenethylamine (elation) and dopamine (energized). Results also found lower mean arterial pressure and a decrease in serum cortisol (stress hormone) in the humans after 20 minutes of talking quietly and petting dog. This study demonstrated that the direct interaction between a human and companion animal such as a dog can benefit the physiological health of both the human and the dog, suggesting that the human-animal bond has mutual benefits.

The aforementioned studies support the notion that the use of animals in therapy can physiologically improve health functioning in medical and non-medical samples. AAT can significantly lessen blood pressure, decrease state anxiety, improve immune functioning, and even improve survival rates among persons recovering from heart conditions. Additionally, hormonal changes can occur to help a person feel less stress. Many of the studies examined the effects of AAT on elderly population and in community adult samples. Future studies need to continue examining AAT’s physiological benefits on larger sample sizes, a variety of ages, and cross-culturally.

Psychological Benefits of AAT

In addition to positive effects of AAT on the physical well-being of humans, many studies identified benefits of AAT on psychological and emotional functioning. Research suggests the use of AAT has psychological benefits, including a decrease in anxiety, perception of pain, depression symptoms, and an increase in enhanced mood, self-esteem, and motivation.

Several studies examined the psychological impact of AAT on nursing home residents. Lutwack-Bloom, Wijewickrama, and Smith (2005) studied the effects of pet-facilitated therapy with nursing home residents ($N=68$) from two different facilities. The participants were randomly assigned to a control group and an experimental group. Both groups received 15 to 20 minute visits, three times a week, for six months from volunteers. Due to scheduling and volunteer availability, the dogs that visited the experimental group varied. The researchers evaluated mood shifts with a geriatric depression scale and a mood disorder scale. Although no significant changes occurred in the depression scale after six months, there were significant, positive shifts in mood for the persons receiving pet-facilitated visits. The researchers suggested that AAT may benefit persons with general mood disorders more than persons only presenting with depression, and indicated a need for future studies to more closely examine the impact of AAT on specific disorders (Lutwack-Bloom et al.). Additionally, future research should compare the differences between having a same dog/volunteer visit versus a

variety of dogs visiting, to assess the possible benefit of forming a bond with a particular dog/volunteer team.

A similar study conducted by LeRoux and Kemp (2009) examined the effects of Animal-Assisted Activities (AAA) on depression and anxiety levels with 16 male and female nursing home residents in South Africa. The participants were randomly assigned to a control group and an AAA group. The AAA group received weekly 30 minute visits from the same dog for six weeks. Depression and anxiety scales were administered pre- and post-intervention. Whereas significant differences were found between the two groups regarding depression, no significant differences were found for anxiety. A possible confound in this study is that the control group did not receive any visits from a volunteer, which may have benefited their depression and anxiety levels. However, this study showed benefits in depression levels when the same dog visited each week. Future research should examine the long-term benefits of AAA, as well as the difference between the same versus different dogs visiting. The bond formed between residents and the same therapy dog may be stronger than if the dog changes each visit.

Barker and Dawson (1998) examined the impact of AAT on anxiety levels in hospitalized patients with psychotic disorders, mood disorders, and other psychiatric diagnoses. The sample included 230 patients and compared the effects of a single AAT session versus a regularly scheduled therapeutic

recreation session. The researchers measured the state of anxiety pre- and post-session with a scale that assessed anxiety. Results showed significant decrease in anxiety in both groups for patients with mood disorders. However, the AAT group showed significant decreases in state anxiety levels for patients with mood disorders, psychotic disorders, and others disorders. The decrease in anxiety levels among the psychotic disorder patients in the AAT group was double that of the recreational therapy group.

Barker and Dawson's findings (1998) suggested participation in AAT group sessions may benefit a wider range of psychiatric disorders in comparison to the traditional recreational therapy. One limitation to the study was the sole use of a self-report measure. Future studies should incorporate other measures, such as researcher observations and reports. Also, the scale only measured the immediate effects of the intervention on anxiety levels. Due to the quick discharge of patients, the researchers were unable to measure the impact of multiple AAT sessions on individual patients. Also, the brief intervention does not account for the novelty effect of the intervention. Future studies should examine long-term effects of the AAT on the reduction of anxiety.

Souter and Miller (2007) conducted a meta-analysis of past AAT research studies to examine the effectiveness of AAT in its reduction of depression in humans. After eliminating studies based upon the inclusion criteria (random assignment of participants, assignment of a control group or comparison group,

use of AAA or AAT, inclusion of a self-report measure of depression, information allowing the calculation of effect sizes, and inclusion of a statistical standardization of the strength of treatment effect), five studies qualified for the meta-analysis. The results of the meta-analysis indicated medium size effects that were significant, indicating AAT was associated with decreases in depression. The other research studies on AAT examined by the authors did not meet the qualification criteria, suggesting there is a lack of AAT research that meets minimal research design standards.

Another psychological benefit of AAT includes a perceived or actual decrease in experienced pain, which may be attributed to a distraction from pain in the presence of a therapy animal. Stoffel and Braun (2006) found 39% of hospital patients (adult and children) reported through written testimonials that they experienced a reduction in pain following AAT. Braun, Stangler, Narveson and Pettingell (2009) examined the impact of AAT on the experience of pain among children in an acute care pediatric setting. The study included 57 children ages 3 to 17 and had an AAT group and a non-AAT group. The 18 participants in the AAT group experienced a significant decrease in pain levels in comparison to the non-AAT group. There were no differences found in blood pressure or pulse between the groups. The results suggested that AAT may lessen the experience of pain in children. However, the children in the AAT group may have chosen to participate due to already experiencing less pain or due to enjoying animals. This

may have influenced their ability to benefit from AAT. Future studies should use random assignment and include a larger sample size.

Sobo, Eng, & Kassity-Krich (2006) similarly examined the impact of canine visitation therapy (CVT) on the experience of pain in pediatric patients who had post-operative pain. The sample included 25 children who were administered physical pain and emotional distress scales before and after the CVT, as well as a five-minute interview post-intervention. In the CVT, there were variations in the duration and intensity of the visit as determined by the child's choice, which may have influenced results. Future studies should control for the duration and intensity of the visits. Significant differences, at the $p=.01$ level, in physical and emotional pain were found between pre- and post-assessments, even with the small sample size. Identified themes from the interviews included the dog provided distraction from pain, brought pleasure and happiness, was fun and entertaining, reminded children of home, provided company, was calming, eased pain, and provided enjoyable physical contact for the children.

In addition to assessing changes in mood, anxiety, depression, and perceived pain, some researchers are examining the impact of AAT on other psychological and cognitive factors. For example, Macauley (2006) conducted research on persons who had aphasia resulting from left-hemisphere strokes to examine the effectiveness of speech-language AAT in comparison to traditional

speech-language therapy. There were no significant differences found between the traditional speech-language therapy and the speech-language AAT. However, the participants reported on the client-satisfaction questionnaires that they felt more motivated before and during sessions, they enjoyed the sessions more than the standard sessions, and they felt the sessions were lighter and less stressful than the traditional sessions. Results also indicated that the clients initiated more spontaneous communications during the sessions and they seemed to speak with less effort when talking to the dog.

Macauley (2006) suggested the unconditional acceptance of dogs may have been a catalyst for the in motivating clients' speech. A major limitation of the study was there were only three participants in the study, making the results less generalized. However, since this was the first study to formally examine the effects of speech-language AAT with persons with aphasia, it encouraged future research with AAT and persons with communication difficulties and left-hemisphere strokes. It also demonstrated the need to more closely examine AAT's changes on specific therapy goals in cognitive rehabilitation. Macauley also identified an important psychological factor of motivation related to AAT.

In addressing the psychological factor of motivation with AAT in therapy, Johnson and Meadows (2010) utilized a longitudinal, one-group, pre/post-test quasi-experimental design to measure adherence to a graduated walking program and changes in weight and body mass index (BMI) when a therapy dog/handler

was involved. The participants included 26 adults from two different public housing residential buildings in an urban environment. The participants were divided into two groups, with participants at one facility walking for 50 weeks, and participants at the other facility walking for 26 weeks. They were asked to begin walking 10 minutes three times a week, and this was increased after three weeks to 20-minute walks three times a week.

Results showed a statistically significant decrease in weight and BMI in the 50-week walking program group (Johnson & Meadows, 2010). The participants also described increased motivation to adhere to the walking program because they felt committed to helping the dogs. One participant stated “This dog walk has helped me get up every morning” (p. 397). The limitations to the study included the small sample size, lack of control group, and the extraneous variable of the dog handler’s influence on results. Neighborhood safety must be considered in future replications of the study.

Gayatri Devi, a New York neurologist who works with patients with memory disorders, uses her two dogs in the office (Beck, 2010, December 20). Dr. Devi recognized that the dogs make her elderly patients with dementia feel “comforted and safe” when otherwise feeling anxious about the office visit. The feeling of comfort and safety can be reassuring to patients who are undergoing changes in their lives due to health issues. The experience with the dogs could also serve as a buffer for stress related to going to doctor appointments.

When people are experiencing life changes related to medical issues, they may often feel self-conscious about these changes. When people are in rehabilitation, they may feel uncomfortable or embarrassed about their altered physical functioning or appearance that resulted from illness, surgery or accident. Research suggests that animals demonstrate an unconditional acceptance of persons through nonverbal signals, such as tail wagging, regardless of the person's individual differences or disabilities (Barba, 1995; Macauley, 2006). Granger and Kogan (2006) attributed enhanced self-confidence and self-esteem to animals being nonjudgmental. The unconditional positive regard that dogs provide tends to reduce uncomfortable feelings and makes people feel more relaxed (Granger & Kogan). Boris Levinson argued in his *Pet-oriented Child Psychotherapy* text that animals have the potential to relate well with others due to their capability of providing "non-threatening, non-judgmental and . . . unconditional attention and affection" (as cited in Serpell, 1999, p. 91).

Due to the many positive benefits of AAT on psychological and emotional functioning, there is further support for medical and non-medical settings to incorporate the use of animals. The research found that AAT can benefit mood in persons in long-term care facilities, hospitals, and psychiatric hospitals. Depression and anxiety levels were reduced, especially in populations that suffered more severe psychiatric disorders. Additionally, pain was perceived as significantly less after receiving AAT, especially in a pediatric population. The

role of the unconditional, nonjudgmental demeanor of dogs may serve as a buffer to psychological impact of emotional and physical distress. AAT also may assist in therapy goals by motivating people. The factor of motivation needs to be more closely examined, especially since change in therapy is strongly related to one's motivation.

Social Benefits of AAT

In addition to the physiological and psychological benefits, interaction with animals such as in AAT can contribute to the enrichment of social well-being. Research suggests AAT benefits social interactions, social communication, social validation, staff morale, and it can reduce loneliness among elderly population in long-term care facilities (LTCF) (Allen, Blascovich, Tomaka, & Kelsey, 1991; Banks & Banks, 2002; Beck & Katcher, 1996; Chandler, 2005; Hart, Hart, & Bergin, 1987; Richeson, 2003; Rossetti, DeFabiis, & Belpedio, 2008; Sellers, 2005; Townsend, et al., 2008.)

Hunt, Hart and Gomulkiewicz (1992) referred to animals as “social lubricants” because people are more likely to initiate conversations with strangers in the presence of animals. The animals can serve as a buffer for conversation starters by providing strangers a common, comfortable topic of interest (Hart, 2006). Hart noted the social tendency to engage in more spontaneous story sharing and conversations when a dog is present.

Allen (2003) found that dogs, similar to people, can serve as social buffers to stressful times, which may reduce the negative impact of the stress (p. 236). Allen et al. (1991) examined the impact of the presence of one's dog, a friend, and being alone with the examiner on blood pressure during a challenging mental task. The participants included 45 adult females who were asked to perform a mentally challenging task in a lab with the experimenter, and then two weeks later in the presence of either a female friend, their pet dog, or alone within their home. The results found when the female friend was present, the blood pressure was higher and the performance on the difficult task was lower than in the pet dog or alone conditions. When the pet dog was present, the participants performed the best on the task in comparison to being alone or with a friend. The research findings suggested that having a companion present can moderate stress during a difficult task; however, females may perceive the dog as less judgmental and less threatening than the female friend.

With wagging tails, dogs communicate a sense of non-judgmental unconditional acceptance for humans. These qualities of dogs benefit persons with disabilities or those who have conditions that may make them feel less approachable in social situations. Hart et al. (1987) conducted a comparison study that found when people were in wheelchairs in a mall setting with a dog, strangers were five times more likely to talk to them when the dog was present, and three times more likely to smile at them, in comparison to the control group

of participants in a wheelchair without a dog. Dogs may facilitate social interactions for disabled owners by encouraging strangers to approach them despite their visible disabilities.

Many of the AAT studies occur in the LTCFs with the elderly population, possibly because of the popularity and stronger presence of AAT programs in LTCFs. Many of these studies examined loneliness among residents and initiation and duration of interactions among residents. Bernstein, Friedmann, and Malaspina (2000) compared the effectiveness of AAT versus non-AAT in 33 elderly residents from two long-term care facilities (LTCF). The AAT group had volunteers bring their therapy pets into groups of the residents. The non-AAT group consisted of arts, crafts, and Bingo. They studied social stimulation by measuring the frequency and rates of conversations and touch, and looked at who initiated conversations and touching behaviors.

Results showed AAT participants were more likely to begin and engage in longer conversations (Bernstein, Friedmann, & Malaspina, 2000). The AAT participants engaged in slightly more conversations with others than the non-AAT group. The most profound differences between the two groups was that touching the animals led to significant increases in resident engagement and initiation of touching social behavior. This finding suggested that in the presence of animals, residents are more prone to initiate and engage in touching as an important aspect of social stimulation.

Richeson (2003) conducted a pilot study that measured the effects of AAT on 15 nursing home residents diagnosed with dementia, with a focus on agitation and social interactions. The study measured agitation, mental status, and used an AAT Flow Sheet three times during the study (pre-AAT intervention, post-three-week intervention, and three weeks after the intervention ended.) The AAT flow sheet is an evidence-based tool that assesses social interactions after AAT sessions and has an inter-rater reliability of .98. The residents participated in group therapeutic recreation AAT. Results indicated a statistically significant decrease in agitated behaviors and a statistically significant increase in social interaction from pre to post-intervention. Richeson suggested the increase in social interaction may have been related to the residents feeling they were involved in a meaningful activity. Limitations to the study were a small sample size and lack of random assignment.

Sellers (2005) also studied AAT's influence on agitation and social interactions in LTCF for elderly persons with dementia. Four participants were chosen based upon a diagnosis of dementia or Alzheimer's disease, interest in animals, no allergies to dogs, and similar levels of abilities. Each participant received individual sessions and was videotaped to assess social behaviors that were coded. The researchers examined agitation behaviors and used a social behavior checklist. The AAT sessions were developed and scripted to provide a higher level of control and to facilitate replication of the structure of the sessions.

The results indicated an increase in social behaviors and decrease in agitation behaviors, which supported the research findings by Richeson (2003). Sellers (2005) conjectured the improvements in agitation and social behaviors may contribute to enhanced “emotional well-being” and social interactions for elderly persons with dementia (p. 73).

In a presentation at a conference on Human-Animal Interactions in October 2008, Townsend et al. presented preliminary data from a pilot study involving AAT in a rehabilitation setting. The study examined the effects of AAT on speech pathology and neuropsychology services for 12 young adults with brain injury. The hypothesis was that the AAT would influence patient participation in activities and their social communication in comparison to baseline measures over six weeks. They used a crossover approach where AAT occurred at various stages throughout the six weeks to control for possible spontaneous recovery effects. The preliminary results indicated that AAT facilitated participation in traditional therapy sessions and that social communication improved. Other unexpected findings included improved mood, lower frustration toward therapy staff, a feeling of “normalization” of the environment, and the AAT served as a positive focal point for communication among patients, patients’ visitors, and staff.

In Banks & Banks (2002) quantitative study assessing the effects of AAT on loneliness in an elderly population in LTCFs, 45 residents were randomly

assigned to three groups: no AAT, AAT once a week, and AAT three times a week. The study lasted six weeks, and the pre-post measures included a questionnaire about pets and a measure of loneliness. In the study, the pet facilitator did not interact with the dog or the participants to reduce the possible effect of human-interaction. The dog interactions included holding, stroking, grooming, walking, talking, and playing with the dog.

Results showed that AAT effectively reduced the loneliness of LTCF residents (Banks & Banks, 2002). The volunteers of the study showed a life-history of emotional relationships with pets and wished they currently owned a pet, suggesting they may be more receptive to the benefits of AAT. A covariant analysis and pairwise comparison showed the AAT group to have significantly lower loneliness scores in comparison to the control group. Limitations of the study include a disproportion in gender, with majority being women. An unexpected finding of the study was the spontaneous recollections by residents who began talking to the animals about their past personal experiences with pets.

Banks and Banks conducted a follow-up study (2005) to examine the possible confound of a pet facilitator having a human relational effect on participants' benefits from AAT. The quantitative study randomly assigned 37 LTCF residents into two groups: one that would receive individual AAT and one that would receive group-AAT. They found that AAT was effective in reducing loneliness in LTCFs, but the benefit was from the interaction between animal and

human rather than human-human interactions. In addition, they found the individuals who scored higher in loneliness on the UCLA Loneliness Scale (Version 3) benefited more from the AAT. The individuals who received individual AAT showed a decrease in loneliness in comparison to the group-AAT.

Banks and Banks (2005) identified possible extraneous variables as hearing impairment, incompatibility among group members, and non-familiarity of group members. Differences in age in the group-AAT participants may have led to more incompatibility in social interactions. Additionally, self-fulfilling prophecy among participants could have influenced the results. The participants who volunteered to participate in a study involving AAT may have felt more receptive to its benefits and more inclined to react positively. A larger sample size and a control group may have mediated this confound.

In addition to benefits of patients receiving the AAT sessions, Rossetti, DeFabiis, and Belpedio (2008) examined the impact of AAT on behavioral staff morale, working environment, and staff retention. The researchers conducted a qualitative study with ten behavioral health staff members who were part of the AAT program at a private psychiatric hospital. The study was an exploratory descriptive method of qualitative research who participated in 30 minute interviews. Results found themes of self-awareness, morale, innovative therapeutic strategies, challenges and future directions. The staff discovered they

were able to understand their patients in a more holistic manner and reminded them of the importance of self-care.

Staff morale was enhanced by the mere presence of dogs and reduced the stress in the work atmosphere (Rossetti et al., 2008). The AAT helped emphasize to staff the importance of nonverbal communication between staff and patients. Challenges included an increased amount of time it may take when the therapy dog is there to accomplish work tasks, and fears, allergies, or phobias of dogs that must be carefully considered. Future directions included staff's desire to have more frequent AAT sessions planned and education on how to maximize the benefits of the therapy dogs.

Beck & Katcher (1996) identified an increased optimism among nursing home residents and staff. Many elderly persons placed in a nursing home experience a separation from loved ones, which contributes to loneliness and depression. Beck and Katcher indicated that animals may serve as a substitution for grandchildren or family who are unable or unwilling to visit. The unconditional acceptance and companionship from visiting pets may lessen the impact of the life transition. Beck and Katcher wrote "the animal's lack of sensitivity to the older patients' age, wrinkles, smells, and debilitated condition provides a kind of social validation" (p. 131).

As evidenced by the research on the social impact of AAT, there is improvement in the initiation and maintenance of social interactions such as

communication and appropriate touching. The animals provided a sense of nonjudgmental acceptance and encouraged the initiation and maintenance of social interactions. AAT also benefited levels of agitation among residents in LTCFs and reduced loneliness among residents. Benefits of AAT were also found for LTCF and hospital residents' visitors, families, and staff. The research also identified positive impact on staff members' attitude and morale, which enhanced the work atmosphere. Many of the studies had small sample sizes; therefore, future research needs to include larger sample sizes to strengthen the findings. The social benefits of AAT should be examined in community samples as well.

Limitations to AAT

Although there are numerous physiological, psychological, and social benefits to AAT, as with all therapeutic approaches, there are also limitations. Medical, health, and safety concerns are the most common barriers to the development of AAT programs (Johnson, Odendaal, & Meadows, 2002; Stanley-Hermans & Miller, 2002). Zoonoses or zoonotic infectious diseases, defined as the transmission of disease between humans and animals, is a common concern, especially in medical settings (Chandler, 2005; Granger & Kogan, 2006; Jalongo, Astorino, & Bomboy 2004; Morrison, 2007; Stanley-Hermans & Miller, 2002). Stanley-Hermans and Miller reported finding no documented cases of zoonosis in AAT programs in 2002. Other researchers have indicated that the risk of

zoonoses is overestimated and the chance of transmitting one is rare (Burch, 1996; Granger & Kogan, 2006.) Jalongo et al. (2004) stated “with careful planning, policies, and procedures, sanitation concerns can be controlled” (p.11).

Suggested procedures to prevent the transmission of disease include: covering a person’s open wounds or burns before the visit, bathing the pet within 24 hours prior to the visit; all who interact with the dog must wash hands before and after pet interactions; and the pet must have documentation of current vaccinations and proof of being parasite or disease-free (Parshall, 2003; Stanley-Hermanns & Miller, 2002). Any patients who are immune-deficient or in medical isolation should take extra caution or have no interaction with a therapy animal (Morrison, 2007; Parshall, 2003). Having a dog registered through an organization such as Delta Society or Therapy Dogs International, Inc. can help minimize risks due to the stringent obedience and health standards required for therapy dog certification (Johnson et al., 2002; Parshall, 2003).

Safety considerations must be taken when utilizing AAT. Clients should be pre-screened to determine qualification as good candidates for AAT. Programs should inquire about any known allergies, fears of dogs, past negative experiences with animals, or past aggression toward animals (Chandler, 2005). The most basic measures taken to reduce and prevent risk or injury to the animal and participants include keeping the animal on a leash at all times, and ensuring that animals can only interact with patients when the trained handler is supervising.

For each population and setting, certain precautions must be taken to protect the persons being treated and the therapy animal as well. For example, Morrison (2007) suggested caution must be taken with patients with TBI, developmental disabilities, or dementia due to the possibility they may exhibit unintentional aggression toward the animal. Clearly established procedures and protocol should identify the steps to take if an injury should occur (Chandler, 2005).

As a precautionary manner and for the patient's best interest, patients or their legal guardians should always be able to opt out of the AAT or be in a different area when the animal is present. Measures can be suggested if the patient still wants to interact with the animal. For example, the patient can wear rubber gloves during the interaction or the person can take allergy medication prior to the visit. The bath that is given within 24 hours prior to the visit can reduce the amount of pet dander, to reduce the allergen effect (Jalongo et al., 2004).

Research Limitations and Future Directions

There are common limitations identified in the research designs with AAT. Many sample sizes are small and are convenience samples, which reduces the effect size and generalizability of results (Morrison, 2007; Wilson & Barker, 2003). Also, there is variability with each handler-dog team and the unique individual interaction with each AAT session, which can serve as extraneous,

uncontrollable variables in the research design. For example, the size or breed of the dog may evoke a different response in a participant (Wilson & Barker).

Researcher bias and selection bias may contribute to unintentional influence in design, data collection and interpretation of results (Morrison, 2007; Wilson & Barker, 2003). Allen (2003) considered the likelihood that most researchers in this area of the field are likely “pet enthusiasts” (p. 238). Allen suggested more studies need to examine the possible risks or detrimental effects of AAT on individual’s stress levels. Beck and Katcher (2003) suggested future research study both the health benefits and risks for humans and animals in AAT.

Many people who participate in AAT research have an interest or positive attitude toward animals, or have had previous positive interactions with animals, which may influence their positive response to the intervention. Barba (1995) conducted a literature review on research designs in AAT from 1988 to 1993. Barba found that over half of the studies were published in the same journal (*Anthrozoos*) and that the majority of the studies did not use a control group, manipulation of an independent variable, or random assignment.

The common critique of AAT research is that much of it is anecdotal, descriptive, and does not follow the preferred quantitative or qualitative experimental design with random assignment and a control group, making them non-generalizable (Barba, 1995; Granger & Kogan, 2006; Morrison, 2007; Wilson & Barker, 2003). However, Fine and Beck (2010) cleverly quoted Albert

Einstein: “Not everything that can be counted counts, and not everything that counts can be counted” (p. 12).

Although many of the studies in this literature review include control groups and use random assignment, often the sample sizes are small. As the popularity of AAT continues to grow, more programs will be available in hospitals, mental health clinics, schools, and other settings. With the increased popularity and availability of AAT programs, there are more opportunities for research. Many AAT programs require annual program evaluations to be completed, which provides an opportunity for psychologists and other professions to conduct research. With the improvements that have been made over the past several decades in AAT research design, more quantitative measures that include larger sample sizes, random assignment, and control groups must be used in these program evaluations.

Program Evaluations

Various guidelines are suggested in developing an AAT program. Chandler (2005) suggested the program should create a mission statement that identifies the goals set forth by the program. Also, the program should identify the expected benefits, clarify risk management, prevention policies and procedures, expectations for therapy activities, and location and time frame in which the AAT will occur. The program must determine who will be involved and specify what credentials and training levels are needed by the persons

involved. The policies and procedures should be clear, comprehensive, and include consent information, hygiene and health risk information, procedures for potential injuries for participants and animals, and infection control/management information.

Program evaluations can assist the development of a newly initiated program. Patton (1997) defined program evaluations as “the systematic collection of information about the activities, characteristics, and results of programs to make judgments about the program, improve or further develop program effectiveness, inform decisions about future programming and/or increase understanding” (p. 39, para. 2). Program evaluations clarify and shape a program’s structure, policies, and methods used to achieve the established goals. This systematic process may involve program visits and analysis through qualitative methods in assessing those involved in the program (i.e. clients receiving services, staff, and program administrators) (Greene, 1994). Clearly formulated and documented policies and procedures of a program provide a sturdy foundation to reference when there are questions about the program’s established goals and procedures (Pichot & Coulter, 2007). Also, having the policies and procedures in place adds “credibility and professionalism” to the program, allowing them to defend the integrity of the program if needed (Pichot & Coulter, p. 101).

Metz (2007) identifies five primary reasons for performing program evaluations. The first is to clarify “what works” and “what does not work” (p. 2).

Program evaluations can encourage the development of the program's strengths and improve any weaknesses by asking basic questions about the program's effectiveness in meeting its goals. The second reason identified is the evaluation serves as an opportunity to show the service providers, the community, and funding sources the benefits of the program (p. 2). Third, program evaluations allow administration and managers to assess the efficiency, accuracy, and delivery of services by staff members (p. 2). Following a program evaluation, staff should receive feedback, proper training and consultation to improve and fine-tune their delivery of services. The program evaluation also serves as an opportunity for "critical self-assessment" to determine specific plans for program improvement from a systemic standpoint (p. 3). Finally, results from program evaluations can be generalized to other populations, programs, settings and can benefit service providers in the field (p. 3). Program evaluations allow others to learn how to avoid setbacks or mistakes the program made, while also modeling how to make a program more successful.

An online adaptation from McNamara's work (2006) described the goals of program evaluations and the major types of program evaluations. One major type is the outcome-based evaluation, which was described as focusing on the results or end-product of the program. In an outcome evaluation, outcome data can include the level to which the program achieved its stated goals. For example, it can identify changes (improvement or impairment) in participants'

behaviors, attitude, beliefs, or other functioning (McNamara; U.S. Department of Health and Human Services, Center for Disease Control and Prevention, 2005).

The outcome evaluation examines whether the intended outcomes were attained by the participants, patients, clients, or consumers (McNamara, 2006). This type of program evaluation typically expects results to be shared with the program staff, administration, funders, and program participants. This researcher aimed to seize the opportunity to conduct an AAT program evaluation at a medical center to help facilitate the growth of research in this field.

CHAPTER III

METHODS

Participating Program

The AAT program that was evaluated in this dissertation is located in a private suburban hospital in the Midwest. The hospital's inpatient unit has private rooms available for adult patients over the age of 18 who have experienced stroke, neuromuscular disease such as multiple sclerosis, brain injury, or spinal cord injury. The unit consists of an interdisciplinary rehabilitation team that provides comprehensive services, including medical treatment and therapeutic services specifically designed to improve patients' functioning and health.

Each patient receives a customized treatment plan developed by the team of rehabilitation specialists, in which their goals are identified and targeted with various therapeutic techniques (C. Viscogliosi, personal communication, October 8, 2009). A novel therapeutic technique used is AAT. The hospital has a partnership with a local dog club in which certified therapy dog/handler volunteer teams go to the hospital two days a week to participate in AAT activities with patients. The dog club's participating dog/handler teams are certified through Delta Society/Pet Partners or Therapy Dogs International. Since the implementation of the program, nine different dog/handler teams have participated. Volunteers participate in the program based upon their schedules and availability. The AAT program was initiated in February of 2009 and was in

the stage of development that called for an initial program evaluation. The AAT program has not been evaluated prior to this researcher's program evaluation.

AAT activities are chosen by the therapist to match the goal the patient is focusing on that day (C. Viscogliosi, personal communication, October 8, 2009). The therapists meet with the therapy dog volunteer team prior to the session to learn which specific skills, abilities, and tricks the dog can do to assist in goals. An example of an AAT activity is if a patient is working on building fine motor skills, the therapist can have the patient practice attaching the leash on the dog's collar or brush the dog. If a patient is working on speech skills, he or she could be asked to give the dog a verbal command. Patients who work on standing tolerance and balance are asked to stand while the therapist measures the length of time until the patient sits back down. AAT can include petting the dog while standing, brushing the dog, or talking about the dog or to the dog while standing. Patients working on ambulation and mobility skills walk alongside the dog and its handler.

As a hospital, pre-established policies and procedures are strictly followed. As mandated by the state's Administration Code, hospital programs utilizing AAT must adhere to clearly specified guidelines. The hospital incorporated the Hospital Licensing Requirements, as indicated by the Department of Public Health for hospitals and ambulatory care facilities for AAT. The code provided guidelines for developing written policies and procedures to

ensure the program is being used in the safest manner possible and in accordance with the Guidelines of the Centers for Disease Control and Prevention (General Assembly's Illinois Administrative Code, *Joint Committee on Administrative Rules: Administrative Code*, Section 250.890 Animal-Assisted Therapy).

For example, the code stated “the hospital's Medical Staff and Infection Control Committee shall approve an animal-assisted therapy program prior to operation of the program.” (General Assembly's Illinois Administrative Code, *Joint Committee on Administrative Rules: Administrative Code*, Section 250.890 Animal-Assisted Therapy, part b.) It also mandated that there be written policies and procedures regarding the implementation of the program, such as policies for screening patients, and the specific type of certification that should be required for AAT. The final item (part h.) in the section states “The animal-assisted therapy program shall be evaluated annually in a written report to the Infection Control Committee.”

Inclusion and Exclusion Criteria Participant Selection

The selection process that the medical staff used to determine which patients would participate in an AAT session was clearly outlined in the hospital's policy and procedures for the AAT program. First, patients were considered if they expressed a desire to participate in the AAT program based upon a series of questions asked by the recreation therapist. The responses were documented in the initial recreation therapy evaluation. Second, patients must not have had any

medical contraindications including an allergy to dogs, contact isolation precautions, display of agitation at the time of the scheduled visit, an open wound, a tracheotomy uncovered or capped, or any other conditions that are specified by the physician. Third, a physiatrist must write a standing order in the patient's chart giving approval for the patient to participate in AAT. Fourth, all AAT program sessions had to be prescheduled with a consent form in place.

The consent form indicated the patient's agreement to participate in therapy sessions that included a specifically trained dog along with the dog's trainer and a therapist. The consent form also indicated an understanding of the policies and procedures for AAT. The consent form stated that signing the form did not guarantee participation in AAT sessions and informed that the patient could discontinue participation at any time. The consent form also indicated the results from the surveys may be used for research purposes with the removal of all identifying information.

Another factor determining which patients received AAT was based upon their discharge date, since sessions were only offered on Tuesdays and Fridays. Also, if the number of patients in the unit were low, the patients would have more opportunity to participate in AAT sessions. The dogs/handler teams varied for the participants in the study based upon availability and scheduling.

The patients who were included in the measurement log portion of the study were patients who were scheduled for two sessions on a day when the

therapy dogs were present. Also, the patients had to be working on either standing tolerance and/or mobility (ambulation or wheelchair mobility).

Measures

AAT Patient Feedback Survey. The AAT Patient Feedback Survey was developed by a therapeutic recreation specialist on the unit after the AAT program's implementation in February 2009. The survey included six items (five open-ended questions and one item for additional comments) that assessed the participating patients' opinions regarding their experience with the AAT session (see Appendix A). The first question asked "Did you enjoy the Animal Assisted Therapy program?" The second and third questions subsequently inquired "What did you enjoy the most?" and "What did you least enjoy?" The fourth question asked "Do you feel it was beneficial to you for therapy?" The fifth question asked "Did it assist in your other therapies?" The final item gave the patients the opportunity to share any "Other comments related to animal-assisted therapy."

Traditional Session versus AAT Session Measurement Log. The Traditional Session versus AAT Session Measurement Log was a tool developed during the program evaluation collaboratively by this researcher, and the therapy service manager and therapeutic recreation specialist who both oversee the AAT program on the hospital unit (see Appendix B). The measurement log was designed to document changes in performance in traditional and AAT sessions for functional goals among patients working on standing tolerance and mobility

(either wheelchair mobility or ambulation). This tool required the occupational therapist or physical therapist to document results during the sessions. A section for additional comments or observations was included. A small demographic box allowed the therapist to document gender, racial background, age, and primary and secondary diagnoses. The therapist was asked to circle the goal the patient was working on that session (either “mobility” or “standing tolerance”) and to specify which type of mobility was targeted by circling “wheelchair” or “ambulation.”

Procedure

Institutional Review Board (IRB) process.

This researcher presented a research proposal to the IRB at the hospital for approval to conduct research. The IRB granted approval to utilize the hospital’s data collection for one year (August 2009 to August 2010). The dissertation proposal was then presented to the Adler School of Professional Psychology’s IRB and was granted full approval in April 2010 (See Appendix C). After one year a progress report was sent to the hospital’s IRB for re-approval for the study. This was submitted September of 2010 and received approval for another year.

Data collection.

The therapeutic recreation specialist at the hospital began administering and collecting the AAT Patient Feedback Surveys in February 2009. The surveys were gathered by the recreational and occupational therapists following AAT

sessions from February 2009 to March 2010. The surveys were provided to this researcher in May of 2010, with all patient names removed. The sample of participants is different than the sample that participated in the Traditional Session versus AAT Session Measurement Log.

The Traditional Session versus AAT Session Measurement Log data were collected from August 2010 to January 2011 by occupational therapists, recreational therapists, and physical therapists who work at the hospital's adult inpatient rehabilitation unit. The therapists responsible for recording the data in these sessions were provided instructional training by the therapy service manager and the therapeutic recreation specialist on how to record the data on the measurement log. Due to therapists' schedules, the therapist who recorded the data in the morning was not guaranteed to be the same therapist who recorded the data in the evening.

To measure the distance (feet) traveled for the mobility goals, a map of the hospital floor was created by staff which included markings to show distance traveled (i.e. to the end of the hall was 100 feet.) This map was used by the therapists as a guide for efficient documentation of ambulation. The therapists used stopwatches, wristwatches, or the wall clock to measure the duration of standing tolerance. There was no standard AAT activity assigned for standing tolerance, which may have led to variability in the results. After data were

collected, the measurement logs were given to this researcher with patient names removed.

Demographics

AAT Patient Feedback Survey participants. Forty-three surveys were collected from 42 patients who participated in an AAT session from February 2009 to March 2010. One patient participated in two sessions. Females represented more than half of the participants (57%, $n=24$), whereas 43% ($n=18$) were male, suggesting a good representation of both genders (see Figure 1). Ages varied from 18 to 90 (see Figure 2). The average age was 68.29. More than half of the participants (54.76%, $n=23$) were between the ages of 70 and 90. Four participants were under the age of 50. The age range 50 to 69 included 15 patients (36%). The age range 70-89 included 22 patients (52%). One patient (2%) was in the 90-100 age range. The majority, 88% ($n=37$), of participants was of Caucasian racial background (see Figure 3). The remainder of the participants were Hispanic (7%, $n=3$,) and African American (5%, $n=2$).

The primary diagnoses and reasons for referral to the AAT program varied. Among the patients who participated in the AAT program and subsequently filled out the AAT Patient Feedback Survey, the diagnoses can be divided into four categories: stroke, disease, post-surgery recovery, and injury (see Figure 4). Thirteen participants (31%) of the participants were referred due to a diagnosis of stroke, including CABG, muscle deconditioning due to a

transient ischemic attack (mini stroke), and subdural hematoma due to a stroke. Twelve participants (29%) were referred for post-surgery recovery including heart surgery, hip replacement, back surgery, knee surgery and brain surgery. Twelve of the participants (29%) were referred for diagnoses of involving injuries, such as spinal cord injury, traumatic brain injury, hip fracture and fractured legs. Five participants (12%) were referred for diseases, such as sepsis, Parkinson's disease, exacerbation of multiple sclerosis, and thoracic myelopathy (spinal cord disease). The most common specific diagnosis and reason for referral among participants was a stroke (31%, $n=13$). The second most common diagnosis was hip fracture (19%, $n=8$). The third most common diagnosis among patients was back surgery (14%, $n=6$).

Traditional Session versus AAT Session Measurement Log

participants. The data was collected from August 2010 to January 2011 by occupational therapists, recreational therapists, and physical therapists in the hospital's adult inpatient rehabilitation unit. There were 41 patients who participated in both a morning session (traditional) and an afternoon session (AAT) in the same day. This is a different and separate sample of participants than the AAT Patient Feedback Surveys sample. Of these patients, seven were measured for both goals of standing tolerance and mobility in the same session which resulted in a total of 50 data pairs (21 standing tolerance and 29 mobility). One patient participated in three AAT sessions.

Of these 41 patients who participated in this part of the study, 56.1% ($n=23$) were male and 43.9% ($n=18$) were female (See Figure 5). The ages ranged from 38 to 91 with a mean of 67.1. The most common age range was 50 to 69, which represented 54% of the patients (See Figure 6). The second most common age range was 70 to 89 which represented 34% of the patients. Ten percent of the patients were in the age range 30 to 49. The remaining 2% of patients fell in the age range 90 to 100. The breakdown of racial background of participants was 85.4% Caucasian ($n=35$) and 4.9% African-American ($n=2$), 7.3% Latino ($n=3$), and 2.4% other ($n=1$) (See Figure 7).

The participants' primary diagnoses and reason for referral for therapy can be divided into five categories: post-surgery recovery, stroke, disease, injury, and other (See Figure 8). The most common (34.1%, $n=14$) primary diagnosis was post-surgery recovery and included amputation, hip replacement, back surgery, coronary artery bypass graft, knee replacement, esophagectomy, and lumbar fusion. The second most common primary diagnosis was stroke (29.2%, $n=12$). Diseases including myositis, myopathy, metabolic encephalopathy, neuromyopathy comprised 9.8% ($n=4$) of the patients. Another 12.2% ($n=5$) of the patients' primary diagnosis included injuries, such as hip fracture and traumatic brain injury. The remaining 14.6% ($n=6$) of diagnoses were categorized as other, and included neuromuscular weakness, deconditioning, brain abscess, quadriparesis, and intravesicularfistula with peritonitis. Secondary diagnoses

included disease (metabolic encephalopathy, degenerative disc disease), stroke, hypertension, and respiratory failure. Six participants (14.6%) reported depression as a secondary diagnosis and one patient (2.4%) reported insomnia as a secondary diagnosis.

Data analysis of the AAT Patient Feedback Surveys. This researcher generated a coding system to analyze and quantify themes that occurred in the patient responses to the six questions on the AAT Patient Feedback Survey. The steps taken in the process followed Marshall and Rossman's (2006) approach to analytic procedures: organizing the data, immersion in the data, coding the data, offering interpretations through analytic memos, searching for alternative understandings, and writing a report and presenting the findings. First, the responses were all typed out and read over many times by this researcher. This step in the process can be considered "immersing one's self in the data" an initial step in the analytic process of coding qualitative data as described by Marshall and Rossman (2006). Common themes and ideas were jotted down and similar responses were chunked together in the Microsoft Word document to help identify themes. This researcher identified "salient themes, recurring ideas or language, and patterns of belief" as another step in the process suggested by Marshall and Rossman (p. 158).

Particular phrases, words, or ideas found in each response were underlined to be coded into meaningful units later. Clusters of the units were given theme

names to describe the commonality among the units. These common themes were identified and labeled with a brief phrase or word to describe them. The brief phrase or word to describe the themes comprised the coding categories. This researcher kept in mind that the chosen words to depict themes and categories must aim to be “internally consistent” yet “mutually exclusive” (Marshall & Rossman, 2006, p. 159). This required the researcher to rephrase ideas for categories regarding themes of “touching the dog” versus “interacting with the dog.”

Gorden (1992, p. 188) provided additional guidance with coding in a reliable fashion. He identified the following sequence of steps:

1. Define the coding categories.
2. Assign code labels to the categories.
3. Classify relevant information into the categories.
4. Test the reliability of the coding.
5. Measure the reliability of the coding.
6. Locate the sources of unreliability in the coding.

Once themes were identified for coding categories, and definitions were written to describe the categories (See Appendix D). Then labels were assigned to the categories for coding (See Appendix E). The number before the letter represents the number of the question. The letter represents the corresponding category, as indicated on the coding sheet.

The underlined units of meaning in each response were then assigned a code based upon the category of which the definition fit best. For example, a code was designed to describe the theme of the patient feeling distracted from pain. The category was named “distraction from pain” and was defined as “took mind off of physical and emotional pain related to rehabilitation goals.” Often, it took several revisions to names and definitions for the categories, and several times the categories were combined to include other units of meaning in striving to have mutually exclusive categories, with internal consistency. Since this coding process may be subjected to each individual researcher’s own biases and subjectivity, the dissertation committee members reviewed the coding with the researcher. Separate codes were developed within each question. In the summary of the results, common themes were pulled from all the questions together to form interpretations and future recommendations.

To test the reliability of the coding the “independent coder method” was used, in which two people code the same data separately (Gorden, 1992). The data was coded by this researcher and the dissertation chair to test the inter-rater reliability, and this was calculated by comparing agreements and disagreements. Both sets of coded data were compared and any discrepancies among the codes were discussed. Coded definitions were clarified and revised based upon these discussions. The inter-rater reliability was calculated by dividing the total number of agreed coded items by the total number of coded items. Inter-rater reliability

was strong (.96), suggesting the coding system adequately described and categorized common themes found in the patients' responses. From the coded data, responses were tallied and percentages of occurrence of responses for each coded theme were placed in tables. Items coded for each response were a greater amount than the number of responses due to responses having multiple units of meaning to be coded. In the written summary of the results, this researcher included direct quotes from the surveys at times to best capture the essence of the patients' responses to the AAT.

Data analysis for the measurement logs. Microsoft Excel was used to record the data from the original measurement logs. The two goals, standing tolerance and mobility, were color-coded. Wheelchair mobility versus ambulation was not compared because although therapists were asked to identify by circling which of the two mobility goals was targeted (wheelchair or ambulation), the therapists did not consistently circle a goal. The percentage change was calculated for mobility and standing tolerance. The average percentage change was calculated for both goals separately, and then the total average percentage change was calculated.

CHAPTER IV

RESULTS

Summary of Results from AAT Patient Feedback Surveys

The participants' responses to the first question, that asked if the AAT program was enjoyable, were mostly positive (see Table 1). Of the 43 surveys, 97% of the participants found the program to be enjoyable. Seven participants elaborated by describing the program as very enjoyable. None of the participants found it to not be enjoyable, and only one person described it as "okay."

When asked in the second question what the participants found to be most enjoyable, there was a variation in responses (see Table 2). Only two participants did not respond to the question. A common theme reported as enjoyable was the physical contact, or touch, with the dog. Ten participants (17.9%) most enjoyed petting or touching the dog. Nine participants (16.1%) most enjoyed the dog's demeanor, including the dog's appearance, behavior, temperament and performance of tricks. Several of the participants noted that the dog was "docile" and had a "gentle" temperament, and one stated it was "rewarding to see the dog relax." Nine participants (16.1%) mostly enjoyed how the dog was able to assist with therapy goals. The participants described the dog as helpful with therapy goals involving motor movement, such as walking, brushing, and throwing the ball.

Several participants enjoyed how the AAT served as a reminder of pets at home. Three participants (5.36%) described the AAT as a deterrent from pain and distracted them from their discomfort. Seven participants (12.5%) simply found the interaction with the dog to be the most enjoyable part of the AAT. The interaction included any meaningful exchange, such as feeding the dog. Two others (3.6%) mostly enjoyed being near or close to the dog. Three participants (5.36%) found that their love for dogs and animals was the most enjoyable aspect of their experience. Three participants (5.36%) found that they felt a personal connection, such as a friendship, with the dog, which suggested a felt sense of companionship. Several other responses included the most enjoyable aspects were the animal, the attentive care, and two stated they most enjoyed everything.

In response to the third question, “what was least enjoyable?” seven participants (15.22%) did not respond (see Table 3). Of the participants, 14 (30.43%) least enjoyed nothing, and 12 participants (26.09%) indicated they enjoyed the entire AAT program. Six participants (13.04%) indicated they thought the time limit of the session was least enjoyable. They described “the end of the session” and “the leaving” as the least enjoyable, and several wished they could have done more with the dog or stayed longer with the dog.

Two participants (4.35%) did not enjoy grooming aspects of the AAT, such as “combing the dog’s ears” and the dog’s “excess hair.” Three participants (6.52%) indicated the least enjoyable aspect was the discomfort and pain resulting

from the physical therapy activities. However, one participant stated it was “not the dog’s fault.” One person found that the walking activity was least enjoyable because the dog was not trained for the walker. Overall, the patients mostly reported positive experiences. The least enjoyable aspects involved the short time spent with the animal and ending session, the grooming of the animal, and the difficulty of the physical therapy tasks.

When asked “do you feel it was beneficial to you for therapy?” there were 36 responses (60%) indicating “yes” (see Table 4). Two participants did not respond to this question. One participant was unsure and did not notice if it was beneficial. One participant said it was “not especially” beneficial, but that it was “great for others who miss their pets.” Six patients (10%) found that it was beneficial because it benefited their mood. For example, one participant stated “it perked me up” and another two indicated it “lifted [their] spirits.”

Four participants (6.67%) perceived therapy activities to be easier, quicker, and more manageable. One participant stated “it didn’t feel like therapy” and another indicated it made him feel he could “more easily cope.” Similar to this theme of therapy seeming easier, three participants (5%) found that the AAT served as a distraction because it took their mind off of other things, such as problems or pain. Two participants (3.33%) indicated feeling more empowered or inspired to work toward therapy goals, suggesting increased motivation. Three participants (5%) commented on the benefits of the interaction with the dog,

describing the exchange with the dog as friendly, warm, comforting or enjoyable. Similar to responses in the second question, one participant found the dog to be a comforting reminder of a pet at home.

In response to the question that asked if the AAT assisted in the participants' other therapies, 44% responded it was helpful, and 14% found it not to be helpful (see Table 5). Two participants did not respond to this question, and four were unsure or undecided if it was helpful. Twelve participants (21%) described how AAT assisted their therapy goals, including their physical movement and mental abilities. Specific therapy goals that were assisted by AAT included "walking and standing," "stamina and balance," "reaching" and "arm movements" and one commented "mental capacity" was helped. One participant indicated it was helpful because it was related to an activity that could be done at home ("we have two dogs at home, one needs to be leash walked").

One participant found it to be a "soothing comfort," suggesting it was helpful because it provided a sense of comfort or reassurance. Another participant stated that "dogs and animals always seem to help in your whole outlook," suggesting that the dog enhanced the person's views towards life. Due to the variation in responses and the number of participants that were unsure, did not respond, or were unrelated to the question asked, it is possible that this question was interpreted differently among the participants. Several participants may have interpreted the question as "did the AAT session help you in your other

therapy activities separate from that session.” Other participants may have interpreted the question as “did the AAT help with your therapy goals in that session?” since many described which goals it helped and which activities with the animal helped them.

The last item on the survey gave the participants an opportunity to share any other comments or thoughts related to their experience with the AAT program (see Table 6). Of the 43 surveys, 12 (17%) participants had no comments to share. Fifteen responses (22%) described the AAT program as a positive, fun, enjoyable experience, and considered it a good idea. One person described the program as a “wonderful idea” and another stated “you always have fun with a dog.” Ten responses (14%) commented on the dog’s demeanor, including they enjoyed the dog’s appearance, temperament, behaviors and tricks. Many were pleased with the dog’s responses to commands and ability to perform tricks. Similar to responses in other questions, 7% of responses to this question commented on how the dog was a reminder of a pet at home, and evoked memories, thoughts, and feelings related to pets. Several indicated the AAT helps people who miss their pets.

Three participants’ responses (4%) described feeling a sense of companionship, or a personal connection such as a friendship or love for the dog. Two responses discussed a sense of unconditional affection from the dog, suggesting a feeling of nonjudgmental acceptance. For example, one participant

wrote “if you don’t have any pets, just enjoy the warmth of the unconditional affection of another’s pet.” Two participants (3%) indicated the program encouraged social interaction, serving as a catalyst for social interactions with other humans by leading participants to observe others enjoying the dog, and serving as a conversation starter. One participant enjoyed watching other patients with the dogs and stated “the smiles were contagious.”

Six responses (9%) in the comment section described an experience of enhanced mood, spirits, and overall feelings. This suggests the program can lift moods of patients on the unit. One person commented “I feel happy and enjoyed it.” One participant found the experience to be “great,” yet stated “I felt [the dog] was smarter than I am.” This suggested that there be an awareness of how the AAT is perceived by persons with low self-esteem. Three participants (4%) observed that the program was a pleasant change from the usual therapy because it was attention-grabbing, and an enjoyable change from the typical routine or therapy activities. One participant described the animals as a “nice, bright spot during the day.” Similar to responses to other questions on the survey, two participants elaborated in the comment section on the element of distraction from pain and discomfort, and found the AAT to facilitate goals of the physical therapy. Four responses (6%) specifically suggested that the AAT program be an ongoing component of the rehabilitation unit’s therapy program. The feedback

was all positive in the comment section, and the participants generally enjoyed the program and would like it to be ongoing.

Development of the Likert Scale

As part of the program evaluation process, a Likert scale was developed by this researcher based upon the resulting themes that emerged from the patient satisfaction surveys (See Appendix F). The Likert scale aimed to provide the hospital with a quantitative measure to assess patient attitudes toward the AAT program. The Likert scale can be used in future program evaluations.

In developing the Likert scale, Patten's work (2001) was utilized as a resource to guide the development of the question items. The layout of the survey is a "double column" format because this is considered easier to read and complete. Each of the five points on the scale is clearly labeled: "strongly disagree," "agree," "neutral," "agree," and "strongly agree." Including more than five choices may be overwhelming for patients to choose responses in a short time span and Patten (2001) indicated that five choices are typically sufficient for assessing attitudes. To avoid the "halo effect," which is when survey participants favorably respond to each question (i.e. responding "strongly agree" to all items), Patten (2001) suggested including favorable and non-favorable statements to more accurately assess attitudes. This researcher, therefore, included a negative attitude item: "The dog made therapy seem more difficult." If this item was

endorsed as “strongly agree” along with all the other items, this may suggest the patient was not fully attentive to the survey.

Eleven items were chosen for the Likert survey because too many items may be inefficient for the setting and the population. Patients are often tired after a therapy session. Also, some of the patients are unable to complete the questionnaire independently and require it to be read to them, which can be time consuming for both patients and therapists. For these reasons, the items are brief statements. Patten (2001) suggested including an item that seeks an overarching opinion in the survey. In the Likert scale this researcher included a final item: “Overall, I am satisfied with my therapy session” to assess an overall attitude.

Whereas the AAT Patient Feedback Survey included all open-ended questions, the Likert scale may limit the variety of responses provided. Therefore, an additional section titled “Additional comments/suggestions” was included to allow patients the opportunity to provide additional feedback or to elaborate on the Likert scale responses.

Themes included in the new survey items are related to the results of the qualitative analysis. The themes included overall satisfaction and enjoyment of the session, distraction from pain or discomfort, positive memories recalled, dog assisting in therapy goals, changes in mood, perceived difficulty of session, enjoyment of touching the dog, motivation during session, touch and physical contact, and future recommendations.

One item states “the dog made therapy seem more difficult” to encourage participants to feel less pressure to answer all the questions positively and to voice any negative feedback about the program. The item also provides some internal consistency among questions, to ensure the patients are reading each question rather than answering “strongly agree” for all items. For example, if the participant marked “agree” on the third item stating “the dog assisted me in meeting my therapy goals,” it would be expected that on the seventh item, “the dog made therapy seem more difficult,” would be marked as “disagree.”

An original draft of the Likert scale was provided to the hospital for feedback. No changes were necessary from the original. The Likert scale patient feedback survey was given to the hospital to use for future program evaluations to facilitate assessment and response to feedback and suggestions from the program participants.

Results from the Traditional Session versus AAT Session Measurement Log

Overall, thirty patients (60%) showed an improvement with their goal (See Figure 9). Five measurement logs were not used due to incomplete recording of differences between the two goals from the traditional to AAT session. Five participants (10%) showed a decline in their AAT session in ambulation/standing tolerance goals, and 15 participants (30%) showed no change. The average percentage change was calculated since each patient had his or her own baseline

of distance/time. The overall mean percentage change was 50.5% increase, suggesting overall improvement in patients' goals with the AAT sessions.

Of all the participants who worked on mobility ($n=29$) as their functional goal in the measurement log, 42% showed improvement in distance traveled, 48% showed no change, and 10% showed a decline (See Figure 10). The mobility goal participants showed an average 23% increase in distance (feet) walked (See Figure 11). Of all the participants who worked on standing tolerance as their functional goal ($n=21$), 86% showed improvement in length of time stood, 5% showed no change, and 9% showed a decline (See Figure 12). The standing tolerance participants showed an average 88.4% increase in length of time (minutes) stood during the measured goal in the AAT session (See Figure 13).

It is also important to note that there were three comments from therapists about the quality of the patient's gait being decreased when the dog was present. One therapist suggested that although the patient walked further with the AAT, the patient's quality of gait may have declined due to distraction by the dog's presence. However, the AAT sessions were later in the day and the patients could have felt more physically tired as well.

Another therapist noted one patient felt distracted by the dog and the patient reported she felt as if she needed to pay more attention. One patient who had self-reported depression was observed during the AAT session to be more

alert and smiling when working with the dog. The therapist added that the patient's eyes were usually shut throughout traditional therapy sessions.

CHAPTER V

DISCUSSION

The present dissertation evaluated an AAT program initiated at an adult inpatient hospital rehabilitation unit. The program evaluation involved a qualitative analysis and summary of AAT Patient Feedback Surveys and a Likert scale was developed for future program use to replace the original survey. A measurement log (Traditional Session versus AAT Session Measurement Log) was created during the program evaluation for the rehabilitation team therapists to document differences between traditional recreational therapy sessions to AAT sessions. Results from the data were obtained and percentages of change were calculated. Overall results were provided to the hospital to be shared with the staff, the hospital, and the dog club that volunteers for AAT. Feedback from the results of the study and recommendations for future program evaluations was provided to the hospital.

Summary and Discussion of Results

AAT Patient Feedback Surveys. The overall response from patients who participated in AAT sessions and provided feedback via the AAT Patient Feedback Surveys was positive. The program was found to be not only enjoyable, but also many patients indicated the program assisted them with therapy goals. This finding supports the literature that found animal-assisted interventions assist in physical improvement in rehabilitation therapy goals

(Stanley-Hermanns & Miller, 2002). Macauley's (2006) research similarly found that patients enjoyed AAT sessions more than traditional speech-language therapy sessions, and they felt more motivated before and during the AAT sessions.

The patients' reports of being distracted from their pain and discomfort may have helped them perceive therapy goals as less difficult and painful. The patients' perception that therapy was less difficult corresponds with findings that suggested AAT can distract from pain and stress in therapy (Chandler, 2005; Granger & Kogan, 2006; Stoffel & Braun, 2006). Also, the patients reported that AAT was enjoyable and helpful because it was a change from the usual routine of therapy activities. Cangelosi and Embrey (2006) similarly found that AAT provides a change in the normal routine, which is refreshing for patients. A change in routine can be related to the element of distraction from pain. When patients stand while petting a dog, rather than just standing and talking to the therapist, they are more likely to focus attention on the dog due to its novelty and excitement factor, therefore, distracting them from their physical pain. Several patients described a shift to a more positive mood. When a person is in a better mood, he or she may subsequently feel more motivated to devote more effort toward therapy goals.

It was also surprising that a large amount of patients reported they most enjoyed the dogs' tricks, temperament, and behaviors. The dogs provided entertainment to the participants and to others in the room who observed the AAT

experience. It seems that the patients enjoyed not only the specific therapy activities with the dog, but simply the dog's presence and special trick behaviors. This further suggests that others witnessing the dogs' tricks or presence may benefit in mood. Future studies should examine the therapeutic impact, including progress with goals and mood, for those who observe others participating in AAT sessions. The impact of AAT can extend beyond the patients participating in the sessions, and may benefit patients who are not directly interacting with the dog.

Many patients responded that they enjoyed the presence of the dog.

Friedmann, Katcher, Thomas, Lynch, and Messent (1983) examined the impact of a dog's presence on children's ($N=38$) blood pressure and heart rates while resting with a dog and while reading. The dog was introduced at the start of the experiment, and at the midpoint of the experiment. The blood pressure was lower in the dog's presence, especially when the dog was introduced at the start of the study. The dog's presence may have led the children to perceive the setting as less threatening, and, therefore, less anxiety-provoking. The finding may further suggest that simply the presence of a dog may alleviate stress response in people at the start of anxiety-provoking situations, such as in therapy sessions.

Similarly, Counsell, Abram, and Gilbert (1997) evaluated an AAT program with patients with spinal cord injuries and discovered that patients and their families focused on the dog during visits rather than their stress. Townsend, et al. (2008) similarly observed that the therapy environment can be "normalized"

by the dog's presence by providing a focal point for the patients and their families in therapy, reducing anxiety of the patients and families. The findings suggested that simply the presence of a dog can have a positive impact on patients, their families, and staff, which enhances the overall atmosphere during stressful treatment. Rehabilitation patients can often experience low self-esteem and insecurities about the physical changes they have experienced. The dog's presence may distract the patient from his or her insecurities and anxiety, and allow him or her to focus more on therapy.

Interestingly, the patients found that any physical contact with the dog was most enjoyable, which corresponded with research that identified the importance of touch for humans. Petting a dog provides sensory stimulation needed by patients in rehabilitation from spinal cord injuries (Counsell et al., 1997). Bernstein, Friedmann, and Malaspina (2000) recognized the importance of touch in elderly residents at a LTCF. The researchers found that residents touching the animals facilitated more engagement in appropriate touching social behaviors, which the researchers suggested can contribute to health benefits. Beck and Katcher (1996) believed that touching can lessen stress, especially when the person is softly speaking to the animal at the same time. They suggested that touching an animal allows for a sense of "intimacy, closeness, and completion" and found that animals seem to have a natural ability to bring forth a sense of affection from people (p. 84-85).

Beck and Katcher (1996) described a sense of “intimate dialogue” that occurs when a person touches and talks with an animal (p. 43). This intimate dialogue can occur even it is the person’s first encounter with the animal. Patients in a hospital may feel lonely and be lacking in this intimacy, suggesting that touching an animal can help partially fulfill this need for intimacy. The human need for touch cannot always be met by humans conducting therapy due to social, legal, and ethical expectations (King, 2007). It is much more socially acceptable to cuddle with a dog than a therapist. Since many participants enjoyed petting the dog, this suggests that pet visitation that only involves petting the dogs can be beneficial and enjoyable to hospital patients.

In three of the survey’s questions, there was a theme of patients being reminded of pets at home. This suggests the therapy dogs provide a sense of comfort to patients who perhaps are feeling lonely or homesick. The sense of comfort from interacting with a dog may be related to the sense of companionship that people feel with dogs. Often the presence of dogs evokes memories in people, and patients will often share memories of their dogs. Velde, Cipriani, and Fisher (2005) interviewed occupational therapists on the topic of AAT with elderly people in LTCF. The occupational therapists identified that animals “promote reminiscence and alertness” which can help facilitate the therapeutic progress (Velde et al., 2005). Patients receiving AAT may become more

cognitively stimulated by the presence of a dog, and memories about their own dogs at home can provide comfort.

Several participants mentioned non-enjoyable aspects of the AAT included the perceived short length of the session and having to say goodbye to the dog. Suggestions to address these concerns in future sessions is for the therapist or dog handler to inform the patient of how much time was left to spend with the dog (i.e. reminders at 15 minutes and five minutes time markers) with allowing ample time deemed necessary for a patient to say goodbye to the dog. Chandler (2005) recognizes it is important for the therapist to give time for the patient to say goodbye to the dog. Chandler also suggests the dog handler could give a small keepsake to the patient, such as a card with the dog's picture on it, for the patient to remember the experience. Beck and Katcher (2003) recognized that with the understanding the strength and benefits of forming human-animal bonds, people must also be mindful and prepared to address the difficulties and consequences of the bond being broken.

The other non-enjoyable aspect of AAT mentioned in the survey responses involved grooming the dog. To address the grooming concerns that some patients may have regarding the dog hair or brushing the dog, the patient should be asked if he or she objects to brushing the dog or if he or she is bothered by dog's hair shedding. Also, it is important for the dog handler to follow policies and procedures related to proper grooming of the dog prior to sessions.

Traditional Session versus AAT Session Measurement Log. The results showed that over half (60%) of the patients improved in their rehabilitation therapy goal from the morning traditional session to the afternoon AAT session. This improvement is notable, especially considering patients already had a morning therapy session that could have left them feeling physically or mentally tired in the afternoon session. The results showed more improvement from the traditional morning session to the AAT afternoon session for standing tolerance than in the mobility goal. The large difference between the two goals' average percentage changes suggested that AAT was more beneficial for patients' standing tolerance than mobility progress. There may be several possible explanations for the large difference.

The first possibility is that the standing tolerance therapy goal may be less complex of a rehabilitation goal than mobility for patients since they are not being asked to do multiple movements that could be painful. Therefore, it may have been easier for patients to focus on the AAT in the standing tolerance goal, which may have in turn allowed the patients working on standing tolerance to benefit more from the AAT. Second, as discovered in the AAT Patient Feedback Surveys results, many patients benefited and enjoyed the tricks and the interactions with the dogs the most. In the standing tolerance goal, the dogs can be used in many more interactive manners than in the mobility goal. In the mobility goal, the dog simply walked beside the patient. In standing tolerance, the

patient can brush the dog, talk to the dog, dress the dog in accessories, and watch or command the dog to perform tricks. Also, in standing tolerance the patient is able to directly touch the dog and pet it, whereas in the mobility goal the dog is not directly in contact with the patient. As previously mentioned, the element of touch can serve as extra sensory stimulation and can be comforting, which may have been related to the progress in the standing tolerance goal.

During the mobility goal, several therapists noted that the patients seemed distracted by the dog when walking because they noticed the patient was not using the proper technique when walking. The dog may have hindered the proper technique of walking or interfered with the participants' concentration necessary for the task. Although the dog can serve as a distraction to pain and discomfort, it is possible the dog can also serve as a distraction to concentration needed for some therapy goals. One participant indicated in the AAT Patient Feedback Survey that the walking activity was least enjoyable because "the dog was not trained for the walker." Therapists should consider alternate techniques to maximize the use of AAT in the mobility goal, such as by addressing the element of distraction. For example, rather than walking with the dog, perhaps the patient could walk toward a specified distance where the dog is so the interaction with the dog could serve as motivation to walk further. Since patients enjoy the dogs' trick behaviors, perhaps at every certain amount of feet walked, the handler could command the dog to perform a trick for the patient.

Limitations of the Current Study

There are limitations to this program evaluation's study, including a small sample size, inconsistencies in the interventions, lack of control group, and discrepancies among data collection methods. Also, the sample was not representative of the general population because it consisted of predominantly Caucasian, elderly participants from a suburban area.

The methodology of the use of the measurement logs had discrepancies in the way the measurements were recorded in the logs by the therapists, despite the brief training session by the therapeutic recreation specialist. Some therapists did not specify if the patient's mobility goal was for ambulation or wheelchair mobility. Also, some may have estimated time and distance rather than use a stopwatch and the distance chart. Therefore, the differences between the two types of mobility were not compared. Also, five measurement logs were not used due to incomplete recording of differences between the two goals from the traditional to AAT session. Additionally, there were no specified instructions given to the therapists of the amount of encouragement they were providing the patients, which may have led to variability in patients' performances. Finally, it seemed that some of the data recorded may have been estimates of time stood or of distance walked rather than precise recorded times. For example, many recorded times in the standing tolerance goals often seemed rounded up or down to the nearest minute.

One limitation to the research surrounding AAT in a hospital inpatient unit was the inability to measure the long-term effects. The hospital unit's patients often are discharged within a week to ten days, making it difficult to assess long-term effects. It is also difficult to isolate factors for the changes found in standing tolerance and mobility from the traditional session in the morning to the AAT session in the afternoon. There were many confounding variables that were not controlled for in the study. The patients could have had progress in the afternoon for various reasons other than the AAT, such as natural progress or a positive mood due to a family visit. The patients could have showed no change or decline due to various reasons such as fatigue. The patients may have responded better with different dog/handler teams. Without a control group it is difficult to measure the effects between traditional therapy and AAT.

Another limitation to the study is the variability in the AAT services offered. With the differing dog/handler teams that participated, there were differences in the activities used for standing tolerance, which serves as another uncontrolled variable. However, even with a controlled, consistent activity, there are factors that cannot be controlled such as the patient's individual reaction to each dog and dog handler. It is important to acknowledge that AAT is a form of therapy that will not consistently have an identical presentation each session due to the variation in the unique interactions a person can have with a dog, and due to the fact that dogs cannot be manipulated to perform identically each session.

Directions for Future Research

Future program evaluations should randomly assign patients to a control group (two traditional sessions in one day) to compare the experimental group (traditional session and AAT session in one day) in further assessing the efficacy of the AAT. Percentages of change between the two groups' morning to the afternoon sessions should be compared to assess if there is a significant difference between changes that occur in the AAT group compared to the control group. The study only looked at immediate effects of AAT; therefore, longer term effects should be examined.

Additionally, in future program evaluations, there should be a mandated training offered to all therapists who would be engaged in the data collection process, to eliminate differences in data recording methods. The need for more precise methods of measurement in the Traditional Session versus AAT Session Measurement Log needs to be addressed in future program evaluations. For example, therapists should all utilize a stopwatch for standing tolerance, and tape measure for distance traveled. It should be reiterated that the specific mobility goal must be circled on the data log. Future program evaluations should administer the measurement log and the new Likert scale patient satisfaction survey to examine any patterns that occur between patient satisfaction and progress with therapy goals.

Future research should continue investigating the impact of AAT on specific therapy goals since the results of this program evaluation found that AAT was more helpful with standing tolerance than mobility. Future program evaluations and AAT studies should examine the element of distraction among patients working on rehabilitation goals with AAT. The Likert scale item that inquires about distraction from pain could be compared with the patient's progress in the goal from the measurement log. Also, the benefits of AAT on differing patient diagnoses should be analyzed, because it is possible that patients with specific diagnoses may benefit more than others.

Since the element of touch was identified by patients as being one of the most beneficial aspects of the AAT sessions, the AAT program should be compared to the pet visitation program to determine if simply petting the dog or interacting with the dog outside of therapy is as beneficial.

Conclusion

The patients responded well to the addition of the AAT program at the hospital and expressed wishes that it be continued. Programs such as the one evaluated in this study are paving the way for the creative use of the human-animal bond in medical settings. With continued research in the medical and mental health field, best practices can be developed and utilized most effectively to help facilitate the healing process in humans.

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Appendix A

AAT Patient Feedback Survey

Assisted Therapy Program

Patient Name: _____ Room #: _____

Satisfaction Survey (upon discharge):

1. Did you enjoy the Animal Assisted Therapy program?

2. What did you enjoy the most?

3. What did you least enjoy?

4. Do you feel it was beneficial to you for therapy?

5. Did it assist in your other therapies?

Other Comments relating to Animal Assisted Therapy:

Completed By: _____

Date Completed: _____

Discharge Date: _____

Please do not duplicate ^{what}

Appendix B

Traditional Session versus AAT Session Measurement Log

Traditional Session v AAT Session Measurement Log

Patient Name _____ Room # _____

Discipline _____ Date of AAT _____

(Please choose only one goal)

	Traditional AM <i>Duration</i> _____ <i>Functional Level</i> 7 Independent 6 Mod I 5 SBA 4 CGA/Min 3 Mod 2 Max 1 Total		AAT PM <i>Duration</i> _____ <i>Functional Level</i> 7 Independent 6 Mod I 5 SBA 4 CGA/Min 3 Mod 2 Max 1 Total
Standing Tolerance			

	Traditional AM <i>Distance</i> _____ <i>Functional Level</i> 7 Independent 6 Mod I 5 SBA 4 CGA/Min 3 Mod 2 Max 1 Total		AAT PM <i>Distance</i> _____ <i>Functional Level</i> 7 Independent 6 Mod I 5 SBA 4 CGA/Min 3 Mod 2 Max 1 Total
Mobility			

Circle one: W/C Ambulation (for mobility)

Observation/Comments

Sex M F
 Race _____
 Age _____
 Diagnosis _____
 2nd Diagnosis _____

Appendix C

Institutional Review Board Approval from Adler



April 06, 2010

Kristen Markovich
Adler School of Professional Psychology
65 East Wacker Place, Suite 2100
Chicago, IL 60601-7298

Dear Ms. Markovich,

The Institutional Review Board evaluated your application, entitled, *An Evaluation of an Animal-Assisted Therapy Program in an Adult Inpatient Hospital Rehabilitation Unit* (proposal #10-008). Your application has received **Full Approval**. This means that you may proceed with your plan of research as it is proposed in your application.

Please note that if you wish to make changes to your procedures or materials, you must provide written notification to the IRB in advance of the changes, co-signed by your Dissertation Chair, Dr. Christine Bard. Any potential changes must be approved by the IRB prior to implementation. Good luck as you proceed, and please to not hesitate to contact myself or other IRB committee members should you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Catherine A. McNeilly, Psy.D.".

Catherine McNeilly, Psy.D., CADC
Chair, Institutional Review Board
Core Faculty, Psy.D. Program in Clinical Psychology
Adler School of Professional Psychology

Appendix D

Coding definitions for the AAT Patient Feedback Survey

Question 1:

1A= Yes	Response was “yes”
1B = Yes!	More enthusiastic “yes”
1C= No	Response was “no”
1D= Okay	Response was “okay”

Question 2:

2A= No response	Left blank
2B= Touch	Any physical contact with the dog, such as petting the dog; excludes brushing and other specific therapy-related activities
2C= Closeness	Being near or close to the dog
2D= Dog demeanor	Dog’s tricks, appearance, behavior, and temperament
2E= Reminder of pet	Reminder of patient’s pet at home or from past
2F= Assisted physical therapy (PT) goals	The dog being involved in the specific PT goals for patient (i.e. motor movement including walking, brushing, throwing the ball), which made therapy more enjoyable.
2G= Distraction from pain	Took mind off of physical and emotional pain related to rehabilitation goals
2H=Interaction with dog	Meaningful exchange with the dog; interacting with dog; feeding the dog
2I= Love for dogs	Feelings of love for dogs and/or animals
2J= Companionship	Feeling a personal connection, such as a friendship with the dog
2K= Other	Any response that does not fit into the other categories

Question 3:

3A= No response	Left blank
3B= Nothing	“Nothing”
3C= Enjoyed all	The patient indicated having an overall positive experience

3D= Dog grooming	Grooming activities such as brushing dog's hair
3E= Difficulty of PT task	PT goals resulting in pain or discomfort
3F= Time Limit	The AAT seeming too short of time and ending quickly
3G= Other	Responses that do not fit into other categories or were unrelated to question asked

Question 4:

4A=No response	Left blank
4B=Yes	Responded "yes" to question
4C=Unsure	Not sure or did not notice if it was beneficial to therapy
4D= No	No
4E=Therapy easier	Perceived therapy activities to be easier, quicker, and more manageable
4F=Interaction	Exchange with dog was friendly, warm, comforting and/or enjoyable
4G= Benefited mood	Feeling as if mood, mind and/or spirits were lifted
4H=Distraction	Took mind off of other things, such as problems or pain
4I= Motivation	Felt more empowered or inspired to work toward goals
4J=Reminder of pet	Dog served as comforting reminder of pet at home
4K= Other	Responses that did not fit into other categories

Question 5:

5A= No response	Left blank
5B= Not helpful	Did not find AAT helpful to other therapies
5C= Yes helpful	Yes, it was helpful
5D= Unsure if helpful	Undecided, questioning, or not sure if it assisted other therapies
5E= Comforting	AAT was soothing or reassuring
5F= Assisted with therapy goals	Facilitated goals of physical therapy, including physical movement and mental abilities

5G= Related to home life

5H= Helped outlook

5I = Other

AAT activities were related to activities done at home

Enhanced views of life

Responses that did not fit into other categories or were added comments unrelated to question asked

Question 6:

6A= No response

6B= Dog demeanor

6C= Continue program suggestion

6D= Positive Experience

6E= Companionship

6F= Assisted therapy goals

6G= Reminder of pet

6H= Unconditional affection

6I= Social interaction

6J= Different than usual therapy

6K= Distraction from pain

6L= Lifted mood

6M= Increased motivation

6N= Other

Left blank or wrote "no comment"

Dog's tricks, appearance, behavior, and temperament

Suggested program be continued

AAT program was a positive, fun, enjoyable experience; considered it a good/great idea

Feeling a personal connection, such as a friendship or love for dog

Facilitated goals of physical therapy, including physical movement and mental abilities

Evoked memories/thoughts/feelings related to own pets; helps people miss pets less

Feeling nonjudgmental acceptance through warmth and love from dog

Catalyst for social interactions with other humans; observations of other people; conversation starter with people

A pleasant, more enjoyable, attention-grabbing change from the typical therapy activities or routine

Took mind off pain and/or discomfort

Experienced enhanced mood, spirits, and/or overall feelings

Felt more empowered, inspired, and/or driven to work toward goals

Comments that do not fit into other categories

Appendix E

Coding categories and labels for the AAT Patient Feedback Survey

Question 1:

1A= Yes
1B = Yes!
1B= No
1C= Okay

Question 2:

2A= No response
2B= Touch
2C= Closeness
2D= Dog demeanor
2E= Reminder of pet
2F= Assisted PT goals
2G= Distraction from pain
2H=Interaction with dog
2I= Love for dogs
2J= Companionship
2K= Other

Question 3

3A= No response
3B= Nothing
3C= Enjoyed all
3D= Dog grooming
3E= Difficulty of PT task
3F= Time Limit
3G= Other

Question 4

4A=No response
4B=Yes
4C=Unsure
4D=Therapy easier

4E=Interaction
4F= Benefited mood
4G=Distraction
4H= Motivation
4I=Reminder of pet
4J= Other

Question 5

5A= No response
5B= Not helpful
5C= Yes helpful
5D= Unsure if helpful
5E= Comforting
5F= Assisted with therapy goals
5G= Related to home life
5H= Helped outlook
5I = Other

Question 6

6A= No response
6B= Dog demeanor
6C= Continue program suggestion
6D= Enjoyable
6E= Companionship
6F= Assisted therapy goals
6G= Reminder of pet
6H= Unconditional affection
6I= Social interaction
6J= Different than usual therapy
6K= Distraction from pain
6L= Lifted mood
6M= Increased motivation
6N= Other

Appendix F

Likert scale developed for program

Animal-Assisted Therapy Program Patient Feedback Survey

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I enjoyed my therapy session.	1	2	3	4	5
The dog distracted me from physical discomfort or pain.	1	2	3	4	5
The dog assisted me in meeting my therapy goals.	1	2	3	4	5
I felt more motivated with the dog present.	1	2	3	4	5
The dog provided a sense of comfort.	1	2	3	4	5
I noticed a positive change in my mood in the session.	1	2	3	4	5
The dog made therapy seem more difficult.	1	2	3	4	5
The dog evoked positive memories of pets.	1	2	3	4	5
I enjoyed touching and petting of the dog.	1	2	3	4	5
I would recommend these therapy activities to others.	1	2	3	4	5
I am satisfied overall with my therapy session.	1	2	3	4	5

Comments/Suggestions for Program:

Table 1

Responses to the first AAT Patient Feedback Survey question: Did you enjoy the Animal Assisted Therapy program?

Responses	Number of Responses	Percentage of Responses
Yes	35	97
[Yes!	7	16.3]
No	0	0
Okay	1	2.3

Note. Items coded for each response were a larger amount than the number of patients due to responses having multiple units to be coded.

Table 2

Responses to the second question of the AAT Patient Feedback Survey: What did you enjoy the most?

Responses	Number of Responses	Percentage of Responses
No response	2	3.57
Touch	10	17.9
Closeness	2	3.57
Dog demeanor	9	16.1
Reminder of pet	3	5.36
Assisted PT goals	9	16.07
Distraction from pain	3	5.36
Interaction with dog	7	12.5
Love for dogs	3	5.36
Companionship	3	5.36
Other	5	8.9

Table 3

Responses to the third question on the AAT Patient Feedback Survey: What did you least enjoy?

Responses	Number of Responses	Percentage of Responses
No response	7	15.22
Nothing	14	30.43
Enjoyed all	12	26.09
Dog grooming	2	4.35
Difficulty of PT task	3	6.52
Time limit	6	13.04
Other	2	4.35

Table 4

Responses to fourth question on the AAT Patient Feedback Survey: Do you feel it was beneficial to you for therapy?

Responses	Number of Responses	Percentage of Responses
No response	2	3.33
Yes	36	60
Unsure	1	1.67
No	1	1.67
Therapy easier	4	6.67
Interaction	3	5
Benefited mood	6	10
Distraction	3	5
Motivation	2	3.33
Reminder of pet	1	1.67
Other	1	1.67

Table 5

Responses to fifth question on the AAT Patient Feedback Survey: Did it assist in your other therapies?

Responses	Number of Responses	Percentage of Responses
No response	2	3.51
Not helpful	8	14.03
Yes helpful	25	43.86
Unsure if helpful	4	7.02
Comforting	1	1.75
Assisted with therapy goals	12	21.05
Related to home life	1	1.75
Helped outlook	1	1.75
Other	3	5.26

Table 6

Responses to the sixth question on the AAT Patient Feedback Survey: Other comments related to animal assisted therapy

Responses	Number of Responses	Percentage of Responses
No response	12	17.39
Dog demeanor	10	14.49
Continue program suggestion	4	5.80
Positive experience	15	21.74
Companionship	3	4.35
Assisted therapy goals	1	1.45
Reminder of pet	5	7.25
Unconditional affection	2	2.90
Social interaction	2	2.90
Different than usual therapy	3	4.35
Distraction from pain	1	1.45
Lifted mood	6	8.70
Other	5	7.25

Figure 1

Gender of participants in the AAT Patient Feedback Surveys

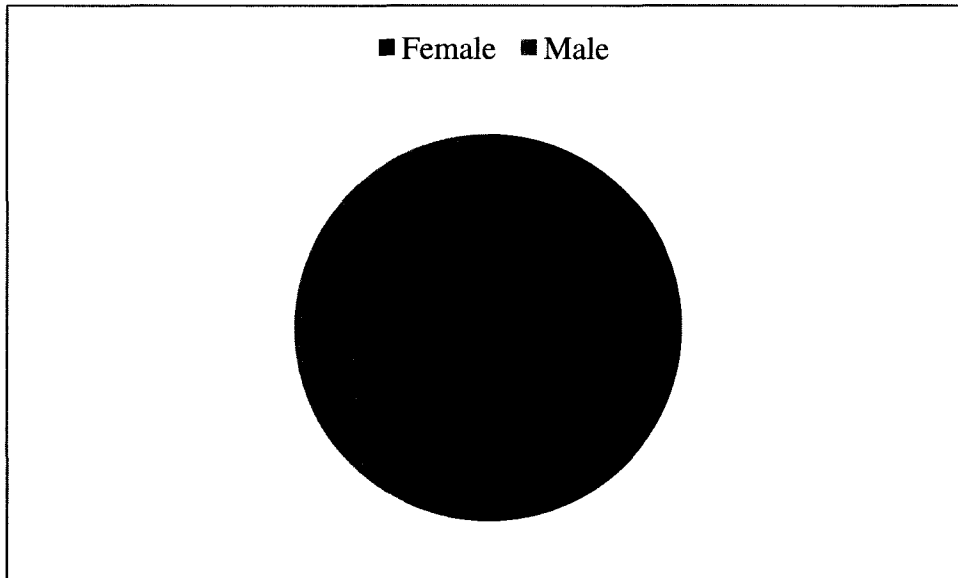


Figure 2

Age ranges (years) of the participants in the AAT Patient Feedback Surveys.

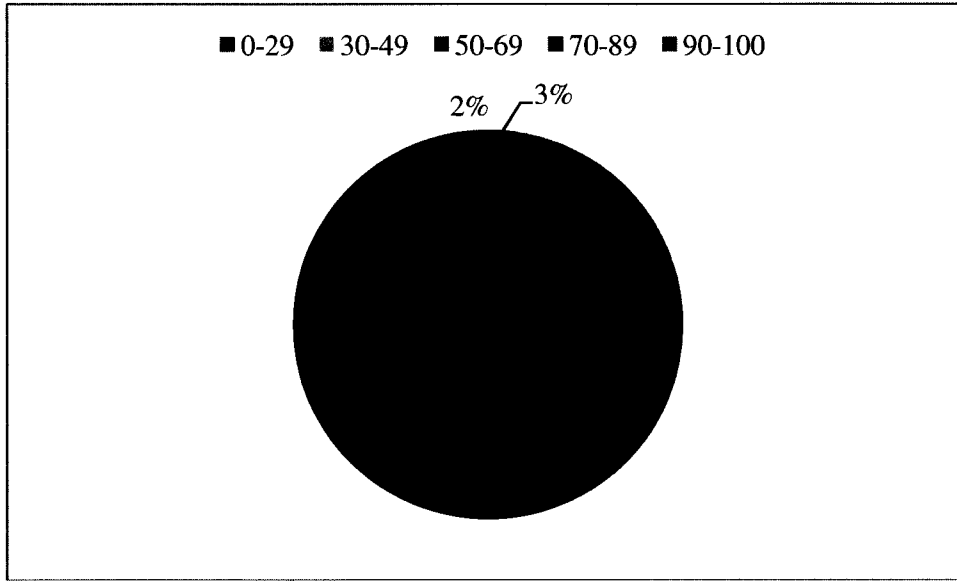


Figure 3

Racial backgrounds of participants in the AAT Patient Feedback Surveys.

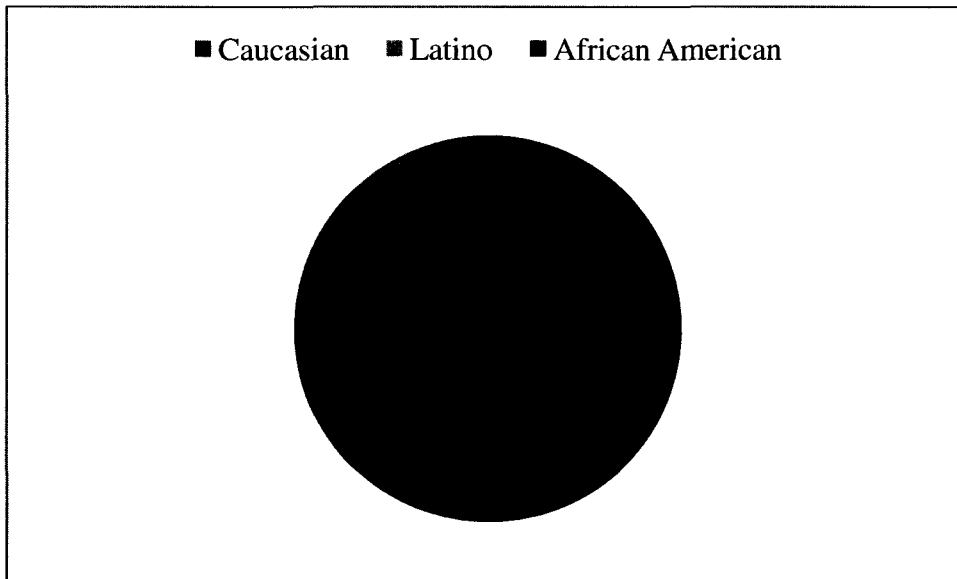


Figure 4

*Primary diagnosis and reason for referral to rehabilitation program in AAT
Patient Feedback Surveys.*

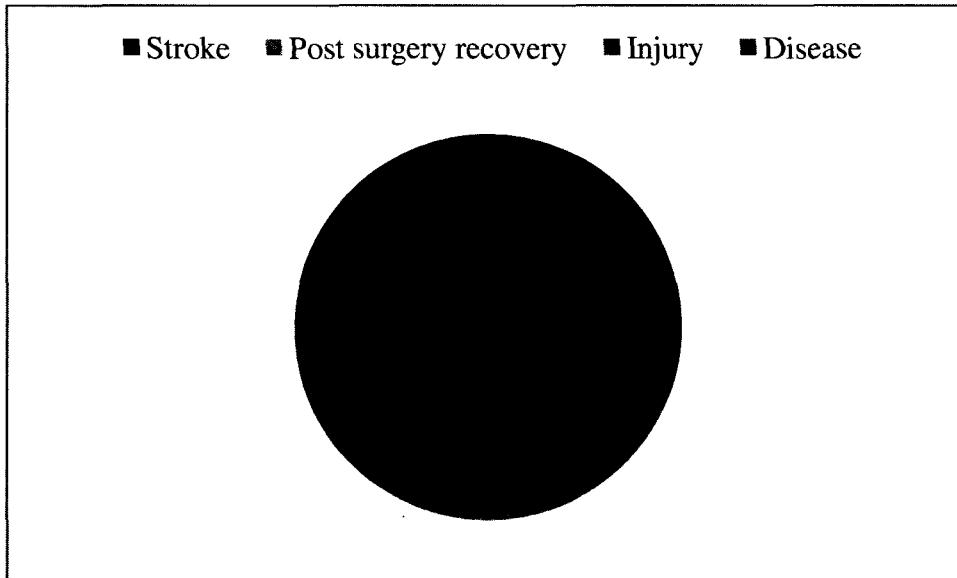


Figure 5

*Gender of the participants from the Traditional Session versus AAT Session
Measurement Logs.*

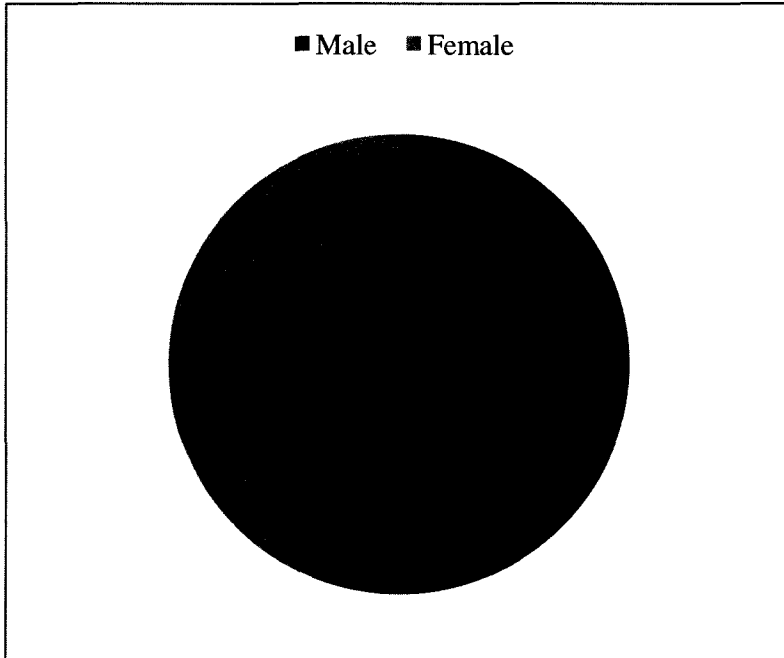


Figure 6

Age ranges (years) of participants from the Traditional Session versus AAT

Session Measurement Logs

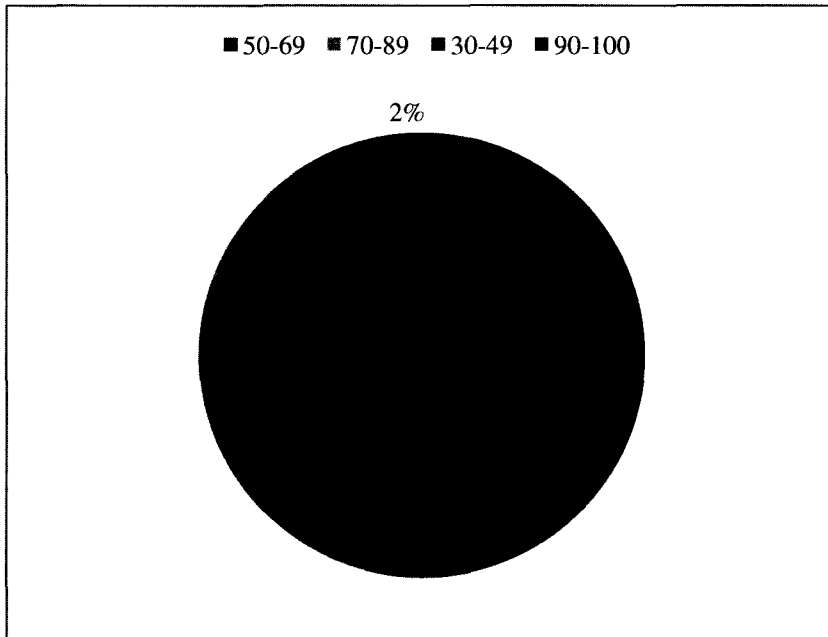


Figure 7

Racial background of participants from the Traditional Session versus AAT

Session Measurement Logs

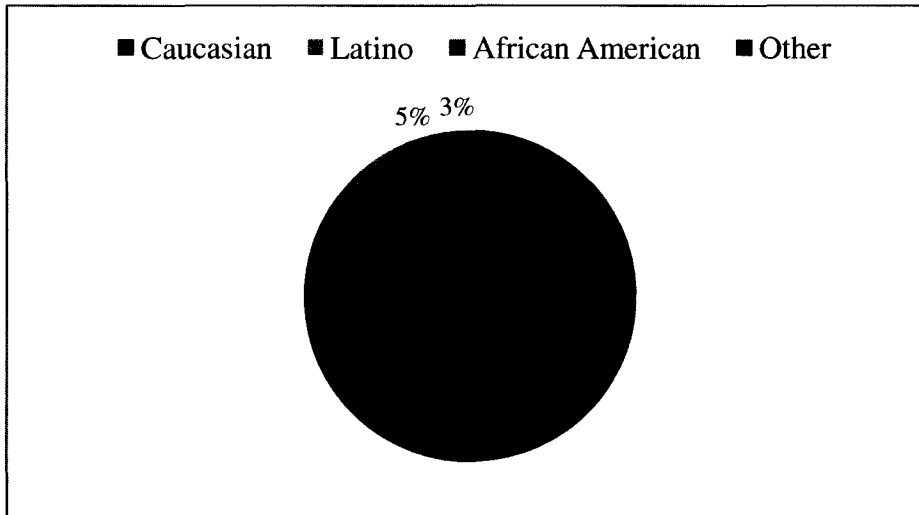


Figure 8

*Primary diagnosis and reason for referral from the Traditional Session versus
AAT Session Measurement Logs*

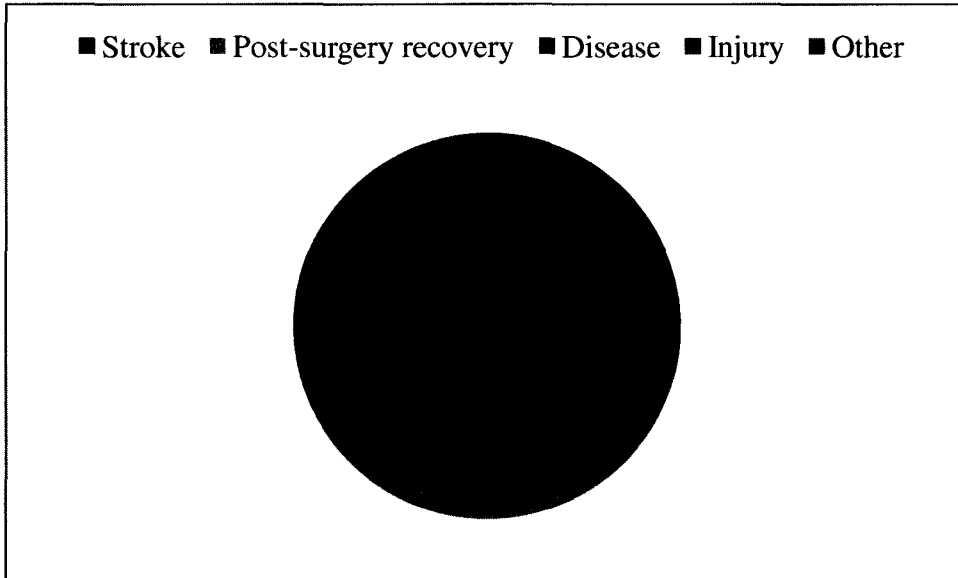


Figure 9

Overall change in goals from the Traditional Session versus AAT Session

Measurement Logs

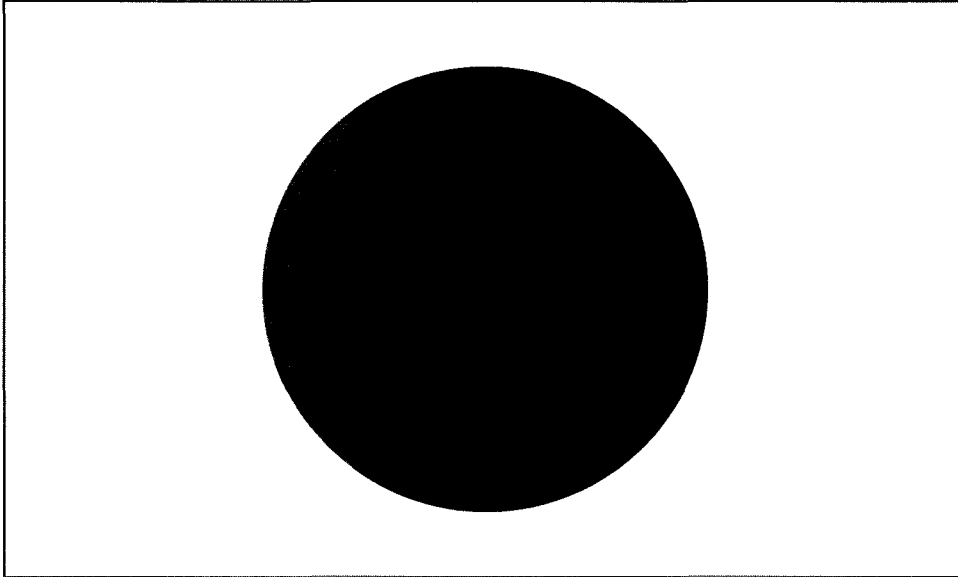


Figure 10

Overall change found in mobility goal from the Traditional Session versus AAT

Session Measurement Logs

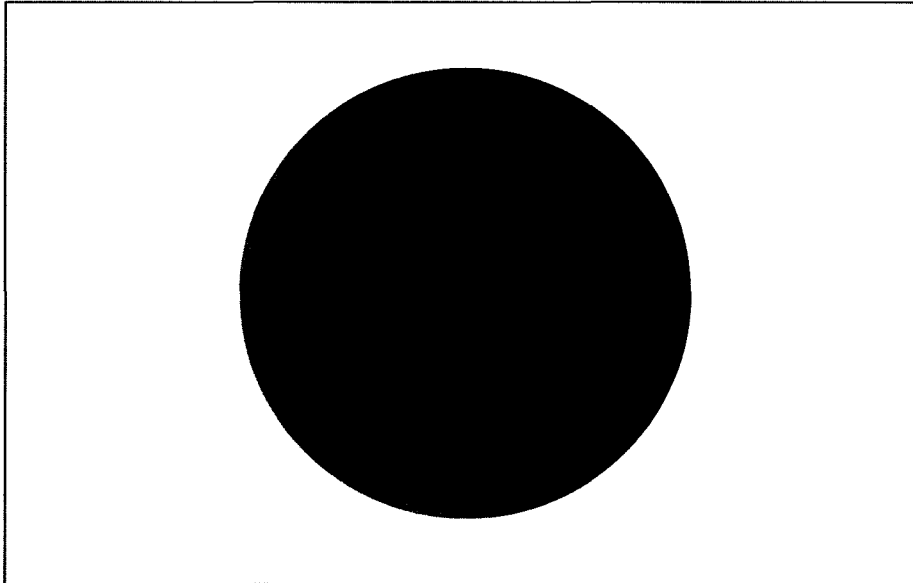


Figure 11

Percentage change in mobility distance (feet) from the Traditional Session versus AAT Session Measurement Logs

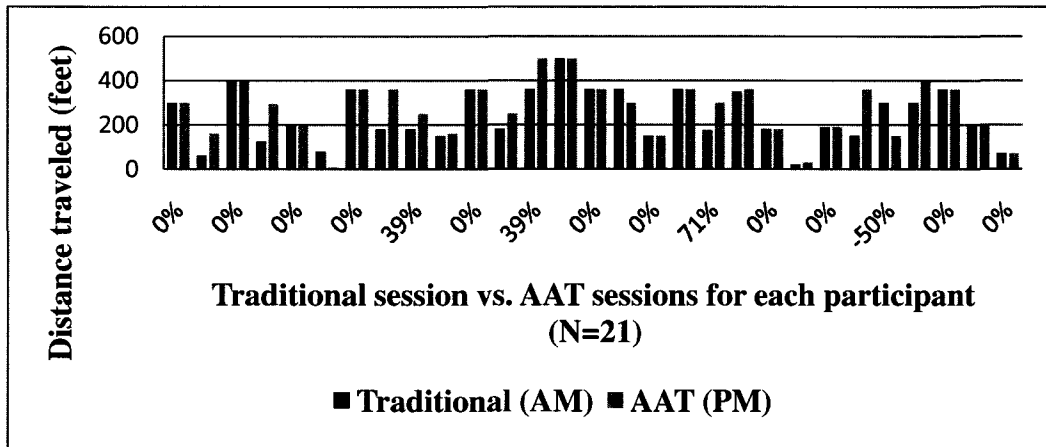


Figure 12

Overall change found in standing tolerance goal from the Traditional Session versus AAT session Measurement Logs.

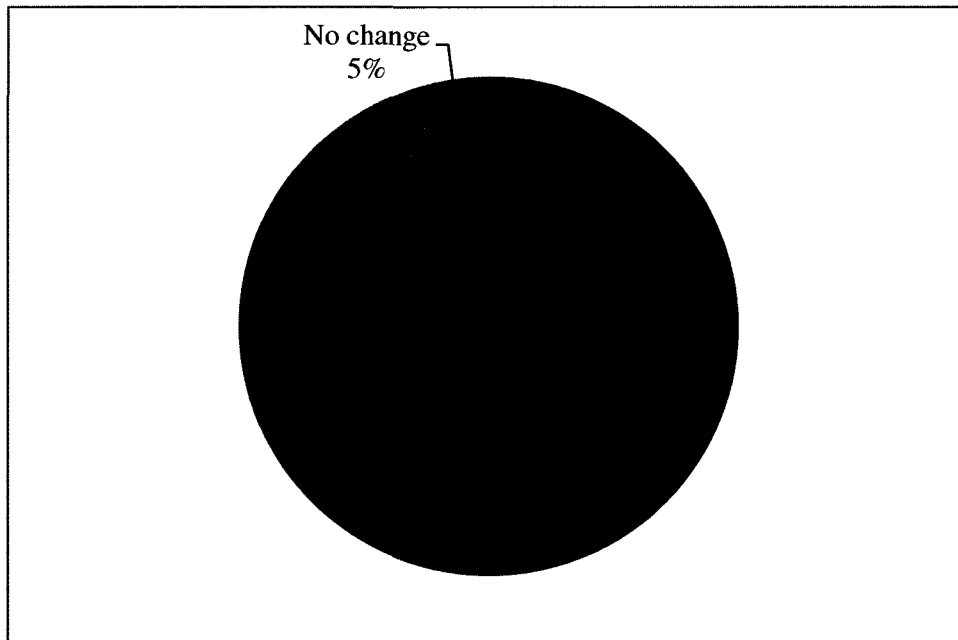


Figure 13

Percentage change in standing tolerance (minutes) from the Traditional Session versus AAT Session Measurement Logs

