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Implementation of an Animal Assisted Activity Program into a Rural Long-Term Care Facility to Increase the Perceived Quality of Life of Residents

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Implementation of an Animal Assisted Activity Program into a Rural Long-Term Care
Facility to Increase the Perceived Quality of Life of Residents

Vonnie Pattison

Submitted as Partial Fulfillment of
The Doctor of Nursing Practice Degree

Regis University

August 20th, 2015

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Abstract

Older people who have moved from familiar home surroundings to institutionalized facilities could find that the institutions will put restrictions on their personal belongings, possessions, loved ones, and pets. Loneliness and depression are common in long-term care facilities (Banks & Banks, 2002). Pets as therapy have been used in many institutions through implementation of animal assisted activity (AAA) programs with older persons to provide motivational, recreational, and therapeutic benefits to decrease loneliness and increase perceived quality of life (LeRoux & Kemp, 2009). Historically, animals and humans have been noted as possessing special bonds. The purpose and overarching goal of this doctoral capstone project was the implementation of an animal assisted activity (AAA) program into a long-term care facility to determine if there was an increased perceived quality of life (QOL) for residents who permanently lived in the facility, were over age 65, did not have dementia, and voluntarily agreed to participate in the project. Theories were chosen and used as underpinnings for the project. Classifications and relationships of variables associated with the project were examined. A systematic review of literature revealed benefits of animals in many healthcare arenas, including nursing homes and long-term care centers. Benefits of the AAA program related to: physical functioning, psychological well-being, social and cognitive functioning, vitality, and overall well-being (Kane & Radosevich, 2011). Specific steps were taken, including approval by Regis University's Institutional Review Board (IRB), to determine that the project met the requirements of an expedited review. Next, consent to participate forms were completed by interested subjects. Those who agreed to participate and signed the consent form were administered a Mini Cog Mental exam (Borson, Scanlan, Chen, & Ganguli, 2003). If the Mini Cog was passed by subjects, a Pet Demographic and Pet History questionnaire was completed by subjects (Banks & Banks, 2002). Next, two measurement tools, which were deemed valid and reliable, were chosen to administer pre and post AAA to subjects to obtain data: the Flanagan Quality of Life Scale, and the UCLA Loneliness Scale (Version 3) (Burckhardt, Anderson, Archenholtz, & Hagg, 2003; Russell, 1996). After three months of AAA, data collection and analysis, this doctoral capstone project validated the findings of earlier work completed in the field.

Key words: Animal assisted activity, pet therapy, long term care, quality of life, and loneliness

Executive Summary

Implementation of an Animal Assisted Activity Program into a Rural Long-Term Care Facility to Increase the Perceived Quality of Life of Residents

Problem

The problem is that many residents in long-term care are lonely and displaced out of their familiar home environments where they may have enjoyed the companionship of a pet. Animals have been shown to increase a sense of well-being, and many health care facilities are seeing a benefit of using animal assisted activities (AAA) with residents. There is limited research in using animals in long-term care facilities. Transition to institutional living can have serious implications. Stress and loneliness caused by separation from familiar home environments, loved ones and pets, and lost opportunities to engage in activities previously enjoyed can lead to a decline in physical and emotional health (Banks & Banks, 2002). A PICO (population, intervention, comparison, and outcome) was formulated. The population for the project included residents over age 65 without dementia living in a rural 60 bed long-term care facility. The intervention was an AAA program. The comparison was there was no AAA program in the facility. The outcome for the project was to see if there was a perceived improvement in the quality of life of residents ascertained by both a quality of life and loneliness measurement tool.

Purpose

The purpose of this project was to determine if an AAA program improved the perceived quality of life of residents in a rural long-term care facility.

Goal

The program goal was to hopefully detect an improvement in the perceived quality of life for vulnerable, underserved, residents over age 65 without dementia who permanently live in a rural long-term care facility by using animal assisted activities.

Objectives

The objectives of the program were to introduce a new animal assisted activity program to the residents, increase the morale of staff and residents, increase socialization, determine if there was a perceived increase in quality of life and personal happiness of residents, all while maintaining a safe environment for the residents.

Plan

A quasi-experimental pre and posttest design was utilized. Residents were assisted in filling out a demographic and pet history questionnaire, and a Mini Cog to determine the risk for dementia. After deeming qualified, participants filled out a quality of life and loneliness scale, engaged in animal assisted activities over a period of 12 weeks, and then filled out the two scales again after the intervention.

Outcomes and Results

The overall quality of life, pre/posttest statistical interpretation of the paired samples *t*-test for the dependent sample, showed residents' had an increased perceived quality of life after the activity ($\mu = -6.91$, $SD = 12.47$, $\alpha = 0.09$, $CI = 95\%$). The overall loneliness scale, pre/posttest statistical interpretation of the paired samples test for the dependent groups, showed residents were less lonely after the AAA ($\mu = 2.818$, $SD = 8.304$, $\alpha = 0.287$, $CI: 95\%$). This project showed, by offering an AAA program into one rural long-term care facility, AAA can contribute to improving the perceived quality of life, and decrease the perceived loneliness of residents there.

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I dedicate the project to my family, those who have passed and those present. I would like to thank my daughter Shielda Grace who has listened to many Power Points, and given creative suggestions, as well as to my daughter Chelsie and her husband Chase for their encouragement, constructive criticism, and help through this journey. Thank you for still calling me mother-in-law after the help with statistics and proof reading many papers Chase! My son Leo and wife Tara, and husband Steve have been helped with understanding and encouragement when needed. I also must mention the two animals involved in the project: Kip and Theodore, without whom this entire project would not have occurred. I am looking forward to rejoining the world with all of you.

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Implementation of an Animal Assisted Activity Program into a Rural Long-Term Care Facility to Increase the Perceived Quality of Life of Residents

Animals are known to make a positive difference to the physiological health of humans. Animals, specifically dogs, can be classified as preventers and predictors of ill-health, and facilitators to recovery (Banks & Banks, 2002). Can an animal assisted activity (AAA) program improve the perceived quality of life for vulnerable, underserved, residents over age 65 without dementia?

Problem Recognition and Definition

Statement of Purpose

This Doctor of Nursing Practice (DNP) capstone project was evidence-based. This project addressed an underserved vulnerable population, and included an intervention that obtained data through pre and posttest evaluation. The results of this project were not meant to generate new knowledge or be generalizable across settings but rather sought to address a specific population, at a specific time, and in a specific agency. The statement of purpose for this project was to determine if an AAA program improved the perceived quality of life of residents in a rural long-term care facility.

Problem Statement and Change Identified

The problem is that many residents in long-term care facilities are lonely and displaced out of their familiar home environments, where they may have enjoyed the companionship of a pet. Animals have been shown to increase a sense of well-being, and many health care facilities are seeing a benefit of using AAA with residents. There is limited research in using AAA in long-term care facilities. Transition to institutional living can have serious implications. Stress and loneliness caused by separation from familiar home environments, loved ones and pets, and lost opportunities to engage in activities previously enjoyed can lead to a decline in physical and emotional health (Behling, Haefner, & Stowe, 2011). The DNP role was showcased for this

project related to clinical scholarship as discussed by Zaccagnini and White, as it focused on inquiry, performed outcome based research, and obtained evidence through data collection (Zaccagnini & White, 2014). The chosen project was integrated as a systematic, purposeful, and conscious endeavor, which emphasized outcomes at the bedside (Zaccagnini & White, 2014). This project described a disparity between what is known and needs to be learned and further studied both explicitly and inferred. The program outcome was the hope for improvement in the perceived quality of life for vulnerable, underserved, residents aged 65 without dementia who permanently live in a rural long-term care facility.

PICO Statement and Question

A properly formulated PICO (population, intervention, comparison, and outcome) question was developed to construct the project (Zaccagnini & White, 2014). The population for this capstone project included residents over age 65 without dementia who live in a rural long-term care, 60 bed facility. The intervention was an AAA program. The comparison for the project was that there was no AAA program in the facility. Lastly, the outcome for the project was to improve the perceived quality of life of residents ascertained by both a quality of life and loneliness measurement tool.

- P: Residents over 65 without dementia living in a rural 60 bed long-term care facility.
- I: Animal Assisted Activity (AAA) Program
- C: No Animal Assisted Activity (AAA) Program
- O: Improved perceived quality of life for residents

The question statement, or purpose statement for the project was: Will an animal assisted activity (AAA) program improve the perceived quality of life of residents over age 65 without dementia living in a rural long-term care facility compared to no AAA program in the facility?

Project Significance, Scope, and Rationale

The significance of the project was to examine if pets could play a role in the psychological health of humans by reducing perceived levels of loneliness, ultimately improving their perceived quality of life (Banks & Banks, 2002). With the older population in the United States statistically projected to increase in the next forty years, many older Americans will be placed in some form of institutionalized long-term care facility (Administration of Aging (AOA), 2010). With those over age 65 roughly projected to double from the year 2010 to the year 2050, from 40.2 million to 88.5 million, this shows not only the significance, but the scope for the project (AOA, 2010). The rationale for the project related to older people who are moved from familiar home surroundings to institutionalized facilities, which has been shown to place restrictions on their personal belongings, possessions, loved ones, and pets. These restrictions can cause loneliness and depression (Banks & Banks, 2002). A second rationale for the AAA project related to providing motivational, recreational, and therapeutic benefits which could also decrease loneliness, depression, and increase the older person's perceived quality of life (LeRoux & Kemp, 2009; Sable, 1995).

Theoretical Foundations

Three theories were chosen as foundational underpinnings for the project: John Bowlby and Mary Ainsworth's Attachment Theory, Katharine Kolcaba's Theory of Comfort, and Jean Watson's Theory of Human Caring. Each theory brought forth differing concepts and assumptions that were used to guide the project. Emotional and physical concepts were addressed by these theories, which supported the project.

John Bowlby and Mary Ainsworth's Attachment Theory was chosen, even though their research focused on children's experiences when ties between their mothers were broken causing

deprivation, and bereavement. The project was guided by the assumption that the same motivational system that gave rise to the close emotional bonds between mothers and their children could be similar to bonds between older adults and animals (Bowlby, 1980; Bretherton, 1992). Specifically, Bowlby's theory was used as an underpinning for the project, as older residents may feel they have lost their social bonds with others. Implementing the AAA program was thought to possibly increase socialization, stifle deprivation and bereavement related to isolation from previous enjoyments related to life activities.

Katharine Kolcaba's Theory of Comfort was chosen as it relates to unhappy, unhealthy, or unwell patients, and the need to make them more comfortable in their institutionalized surroundings (Kolcaba, 2001). Kolcaba's concepts include physical, psycho-spiritual, sociocultural, and environmental aspects, showing that all are utilized together to provide therapeutic care and decrease loneliness for patients (2001). The project encompassed her four concepts, as a dog was brought into a long-term care facility, contact was made with the animal, and socialization did occur between the dog and those involved in the program. Kolcaba's purpose shows the need for nurses to work toward increasing patients comfort holistically, which was a strong underpinning for the project, applicable, and accomplished that goal.

Lastly, Jean Watson's Theory of Human Caring provided a solid fundamental base for the project. Watson's theory focuses on care and love, which are primal and universal to all humans' wellbeing. Her theory puts emphasis on honoring the unity and harmony of the whole person, and creating a healing environment within the mind, body, and soul (Watson, 2009). With those thoughts in mind, the idea of implementing an AAA program for older individuals, where one did not exist before, fit nicely with her assertions. Watson's philosophical, practical, and usable assumptions and concepts supported this doctoral project.

Literature Process Supports Problem

The literature selection process for the project was done to obtain information to support or refute the problem found. The process began by choosing keywords to narrow down research articles, identify conceptual models, obtain measurement tools, and search methods to define study variables. Support was found for the problem, purpose, and outcomes for the project as the majority of research articles were found related to animal assisted therapy (AAT). Banks and Banks' research encouraged others to continue investigating the use of AAA with older institutionalized people as solid data is lacking in this area (Banks & Banks, 2002). The population used for AAA was mainly seen focusing on children, developmentally disabled adults, and patients with dementia, showing another need that supports the problem and the project (Chiti, Rusu, & Szamoskozi, 2012; Fick, 1992; Motomura, Yagi, & Ohyama, 2004).

Scope of Evidence Summarized and Appropriate

The scope of evidence found in the literature review process summarized the problem, the need for the project, and was appropriate. Overall assessment of literature showed that the majority of studies found in the field were seen as emerging in the last 30 years, with continued research needed (Morrison, 2007). The current standing of research in long-term care related to AAA showed growth, but largely at the anecdotal, descriptive, or case report level (Morrison, 2007; Chiti, Rusu, & Szamoskozi, 2012). The review showed the need for a control group to ensure that the change in outcome is valid. Two facilities where the same intervention could be performed would assist to control variables. These two findings were not done in this project related to ethics, distance to another long term care facility, and the size of the primary facility used in the project. A few studies included their ideas on the Hawthorne Effect. This information was appropriate, important for the project, and used by the primary investigator to

implement the AAA one-on-one with subjects (Nimer & Lundahl, 2007; Chitic, et al., 2012). Despite the broadening literature base found in this field, the benefits of AAA are still not well understood because of flawed methodologies, which the scope of evidence was summarized appropriately (Berry, et al., 2012; Moreitti, et al., 2010; Bretherton, 1992). This information strengthened and supported the need for the project.

Review of Evidence

Background of Problem

The reason for doing the project, or problem identified, occurred while visiting a rural long-term care facility. A person brought a dog with her when she came to visit a loved one. The room she entered had residents who lived in the institution visiting with one another or quietly looking out the window. When the girl brought the dog into the room, the majority of those in the room quit what they were doing and focused on the girl and her dog, calling out to them, or moving toward the pair to interact with them. Investigation revealed that this institution did not have any form of animal activity or animal visitation program. The problem was further examined and found that institutionalization can have serious implications for an older individual's well-being related to separation from familiar home environments, loved ones, and pets, which can lead to a decline in physical and emotional health (Dookie, 2013; Halm, 2008). These contributing factors may perpetuate feelings of loneliness, hopelessness, and depression, which can lead to a loss of perceived quality of life and motivation to continue living, all factors which were the impetus for the project.

Systematic Review of Literature (SROL)

Animals have been utilized as therapeutic tools within long-term care facilities as well as broader healthcare spectrums. The systematic review of literature (SROL) for this project was

completed to ascertain supportive documentation for its implementation. Keywords chosen were: animal assisted therapy (AAT), AAA, pet therapy, older people, nursing home, long-term care, quality of life, loneliness, depression, human-animal bond, and pet intervention.

Articles were obtained from the Cumulative Index for Nursing and Allied Health Literature (CINAHL), PubMed, Google Scholar, Cochrane, and Medline (OVID) data bases. Data saturation was obtained at 2,128 articles. To narrow down the number of articles, keywords were narrowed down to: pet therapy, AAA, long term care, quality of life, and loneliness. To further streamline the most relevant articles for the project, Melnyk and Fineout-Overholt's seven tiered levels of evidence categorization model for evaluating research studies was used (Melnyk & Fineout-Overholt, 2011) (see Table 1). For this project, Level I (strongest evidence) to Level IV articles were chosen. Using this model, the numbers of articles were narrowed down to 30. The 30 articles found supported the problem, the project, and were relevant.

Table 1
Melnyk & Fineout-Overholt's Level of Evidence

Seven Levels of Evidence	30 Final Research Articles
Level I: Systematic Review of meta-analysis	Twelve articles were chosen to be used for project.
Level II: Well-designed randomized control study (RCT)	Twelve articles were chosen to be used for project.
Level III: Quasi-experimental studies	Three articles were chosen to be used for project.
Level IV: Case control and cohort studies; retrospective	Three articles were chosen to be used for project.
Level V: Systematic review of descriptive or qualitative studies	No articles were chosen to be used for project.
Level VI: Descriptive or qualitative study; survey	No articles were chosen to be used for project.
Level VII: Expert or regulatory opinions; reports from expert committees	No articles were chosen to be used for project

(Houser & Oman, 2011, p. 141)

Three key articles were chosen that specifically supported the need for the project, as their research was similar to the project completed. The three were: LeRoux and Kemp (2009), Berry et al. (2012), and one of Banks and Banks' research studies (2002). After saturation of research articles was accomplished, emergent themes found that supported the project were: benefits of AAA are not understood (gap), flawed scientific methodologies, most studies were anecdotal, no consensus related to intervention with animals, no agreement on most therapeutic environment, the bulk of articles relate to animal assisted therapy (AAT), similar researchers refining their own earlier studies, and no consensus related to the number of subjects that would provide the most reliable and valid data.

Shared in some of the articles was that the researchers found canines were considered the most common animal used by healthcare providers in AAA, due to availability, trainability, and predictability. One continued problem observed was lack of agreement on standards for administering interactions with animals. Some dogs remained leashed at all times while others were let off the leash to interact with subjects. The size of the animal was mentioned in a few articles, and seen as an issue if subjects were wheelchair bound, used assisted devices, or were intimidated by larger animals. The review showed that the age of the animal played a role, as younger dogs may be more active than older dogs and subjects may shy away from more lively animals, which could skew data. Based on this information, one medium sized eight-year-old short haired Border collie was chosen for the project, with one short haired, four-year-old miniature dachshund as backup. In December 2014, the primary dog was diagnosed with lung cancer and subsequently died. The backup miniature dachshund was then used for the project.

The literature review revealed that the mode of delivery for most similar interventions was delivered individually or in a group. No clear consensus on the most therapeutic

environment was observed and no accepted standard related to duration or frequency of an AAA session was seen. Most sessions lasted ten minutes, from one to three times a week lasting four weeks to three months. With these findings in mind, this project conducted sessions once a week for twelve weeks lasting ten minutes, one session in a group and the remaining eleven sessions one-on-one with subjects related to low numbers attending the first scheduled group session. One dog was used and kept on a leash at all times.

Studies done by Hendy (1987), and Barak, Savorai, Mavashev, and Beni (2001) specified that consent had been given by subjects to participate, but the majority of articles reviewed did not include this data. Ethical approval was not always clear in many articles examined, showing how both the subjects and animals were protected. Both of these areas were addressed in the project. An institutional review board (IRB) approval was obtained for the project, and each subject signed an informed consent to participate in the project. The literature review revealed qualitative studies were found to be elusive in reporting substantial, valid statistical data. Quantitative studies done by; Berry, et al. (2012), Kawamura, Niiyama, and Niiyama (2006), Moreitti et al. (2011), Banks and Banks (2002), and LeRoux and Kemp (2009), obtained data through interviews, questionnaires, and observation, using numerous statistical tests to count and record findings. Varying levels of research studies have been done related to AAA. Berry, et al. (2012) performed an initial pilot study, as did Levinson (1984), and Waltner-Toews (1993). Barak, et al., (2001), and LeRoux and Kemp (2009) performed randomized control studies which attempted to determine the effect of AAA on those living in nursing homes. Related to information obtained from previous researcher's data, this capstone project used a quasi-experimental design with pre and posttest instruments, surveys, and questionnaires.

There was little association found between the AAA and goals in the majority of studies. Outcomes and outcome results related to AAA in the literature review were highly variable, in type, the way that they were measured, and the length of the AAA. Behling et al., (2011) and Waltner-Toews' (1993) research provided information related to either general behavior or behavior that had been measured only before, during, or after the AAA by interviews or questionnaires. LeRoux and Kemps' research confirmed results of other studies that AAA visits can make a difference in the depression levels of residents in long-term care facilities (LeRoux & Kemp, 2009). LeRoux and Kemp (2009) found significant differences between pre and post Beck Depression Inventory (BDI) mean scores ($Z = -2.385$, $P = 0.017$) for the AAA group in their study, with the control group showing no significant differences between their pre and post BDI and BAI mean scores. Despite the broadening literature base, the literature review showed a theme related to a lack of understanding of the therapeutic use of AAA with older institutionalized people, which strongly supported the need for the project (Columbo, et. al, 2005).

Project Plan and Evaluation

Market and Risk Analyses

Long-term care is defined as a comprehensive range of health, personal and social services delivered to meet the needs and increase the quality of life of older adults (Vincent & Velkoff, 2010). An overview completed for the time frame 2011 through 2012 discussed that eight million people in the United States received some form of long-term care, and the number is growing (Harris-Kojetin, Sengupta, Park-Lee & Valverde, 2013). This same time frame revealed long-term care facilities in the United States numbered about 80,000, with combined annual revenue of about \$210 billion (Harris-Kojentin, et al., 2013). Nationally and

internationally, the demand for nursing homes is growing along with the number of vulnerable underserved older people, which supported the relevance of the project (First Research, 2014).

Target market. The target market for the project were people over age 65 without dementia living in a long-term care facility. There are currently 1,252,635 seniors over the age of 65 living in long-term care facilities in the United States (U.S. Census Bureau, 2012b). With the expected, and currently growing number of older adults in the nation, anticipation for long-term care use and services needed for this population has expanded (Cobb, et al., 2003; U.S. Census Bureau, 2012a).

Benefits and risks. Benefits of the project were related to the resident's perspective, as well as outcome measures chosen for the study. Specific benefits to residents included voluntary participation, increased physical, social, and psychological functioning, decreased perceived loneliness, and increased perceived quality of life. Family benefits included seeing increased happiness and improved perceived quality of life in their loved ones. The staff and its executive officers and stakeholders saw the project from many angles including benefits for the residents, and a marketing strategy to bring more residents into the facility related to an AAA program at their facility. Possible risks for implementation of the project could have included an atmosphere of competition rather than social cooperation with subjects, allergic reactions, zoonotic diseases, and safety issues (none occurred in this capstone project).

SWOT Analysis

An analysis of the internal strengths and weaknesses, as well as the external opportunities and threats, or SWOT, was conducted for this project (see Table 2). The primary strength of the facility, where the project occurred, was resident-focused care and supportive staff. The primary internal weakness related to staffing problems with possible continuation of

the project. The primary external opportunity for the organization was potential market growth, and the primary external threat was possible adverse changes in reimbursement and regulations in the long term care industry (K. Svenningson, personal communication, September 9, 2014).

Table 2
SWOT Analysis

<p>Strengths: Internal</p> <ul style="list-style-type: none"> - Evidenced-based intervention - Service delivered in facility - No additional funding required - Residents served in a new way - Successful implementation could improve perceived quality of life for residents - Successful implementation could potentially improve care outcomes - Support from community partners and cohesive project team. 	<p>Weaknesses: Internal</p> <ul style="list-style-type: none"> - Limited time for intervention - New activity/service, not proven - Animal may be uncooperative - Attrition - Continuity of activity after completion - Reliability of data and project predictability - Management may tire of project - Unable to generalize study findings - Existing culture
<p>Opportunities: External</p> <ul style="list-style-type: none"> - Quality improvement development - Industry or life style trends - Innovative and cutting edge - Improved market dimensions: horizontal and vertical - Targeted market-growth expected - Business/product development (lead to animal assisted therapy) - No other facility or competition in area - Research work and information - Market developments 	<p>Threats: External</p> <ul style="list-style-type: none"> - Limited resident participation - Stakeholder buy-in - Lack of administrative support - Environmental effects: Animal may get loose or make a mess - Communication developments - Attrition - New contracts or partners - Changed ideas - Sustaining internal capabilities - Loss of resources (dog, room) - Unseen obstacles or barriers - Seasonal and other influences

Driving, Restraining, and Sustaining Forces: Internal and External

Internal forces. Internal forces included attracting and retaining residents for the study, technology requirements, and the potential to attract staff if needed. Residents were initially attracted to the project through a brochure, and those immediately willing to voluntarily participate in the project encouraged others through the referral process, therefore, convenience

sampling was also done. Information related to retaining residents for the project was completed by researching national and state agencies who participated in similar activities, with little specific information as to how to retain subjects (City Data, 2014). It was found that those residents who participated, were excited about the project, and encouraged others to continue in the study.

Technology will be a force if the facility chooses to continue the activity, as technology will be used to record the activity in resident's electronic records. For this project, no extra personnel were needed to implement the activity. The project required only the primary investigator, the clinical mentor, and the facility's activity director. If the facility chooses to continue the activity, this could potentially include new duties for those who work in the activity department.

External forces. External forces were economic, state and federal regulations, as well as the rural long-term care infrastructure itself. None of these external forces affected the project, but could have implications if the facility chooses to continue the activity in the future. Rural areas are disproportionately affected by changes in Medicare and Medicaid policies, with lower reimbursement rates for Medicare in rural long-term care facilities. Medicaid waiver slots are limited in scope and are targeted to urban areas (American Hospital Association (AHA), 2006). The home and community based long-term care services could have affected the project as this agency attempts to find community-based alternatives to moving older people into long-term care facilities (Centers for Medicare & Medicaid Services, 2014).

Nursing homes must be licensed to operate in the United States. The Licensure Bureau within the Quality Assurance Division is responsible for licensing health care facilities (Cobb, et al., 2003). The Licensure Bureau is responsible for inspecting nursing homes for compliance

with state nursing home regulations every one to three years, which is a driving force at the facility. This bureau may deny, revoke, or suspend health care facility licenses if a facility fails to comply with state regulations (Cobb, et al., 2003).

The Department of Health and Human (DPHHS) works with the Centers for Medicare and Medicaid Services (CMS) to ensure quality, as well as efficient and cost-effective care for older adults. The CMS establishes reimbursement levels as well as the standards of care and works to modernize the health care industry (Cobb, et al., 2003; The Department of Health and Human (DPHHS), 2014). Nursing homes must be licensed by DPHHS to operate in the United States. The facility where the project was implemented was no exception and is required to maintain the same standards.

The Occupational Safety & Health Administration (OSHA) enforces mandatory safety rules for healthcare industries, including inspections without advance notice (Michaels, 2013). If an organization is found to be out of compliance, OSHA takes strong actions, including heavy financial penalties, which could place a burden on the finances of a long-term care facility if they are found to be out of compliance.

The infrastructure in rural long-term care is viewed as inadequate now and will exponentially be worse in the future, causing increases in costs to residents, and closure of facilities (Vincent & Velkoff, 2010). Trends and challenges for rural older people also include barriers such as geographic location and lower literacy levels (Vincent, & Velkoff, 2010). Access and utilization to services in rural areas include fewer types of services, traveling long distances to access services with lack of public transportation systems, red tape involved in applying and receiving services, and a lower level of service awareness among older people and

service providers (Gamm, Hutchison, Dabney, & Dorsey, 2003). This project did not encounter any of the examined and acknowledged driving or restraining forces.

Need, Resources, and Sustainability

The need for the project was evident reviewing the purpose, literature review, as well as the market, risks, and SWOT analysis. Minimal resources were needed including time spent by the principle investigator (PI), project consultant, and activity director, as well as the dog.

Sustainability is foreseeable, as the facility's staff and department heads have voiced their desire for continuation of the activity, as residents enjoyed the AAA, and the activity fit cohesively into their environment. Sustainability of the activity would be a "win-win-win" benefit for the resident, family members, and the facility.

Feasibility, Risk, and Unintended Consequences

The project was found to be feasible related to the PI's volunteering her time with no other people needed to assist to bring the AAA to the facility. The projected long term feasibility of the AAA at the facility is to be discussed after the board of directors and department heads examine the data given them at project end.

Minimal risk was expected with the project, as one animal was taken into the facility to interact with older people. Possible risks could have included an atmosphere of competition rather than social cooperation, participants may have perceived the animal as rejecting them, possible zoonotic disease, and safety (Waltner-Toews, 1993). No animal or person was injured before, during, or after the activity.

Unintended consequences, or variables, were examined at the beginning of the project, and in the middle of the study, to examine anything that could alter, or disrupt the outcome measures. Variables have measurable characteristics that differ among people, and can influence

or be influenced by even more variables including independent, dependent, antecedent, moderator, and extraneous variables (Christenberry, 2011).

Independent and dependent variables. Independent variables were planning, formatting, and implementing the AAA into a long-term care facility that did not have one. The dependent variable was determining if implementation of an AAA could improve the perceived quality of life of residents ascertained by pre and post measurement tools. Those residents without dementia over the age of 65 were targeted.

Antecedent variables. Hendy (1987) found that examining antecedent variables could prepare those involved in a study to have forethought of variations that could occur and affect the project: previous years of pet ownership, or no pet ownership, present animal interest, previous interactions with animals or no interaction with animals, and needs and resources of the facility. These questions were asked before the start of the intervention in the demographic and pet history questionnaire.

Moderator variables. Moderator variables and their implications were examined including: patient's age, culture, beliefs, or being handicapped in any way (Christenberry, 2011). Moderators related to the animals included: number and type of pet, documentation of current immunizations, proof of being disease free, and the animal had to have a good temperament. All animal moderator variables were examined and assessed before the animal was used in the AAA.

Extraneous variables. Extraneous variables were also examined at the start of the project and included antecedent and moderator variables. Extraneous variables were determined as: safety issues, unknown allergy or sensitivity to animals, years of prior or no pet ownership, the resident focusing on the person not the animal for enhanced positive feelings, and staff duties

possibly involved with the AAA including cleaning up messes made by the animal (Hendy, 1987, Moreitti et. al., 2011) (see Table 3).

Table 3
Study Variables and Types

Study Variables	Type of Variable
Proposed Intervention: Implementing an animal assisted activity program into a long-term care facility that does not have one.	Independent: Concept manipulated.
Improved perceived quality of life for residents.	Dependent: What is to be measured and is affected by the independent variable.
Previous years of prior pet ownership, no pet ownership, present animal interest, previous interactions with animals, no interaction with animals, allergies to animals, and needs and resources of the facility.	Antecedent: Occur before the independent and dependent variables, and influences the dependent variable.
Subject's age, culture and beliefs, being handicapped in any way, overall well-being and self-care abilities, allergies, needs and resources of the facility.	Moderator: Occur from different sources, are predicted to happen, and can either decrease or increase the independent variable's desired outcome.
Antecedent and moderator variables, anxiety, safety issues, unknown allergy or sensitivity to animals, years of prior pet ownership, or no pet ownership, resident focusing on handler of animal not the animal for perceived enhanced positive feelings, and unforeseen staff duties involved with caring for pets and residents.	Extraneous: extraneous variables are ones that may be confounding, unwanted, or a surprise.

Stakeholders and Project Team Members

Stakeholders of this capstone project included: management at the facility, the board of directors at the facility, department heads, staff, residents, the family of residents, and community partners. The project team of this capstone project included the DNP student (PI), capstone chair, faculty advisor, clinical mentor, project consultant, facility activity director, veterinarian, and statistician. All team members worked cohesively throughout the project.

Cost-Benefit Analysis

The cost-benefit analysis was difficult to measure in a monetary way, as quality of life is esoteric. Benefits outweighed the costs to participants, as their cost was time, and their benefits included perceived increased quality of life and perceived decreased loneliness. To decide on a possible pricing structure for the project, if one were to replicate this study in the future, research was done related to external competition in a similar arena, the type of value being provided, and what their prices were (Johnson, 2010). Minimal data was obtained related to the rural geographical area of the facility, as there were no other AAA programs in any long-term care facility within a 282 mile radius. Based on this fact, the only competition for the facility where the project took place was the facility itself. An estimated cost analysis and budget for the capstone project was calculated (see Appendix A).

Vision and Mission Statements

The vision statement for this capstone project was determined to be: Within five years, a long-term care facility, which integrates an AAA program into the living environment of their residents, will show a perceived improvement in resident's quality of life, and the facility will be a leading entity and philanthropic leader that sustains excellence, innovation, and safety. The mission for this capstone project was to improve the perceived quality of life of older people through safe partnership with companion animals. Both the vision and mission for the project were sustained by sharing them with the long-term care facility where the intervention occurred in, as well as all those involved in the project.

Process Outcomes, Objectives, Benchmarks, and Goals

The project goal was to hopefully detect an improvement in the perceived quality of life for vulnerable, underserved, residents without dementia over age 65 who permanently live in a rural long-term care facility by using animal assisted activities. For this project, websites for benchmark healthcare outcome information were researched. No benchmark research findings were found to compare. Finding no benchmarks, generic outcome measures were chosen as they reflected the importance of overall health, and health related functioning in the daily lives of individuals (Kane & Radosevich, 2011). The study objectives, measures, and goals chosen were understood by nonprofessionals, and did hold relevance to residents in the study. The outcomes and goals included health domains, clinical relevance, sensitivity, responsiveness, and validity (Kane & Radosevich, 2011).

Outcome measures for the study included six of the seven generic domains of health including physical functioning, psychological well-being, social functioning, cognitive functioning, vitality, and overall well-being (Kane & Radosevich, 2011). Specifically the domain of psychological well-being was an impact of the project. The project was measurable, time-sensitive, and included nurse-conscious outcome measures that linked the DNP students' (PI's) involvement in the project from beginning to end related to specific health care outcomes. Care-related outcomes were included as an underserved vulnerable population was addressed. Patient-related outcomes included the determination of an improvement of perceived quality of life among residents in a long-term care facility. Outcome objectives or specific goals for the project included short, medium, and long-term outcomes (see Table 4).

Table 4
Project Outcomes, Goals and Types

Outcomes	Type of Outcome
1. Residents and staff obtain increased knowledge of the new program 2. Staff and volunteers have proficiency to assist safely if needed. 3. Residents gain comfort with animals. 4. Board of directors and staff support project. 5. Linkages are forged with community partners. 6. Safe environment maintained for residents and animal.	Short-Term
1. Behavior change by residents with inclusion of new program. 2. Safe environment is maintained for residents and animal.	Medium
1. Residents have increased perceived quality of life 2. Residents have a perceived decreased loneliness. 3. Safe environment maintained for residents and animal.	Long-term (Impact)

Logic Model

The project followed the required format for a DNP capstone project at Regis University, which included the development of a Logic Model as the conceptual model for the project (Zaccagnini & White, 2014). The Logic Model designed for the capstone project included inputs, outputs, and outcomes, which are similar in nature to all other logic models and influenced each other (see Appendix B).

The Logic Model included nurse-sensitive outcome measures that linked the PI’s role to specific health care outcomes, which in this project was increased perceived quality of life of older people in a rural long-term care facility. Specifically, nurse-sensitive outcome measures linked the PI’s role to particular health care outcomes including perceived patient satisfaction, improving patient and family knowledge, and social functioning (Kleinpell, 2009). Care, patient, and performance-related areas were included in the project (Kleinpell, 2009). Care-related

outcomes included an underserved vulnerable population. The PI was a nurse with involvement in the project from the beginning to the end, showing a nurse-driven project with nurse supplied interventions at the site of care. Patient measures included residents participating in their own environment to examine if the intervention or independent variable would improve their perceived quality of life. Lastly, performance-related areas were found through project data obtained by a pre and posttest collection which showed a higher perceived quality of life for residents who participated in the project.

Input for this DNP project included staff at the long-term care facility, partners which included one veterinarian and volunteers if needed (which they were not), time, money, research findings (base), materials (pre and post surveys), equipment (leashes and dog food), technology (computer to collect and process data). Outputs for the project included the activity and those who participated.

Population and Sampling Parameters

The population for the project were individuals over age 65 permanently living in the rural long-term care facility that did not have dementia, voluntarily chose to participate, had a history of involvement with pets or an interest in animals, those who did not have a previous involvement or interest in animals, and those who had no allergies to animals. The AAA program was instituted in a facility where there was not one previously to assess if an AAA program would increase the perceived quality of life of residents. Convenience sampling was used as subjects were accessible and available in the facility (Gordis, 2014; Houser, 2015). There was no randomization or control group, as this could not be done ethically related to utilizing one facility for the project.

With no national benchmarks found, the literature review was used to obtain information to perform a power analysis. The analysis was done to estimate the effect size for the number of residents needed for the project to minimize the risk of a type II error. The standard significance level of alpha 0.05 was used. The probability of a Type II error, or the power chosen to detect an effect was 0.80, with an effect size of 0.50, as there was expected to be medium difference in data findings. By using these figures and the *G Power 3* software, a sample size of 26 was found for the project (Faul, Erdfelder, Lang, A-B, & Buchner, 2007). The sample size was difficult to obtain for this capstone project. Of the total number of 60 residents that live in the facility, there were 22 residents in the dementia unit, which left 38 residents to possibly be involved in the project. Of the possible 38 residents, they had to voluntarily choose to participate, and pass solid inclusion and exclusion criteria. Attrition, due to death and illness was considered as not an ideal situation but did occur in the project, which further dropped the number of residents involved in project. Fifteen residents signed the consent to participate, three were excluded, and one died during the project. The final number of residents involved in the project was n=11 (see Table 5).

Table 5
Power Analysis

Input: Tail(s)	=	2
Effect size p	=	0.5
α err probability	=	0.05
Power (1 – β err probability)	=	0.8
Output: Noncentrality parameter δ	=	2.94392
Critical t	=	2.03899
Df	=	24

Total sample size	=	26
Actual power	=	0.80632

Note: Df = degree of freedom or (n-1)

Sampling parameters included exclusion and inclusion criteria. Exclusion criteria included: failing the Mini Cog exam, by receiving less than three on the word memory portion of the exam, or receiving a three on the word memory portion of the exam *and* failing the clock drawing test; allergies to dogs or fear of dogs; unable to speak, read, or write English; and unable to understand and sign consent to participate in the project. Inclusion criteria included residents permanently living in the long-term care facility, volunteering and agreeing to participate, signing the informed consent, and passing all exclusion criteria.

Setting Appropriate for EBP

The setting for the project was a 60 bed long-term care facility in a rural town in the northwestern United States. The facility was accredited, viable, and feasible to implement the project in as this was the only facility of its kind within a 282 mile radius. There was support from all stakeholders involved in the facility for the intervention.

Methodology and Measurement

This project was evidence-based, used a quasi-experimental design, which included a pre and posttest evaluation which assessed the effect of an intervention. The project was internal to an agency and the agency was informed of issues regarding health care quality, cost, and patient satisfaction. The results of this project were not meant to generate new knowledge or be generalizable across settings but rather sought to address a specific population, at a specific time, in a specific agency. This project translated and applied the science of nursing to the greater healthcare field. The project utilized the acronym “PICO”, rather than stating a formal research

hypothesis. The acronym stands for: Population or disease (P), Intervention or issue of interest (I), Comparison group or current practice (C), and Outcome (O), and is usually framed as a question (Melnyk and Fineout-Overholt, 2011, p. 31).

The PICO for the project included: a population of vulnerable older people permanently living in a rural long-term care facility, the intervention was implementing an AAA into the facility, the comparison was there was no AAA in the facility, and the outcome was to obtain data related to if there was a perceived increase in quality of life by residents who participated in the project related to the intervention. The question the project sought to address was: Will an AAA program improve the perceived quality of life of residents without dementia over age 65 living in a rural long-term care facility compared to no AAA in the facility?

This DNP capstone project followed the quasi-experimental design as an intervention was introduced to a group, and there was no randomized assignment or control group. This was a descriptive project as it attempted to show a relationship between an intervention or variable to the residents. An evaluation of the outcomes was also done. A pre and posttest design was utilized including the use of four tools. Two instruments were administered before the intervention only: the Mini Cog exam and the Demographic and Pet History Questionnaire (DPHQ).

Project intervention. Implementation of the capstone project started with obtaining IRB approval from Regis University's IRB (see Appendix C). When IRB approval was granted to start the project, the project consultant at the facility was contacted. An agreed upon date and time was scheduled to meet with the department heads and staff to educate them about the project and possible start dates. Next, all residents in the facility were contacted for possible inclusion in the study via a brochure handed out by the facility's activity director. Next, the PI

went to the facility and explained the project with potential residents. Residents who wanted to participate signed the consent form to be included in the project at that time (see Appendix D). Next, a day was agreed upon by possible subjects and the facility's activity director for the pre-test surveys. On the agreed upon day, the Mini Cog was administered and completed (see Appendix E). If a person received less than three on the word memory portion of the exam, or received a three on the word memory portion of the exam *and* failed the clock drawing test, they were excluded from the study. Those who passed the Mini Cog were then given the Demographic and Pet History Questionnaire (DPHQ) (see Appendix F). The DPHQ contained exclusion criteria questions including if the resident had allergies to animals. Lastly, the Flanagan Quality of Life (QOL) scale and the UCLA Loneliness Scale (Version 3) were administered to subjects. Both of these instruments would also be administered post-intervention (see Appendix G and Appendix H).

Those who completed all necessary paperwork to be included in the project were asked what day and time of the week, over the following twelve weeks would work best for them. The day and time requested by the majority of the resident was then discussed with the activity director and project consultant for final approval. After the final approval date was obtained, all residents were contacted by the activity director. On the agreed upon day and time, the dog was brought to the facility.

Fifteen to twenty minutes was spent with residents in the common room the first time the dog was brought to the facility. The remaining eleven times the AAA was done, the activity occurred one-on-one with residents. This was decided upon by the PI and project consultant as only eight subjects attended the first AAA. This low number was discussed and it was found that residents had difficulty getting to the meeting room, arrived late due to toileting issues or waited

for the nursing assistant to bring them to the activity, some subjects left while waiting for others to arrive, or others verbalized they were too tired to leave their rooms to attend the scheduled AAA. Related to this, the PI and project consultant decided providing the AAA one-on-one with subjects would provide a larger opportunity for the majority of residents to participate, and glean possibly more data. On one of the scheduled days, there was a quarantine put in place by the medical provider at the facility due to a norovirus outbreak, therefore, the AAA did not occur. After 12 weeks of AAA, the Flanagan QOL and UCLA Loneliness Scale were completed again (posttest). The data was collected, organized, and analyzed.

Protection of Human Rights

The PI completed the required Collaborative Institutional Training Initiative (CITI) for human research curriculum, with proof of completion (see Appendix I). The facility where the project was implemented did not have an IRB, therefore Regis University's IRB was utilized. The project received an expedited review from the IRB. The criteria were met as data was obtained through interaction with individuals, posed no more than minimal risk, included only one intervention, the selection of residents was equitable, there were strict procedures in place for privacy and confidentiality, and plans to monitor data and safeguards were in place. The facility did support the project (see Appendix J). An expert veterinarian in the community supported and assisted with the project (see Appendix K).

Provision for informed consent and confidentiality of data. Explanation of the project, as well as discussing and answering any and all questions related to the project occurred before the informed consent was presented and signed by each resident. Informed consent to participate was accomplished with initial contact of all residents (see Appendix D). Strict confidentiality was maintained throughout the project. In order to prevent the risk of exposure of personal

information, residents were de-identified (coded) by a number. The PI was solely responsible for coding all data. Project data was stored on a password encrypted computer, backed up to a flash drive and will be kept in a locked cabinet for three years. The PI will have the only access to this information.

Safety considerations. Safety was a top priority during the AAA, with the dog remaining on a leash at all times, and was not left unattended. Before the animal was brought to the facility, an expert veterinarian provided written proof of vaccinations, examination and documentation of the dog's behavior, and current health certificate. This written and signed document was given to the facility to have in their files. Safe sanitation practices were followed, and infection control policy and procedures at the facility were also strictly adhered to and maintained. Medical response was immediately available related to unforeseen allergic reactions, a fall, bite, or other unknown events that may have occurred. This was organized with the project consultant before the animal was brought to the facility.

Instrument Reliability, Validity, Intended Statistics, and Threats

Reliability refers to the idea the results of the measure being employed can be reproduced under the same circumstances. Reliability is affected by random error (Kane & Radosevich, 2011). Examples of random error that could have occurred in this study design included: failure to answer survey questions and coding and data input errors. These threats were addressed by reading the surveys to residents if requested, and careful reviewing of all coding and data input.

Validity refers to how close the measure is to actually measuring what was intended. Error produced by bias affects validity. Internal validity relates to whether or not a causal conclusion can be made. External validity defines how well the findings of the study can be applied outside the study. Due to the nature of the one group pre and posttest design, threats to

the validity of this study included: history, instrument failure, and the ability to generalize results from the study (Kane & Radosevich, 2011). History included time elapsed from start to end of the intervention, as testing can sensitize the participants to the content and result in inaccurate increases in summed data scores. Instrumentation could cause a threat if the manner of intervention delivery was not understandable. Generalizability, or the external validity of this study, could not be accomplished related to the small number of residents involved in the project. Threats to validity were minimized through the use of short sessions, consistent delivery of the activity, and time span of intervention to posttest survey.

Potential threats that could have occurred related to the project were fishing, missing data, and attrition. The goals of the project were decided upon at the start of the project, rather than at the conclusion of the project. This step did halt fishing threats, as having specific outcomes at the start of the project allowed the PI to not have to analyze data repeatedly under differing conditions or assumptions at project end. During the interview process, taken into consideration was the age of the residents, as both a residents' long and short-term memory can significantly affect the quantity and accuracy of information obtained (Reid, 2004, p. 2). Related to this information, missing data, or leaving questions blank was curtailed, as residents were read the surveys and questionnaires if requested, were provided further discussion of the questions if asked, and the PI helped circle responses if needed. To curtail attrition, minimizing inconvenience to the subjects was done by meeting with the residents the same time and day each week, and using surveys and questionnaires that were easy to understand. That being said, one resident passed away during the project, and each weekly session was not attended by all residents related to being out of the facility, fatigue, or becoming ill (Kane & Radosevich, 2011).

Also, remembering that each individual has his or her own social history and individual perspectives on the world was taken into consideration (Denzin & Lincoln, 1998).

Four instruments were utilized in the project and included the Mini Cog, the DPHQ, the Flanagan Quality of Life (QOL) Scale, and the UCLA Loneliness Scale (Version 3). All four tools were examined and chosen for their reliability and validity. The Mini Cog and the DPHQ were used pre-intervention only.

Permission to use the Mini Cog was granted by S. Borson, October 25, 2104 via email correspondence (S. Borson, personal communication, October 25, 2014). The Mini Cog has a sensitivity range of 76-99%, and a specificity range from 89-93% with a 95% confidence interval (CI) ($p < 0.001$) (Borson et al., 2003). The Mini Cog result was measured as the reported score found on the exam (see Appendix E). The DPHQ is available on the internet. The DPHQ was used to ask residents information related to: history of pet ownership, the type of pets previously owned if any, length of ownership, their desire to have a pet in the facility with them, and if they were allergic to animals (Banks & Banks, 2002) (see Appendix F).

Two tools were administered to residents' pre and post intervention: the Flanagan Quality of Life (QOL) and the UCLA Loneliness Scale (Version 3). The Flanagan QOL Scale was chosen as it is a reliable and valid instrument for measuring domains of quality of life across diverse patient groups, has an internal consistency of Cronbach's alpha, of 0.82 - 0.92, and has a high pre and post-test reliability over three weeks of $r = 0.78 - 0.84$ (Burckhardt et al., 2003). The QOL was measured as the reported score on the QOL scale (see Appendix G). Permission was granted to use the Flanagan QOL Scale by the author's representative via email correspondence (B. Archenholtz, personal communication, November 10, 2014).

The UCLA Loneliness Scale (Version 3) was chosen as loneliness and isolation are precursors for depression and a predictor of quality of life (Russell, 1996). This scale has a high internal consistency of Cronbach's coefficient alpha ranging from 0.89 - 0.96, and a pre and post-test correlation of $r = 0.73$ over a two-month period (Russell, 1996). This data revealed that statistical reliability was high ensuring validity and precision of the tool (Russell, 1996) (see Appendix H). No permission to use the UCLA Loneliness Scale (Version 3) was needed as it is for public use and can be found on the internet.

Coding, Data Collection, Treatment Procedures, and Protocols

Coding. Coding is an analytical process in which data is categorized to facilitate analysis of data into a form understandable by statistical computer software (Strauss, 1987). In this capstone project, one code was applied to only one comprehensive category. The codes served as a way to compile and organize data obtained, maintain privacy of residents and their data, prepare the data for input into the chosen statistical computer program, and allowed for summarization and synthesize of what was happening with the data (Rumsey, 2011; Strauss, 1987). Since the PI was the only one that would be considered a *coder*, or the person who would do the coding, the codes were made by the PI, were consistent, understandable, and easy to use.

Both the Flanagan QOL Scale and the UCLA Loneliness Scale questionnaire data were pre-coded manually by assigning codes to the expected answers on the scales, as both scales were based on the sum score obtained by residents. Once data was obtained for each resident, it was coded initially recorded as ordinal variables, and upon final analysis reported as interval data. A legend was written to match the codes for examining and inputting the data into a statistical computer analysis program.

Data Collection Set-up. Excel was chosen for the initial organization of data as it performs a variety of calculations including descriptive statistics, and can be broken down into categorical variables. Once Excel was chosen, data from the pre and post-test intervention surveys as well as the Mini Cog and DPHQ data were put into Excel spreadsheets. The Mini Cog result was measured as the reported score found on the exam. The DPHQ data were presented as descriptive statistics and profiled the nursing home residents who voluntarily participated in the project. The Flanagan QOL and UCLA Loneliness Scale (Version 3) data scores were coded and recorded under each resident's identifier number on an Excel spreadsheet.

Treatment procedures and protocol. The Mini Cog was the first instrument used as part of the exclusion criteria. If a person scored less than three on the word memory portion of the exam, or received a three on the word memory portion of the exam *and* failed the clock drawing test, they were excluded from the project. Those who passed the Mini Cog were then given the DPHQ. The DPHQ included exclusion criteria questions, including but not limited to having an allergy to animals. Residents who passed both the Mini Cog and DPHQ were participants in the project. These residents were then administered the Flanagan QOL Scale and the UCLA Loneliness (Version 3) test. All data obtained from all instruments were initially entered into an Excel spreadsheet under each resident's identifier number. After 12 weeks, the Flanagan QOL and UCLA Loneliness (Version 3), as previously completed, were completed again. To compute final data, the IBM Statistical Package for Social Sciences (SPSS) Version 23 was used (IBM, 2014). To obtain data for comparison with one subject group, a dependent two-tailed *t*-test, using the pre and posttest data, was performed. The two-tail was chosen as the hypothesis for the project did not state the direction of the difference or relationship that may be seen in the project.

Project Findings and Results

Demographic data were presented as descriptive statistics and profiled residents who voluntarily elected to participate in the project. Fifteen residents consented to participate for the project. Two men and one woman were excluded from the project as they failed the Mini Cog. One woman died during the fourth week into the project. Of the remaining 11 residents, four (36%) were men and seven (64%) were women. Ages of residents ranged from 65-74 (36.4%, n=4), 75-84 (27.2%, n=3), and 84 and older (36.4%, n=4). The educational level revealed nine (81.8%) of the 11 residents completed high school, one completed 1-3 years of college, and one had less than a ninth grade education (see Table 6).

Table 6
Resident Demographic Summary

		N/n	%
Sex			
	Male	4	36
	Female	7	64
Marital Status			
	Single never married	2	18
	Married	2	18
	Divorced	2	18
	Widowed	5	45
Age			
	65-74	4	36
	75-84	3	27
	>84	4	36
Highest level of education			
	< 9 th grade	1	9
	High School Graduate	9	82
	College, 1-3 years	1	9

The pet history portion of the DPHQ showed residents had a strong history of association with animals, usually dating from childhood. More than nine (82%) of the residents, grew up with pets, had pets at or before age eight, and were responsible for the care of the pet. The majority of residents (82%, n=9) had two or three animals. Ten (90.9%) residents

remembered their pets name, and ten residents reported the time they spent with their pets was enjoyable. When residents felt bad, eight (72.7%) stated their pets helped them feel better, seven (63.6%) talked to their pets all the time, and four (36.4%) talked to their pets sometimes. All answered questions that indicated pets were an intimate part of their lives, and 72.7% (n=8) would have *liked* to have a pet currently, but were prevented from doing so by the institution (see Table 7).

Table 7:
Selected Response DPHQ

	N/n	%
Age when resident had first pet		
2-5	8	72
6-8	1	10
20-25	2	18
Age when resident had responsibility for pet care		
1-12	9	82
19-30	2	18
Residents grew up with pets		
Yes	9	82
No	2	18
Time spent with the pet was enjoyable		
Yes	10	91
No	1	9
Touching the pet made resident feel good		
Yes	10	91
No	1	9
Pet helped make them feel better if sad		
Yes	8	73
No	3	27
Animal(s) residents had as a child		
Dogs and/or Cats	-	-
Bird	1	9
Livestock	1	9
Multi-Species	9	82
Degree of attachment to pet		
Very attached	6	55
Attached	3	27
Not at all attached	2	18
Remember pets names		
Yes	10	91
No	1	9
Resident talked to pet		
All the time	7	64
Sometimes	4	36
Reasons for not having a pet now		
Can't keep a pet	11	100
It bothers the resident that they don't have a pet now		
Yes	8	73
No	3	27
Resident would like to have a pet at this facility		
Yes	8	73
No	3	27

Objectives and Key Elements

Final project objectives and key elements were examined after obtaining data from the residents pre and post-test results and run by the IBM SPSS 23 (IBM, 2014). The two-tailed paired samples *t*-tests for dependent groups was used to analyze data from the pre and post-test scores on both the UCLA Loneliness Scale (Version 3) and the Flanagan QOL Scale. Using the two-tailed *t*-test was a conservative approach to reduce the risk of committing a Type I error, but it did increase the risk of a Type II error. For each resident their mean was statistically found for all questions in the tools used, as intended by the authors of the tools. By looking at the overall test score of residents, and the overall aggregate score, instead of each question there may have been more variation seen to find a difference. The PI focused on the residents and not the questions and did the residents respond to the intervention not the question responding to the intervention. All objectives and key elements (see Table 4) were achieved.

Statistical Data and Reliability of Findings

The statistical data and reliability of findings reflected on each step in the project from formulating the plan, examining variables, choosing highly valid and reliable tools, to accurate collection and coding of study data. The SPSS 23 software package analyzed all data obtained from project, with accuracy (IBM, 2014). Reliability of findings could not be generalizable related to the small sample size, but can be used by other researchers for future studies.

UCLA Loneliness Scale (Version 3). The summary statistics for each resident's UCLA pre and post-test scores, as well as the total score for all residents was obtained (see Table 8). The UCLA Loneliness Scale (Version 3) included 20 questions using a four point Likert scale with a range of 20 (never lonely) to 80 (always lonely). The resident or *R* numbers in column one have breaks in them; there is no R4, 7, 13, or 14. This relates to one resident dying four weeks into the project, and the other three were excluded from the project related to failing the Mini Cog.

The pre and post-test mean for each resident is included, as well as the overall total for all resident scores (both pre and post-test). All summary data was then used by SPSS to interpret the final UCLA pre and post survey results.

Table 8
Summary Statistics UCLA Loneliness Scale

Summary statistics of scores for 20 UCLA Pre and Post Survey questions and Total UCLA Score for 11 Residents (Ri)

	Pre Survey			Post Survey		
	Mean*	SD*	SEM*	Mean	SD	SEM
R1	2.28	0.72	0.16	2.05	0.69	0.15
R2	2.65	0.81	0.18	2.40	0.68	0.15
R3	1.65	1.14	0.25	1.75	0.72	0.16
R5	1.25	0.79	0.17	1.85	0.81	0.18
R6	2.60	0.88	0.20	2.40	0.75	0.17
R8	2.05	0.51	0.11	2.55	0.89	0.20
R9	2.60	0.75	0.17	2.20	0.70	0.16
R10	2.05	0.83	0.19	1.70	0.73	0.16
R11	2.35	0.49	0.11	1.90	0.55	0.12
R12	2.25	0.44	0.10	1.55	0.61	0.14
R15	2.65	0.81	0.18	2.20	0.52	0.12
TOTAL	44.64	9.34	2.82	40.91	4.39	1.61

*Mean=Average of 20 UCLA questions; SD=Standard Deviation of 20 UCLA questions surveyed within patient; SEM= Standard Error of Mean for 20 UCLA questions surveyed.

Next, the SPSS computer software analyzed the data to interpret final UCLA pre and post-test results. The two tailed *t*-test of mean difference for dependent samples evaluated the differences in means between resident’s pre and posttest results (see Table 9). The standard deviation, standard error of the mean, CI = 95%, with $\alpha = 0.05$ was used. The $\alpha = 0.05$ means the researcher has chosen to take a 5% chance of making a Type II error, or saying something exists when it does not. The *t*-scores ranged from *more* lonely; with a statistically significant *t*-score of $t = -2.13$, alpha 0.005, to *less* lonely with a statistically significant *t*-score of $t = +4.27$, alpha 0.000.

The interpretation of this table shows seven (64%) residents, those with the pound sign by their identifier number, showed a statistically significant change in their pre and post-test

surveys. Five (45%) showed they were less lonely post activity ($\mu = 0.2 - 0.7$, $SD = 0.41 - 0.89$, $\alpha = 0.000 - 0.04$, $CI: 95\%$). Two (18%) residents' results revealed they were lonelier ($\mu = -0.5 - -0.6$, $SD = 1.051 - 0.598$, $\alpha = 0.047 - 0.000$, $CI: 95\%$). Reviewing notes taken the day of post testing related to residents R5 and R8 whose data revealed that they were more lonely, revealed that one residents' daughter from out-of-state had just left and the resident verbalized that she may never see her daughter again because she was old, and the other residents' family that were expected to come for a visit had not come. The overall pre and posttest statistical interpretation of the paired samples test for the dependent groups showed residents were less lonely after the AAA ($\mu = 2.818$, $SD = 8.304$, $\alpha = 0.287$, $CI: 95\%$).

Table 9

SPSS T-Test Results UCLA Loneliness Scale

Two tailed t tests of mean differences for dependant Pre and Post UCLA survey results.

	Pre-Post					
	Mean*	SD*	SEM*	95% CI	t	Sig*
R1	0.20	0.95	0.21	(-0.25 , 0.65)	0.94	0.36
R2	0.25	0.94	0.14	(-0.05 , 0.55)	1.75	0.10
R3	-0.10	1.02	0.23	(-0.58 , 0.38)	-0.44	0.67
R5 [#]	-0.60	0.60	0.13	(-0.88 , -0.32)	-4.49	0.00
R6 [#]	0.20	0.41	0.09	(0.01 , 0.39)	2.18	0.04
R8 [#]	-0.50	1.05	0.24	(-0.99 , -0.01)	-2.13	0.05
R9	0.40	0.88	0.20	(-0.01 , 0.81)	2.03	0.06
R10 [#]	0.35	0.49	0.11	(0.12 , 0.58)	3.20	0.01
R11 [#]	0.45	0.69	0.15	(0.13 , 0.77)	2.93	0.01
R12 [#]	0.70	0.73	0.16	(0.36 , 1.04)	4.27	0.00
R15 [#]	0.45	0.89	0.20	(0.04 , 0.87)	2.27	0.04
TOTAL	2.82	8.30	2.50	(-2.76 , 8.40)	1.13	0.29

*Mean=Mean difference of Pre and Post for 20 UCLA questions; SD=Standard Deviation; SEM= Standard Error of Mean; Sig=Significance of t-Test

[#]Indicates significant differences ($\alpha=0.05$) of Pre and Post means not equal to 0

Flanagan Quality of Life (QOL) Scale. The summary statistics for each resident's Flanagan QOL pre and post test scores, as well as the total score for all residents was run by the SPSS

software program also (see Table 10). The Flanagan QOL included 16 questions using a seven point Likert scale, ranging from one-*terrible* to seven-*delighted*, with a range of 16 – 112 (Burckhardt et al., 2003). It was reported by the authors of this tool that a healthy population would statistically receive a >90 score, while those with chronic medical conditions would range between 60-89, depending on the number of chronic conditions they may have (Burckhardt et al., 2003). The residents were designated by an *R* and their identifier number. The pre and posttest means, obtained from the 16 questions, are included for each resident, as well as the mean total for all residents. The standard deviation, standard error of the mean, and a 95% confidence interval are included in the data summary. All summary data was then used by SPSS to interpret the final QOL pre and posttest survey results.

Table 10
Summary Statistics Flanagan QOL Scale

Summary statistics of scores for 16 QOL Pre and Post Survey questions and
 Total QOL Score for 11 Residents (Ri)

	Pre Survey			Post Survey		
	Mean*	SD*	SEM*	Mean	SD	SEM
R1	5.50	1.03	0.26	5.81	0.98	0.25
R2	4.81	0.75	0.19	5.25	0.68	0.17
R3	6.13	1.26	0.32	4.81	0.98	0.25
R5	6.44	1.03	0.26	6.06	0.11	0.27
R6	3.81	1.52	0.38	4.63	1.46	0.36
R8	3.81	1.28	0.32	5.19	0.83	0.21
R9	4.54	0.96	0.24	4.88	0.72	0.18
R10	4.13	1.31	0.33	4.31	1.30	0.33
R11	4.13	1.20	0.30	4.88	0.81	0.20
R12	4.94	1.18	0.30	5.75	1.18	0.30
R15	3.75	0.78	0.19	5.19	0.83	0.21
TOTAL	75.64	15.10	4.55	82.55	8.60	2.59

*Mean=Average of 20 UCLA questions; SD=Standard Deviation; SEM=Standard Error of Mean

Next the SPSS computer software used the data to interpret the final Flanagan QOL pre and posttest results. The two tailed *t*-test of mean difference for dependent samples was used (see

Table 11). The standard deviation, standard error of the mean, and a 95% CI, upper and lower range, and the standard alpha 0.05 was used. This information is included for each resident and for all (total). The *t* score ranged from *t* = -9.14, alpha = 0.000, which showed an *increased* QOL for resident 15, to *t* = +4.03, alpha 0.000, which showed a *decreased* QOL for resident three. Both of these results were statistically significant.

Table 11
SPSS T-Test Results Flanagan QOL Scale

Two tailed t tests of mean differences for 16 dependant Pre and Post Quality of Life (QOL) survey results and Total QOL score for 11 Residents (Ri).

	Pre-Post					
	Mean*	SD*	SEM*	95% CI	t	Sig*
R1 [#]	-0.31	0.48	0.12	(-0.57 , -0.06)	-2.61	0.02
R2 [#]	-0.44	0.51	0.13	(-0.71 , -0.16)	-3.42	0.00
R3 [#]	1.31	1.30	0.33	(0.62 , 2.01)	4.03	0.00
R5	0.38	1.09	0.27	(-0.21 , 0.96)	1.38	0.19
R6 [#]	-0.81	0.91	0.23	(-1.30 , -0.33)	-3.57	0.00
R8 [#]	-1.38	1.15	0.29	(-1.99 , -0.76)	-4.79	0.00
R9	-0.31	0.87	0.22	(-0.78 , 0.15)	-1.43	0.17
R10	-0.19	0.66	0.16	(-0.54 , 0.16)	-1.15	0.27
R11 [#]	-0.75	1.00	0.25	(-1.28 , -0.22)	-3.00	0.01
R12 [#]	-0.81	0.66	0.16	(-1.16 , -0.46)	-4.96	0.00
R15 [#]	-1.44	0.63	0.16	(-1.77 , -1.10)	-9.14	0.00
TOTAL	-6.91	12.47	3.76	(-15.29 , 1.47)	-1.84	0.09

*Mean=Mean difference of Pre and Post for 16 QOL questions; SD=Standard Deviation; SEM= Standard Error of Mean; Sig=Significance of t-Test

[#]Indicates significant differences ($\alpha=0.05$) of Pre/Post means not equal to 0

The interpretation of the table shows eight (72.7%) residents, those with the pound sign by their identifier number, showed a statistically significant change in their pre and posttest surveys. Seven (63.6%) showed they had a higher perceived quality of life post intervention ($\mu = -0.31 - -1.44$, $SD = 0.48 - 1.15$, $\alpha = 0.000 - 0.02$, $CI = 95\%$). Reviewing the notes written the day of post testing about resident three, who had recently been diagnosed with a new pressure ulcer on his foot, and whose family lives out-of-state and rarely visits had just left, verbalized he

felt sad that he might not see them again. This could account for the negative change in the resident's perceived quality of life scores, but is a hypothesis. The overall pre and posttest statistical interpretation of the paired samples *t*-test for the dependent sample showed residents had an increased perceived quality of life after the activity ($\mu = -6.91$, $SD = 12.47$, $\alpha = 0.09$, $CI = 95\%$).

Effective Size and Results

Effect size measures the sizes of associations or differences from no relationship whatsoever (zero) to a perfect relationship (1, or -1) (Coe, 2002). The number obtained tells exactly how large the relationship really is between the variables studied, and is independent upon how many people were tested. Cohen's *d* estimation was used to compare the overall pre and post-test two means for both the Flanagan QOL Scale and the UCLA Loneliness Scale (Version 3), $n=26$. Cohen's *d* estimation of effect size suggests; $|.1|$ represents a *small* effect size, $|.5|$ represents a *medium* effect size, and $|.8|$ represents a *large* effect size (Polit, 2009; Rumsey, 2011). Cohen's *d* $|.5|$ was chosen, with the actual power (after tests run) of $|.8|$, or a large effect size was found. The Flanagan QOL Scale results revealed a statistically significant difference: $\mu -6.91$, $SD 12.47$, p -value 0.09 ($\uparrow 0.05$). The UCLA Loneliness Scale results showed: $\mu 2.82$, $SD 8.30$, p -value 0.29 ($\uparrow 0.05$). The UCLA results also showed a statistically significant difference. The null hypothesis for the project was not rejected:

Ho: AAA = (will) increase the perceived QOL of older people in a rural LTC facility.

Discussion of Results

The demographics of the residents in the study population were typical of rural long-term care facility residents in general. The majority of residents were women, widowed, and older than 67. These results agree with the national statistics reported by the Housing Assistance Council (HAC) (Housing Assistance Council, 2014). Only two (18%) residents in the project did not have pets during childhood, but acquired them later in life. Most of the residents had responsibility for their pets early in life and formed strong emotional bonds with them. The majority of the pets lived outdoors, mainly in a rural farming area. The results of the DPHQ clearly show that past life experiences are a major predictor of a desire for an AAA or a pet in an institutionalized setting.

An interesting finding of this project was the manifestation of voluntarily, unplanned recollection of their pets by residents. During the AAA, residents often spontaneously began to talk to the animal involved in the AAA about past events with their own pets. For example, one resident spoke fondly of her dog that was her constant companion living on the farm during her childhood; the dog would follow her everywhere, would come when she called, and was her very own dog that she was responsible to care for. Another resident recalled he had gone out to feed the cows when it was snowing, and by the time he headed for home all he could see was a white curtain, as the snow had turned into a blizzard. The gentleman said if he would not have had his dog with him that day, he would have frozen to death. He verbalized his dog led him home, even when he thought they were going in the wrong direction. He said to this day that dog saved his life.

Residents in the project also gave positive feedback about the AAA they were involved in, which was not measured nor reflected by the instruments used. All residents in the project

were cognitively intact as evidence by positively completing the Mini Cog exam. Whether similar results would be obtained in those with dementia, needs to be researched.

The quasi-experimental design could not make causal inferences about the effects of the intervention, but this design could answer the effect of a specific intervention on a specific vulnerable population. This project did have strength as the pre and posttest design allowed any change in an individual's score to be measured, greatly strengthening statistical power. The pre and posttests were read to the participants, as both a residents long and short-term memory can significantly affect the quantity and accuracy of information obtained (Reid, 2004). With both the pre and posttests, there was an understanding that interviewing the elderly has inherent concerns including the impact of memory loss on the quality and consistency of responses to questions (Reid, 2004). In this project, the AAA was administered on an individual basis, and interactions between the handler and the resident were minimized. It could not be determined if the benefit from the project was associated with the animal or the handler of the animal. Another important feature of this study was that the population studied chose to voluntarily participate, which showed the desire to associate with animals is a quality of life issue generated from life experiences. This conclusion revealed those who self-selected to participate with animals will derive the greatest benefit from AAA.

Research Question Answered

The research question was: Will an AAA program change/improve the perceived quality of life of residents without dementia over the age of 65 living in a rural long-term care facility compared to no AAA program in the facility? Looking at this question through a researchers eyes, the null and alternative hypothesis were:

Null hypothesis: H_0 : AAA = (will) increase the perceived QOL of older people in a rural

Long-term care facility.

Alternative hypothesis: H_1 : AAA \neq (will not) increase the perceived QOL of older people in a rural long-term care facility.

With summary statistics interpreted, the data was found to be statistically significant, and did support and allow the acceptance of the null hypothesis in the study. Data obtained from the UCLA Loneliness Scale (Version 3), and the Flanagan Quality of Life (QOL) Scale revealed an AAA with each resident, lasting ten minutes per week for twelve weeks, was effective in decreasing perceived loneliness, and increasing the perceived quality of life of residents in the project to a statistically significant degree. The alternative hypothesis was not accepted as the statistical data obtained did show AAA increased the perceived QOL of residents.

The DPHQ revealed residents in the project had a strong life-history of responsibility and emotional attachment to pets, usually beginning in early childhood. The residents missed their pets and desired to have pets in their current rural long-term care environment. The results of this small project confirm the results of other studies, notably Bank's and Bank's (2002 and 2005) work, that AAA is effective in combating loneliness and increasing the perceived quality of life of residents in long-term care facilities (Banks & Banks, 2002; Banks & Banks, 2005).

Limitations, Recommendations, and Implications for Change

Limitations

There were several limitations in this study. The project lacked a large enough population to provide strong power for the data. Small sample size limited the extent for generalization. Subject self-selection and the absence of a control group diluted the strength of results. The short-term evaluation questioned if there would be consistency over time, as the project only lasted twelve weeks. There was also no measure of long-term impact. There was

no information on behavioral disturbances. It is unknown if the statistical data of increased perceived quality of life and decreased perceived loneliness was due to the animal or the handler.

Recommendation

Although the use of an AAA in long-term care facilities is becoming more common, further research must be done that follows sound processes and methodologies that examine the effects, experiences, and therapeutic benefits that may be associated with this activity with institutionalized older people. A larger number of subjects are recommended to increase statistical power, as the use of a larger sample size could increase the likelihood that sampling error would be smaller. Also recommended is for further studies is randomization of subjects, and extended follow-up review to identify which duration is most beneficial for the activity. To minimize the chance that the project effect was caused by the handler of the animal and not the animal, using multiple handlers could provide stronger data, and increase credibility in another study. To further solidify and strengthen data obtained, using two different long-term care facilities would provide comparative data.

A factor of interest in the demographic area for the project, is seasonal depression associated with decreased photoperiods. This project started at the beginning of spring and ended in the summer. Residents are also unable to utilize outdoor court areas due to extreme weather temperatures. This project was unable to account for such factors. These variables would be interesting to analyze over a duration of seasons, and would allow facilities to optimize AAA. Further factors to investigate would be age, mental status, gender, and different species effects on AAA success.

Implications for Practice Change and Future Studies

Implications for practice change, and future projects of this type are warranted. I am looking at completing another study using two long-term care facilities which would provide an independent sample of subjects which could glean interesting data. In this next project, I will extend the activity for six months instead of three months. I feel extending the length of the intervention, could provide stronger data as to perceived quality of life change. On the other hand, extending the length of time of the intervention could be difficult related to attrition and the elderly. Multiple handlers will be used with varying dogs. This would eliminate variables related to the change based on the handler or one specific animal. I am also looking at implementing an AAA with residents who have dementia. I hope others who have an interest in animal activity can use this project and data to continue working in this area of service for the older institutionalized person. Lastly, I am hoping to work on obtaining publication of the project, possibly in a gerontological peer-reviewed journal, or an advanced practice nursing journal.

Conclusion

The results obtained from this quasi-experimental project confirm results of other studies that AAA visits can make a difference in the perceived quality of life of residents in long-term care facilities. Qualitatively, residents in the project gave positive feedback about the intervention which was not measured but reflected by the posttest measurement tools utilized. Although the results of this study cannot be generalized due to the small number of participants, the results are promising, mirror previous findings by Banks, Willoughby, and Banks (2008), and warrant further consideration and study (Banks, Willoughby, & Banks, 2008; Scheibeck et al, 2011). There was no control group in the study, making it impossible to definitively conclude

that only AAA itself had an effect on improving perceived quality of life and reducing the feeling of loneliness. However discussion can occur related to the participants and the connection between variables related to AAA. This capstone project was needed and did build on the research data base already in place, related to its solid processes and methodologies. Many long-term care facilities offer a variety of activities with the purpose of enhancing quality of life through social interaction and activity. This project showed offering an AAA program to residents in one long-term care facility can contribute to improving the perceived quality of life for the residents there.

Project Timeframe

Capstone project tasks began the fall of 2013 and ended August 2015. The timeframe for completion of the capstone project was dependent upon IRB approval, for timely completion of the project. The timeframe for this capstone project is depicted in linear form (see Appendix L).

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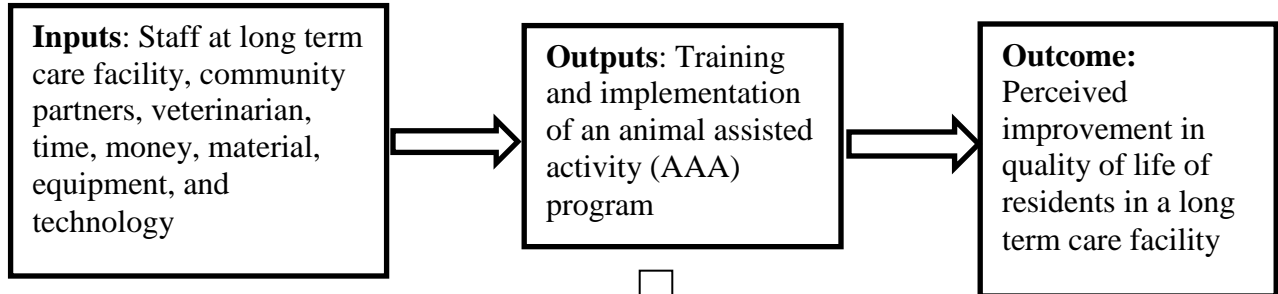
Appendix A
Estimated Cost and Resources

DNP Estimated Cost for Project

- Total time: 100 hour at \$50.00/hour=\$5000.00
 - Time with residents: pre and post tests
 - Time with facility: Educating
 - Time with residents and animal (weekly for 12 weeks)
 - Organizing sessions and instruments
 - Data collection, entering, analysing, and securing
 - Travel time
- Printer and paper costs=\$100.00
- Dog food, treats, supplies, veterinarian fees= \$75.00
- AAA training for certification=\$150.00
- Gift for statistician and two people to help with data collection = \$50.00 each=\$150.00

Total: \$5000, 00 +\$100.00+\$75.00+\$150.00+ \$150.00=\$5340.00

Appendix B
Logic Model



Inputs: Staff at long term care facility, community partners, veterinarian, time, money, material, equipment, and technology

Outputs: Training and implementation of an animal assisted activity (AAA) program

Outcome: Perceived improvement in quality of life of residents in a long term care facility

1. Problem or Issue: Long term care facilities (LTC) may be the last place a person lives before they die. Institutionalization can have grave implications for an individual's quality of life related to stress, loneliness, and social isolation caused by removal from the home environment, with an accompanying decline in physical and emotional health (Berry et al., 2012, p. 143). Animals have been used and seen as providing therapeutically positive effects in different healthcare arenas.

Project: Development and implementation of an Animal Assisted Activity Program into a rural LTC. Will an Animal Assisted Activity (AAA) program improve the perceived quality of life residents without dementia living in a long-term care facility compared to no AAA program in the facility?

P: Long term care, residents without dementia living in a rural 60 bed facility
I: Animal Assisted Activity (AAA) Program
C: No Animal Assisted Activity (AAA) Program
O: Improved perceived quality of life for residents ascertained by a quality of life measurement tool.

2. Inputs**3. Outputs****4. Outcomes-Impact**

<p>Staff at facility. Partners: veterinarian, time, money, materials (pre/post surveys) Equipment (leashes/dog food) Technology: computer to collect/process data.</p>	<p>Have a meeting at the LTC to explain AAA, develop and include handouts. Educate faculty at LTC if needed. Deliver activity. Assess process. Facilitate program, and work with media</p>	<p>Staff at facility Resident family Decision makers-board of directors</p>	<p>Residents and faculty obtain knowledge of AAA. Faculty and residents gain comfort and are safe with animals. Board of directors, staff, veterinarian, family, residents, CEO, and medical controller of facility support project.</p>	<p>Residents follow safety policies. Practice change with inclusion of AAA in day of residents. Decision-making by residents to participate.</p>	<p>Residents have perceived increase in QOL and decrease in loneliness. Safe environment maintained.</p>
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Adapted from “Logic Model Development” by M. Zaccagnini, 2007 (as cited in Zaccagnini, M. E. & White, K. W. (Eds). (2014). *The doctor of nursing practice essentials: A new model for advanced practice nursing*. Sudbury, MA: Jones & Bartlett Learning.

Appendix C

Regis University IRB Approval Letter



IRB – REGIS UNIVERSITY

May 13, 2015

Vonnie Pattison
3 Riverview Road
Glasgow, Montana 59230

RE: IRB #: 15-102

Dear Ms. Pattison:

Your application to the Regis IRB for your project, "Implementation of an Animal Assisted Activity Program into a Rural Long-Term Care Facility to Increase the Perceived Quality of Life of Residents," was approved as an expedited study on March 4, 2015. It is approved per OHRP Category #7.

If changes are made in the research plan that significantly alter the involvement of human subjects from that which was approved in the named application, the new research plan must be resubmitted to the Regis IRB for approval. Projects which continue beyond one year from their starting date require IRB continuation review. The continuation should be requested 30 days prior to the one year anniversary date of the approved project's start date. A completion report of the findings of this study should be sent to the IRB.

In addition, it is the responsibility of the principal investigator to promptly report to the IRB any injuries to human subjects and/or any unanticipated problems within the scope of the approved research which may pose risks to human subjects. Lastly, a final report should be submitted at completion of the project and it is the responsibility of the investigator to maintain signed consent documents for a period of three years after the conclusion of the research.

Sincerely,

A handwritten signature in cursive script that reads "Patsy McGuire Cullen".

Patsy McGuire Cullen, PhD, CPNP-PC
Chair, Institutional Review Board
Professor & Director
Doctor of Nursing Practice & Nurse Practitioner Programs
Loretto Heights School of Nursing
Regis University

Cc: Dr. Colleen McCallum

Appendix D

Consent to Take Part in Animal Assisted Activity (AAA) Capstone Project

TITLE OF PROJECT: Animal Assisted Activity (AAA) as an Intervention to affect the perceived quality of life for Residents of a Long-Term Care Facility.

PRINCIPAL INVESTIGATOR: Vonnie O Pattison, MSN, RN-BC
Regis University, Denver Colorado, School of Nursing
Email: vpattison@regis.edu

WHY AM I BEING INVITED TO TAKE PART IN THIS PROJECT? You are being asked to take part in a doctoral of nursing project. The project involves studying the use of animals as an intervention to improve the perceived quality of life for people who live in long-term care facilities. Your choice to take part or not take part is up to you. You may choose to participate and later stop taking part at any time.

WHO IS DOING THE PROJECT? Vonnie O Pattison, MSN, RN-BC

WHAT IS THE PURPOSE OF THE PROJECT? The purpose of this project is to obtain information related to the perceived quality of life of residents related to animals brought into long-term care facilities. During the project, you will continue to receive any and all of your regular treatments and schedules. If you are chosen to take part in this project you will be notified. The project has three parts: pre surveys, intervention with animal, and post surveys.

WHERE IS THE PROJECT GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The project will take place at Valley View Nursing Home in Glasgow, Montana.
The study will last about 3 months.

WHAT WILL I BE ASKED TO DO? If you agree to take part, have met criteria to be in the project, and have signed the consent form, you will be asked general questions about you, as well as quality of life and loneliness questions.

Intervention: An animal-assisted activity will be done in approximately 12 visits (1 visit/week) over 12 weeks. At each visit, you will meet with a human-animal team for approximately 15-30 minutes. You can talk with the person and pet, groom, play, and give treats to the animal.

Regular Treatment: You will continue to receive regular treatment that can consist of medications, psychotherapy, visits with the facility social worker, and volunteer visits. No change in your plan of care or daily needs will be made.

Follow-up: After the 12 weeks of the project, you will once again be given the quality of life and loneliness surveys. This will take about 30 minutes.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS PROJECT? This project is for residents who are placed in long-term care at Valley View Nursing Home who do not have dementia.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS? The evaluation part of the project when you are asked questions about your perceived quality of life, loneliness,

demographics and mini cog status, poses very small risk. Talking about these things may have an effect on your feelings for a little while. The animal assisted activity intervention poses low risk.

This type of intervention is not new and has been used with many people in different settings, children to older adults. It is not possible to know all the risks in project interventions, but the researcher(s) have taken steps to reduce any known and potential or unknown risks.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS PROJECT? You will receive no direct gain from taking part in this project. However, your involvement may help better understand if animals can indeed improve the perceived quality of life for people living in nursing homes. Also, information from this study will further provide knowledge to other long term care facilities who may be implementing an animal assisted activity program into their facility.

DO I HAVE TO TAKE PART IN THIS PROJECT? Your part in this project is strictly voluntary. You may take away your consent and stop at any time. If you stop taking part in the project, there will be nothing lost by you.

WHAT WILL IT COST ME TO PARTICIPATE? There are no costs to you for this project.

WHO WILL SEE THE INFORMATION THAT I GIVE? We will keep private all information and/or records that identify you, to the extent allowed by law. When we write about the project results to share it with others, we will only write about the combined information we have gathered. You will not be identified in these written materials. We may publish the results of this study but we will keep your name and other personal information private. We will do this by giving your research record a code instead of keeping your name in our records (Example: VP62). Social Security numbers will not be used in this study.

Every effort to keep anyone who is not on the project team will not be told, and/or know that you gave us information, or what that information is. For example, your name will be kept separate from your project records. These two things will be stored in different places under lock and key. There may be times, though, when we may have to show your information to other people. For example, the law may require us to show your information to a court or to tell authorities if we believe you pose a danger to yourself or someone else.

CAN MY TAKING PART IN THE STUDY END EARLY? By signing this consent form you are stating that you have received the information about this project and that you agree to be a part of the project. You will be given a copy of this signed form to keep. You are not giving up any of your rights by signing this form. Even after you have signed this form, you may change your mind at any time. Please contact the project staff if you decide to stop taking part in this study. The project staff may decide to stop you from taking part in this study at any time. You could be removed from the project for reasons related only to you (for example, if you move or do not take part in sessions). You could also be removed from the project because the entire project is stopped.

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS PROJECT?

You will not receive any compensation for taking part in this study.

FINAL INFORMATION:

1. Residents must wash their hands, use hand sanitizer or sanitizing wipes before and after touching dog.
2. Dog will always be with their handler during sessions and the dog will never be left alone with the resident, or off the leash.
3. If at any time the dog shows signs of distress, irritation and/or fear, it will need to take a break from the session and the handler will remove the dog from the room.

4. Just like people, dogs sometimes do not want to participate in an activity. In the event the dog does not want to participate in the session, the client will respect the dogs' feelings and the handler will utilize other modalities for that session.
5. The dog will be groomed and nails will be kept short; however, there may be a risk of getting scratched and the handler, Vonnie Pattison, will not be liable in the event such an accident happens.

****Licking and nibbling is a dog's way of expressing his affection as well as telling you he wants to play. During the intervention, these behaviors may occur, however the resident will never be left alone with the dog during the sessions and the handler, Vonnie Pattison, will make every effort to monitor the dog's behavior; however there is still a risk of the dogs licking and nibbling.**

Please initial below if you **DO NOT** want to be licked. _____.

6. Anyone who has contact with animals can possibly get Zoonotic diseases; however people with weakened immune system as well as the elderly are at more risk. To find out more about zoonotic diseases go to www.cdc.gov/healthypets/animals/dogs.htm, and/or ask Vonnie Pattison, doctoral student.

WHAT IF I HAVE QUESTIONS? Please ask any questions that you have now before you decide to take part in the project. Later, if you have more questions about the project, you can contact the project doctoral student; Vonnie O Pattison at 406-230-0311.

WHAT ELSE DO I NEED TO KNOW? By signing, you agree that you have read the information stated and willingly sign this consent form. Your signature also means that you have received a copy of this form, including the signature page.

I, the resident _____ understand and agree to the policies, procedures, and risks associated with the use of AAA in the nursing home setting. I hereby consent to AAA with a dog, who has been examined, deemed healthy, and appropriate for the project, who will be under the care of Vonnie Pattison, handler. I **ACCEPT** full liability in the event that a dog may cause injury to me in any way though out the course of the project and animal activity intervention.

Consent to Take Part in Doctoral Project

Signature Page

TITLE OF STUDY: Animal-Assisted Activity as an intervention for improving the perceived quality of life in residents of long term care facilities.

Signature of person agreeing to take part in the project

Date

Printed name of person agreeing to take part in the study

Date

Name of person providing information

Date

Signature of Primary Investigator (PI)

Date

Appendix E

Mini Cog

Inclusion criteria: pretest exam only. Possible subject must obtain 3 points or more to be included in project.

3. Instruct the patient to listen carefully and repeat the following:

APPLE WATCH PENNY

2. Administer the Clock Drawing Test (CDT)

4. Ask the patient to repeat the three words given previously

Scoring

Number of correct items recalled _____ [if 3 then negative screen. STOP]

If answer is 1-2 positive for cognitive impairment

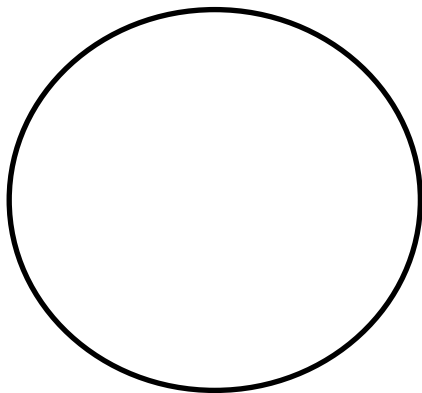
Is CDT *Abnormal*? No Yes

If No, then negative screen.

If Yes, then screen positive for cognitive impairment

CLOCK DRAWING TEST (CDT):

Patient Name: _____ Date: _____



(Permission to use granted from: Borson, 2014)

Appendix F

Demographic and Pet History Questionnaire (DPHQ)

Exclusion criteria questions included. Questionnaire completed pre-intervention only.

Note: Published tool by authors.

In order for me to understand your needs, I would like to gather information about your background. Please complete the following:

1. Your sex is
 Male Female
2. Your marital status is
 Single, never married
 Married
 Divorced
 Separated
 Widowed
3. Your age is _____ years old.
4. What is your race?
 African-American
 White
 Hispanic
 Native American
 Asian
 Other, please state _____
5. What is the highest level that you finished in school?
 Less than sixth grade
 Less than ninth grade
 High school graduate
 College, 1-3 years
 College graduate
 Postgraduate
6. Before you came to live in this long-term care facility, did you live
 in a home in an apartment on a farm

Pet History Questionnaire

1. Did you have a pet when you were a child?
 Yes No
2. How old were you when you had your first pet?
_____ years old
3. Did you grow up with pets?
 Yes No
4. If YES, what kinds of pets did you have? (Please check off all that apply)
 Birds Cats Dogs
 Fish Farm animals
5. Did you have a pet when you lived in your home or apartment?
 Yes No
6. If the answer to number 5 is yes, how many years did you have the pet?
_____ years
7. When did you first have responsibility for the care of the pet?
 - A. _____ Childhood (1-12 years)
 - B. _____ Teenage (13-18 years)
 - C. _____ Young adulthood (19-30 years)
 - D. _____ Middle age (31-61 years)
 - E. _____ Old age (62 and older)
 - F. _____ Never

8. What kind of pet was it?

- Bird Cat Dog
 Fish Farm animal

9. How attached were you to this pet?

- Very attached Attached
 Not at all attached

10. What was your pet's name?

11. What happened to your pet?

- Died Gave it away
 Ran away Other

12. How much time did you spend with your pet as an adult?

- Less than 1 hour per day More than 1 hour per day

13. Was the time spent with your pet in these activities

- Enjoyable Not enjoyable

14. Did touching your pet

- Make you feel good Make you feel bad
 Make you feel nothing

15. When you felt bad, did your pet

- Help you feel better Help you feel worse
 It made no difference

16. When you had your pet, did you talk to your pet?

- Yes, all the time No, not at all
 Sometimes

17. Were you able to confide in your pet?

- Yes, all the time No, not at all
 Sometimes

18. How much does it bother you that you do not have a pet?

- A lot A little Not at all

19. What are your reasons for not having pets now?

- I can't keep a pet at this present place.
 I am no longer interested in pets.
 The staff at this facility may not like pets.

20. If possible, would you like to have a pet at this place?

- Yes No

(Banks & Banks, 2002)

Appendix G

Flanagan Quality of Life (QOL) Scale

Note: The modified Flanagan QOL Scale. Burckhardt; used with permission of authors' representative via email.

Please read each item and circle the number that best describes how satisfied you *are at this time*. Please answer each item even if you do not currently participate in an activity or have a relationship. You can be satisfied or dissatisfied with not doing the activity or having the relationship.

	Delighted	Pleased	Mostly Satisfied	Mixed	Dissatisfied	Mostly Unhappy	Terrible
1. Material comforts home, food, conveniences, financial security	7	6	5	4	3	2	1
2. Health – being physically fit and vigorous	7	6	5	4	3	2	1
3. Relationships with parents, siblings & other relatives, communicating, visiting, helping	7	6	5	4	3	2	1
4. Having and rearing children	7	6	5	4	3	2	1
5. Close relationships with spouse or significant other	7	6	5	4	3	2	1
6. Close friends	7	6	5	4	3	2	1
7. Healing and encouraging others, volunteering, giving advice	7	6	5	4	3	2	1
8. Participating in organizations and public affairs	7	6	5	4	3	2	1
9. Learning –attending school, improving understanding, getting additional knowledge	7	6	5	4	3	2	1
10. Understanding yourself, knowing your assets and limitations, knowing what life is about	7	6	5	4	3	2	1
11. Work – job or in home	7	6	5	4	3	2	1
12. Expressing yourself creatively	7	6	5	4	3	2	1
13. Socializing, meeting people, doing things, parties, etc	7	6	5	4	3	2	1
14. Reading, listening to music, or observing entertainment	7	6	5	4	3	2	1
15. Participating in active recreation	7	6	5	4	3	2	1
16. Independence, doing for yourself	7	6	5	4	3	2	1

Appendix H

UCLA Loneliness Scale (Version 3)

	Never	Rarely	Sometimes	Often
	1	2	3	4
* 1. How often do you feel that you are "in tune" with the people around you?	1	2	3	4
2. How often do you feel that you lack companionship?	1	2	3	4
3. How often do you feel that there is no one you can turn	1	2	3	4
4. How often do you feel alone?	1	2	3	4
* 5. How often do you feel part of a group of friends?	1	2	3	4
* 6. How often do you feel that you have a lot in common people around you?	1	2	3	4
7. How often do you feel you are no longer close to anyone	1	2	3	4
8. How often do you feel your interests and ideas are not shared by those around you?	1	2	3	4
* 9. How often do you feel outgoing and friendly?	1	2	3	4
* 10. How often do you feel close to people?	1	2	3	4
11. How often do you feel left out?	1	2	3	4
12. How often do you feel your relationships with others not meaningful?	1	2	3	4
13. How often do you feel that no one really knows you well?	1	2	3	4
14. How often do you feel isolated from others?	1	2	3	4
* 15. How often do you feel you can find companionship when you want it?	1	2	3	4
* 16. How often do you feel there are people who understand you?	1	2	3	4
17. How often do you feel shy?	1	2	3	4
18. How often are people are around you but not with you?	1	2	3	4
* 19. How often do you feel there are people you can talk to?	1	2	3	4
* 20. How often do you feel there are people you can turn to?	1	2	3	4

Scoring: The items with an *asterisk* are reverse scored. Keep scoring on a continuous basis.

Note: No permission required for use of tool, public use.

Appendix I

CITI: Human Research Curriculum

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

HUMAN RESEARCH CURRICULUM COMPLETION REPORT

Printed on 05/20/2014

LEARNER	Vonnie Pattison (ID: 4164985)
DEPARTMENT	Nursing
EMAIL	vpattison@regis.edu
INSTITUTION	Regis University
EXPIRATION DATE	05/19/2017

SOCIAL BEHAVIORAL RESEARCH INVESTIGATORS AND KEY PERSONNEL

COURSE/STAGE:	Basic Course/1
PASSED ON:	05/20/2014
REFERENCE ID:	13016580

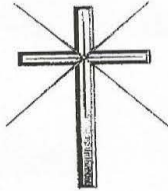
REQUIRED MODULES	DATE COMPLETED
Introduction	05/19/14
History and Ethical Principles - SBE	05/19/14
The Regulations - SBE	05/19/14
Assessing Risk - SBE	05/19/14
Informed Consent - SBE	05/19/14
Privacy and Confidentiality - SBE	05/20/14
Regis University	05/20/14

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

Appendix J

Support Letter from Participating Long-Term Facility



Valley View Home
A "Caring" Home

1225 Perry Lane • Glasgow, MT 59230
Tel: 406-228-2461 • Fax: 406-228-4831
E-mail: vvh@nemont.net • www.valleyview1.net

November 10, 2014

Regis University Institutional Review Board
Denver, Colorado

To Whom It May Concern:

Valley View Nursing Home serves the senior population in a frontier community in Northeastern Montana. Valley View Nursing Home is a skilled nursing facility caring for 96 residents in Glasgow, Montana. Vonnie Pattison, MSN, RN-BC is a Regis University Doctoral student proposing to conduct research at our facility. Our organization welcomes the Animal Assisted Activity (AAA) Ms. Pattison is proposing. As a small organization, we do not have an Institutional Review Board (IRB) committee. The approval from Regis University IRB Committee will suffice the requirements to perform Animal Assisted Activities in our skilled nursing facility.

This letter serves as approval for Vonnie Pattison to conduct her capstone project at our facility. Vonnie's project outcome is to improve the perceived quality of life for residents at our facility by implementing an Animal Assisted Activity to volunteer residents. Our team is excited to see the outcomes of the intervention for implementation of an Animal Assisted Activity in our facility. We are always looking at improving the perceived quality of life of those residents that have chosen to live in our facility. Expanding possibilities for residents and their families will do wonders for their health and ultimately their well-being!

Should you need any further assistance or questions asked, please feel free to contact me directly.

Sincerely,

A handwritten signature in cursive script that reads "Kandi Svenningson".

Kandi Svenningson, BSN, CEO
1225 Perry Lane
Valley View Nursing Home
Glasgow, Montana 59230
Tel: (406) 228-2461
Fax: (406) 228-4831
Facility Email: vvh@nemontel.net
Personal Facility Email: kandi@valleyview1.net

Appendix K

Letter of Support from Valley Veterinarian Clinic

Feb 04 15 08:41a

Dr McAllister

RECEIVED 03/17/2013 21:58
406-228-2467

p.1



January 30, 2015

Regis University Institutional Review Board
Denver, Colorado

To Whom It May Concern:

Valley Veterinary Clinic serves in a frontier community in Northeastern Montana. Vonnie Pattison, MSN, RN-BC, DNP(c) is a Regis University Doctoral candidate proposing to conduct research at a local long-term care facility in our community. Our veterinary clinic welcomes the Animal Assisted Activity (AAA) program Ms. Pattison is proposing. We wholeheartedly endorse and will help in any way we can, and/or as needed.

Vonnie's research outcome is to improve the perceived quality of life for residents at a local long-term care facility by implementing an Animal Assisted Activity to randomized, volunteer residents. This letter serves to support and provide our assistance to assess, monitor, and use our expertise to provide safe, healthy animals to be used in the activity proposed by Ms. Pattison. Our team is excited to see the outcomes of the intervention. We are always looking at improving the quality of life of those who live in our community.

Should you need any further assistance or questions asked, please feel free to contact use directly.

Sincerely,



Dr. C. McAllister
(406) 228-2437
Valley Veterinary Clinic
3 Brown Road
Glasgow, MT. 50230

Appendix L

Capstone Project Linear Timeframe

