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Using the Theory of Planned Behavior to Predict Intention to Incorporate Animal Assisted Interventions Into Practice Among Registered Nurses in Florida

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USING THE THEORY OF PLANNED BEHAVIOR TO PREDICT INTENTION TO INCORPORATE ANIMAL ASSISTED INTERVENTIONS INTO PRACTICE AMONG REGISTERED NURSES IN FLORIDA

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ABSTRACT

Background: Animal assisted interventions (AAIs) have proven to benefit many different populations of patients, and their use is becoming more widespread. However, this type of alternative therapy is underutilized by RNs.

Purpose: The overall purpose of the study was to examine the constructs and test the propositions put forth by the Theory of Planned Behavior (TPB) regarding prediction of intention to use AAI in clinical practice among registered nurses (RN) licensed in Florida.

Theoretical Framework: The Theory of Planned Behavior guided this study.

Methods: The research design employed in this study was a four-phased, non-experimental correlational predictive design. Qualitative data were captured, analyzed, and interpreted during Phase one to explore participants' attitudes and beliefs regarding AAI. During Phase two, findings from Phase one were used to construct an instrument to measure participants' attitudes, subjective norms, perceived behavioral control and intention to use AAI. Expert review of the instrument was conducted to establish content and face validity. The IUAAI was pilot tested for reliability in phase three. Finally, during Phase four, the modified researcher-created Intention to Use AAI (IUAAI) instrument was administered to collect quantitative data.

Results: Data were collected over 12 months from a convenience sample of RNs in Florida who had access to AAI in their clinical setting. Hypothesis one was partially supported as the linear combination of the predictors revealed a significant regression model, F (3, 103) =102.87, p = .00 Two of the three predictors, subjective norms (ß =.62) and perceived behavioral control (ß=.25) were found to be statistically significant

in predicting RNs in Florida intention to use AAI in clinical practice accounting for 74.2% of the variance.

Conclusion: The results of this study suggest that RNs in Florida intend to use AAI if their nursing colleagues, administrators, and patients want them to. They also intend to use AAI if they have some control over AAI. This includes having the knowledge and confidence to use AAI, having enough animals/handlers, and having policies and procedures to guide them when using AAI. Future research should include replicating this study and updating and adding more specific questions about whether AAI is available on the unit and shift where the RN works.

ACKNOWLEDGMENTS

The dissertation process has taken me on a long journey with unexpected twists and turns and taught me a lot of important lessons. There are several quotes that come to mind about my journey. A quote from Confucius said, “It does not matter how slowly you go, as long as you do not stop.” Another line I love, and embrace, is from one of my favorite movies, Finding Nemo, when Dory says, “Just keep swimming, swimming, swimming.” That is exactly what I did. I was slow, but I kept swimming and finally finished this dissertation.

I could not have completed it without the help of my dissertation committee members. I would like to thank my dissertation chair, Dr. Ferrona Beason for all her support and guidance throughout this journey. Her words of encouragement and editorial support have been invaluable. I also would like to thank my committee members, Dr. Claudette Chin and Dr. Jessie Colin, for their valuable input into my dissertation. I would not be where I am today without my entire committee’s guidance, kindness, dedication and commitment to academia.

I want to thank my beloved adult children, Travis and Kayela, who have encouraged and supported me along the way. When I first began this journey, my intention was to graduate with my PhD at the same time my son Travis did. However, life intervened and he completed his four-year bachelor’s degree in three years and I took much longer than I expected. I hope I have role modeled for both of you a commitment to lifelong learning. Finally, I want to thank the man in my life for his undying love, encouragement, humor, kindness and support through this process. You are my rock.

DEDICATION

This dissertation is dedicated to the animals and people I love. I have owned and loved cats and dogs as pets since I was a child. My love for animals led me to choose this research topic. A wise nursing mentor told me to choose something I was passionate about and loved. She encouraged me to link my love for animals with my love for nursing and use that combination as my preferred research area. She said if I did that, I would be happy doing the research.

Currently, I have two cats, Mistletoe and Mocha as well as two dogs, Milo and Mia Bella. My love for them is never ending. They bring me immense joy and happiness daily. They have snuggled in my lap and laid at my feet, keeping me company, during the writing of this dissertation. My hope is that animals will continue to be increasingly utilized by nurses in many types of healthcare settings and will continue to be recognized for all the healthy benefits they bring to our patients and families.

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CHAPTER ONE

Conventional medicine has long held a mechanistic view of illness. This conventional worldview asserts that if an illness could be properly diagnosed, it is typically treated with the use of conventional methods such as drugs, surgery, and therapy. However, various holistic approaches have emerged that have been shown to effectively augment conventional methods. One highly effective non-conventional modality to improve health and healing has been through the use of animals.

The use of animal assisted interventions (AAIs) has been shown to have many salubrious effects, including improvements in loneliness, depression, moodiness, quality of life, stress, anxiety, fatigue, and perceived health (Black, 2012; Dietz, Davis, & Pennings, 2012; Krause-Parello, 2012; Tsai, Friedmann, & Thomas, Johnson, Meadows, Haubner, & Savedge, 2008) Based on the abundant evidence about the healthful effects of AAI, nurses should encourage and facilitate increased use of AAI as a complementary and alternative treatment modality. However, this beneficial therapy is underutilized in the healthcare system of the United States. This underuse regarding AAI merits further research to explore the attitudes and beliefs among registered nurses and find out what the predictors are for intention to use these interventions in their practice.

Background of the Study

Throughout history, pets have been used in many disciplines to assist people. Settings and disciplines including health care systems, education, social work, physician assistants, the prison system, and occupational therapy are

examples of those that have also been using pet therapy (Beck et al., 2012; Matuszek, 2010; Risley-Curtis, Rogge, & Kawam 2013). The literature indicates that animal assisted interventions have been shown to benefit many different populations (Adamle, Riley, & Carlson, 2009; Bibbo, 2013; Black, 2012; Dietz et al., 2012; Johnson et al., 2008; Krause-Parello, 2012; Rosetti, DeFabis, & Belpedio, 2008).

The literature has a variety of definitions regarding research with pets or animals. Many different terms are used that may make it confusing to readers. According to Morrison (2007), more than 20 different definitions have been used to describe the use of animals in healthcare and more than 12 keywords in searching databases have identified the concepts of animal assisted therapy (AAT), animal assisted activities (AAA), and animal assisted interventions (AAIs). Pet therapy is another term that is frequently used. According to dictionary.com (2013), pet therapy is defined as "the use of trained animals and handlers to achieve specific physical, social, cognitive and emotional goals with patients." Matuszek (2010), who wrote a systematic literature review on animal-facilitated therapy, reported that using the term pet therapy in nursing should now be known as animal-facilitated therapy. The author further indicated that this is the umbrella term that encompasses animal assisted activities (AAA) and animal assisted therapy (AAT).

An article by DeCourcey, Russell and Keister (2010) describes animal assisted therapy as a scheduled intervention that typically utilizes specially trained therapy animals. This type of therapy does not use the client's personal pet,

whereas pet visitation will typically use the client's personal pet. However, another article by Evans and Gray (2012) from the discipline of social work discussed that the term animal assisted intervention (AAI) includes animal assisted activities (AAA) and animal assisted therapy (AAT). Morrison (2007), who uses the Delta Society's (2005) definitions of AAA and AAT, believes that AAA is not being directed towards specific goals whereas AAT is. However, AAA provides "opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life" (Morrison, 2007 p. 53).

The Delta Society was originally founded in 1977 as the Delta Foundation. However, in 1981, the name was changed to Delta Society. Following the inception of this name change, researchers and medical practitioners interested in researching the therapeutic relationships between humans and animals began to explore the effects that animals have on people's lives. This group was instrumental in 1983 in helping to pass the Housing and Urban Rural Recovery Act of 1983 to recognize the therapeutic value of pets in the lives of Americans. This group also developed the first comprehensive, standardized training in animal assisted activities and therapy for volunteers and health care professionals. More recently in 2012, the Delta Society changed its name to Pet Partners and continues to focus on improving human health through positive interactions with therapy animals (petpartners.org).

According to Pet Partners, the organization that is recognized as the national leader in the area of animal assisted interventions and therapy, the following definitions have been adopted. Animal-Assisted Interventions (AAIs)

are goal oriented and structured interventions that intentionally incorporate animals into healthcare for the purpose of therapeutic gains to improve health and wellness. The animal is part of a volunteer therapy animal team, which includes the animal and a healthcare professional. Pet Partners believes that AAIs include animal assisted therapy (AAT), animal assisted activities (AAA), and animal assisted education (AAE). Animal assisted therapy is defined as a goal-oriented, planned, structured, and documented therapeutic intervention usually delivered by healthcare providers such as physicians, occupational therapists, nurses, social workers, mental health professionals, and others. However, animal assisted activities (AAA) are more informal yet are still delivered by specially trained healthcare professionals or volunteers and are used to provide motivational, educational, or recreational benefits to enhance the quality of life. Animal assisted education (AAE) is defined as a goal-oriented, planned, and structured intervention that is used by an education professional where the activity is focused on academic goals, prosocial skills and cognitive functioning with a student whereby the progress is measured and documented (Petpartners.org). Currently as this discussion noted, there is a lack of consensus in health-related research about these specific terms. For the purposes of this study, the term animal assisted interventions (AAI) was used since this term includes both animal assisted activities (AAA) and animal assisted therapy (AAT).

There are many ways that animals or pets are being used to help people and the research uses several different terms including AAA, AAT, AAI, PFT (pet facilitated therapy), AFT (animal facilitated therapy), and two studies used

canine assisted ambulation and activities (CAA) to signify research that specifically used dogs (Abate et al., 2011; Cole, Gawlinski, Steers, & Kotlerman; 2007). Another study used equine therapy. (Bachi, 2013). Even though the literature review discusses many of these terms and many different types of animals, they are all equally important in the discussion. The terms may be different, but the similarities are evident despite the specific animal that is used. However, even though there are many types of animals used, dogs are most commonly used in AAIs.

Nursing is beginning to embrace animal-assisted interventions and is using it in multiple settings including psychiatric, critical care, hospice, geriatrics, rehabilitation, and pediatrics. The discipline has considered animals to be a vital component of health and healing as far back as 1860 when Florence Nightingale was quoted as saying "A small pet is often an excellent companion for the sick, for long chronic cases especially" (Ormerod, 2005, p. 23). According to the American Veterinary Medical Association (2012), United States citizens currently own over 74 million cats, over 69 million dogs, over 8 million birds, and almost 5 million horses. This data demonstrates that pets are a significant part of the American household. In 2011, 63% of pet owners considered their pets to be family members (U.S. Pet Ownership and Demographics Sourcebook, 2012). Furthermore, an article by Buettner, Fitzsimmons and Barba (2011) reported that a 2008 American Hospital Association survey was conducted regarding complementary and alternative medicine (CAM) in which animal-assisted therapy (AAT) was included. This research discovered that only 46% of the hospitals that

were surveyed are using this type of therapy. However, in 2008, a registered nurse (RN) web poll surveyed nurses to find out if facilities allowed AAA with patients and 69% responded affirmatively (RN, September 2008, pg. 14). These differing facts between hospitals and RNs suggest that AAI is being utilized but it could be more prevalent and occur more frequently than currently reported.

Animals are being used in several settings within various disciplines. For example, teachers in schools are using AAIs to assist children in reading (Friesen, 2010), jails are using prisoners to train animals to become service animals (Matuszek, 2010), and social workers are using AAIs with their clients in therapy across the lifespan (Risley-Curtiss, 2010; Risley-Curtiss et al., 2013). In addition, nurses are using AAIs to improve the amount of walking that heart failure patients will do or to decrease anxiety and stress among their patients. (Cole, et al 2007; Abate, et al 2011) and occupational therapists are using AAIs with veterans to improve on psychosocial symptoms (Beck et al, 2012). These are just a few examples of how AAIs are benefiting many types of populations. There is a growing body of evidence about the healing and helpful effects of AAIs across the lifespan. This beneficial, complementary, and alternative health and healing modality should be encouraged by nurses to potentially significantly improve the health of many patients.

The Theory of Planned Behavior (TPB) has been used in various research areas about predicting health behaviors and intention to use them. However, currently, the TPB has not been used to study AAI, which leaves a gap in the literature that requires investigation. There have been no published studies with

animal assisted interventions using TPB, though its constructs of attitudes, behavioral beliefs, subjective norms, perceived behavioral control, and intention are what this researcher was interested in studying. Furthermore, it is important to identify what nurses think about the use of AAI in clinical practice to see what the facilitators and barriers are and then the barriers can be addressed so that this beneficial therapy can become more widely used.

Even though there are many benefits to AAIs, there are also a few contraindications to using this therapy. The nurse should find out if the client is fearful of animals or has an allergy to the animal. If this were the case, the therapy would be contraindicated. In addition, some clients may be disinterested, or their behaviors may actually be harmful toward the animal, so AAI would not be recommended. There are also certain medical conditions including but not limited to immunocompromised clients and clients with open and draining wounds where AAI would be inappropriate. (Morrison, 2007, p. 58)

Certification of the handlers and animals is another issue that needs to be addressed. Registered nurses and other health care professionals can get certified via classes in AAA and AAT. They also teach the health care professionals assessment, documentation, and evaluation and specific techniques to use for the interaction. However, the animal certification is a separate issue. Many agencies including Delta Society, now called Pet Partners, Therapy Dogs, and the American Kennel Club Good Citizen Test will provide the help needed to get the animal certified. The animals must have a good temperament and a general healthy wellbeing (Morrison, 2007).

Cost or reimbursement to the health care professional or institution for AAIs varies from different geographic areas; however, it is usually not reimbursed, as there is no reimbursement code. There are two documented cases in the literature that received reimbursement from the health insurance company. These include a nursing home in Missouri that proved that AAIs improved patient outcomes and a rehabilitation hospital in New Hampshire that used AAIs. The documentation that was provided to the insurance companies to demonstrate the positive outcomes included progress notes, specific goals, and measurable outcomes (Morrison, 2007, p. 59). Most AAIs are done on a voluntary basis and the cost for feeding, housing, toys, veterinary costs, and training are absorbed by the volunteer. The Delta Society believes that AAA should be included in patient care plans, and due to this inclusion, would not be a separate billable issue. However, AAT may be a separate billable issue.

Historical Evolution of Animal Assisted Interventions

It is believed that pets have been around since prehistoric times. Connor and Miller (2000) identified that there have been cave drawings with wolves on them and that some wealthy Egyptians were buried with their cats. They also indicated that horses and dogs have been used in hunting and as companion animals. The literature is full of articles on pet therapy, which includes AAI, AAT, AAA, pet facilitated therapy (PFT), animal facilitated therapy (AFT), and animal or pet visitation. According to Connor and Miller (2000), the first known use of animal assisted therapy was in 1792 in England at a psychiatric retreat. These authors specified that as far back as 1867, animals were used in the

treatment of patients with seizures in Germany. Connor and Miller (2000) reported that the first use of animals in the United States was in New York in 1942 at an Air Force hospital. Furthermore, they shared that in 1948 there were a children's home in New York that used animals for positive reinforcement for good behavior.

An article by Ormerod (2005), who is the chair for The Society for Companion Animal Studies, communicated that the use of animals is an ancient practice and that animals in Rome and Greece were kept in healing temples to promote healing. People who had mental health issues were encouraged to get a dog to preserve their mental health. Ormerod's article where she presents the evidence and history of how companion animals can improve the health and quality of life of older people, further explained that in the 1700s animals and birds were used as companions for patients and that this was an important part of the care. Florence Nightingale believed in the importance of pets in therapy. In 1859, she wrote, "A small pet is often an excellent companion for the sick, for long chronic cases especially" (Ormerod, 2005, p. 23)

Pet therapy is being studied in the United States as well as in other countries. According to an article by Ormerod (2005), there is a Society for Companion Animal Studies (SCAS) established in 1979 in the United Kingdom, which includes specialties such as psychiatrists, psychologists, social workers, and veterinary surgeons. The initial focus of this society was research. This organization, SCAS, has now branched out into other organizations including the International Association of Human-Animal Interaction Organizations (IAHAIO)

and is an advisor to United Nations. This organization is also a working partner with the World Health Organization (WHO) since 2004. The IAHAIO issued the Geneva Declaration, which aims to apply policy to support older people and their companion animals at the local and national level. Ormerod (2005) compared several countries and their legislation about placing pets in housing policies and found that Britain lags behind the United States, France, Spain, Greece, Monaco, and Canada. The author shared that because of research done in California, the United States government has enacted the National Federal Pets in Housing Law, which permits older adults and people with disabilities to keep their pets.

Animal Assisted Interventions Globally

AAIs are being used internationally in the same settings and with the same disciplines as in the United States. The review of the literature demonstrates the benefits of AAI in many countries. As noted previously, international organizations support the use of human animal interactions. Three continents, including Asia, Europe, and Australia, are conducting research pertaining to AAI. The research demonstrates the value and benefits of AAI.

The current literature demonstrates that animal-assisted interventions have many salubrious effects for multiple types of populations across the lifespan in the United States, Japan, Norway, Italy and Australia. (Kawamura, Niiyama & Niiyama, 2009; Kumasaka, Masu, Kataoka & Numao, 2012; Moretti et al, 2011; Pederson, I., Nordaunet, T., Martinsen, E., Berget, B., & Braastad, B., 2011; Prosser, Townsend, & Staiger, 2008). Kumasaka et al. (2012) conducted a quantitative study of 20 patients in palliative care in Japan and the mood faces

scale and found that the mood improved with the AAA. Kawamura et al. (2009), also located in Japan, conducted a qualitative study with eight institutionalized older adults with mild dementia. The researchers were studying perceptions regarding AAAs and found several themes that included: positive feelings about the dogs, confidence in oneself, recalling fond memories about dogs, a break from the daily routine, interacting with the other residents through dogs, and enhanced communication with volunteers. The researchers concluded that AAAs are helpful.

Prosser et al. (2008) conducted research in Australia using a mixed method study to investigate older people's relationship with companion animals and whether they improve depression scores and the sense of general wellbeing. There were 18 participants who received visiting companion animals for 1.5 hours over 6 weeks. The visiting companion animals did not improve the scores in depression; however, they suggest health and wellbeing benefits from the companion animal visits. Likewise, a study in Norway that involved adults who had clinical depression used working with farm animals to see if anxiety and self-efficacy improved. Again, interactions with the farm animals improved these psychological phenomena. This brief overview of several studies indicates, animal assisted interventions have been related to and shown to be beneficial in psychological phenomena as well as physiologic phenomenon. Due to the reported multiple physiological and psychological benefits of AAI, nurses as well as other health care professionals should encourage and fully support the use of AAI in healthcare.

Animal Assisted Interventions Nationally

Furthermore, AAIs are being used across the country in the United States. The review of the literature will show the settings and disciplines where AAIs are being used. An article by Ernst (2014) specified the benefits of AAT are becoming increasingly recognized. The author categorized the benefits as cardiovascular, psychological, and cognitive benefits. Furthermore, the author also discussed the use of resident animals and pet visitation as beneficial animal activities. In addition, the article gives clear guidelines on how to start an AAT program at any institution is also presented in the article. The author recommended identifying an AAA champion or someone who is supportive of encounters with animals and patients. The article concludes by communicating that there are many areas of AAT that require further exploration so that evidence-based practice guidelines and principles can be developed. Another article by Murthy et al. (2015) wrote about animals in healthcare facilities to minimize risks. They stated that animals in healthcare facilities are present for two main reasons. One is the use of service animals and the other is for animal assisted activities or pet therapy. However, pet visitation is allowed by some healthcare institutions. The Society for Healthcare Epidemiology of America (SHEA) surveyed healthcare facilities about animals in healthcare in 2013 and found that out of 280 US facilities, 89% allowed animal assisted activities, whereas only 40% allowed pet visitation. The majority of these were acute care teaching hospitals. All of the health care institutions in the United States that

allowed AAA used dogs, and only 21% allowed cats, 5% allowed miniature horses, and 2% allowed primates.

Multiple research studies conducting in the U.S. regarding AAA are showing the various benefits of this therapy. Abate et al. (2011) studied hospitalized heart failure patients and used dogs to encourage them to ambulate. The findings demonstrated that ambulation increased from 120.2 steps to 235.05 steps when the participants walked with a dog. Beck et al. (2012) used dogs to help wounded veterans in transition and although the statistics were not significant, the veterans reported satisfaction with AAA. Cole et al. (2007) also researched hospital heart failure patients, and their research demonstrated that AAT improved cardiopulmonary pressures, neurohormone levels, and anxiety in these patients. Moretti et al. (2011) researched nursing home patients with dementia, depression, and psychosis. The patients had AAA and a 6-week pet therapy intervention. The research demonstrated improved depressive symptoms and cognitive function from these AAA in residents in long-term care facilities with mental illness. Tsai et al. (2010) conducted research regarding AAT on hospitalized children and examined physiological and psychological factors. AAT was shown to improve some of these factors. Again, the findings were positive for improvements in these areas with pet therapy.

Animal Assisted Interventions Locally

Currently, several Florida hospitals systems are embracing AAI. Memorial Hospital System appears to be the first in 2009 having one full time dog in all six of its hospitals. A few of the major hospital systems in Florida are using

some type of pet therapy program at their institutions. All of these hospitals have a dog available Monday through Friday for any patient who requests it. Anyone can find this information on the hospitals websites.

For instance, all six of Memorial Hospitals in south Florida have a full time golden retriever on staff since 2009. These dogs interact with patients, families, and staff. The dogs can follow up to 80 commands and can open closets, catch balls, and play tug with a rope, which helps the young and old alike recovering in a rehab unit. AAIs are common in pediatric departments. For instance, Joe DiMaggio Children's Hospital in Hollywood, Florida has a Pet-A-Pet program with specially trained friendly service dogs who are available for patients who need extra comfort. One of their dogs, Nutmeg, can help patients with their shoes, open doors, or let patients take her for a walk. Another local hospital system in South Florida, the Baptist Health System, has a program called Paws for Healing. Every week, dogs visit some patients just to brighten their day. The dogs were specially trained by Therapy Dogs Inc. to visit patients in hospitals and nursing homes. The pet therapy program is run by Volunteer Services., Hopkins All Children's Hospital in St. Petersburg, Florida, offers a pet therapy program where therapy dogs make rounds on a regular basis and visit the patients, families, and staff. All of the dogs have to be certified, and the owner of the dog must apply to be a hospital volunteer. All of the pet therapy visits are prescheduled. Since this type of alternative therapy is becoming more prominent, nurses as well as all the health professionals need to be educated on this important

aspect of care. This topic needs to be included into the curriculum of all health professionals, especially undergraduate, and the graduate programs of nursing

Animal Assisted Interventions and Safety

Safety is another issue that needs to be addressed when dealing with animals. Safety of the client as well as the pet and handler need to be maintained at all times. Certain groups of patients that may treat the animal unkindly may need extra supervision. The Delta Society has clear guidelines to assist with AAI in a book called Standards of Practice for AAA and Therapy. All institutions should have clear guidelines in place to handle these situations. The fear that animals will transmit disease to the human is one of the big concerns that are mentioned when AAI is introduced. This is called a zoonotic infection, and even though it rarely occurs, the Centers for Disease Control and Prevention has addressed this issue with specific guidelines called Guidelines for Animals in Healthcare Institutions. Keeping the animals clean and well-groomed on a regular basis will decrease the risk of infection (Morrison, 2007). If research involves animals, extra precautions must be taken to ensure all of the participants are safe during research studies and the animals are properly handled.

The Centers for Disease Control and Prevention (CDC) has developed guidelines for animal assisted therapy for research studies in the hospital. The risk of zoonotic transmission of disease, which is disease that is transmitted between human and animal, will be minimized. A hand washing area should be available as well as hand sanitizer for washing before and after interacting with the animals. Specific guidelines exist about care of those animals, which include

regular veterinarian visits, biannual temperament evaluations, and avoidance of these animals if they are sick or exhibiting unusual behavior (Miller & Ingram, 2000).

According to Morrison (2007), only a few contraindications for initiating or continuing animal assisted interventions exist. These reasons include: fear of the animal, allergic to the animal, not being interested in animals, or if the client is unable to treat the animal in an appropriate manner. In the area of healthcare, if a patient has a medical condition that would worsen after being exposed to an animal, such as being immunocompromised or having open wounds, burns, or sores, then AAI would be contraindicated. Another way to maintain safety is to have supervision of the AAIs by a specialist in AAA or AAT. Their job is to protect the animal as well as the clients. Some patient populations may need extra supervision to prevent injury or aggravation of the animal. Sometimes the animals are not interested in participating in the therapy or intervention and the handler would be able to monitor for this. However, if an animal is a resident of the hospital or health care facility, there should be clear protocols in place to ensure the safety and wellbeing of the animal. The Delta Society has published guidelines for standards of practice for AAA and AAT.

Problem Statement

There is an abundance of literature lauding the benefits of animal assisted interventions (AAI) in healthcare (Black, 2012; Dietz et al, 2012; Johnson et al, 2008; Krause-Parello, 2012). Furthermore, the exploration of the use of AAI has been a recognized area of research since the 1960s. AAI has demonstrated to be

beneficial to many different patient populations and their use is becoming more widespread. However, this type of alternative therapy is underutilized in healthcare (Buettner et al, 2011). The literature is unclear as to whether the reason involves the attitudes and beliefs of health care workers toward AAI, a lack of knowledge, or both. Even though there is an abundance of literature lauding the benefits of AAI in healthcare, there is a paucity of research in this specific area regarding attitudes and beliefs of registered nurses toward AAI. Using the constructs of the theory of planned behavior (TPB), is the aim of this research study to develop an instrument to assess the attitudes and beliefs of registered nurses and to implement this tool to discover predictors of registered nurse's intent to use AAI in clinical settings.

Purpose of the Study

The purpose of this non-experimental study was to examine the constructs and test the propositions put forth by the TPB in regard to prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RN) licensed in Florida. The ultimate goal was to determine what the registered nurses' attitudes and beliefs are about AAI so that the barriers to using AAI can be addressed and interventions designed to address those barriers so that this modality may be used in providing care by registered nurses.

Theoretical and Operational Definition of Key Terms

For the purpose of this study, the theoretical and operational definitions of the key terms are provided. A theoretical definition explains what is meant by the concepts or variables of interest. An operational definition defines how the

concepts or variables of interest was measured within the context of this study. Operational and theoretical definitions are closely related to each other (Burns & Grove, 2009).

Attitude

Theoretical definition. Attitude is defined by Ajzen and Fishbein (1980) as the positive or negative feelings that have an influence on an individual's decision-making process towards a particular behavior. Individuals are more likely to perform a behavior for which they have a positive attitude towards its outcome than a behavior for which they perceive would have a negative outcome.

Operational definition. Attitude was operationalized in this study through the use of the Intention to Use AAI (IUAAI) instrument, which is a researcher-developed, seven items, seven-point Likert scale; the minimum score on the scale was 7, and the maximum score was 49.

Subjective Norms

Theoretical definition. Subjective norms consist of the individual's normative beliefs towards what others perceive to be the correct outcome of the behavior (Ajzen & Fishbein, 1980). If the individual believes that others see this behavior as having a positive outcome, the individual will more likely be influenced by his or her perception and in turn will be more likely to carry out the behavior.

Operational definition. Subjective norms were operationalized in this study through the use of the Intention to Use AAI (IUAAI) instrument, which is a

researcher-developed, nine items plus 3 motivation to comply items, seven-point Likert scale; the minimum score on the scale was 3, and the maximum score was 147.

Beliefs (Behavioral, Normative, Control)

Theoretical definition. Three kinds of beliefs exist: behavioral beliefs, normative beliefs, and control beliefs. Behavioral beliefs are about the likely outcome of the behavior and evaluation of these outcomes. Normative beliefs are concerned with expectations of others who approve or disapprove of the behavior and the motivation to comply with these expectations. Control beliefs are a person's beliefs about factors that facilitate or impeded performance of the behavior and the perceived power of these factors. (Ajzen, 1991).

Operational definition Beliefs was operationalized in this study through the use of the Intention to Use Animal Assisted Interventions (IUAAI) instrument for Phase one that is a researcher-developed survey with open-ended questions.

Perceived Behavioral Control

Theoretical definition. Perceived behavioral control is the perception of a person's ability to perform a behavior of interest. This is determined by factors that make it difficulty or easy to perform the behavior. (Ajzen, 1991).

Operational definition. Perceived behavioral control was operationalized in this study through the use of the Intention to Use AAI (IUAAI) instrument, which is a researcher-developed, seven-item, seven-point Likert scale; the minimum score on the scale was 7, and the maximum score was 49.

Intent

Theoretical definition. Behavioral intent is defined as how intensely an individual is willing to try to perform a behavior. (Ajzen, 1991).

Operational definition. Behavioral intent was operationalized in this study through the use of Intention to Use AAI (IUAAI) instrument, which is a researcher-developed, 4-item, seven-point, Likert scale, the minimum score on the scale was 4 and the maximum score was 28.

Research Questions and Hypotheses

This proposed research study was conducted through four phases. Each phase had specific research goals and questions and was built on the previous phases. Ultimately, a survey tool was constructed, and an instrument developed based on Ajzen's TPB using the guidelines of his recommendations on the creation of an instrument.

Phase One

In the first phase of the study, members of the population of interest, which are registered nurses practicing in Florida, were asked to qualitatively respond to the following: (a) To elicit data about behavioral outcomes, the participants were asked about the advantages and disadvantages of using AAI in their practice setting; (b) In terms of eliciting data about normative referents, the participants were asked about individuals or groups that would approve or disapprove of using AAI in their clinical setting as well as individuals who are most likely and least likely to use AAI in the clinical setting; (c) To learn about control factors, participants were asked about any factors or circumstances that

make using AAI easy or difficult. A demographic survey was included (see Appendix E) to be able to describe the participant sample and assure that the participants met the inclusion and exclusion criteria.

Phase Two

In the second phase of the study, the data from phase one including the answers to the questions related to the behavioral outcomes, normative referents, and control factors that are specific to the use of AAI by nurses, were incorporated in the IUAAI instrument. This data was used to construct an instrument to measure the Theory of Planned Behavior constructs (Fishbein & Ajzen, 2010) related to the use of AAI among registered nurses in Florida. The instrument is called the Intention to Use Animal Assisted Interventions (IUAAI) instrument. The instrument will measure four constructs including attitudes, subjective norms, perceived behavioral control and intention. The IUAAI was used to collect data from registered nurses in phases three and four. Content validity for the items on the IUAAI was ascertained using a table of specifications methodology (Newman, Lim, & Pineda, 2013). Additional psychometrics were calculated and analyzed. Face and content validity were conducted in this phase using a panel of experts.

Therefore, the questions posed in this phase were:

1. Do the newly created scale items that were generated from data obtained in Phase 1 and intended to operationalize the specific constructs of attitude, subjective norm, perceived behavioral control, and intent have face validity?

2. Do the newly created scale items that were generated from data obtained in Phase 1 and intended to operationalize the specific constructs of attitude, subjective norm, perceived behavioral control, and intent have content validity?

Phase Three

Once face and content validity were obtained, the newly created and refined instrument was sent to RNs in Florida to obtain data to ascertain reliability of the instrument via a Cronbach alpha. The research question for this phase was:

1. Do the individual items and the subscales for attitude, subjective norm, perceived behavioral control, and intent achieve the benchmarks of acceptable reliability as internal consistency?

Phase Four

During phase four of this study, the instrument that was developed and refined in Phases two and three was utilized to collect data from a sampling of registered nurses in Florida who meet the inclusion criteria for this study and were willing to participate. In this phase, the researcher sought to answer the following questions and hypotheses.

Research Questions and Hypotheses for Phase Four

Research questions.

1. What is the relationship between RN attitudes, subjective norms, perceived behavioral control, and intent toward AAI?
2. What is the individual contribution of each of the predictors to the model?

Hypothesis.

$H1_A$. There is a statistically significant relationship between the RNs' attitudes, subjective norms, perceived behavioral control and intent toward AAI.

Theoretical Framework

The Theory of Planned Behavior

The Theory of Planned Behavior (TPB) was used to guide this study. The TPB has been used extensively in research studies in nursing as well as other disciplines. The constructs of this theory worked well with the variables that this author intended to study, which included attitudes, beliefs, subjective norms, perceived behavioral control, and intent. The TPB was developed previously by Fishbein and Ajzen and began as the theory of reasoned action. Martin Fishbein introduced the theory of reasoned action in 1967. Since then it has been refined (1988, 1991), tested, and further developed by Fishbein and Ajzen as well as others. The only difference between the two theories is that the TPB includes the construct of perceived behavioral control as an additional factor that determines intentions and behavior. It is one of the most popular theoretical frameworks used for studying human actions (Ajzen, *n.d.*).

This theory predicts an individual's intention to engage in a behavior at a specific time and place. It is intended to explain all behaviors over which people can exert self-control. The TPB is used more in public health than the health belief model, however it does not consider environmental or economic influences. The creator of this theory is Icek Ajzen who is still alive and teaches at University of Massachusetts. He has an interactive website, email, and phone numbers and offers consultations for researchers who are using his theory. (Ajzen, *n.d.*)

The following is the schematic of the Theory of Planned Behavior. See *Figure 1*. The TPB contains six major constructs, which predict intention of the behavior. The six constructs include behavioral beliefs, attitude toward the behavior, normative beliefs, subjective norms, control beliefs, and perceived behavioral control. Each construct is discussed individually in the next section.

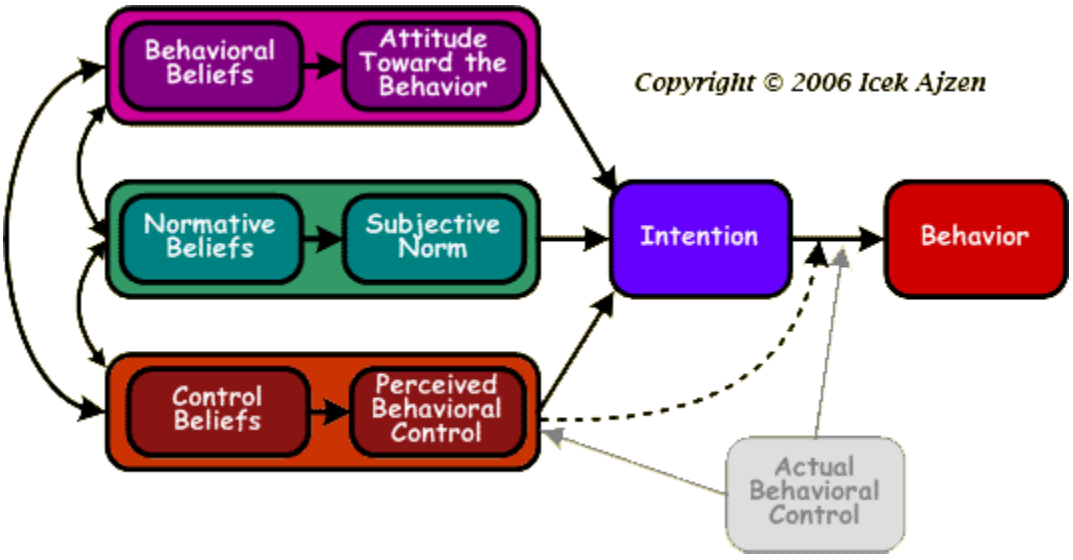

Figure 1. Icek Ajzen Theory of Planned Behavior schema (2006).

Behavioral Beliefs

Behavioral beliefs are the beliefs about what the consequences of the behavior might be. A person has multiple beliefs regarding a behavior, but only some are accessible. These behavioral beliefs will determine the attitude toward the behavior. (Ajzen, *n.d.*)

Attitude Toward the Behavior

The construct of attitude toward the behavior looks at favorable or unfavorable evaluation of the behavior of interest. (Ajzen, *n.d.*)

Normative Beliefs

Normative beliefs refer to what the person thinks other people expect of them. These people can be individuals or groups. These beliefs identify who are the important individuals or groups. Using these beliefs of who is important, they are combined with whether a person believes that they should comply with what the important or referent individuals or groups think. This helps determine the construct of subjective norms. (Ajzen, *n.d.*)

Subjective Norm

The construct called subjective norms is determined by beliefs about whether most people approve or disapprove of the behavior such as beliefs held by peers and people of importance and whether they think this behavior should be engaged. (Ajzen & Fishbein, 1980)

Control Beliefs

Control beliefs refer to what an individual perceives as the factors that may facilitate or impede performance of a behavior. These control beliefs along with how much perceived power they have will determine the construct of perceived behavioral control. (Ajzen, *n.d.*)

Perceived Behavioral Control

Perceived behavioral control refers to individuals' perception of whether they have the ability to perform a behavior. Perceived behavioral control views factors that facilitate or impede performance of a behavior. Lastly, perceived behavioral control is also the perception of the ease or difficulty of performing the behavior of interest. (Ajzen, 1991)

Intention

The construct of intention is concerned with a person's readiness to perform a given behavior. The theory stipulates that intentions are influenced by the attitude toward the behavior, subjective norms, and perceived behavioral control. (Ajzen, *n.d.*)

Behavior

Ajzen defines the construct of behavior as a response that is seen in a specific situation. With the TPB, behavior is a function of the intentions and a person's perceptions of perceived behavioral control. (Ajzen, *n.d.*)

Applications of Theory of Planned Behavior

Multiple research areas have used the TPB to predict health behaviors and intention to use them. However, there have been no published studies with animal assisted interventions using TPB, though its constructs fit nicely with what the author is interested in studying. A summary of five research studies that used the TPB was presented. TPB has been used in multiple studies to predict the likelihood of a health behavior such as condom use, dieting, driving, and product choice. As the following research will demonstrate, TPB has been used in

nursing research to study a broad array of cultures and used in research conducted on many continents.

Cote et al. (2012) conducted a quantitative, non-experimental, predictive, correlational research study and used the theory of planned behavior to explore what predicts nurse's intention to integrate research evidence into clinical decision making. This study was conducted in Canada with 336 nurses working in a university hospital. The researchers used an instrument based on the TPB that had two sections. The research instrument was developed using data obtained from a qualitative phase that had 19 interviews and a literature review. Face validity of the instrument was obtained with four experts. Internal consistency and reliability were tested on the instrument in a different hospital. The first section measured the theoretical constructs and used a six-point Likert scale. Each construct had four to eight items on the instrument that measured it. The second section collected demographic data. The researchers used multiple linear regression with stepwise procedure to conduct the statistical analysis. The researchers found that intention to integrate research findings into nursing practice can be predicted by the constructs of moral norm ($B = 0.38$, $p < 0.0001$), normative beliefs ($B = 0.26$, $p < 0.0001$), past behavior ($B = 0.15$, $p < 0.0001$,) and perceived behavioral control ($B = 0.27$, $p < 0.0001$). This explains 70% of variance in nurse's intention to integrate research evidence into clinical decision-making. The researchers recommend that more research is needed to further validate this study in different settings and to develop and evaluate interventions based on these results, which will enhance research utilization in nursing practice.

Lino et al. (2014) conducted another quantitative research study that used the TPB to explore attitudes and beliefs about dietary supplements among HIV-positive Black women. This cross-sectional study was conducted in California with 153 HIV-positive African American women. The instrument used was created based on the TPB and survey items used a seven-point Likert type scale or bipolar adjective scales to measure the constructs of intention, attitudes, subjective norms, perceived behavioral control, behavioral beliefs and outcome evaluations, normative beliefs, and motivation to comply and control beliefs and power of control. Each of these constructs had three to six items on the instrument. The researchers also collected demographic data on the participants.

Multiple linear regression statistical analysis was used on the data. Correlation among the TPB-related variables was analyzed using Spearman correlation coefficients and found that all of the TPB related items were significantly ($p < 0.0001$) positively correlated with intention to use dietary supplements. The researchers also used a Mann-Whitney test between users and non-users of dietary supplements and discovered that those who used dietary supplement to manage their HIV had stronger intentions (median of 6 vs 1.50, $p < 0.001$), and more positive attitudes toward use (median of 5.80 vs. 4.60, $p < 0.001$), a higher perceived social pressure for use (median 27.25 vs. 16 $p < 0.001$,) and a greater perceived behavioral control (median 6.33 vs. 4.67, $p < 0.001$) over the use compared to those who did not use dietary supplements. The researchers concluded that 45% of the respondents used dietary supplements to control or manage their HIV. The researchers also concluded that intention to use dietary

supplements can be predicted by combining attitudes (adjusted R^2 0.580, $p <$ 0.001), subjective norms (adjusted R^2 0.689, $p < 0.0001$ and perceived behavioral control (adjusted R^2 0.667, $p < 0.001$). This showed (69% of the variance was explained, $p < 0.0001$) for the participant's intention to use dietary supplements. The researchers concluded that using the TPB to understand dietary supplement use was supported. They also think that understanding the beliefs of using CAM to help HIV management is important and that their findings are consistent with other researchers.

A research study by Werner (2012) in Jerusalem investigated intention to work with individuals with dual diagnosis (DD). The researcher wanted to test the TPB among students from various professions. The participants included 512 social worker, nursing, occupational therapy, speech and language, and special education students. The researcher created an instrument that measured the constructs of the TPB including intentions, attitudes, subjective norms and perceived behavioral control. Intention was measured with three items using a seven-point Likert type scale. The construct of attitudes was measured with nine items ranging on a seven-point semantic differential scale. The construct of subjective norms was measured with three items on a seven-point bipolar adjective scale. The construct of perceived behavioral control was measured with four items on a seven-point Likert type scale. The researcher also collected demographic data asked to qualitatively report on any experiences they had with individuals with disabilities.

Pearson correlations were performed on the data and all of the TPB constructs including attitudes ($r = 0.39$, $p < .001$), subjective norms ($r = 0.50$, $p < .001$), controllability ($r = -0.13$, $p < .001$) were correlated with the intention to treat individuals with DD. The researcher found that the constructs of attitudes and perceptions of subjective norms predicted their intention to work with individuals with dual diagnosis. Interestingly, of the five professions of students the researchers studied, they found that social worker and nursing students have the lowest intentions to work with these types of clients. The researchers recommend working on changing attitudes of the student's significant others and promoting attitude changing programs to reduce the fear associated with working with people with DD. This should also be included in the nursing and social work curriculums.

A research study using a cross-sectional, correlational research design from Bangkok, Thailand was conducted by Wayuhuerd et al. (2010) to find out about condom use behavior in Thai adolescents using the TPB. The researchers studied 607 adolescent student ages 17-21 attending vocational school. The researchers used two instruments including a demographic questionnaire and a modified TPB questionnaire (TPBQ). The TPBQ was evaluated for content validity by seven experts and then pilot tested on 95 adolescent vocational students prior to being used in the current study. They used four constructs of the theory including attitude toward condom use, subjective norms, perceived behavioral control, and intention.

To measure indirect attitude toward condom use behavior, they used 18 behavioral beliefs and 18 corresponding outcome evaluations using a six-point Likert type scale. To measure direct attitude, they used 14 scales consisting of bipolar adjective scales ranging from one to five. Higher scores on both of these scales indicated higher attitudes toward condom use. To measure subjective norms, they again used both indirect and direct measures. Two scales that had seven normative beliefs and seven motivations to comply assessed the indirect measures and they were rated using the five-point Likert type scale. The direct subjective norms were measures with two items on a five-point Likert type scale. Higher scores indicated higher subjective norms.

As for the construct of perceived behavioral control (PBC), both indirect and direct measures were assessed. They used two scales to measure indirect perceived behavioral control that had 20 control beliefs and 20 perceived power items and rated them on a five-point bipolar adjective scale. As for direct PBC, this construct was measured using four items, and they were rated on a five-point bipolar adjective scale. Higher scores indicate higher PBC. Lastly, for the construct of intention, they had four items rated on a five-point Likert type scale and higher scores indicated greater intention to use condoms. They also included three items about condom use behavior ranging on a five-point scale where higher scores indicated higher condom use. Cronbach's alpha coefficients were calculated on each of the constructs in the TPBQ. The statistical analysis included Pearson correlation to determine relationships among the variables. The researchers concluded that attitude toward condom use; subjective norms and

perceived behavioral control were found to be positively correlated with intention to use condoms. They found that perceived behavioral control predicted 34% of the variance.

Finally, a quantitative research study in Iran by Rahnama et al. (2013) investigated the withdrawal method and women's intention to switch over and use oral contraceptives (OC). This study used a cross sectional, correlational design and the TPB to guide the study. The researchers surveyed 336 sexually active married women from five public family planning clinics. Data were collected using a structured face-to-face interview that lasted 20 to 30 minutes, and responses were recorded on paper questionnaires by the interviewer and data were collected on 50 participants in order to elicit their salient beliefs. Data from the qualitative study was used to develop the TPB questionnaire. The TPB questionnaire had two parts. The first part included demographic data and the second part was measuring the constructs of the TPB including attitude (behavioral beliefs, outcome evaluations), subjective norms (normative beliefs and motivation to comply) perceived behavioral control, and behavior intention and past behavior.

To gather data about attitudes, the instrument has ten items about beliefs of the outcome of using OC and five items on evaluation of a given belief. These were rated on a five-point Likert type scale. As for the construct of subjective norms, the instrument had 10 items, which included five items on beliefs about the expectations of significant others and five items that measured motivation to comply with significant other expectations. For the construct of perceived

behavioral control, the instrument had four items what were rated on a five-point Likert scale. The instrument also included a question about past behavior and asked how long they had used OC in the past four years. The last construct measure on the instrument was intention, which included two items, and it was measured on a five-point Likert type scale. In order to establish content validity on the newly developed instrument, the researchers had 10 experts review it where the instrument received an overall 0.8 on the content validity index. They also had 10 withdrawal users evaluate the readability and format of the questions. Cronbach's alpha coefficient was used to assess the internal consistency of the questionnaire, and it ranged from 0.70 to 0.86. Data were analyzed using Pearson correlation coefficient and linear regression analysis. In order to predict intention, the researchers used hierarchical regression analysis with age, female education, attitude, and subjective norms entered at step 1, perceived behavioral control at step 2 and past behavior as step 3. The researchers found that past behavior, perceived behavior control, attitude, and subjective norms accounted for 36% of the variance in intention to use OC.

After reviewing the five articles previously presented, the constructs of the Theory of Planned Behavior have been able to successfully predict health behaviors including nurse's intention to integrate research evidence into clinical decision making (70% of the variance was explained by the constructs), to predict use of dietary supplements among HIV-positive Black women (69% of the variance was explained by the constructs), to predict intention of health care workers to work with individuals with dual diagnosis (% not reported), to predict

condom use behavior in Thai adolescents (34% of the variance was explained by the constructs), and with the withdrawal method and predicting intention to switch over and use oral contraceptives (36% of the variance was explained by the constructs). These research studies confirm that the TPB can be used with multiple types of health behaviors and that the constructs of the theory have predictive ability.

In summary, there are multiple research areas that have used the TPB to predict health behaviors and intention to use them. These articles demonstrate that the TPB is a useful and widely utilized theory in nursing research to predict health behaviors. However, to date, the TPB has not been used to study AAI. This leaves a gap in the literature that requires investigation. Moreover, there have been no published studies with animal assisted interventions using TPB, though its constructs fit nicely with what the researcher is interested in studying.

Relationship of the Study to Theory of Planned Behavior

The field of animal assisted interventions lacks a unified, widely accepted or empirically supported theoretical framework. Multiple theories or frameworks have been used with animal assisted interventions, but it usually is related to the other variables being studied. Nonetheless, the three most common theories when looking at previous research regarding AAI include Bowlby's attachment theory, the Biophilia hypothesis, and social cognitive theory. For the purpose of this study, these theories were reviewed and rejected for poor fit. This researcher also reviewed social support theory, ecological theory, holistic nursing model, theory of meaning, and the theory of caregiving dynamics. After an extensive review

and meeting with colleagues with a wealth of knowledge, this researcher decided on the Theory of Planned Behavior (TPB) by Icek Ajzen.

The TPB guides this research study in several ways. First of all, since no published instrument exists for this phenomenon of interest using the TPB, an instrument will have to be constructed and piloted using the constructs of this theory to match the research topic of animal assisted interventions and the intention of registered nurses in Florida to incorporate this into their clinical practice. Subsequently, since TPB is a prediction theory, it focuses the researcher to use prediction and multiple linear regression analysis to analyze the data. Since there may be relationships between the variables, this researcher also needed to consider Pearson correlations during the statistical analysis.

The attitudes construct, the subjective norms construct, and the perceived behavioral control construct helped to predict whether registered nurses in Florida are intending to use AAI in their clinical practice. If the attitudes and beliefs toward AAI were favorable, then it was more likely that registered nurses used AAI in their clinical practice. If the peers that they respect and deem to be the most important have favorable attitudes towards AAI and they encourage AAI, then it is more likely that they will use AAI in their clinical practice. If registered nurses have more factors that facilitate than deter using AAI in clinical practice, and they find it more easy than difficult to use, then the intention to use AAI in clinical practice will be more likely.

Assumptions

Assumptions are principles that are accepted to be true based on logic or customs, without having any proof (Polit & Beck, 2012). Research could not be done without assumptions, which include theoretical assumptions and researcher assumptions. Theoretical assumptions are related to the theory being tested. Researcher assumptions are related to the paradigm being used, which is the positivist paradigm.

Theoretical Assumptions of TPB

Theoretical assumptions include that the theory assumes the person has acquired the opportunities and resources to be successful in performing the desired behavior, regardless of the intention. This theory does not account for other variables that factor into intention and motivations such as fear, threat, mood, or past experience. It also does not take into account environmental or economic factors that may influence a person's intention to perform a behavior. It assumes that the behavior is the result of a linear decision-making process and does not consider that it can change over time. Over time, this theory that began as the theory of reasoned action has been modified and added the construct of perceived behavioral control, which was an important addition; however, it does not say anything about actual control over the behavior. The last assumption of this theory is that the time frame between intent and behavioral action is not addressed by the theory. (Ajzen, *n.d.*)

Researcher Assumptions

This researcher made several assumptions. These included that the participants answered the surveys truthfully. By providing the participants with an online survey, this author assumed that Internet access as well as a computer were accessible, and the participants knew how to complete an online survey. This researcher assumed that the participants also answered based solely on their own experience with animal assisted interventions.

Significance of the Study

There is a clear consensus for evidence-based practices and research. Increasingly, research studies are presented and quoted in academia and the media. Quality research provides credibility and the basis for best practices and guides decisions about research that can affect all aspects of our lives. This study is particularly significant due to the sheer breadth of its wide-reaching application since it could be beneficial to so many members of society across the lifespan and used in multiple healthcare settings.

Significance of the Study to Nursing

The many benefits of AAIs have been demonstrated to help patients improve their health. Research studies have also shown that AAIs are helping the caregivers. However, AAIs still are underutilized, and the reason why is not clear. Moreover, if the discipline of nursing does not address the reasons why AAIs are being underutilized, patients and caregivers may suffer. Nurses should conduct research that will help to benefit their patients. The findings from this research study about registered nurses' predictors of intention to use animal

assisted interventions in clinical practice has significance to nursing education, nursing practice, nursing research, and health and public policy.

Implications for Nursing Education

Nurses continuously search for ways to improve patient care. Nurses consistently use evidence-based practice to guide their care. The evidence is growing about animal assisted interventions and its use is becoming more widespread, though, not as great as it should be. Nationally, the trend is increasing as evidenced by a RN web poll from 2008 that surveyed nurses to find out whether facilities allowed animal assisted therapy with patients and found that 69% responded affirmatively. This study researched attitudes and beliefs and predictive intentions of nurses regarding animal assisted interventions. The results of the study may inform us of the need for more education in the nursing curriculum to discuss this important and beneficial adjuvant therapy to patient care. When attitudes and beliefs have been determined, then there will be a need to examine their understanding and determine if their lack of knowledge regarding animal assisted interventions influences their attitudes and beliefs about AAI.

Implications for Nursing Practice

This research may also impact nursing practice. Nurses have traditionally been open-minded to alternative therapies that will help patients improve their quality of life. Nurses are advocates of health promotion and disease prevention, and one way to promote health is through stress and anxiety reduction, which occurs for patients who have an animal assisted intervention. The evidence is

clear about the multiple benefits of AAI and should be more widely advocated for and utilized by nurses and other health care professionals. This quantitative research may enrich the body of nursing knowledge to transform the attitudes and beliefs of health professionals regarding AAI and find predictors of intention to incorporate this beneficial treatment modality into their clinical practice. This study may help to enhance nursing practice by determining the attitudes and beliefs of nurses who are taking care of patients that have participated in an animal assisted intervention.

Implications for Nursing Research

This research may add a significant contribution to the body of nursing knowledge because AAI research could be done by either a qualitative or a quantitative approach. There is a paucity of theoretical frameworks associated with animal assisted interventions. Several theories have been modified and utilized with AAI, but there is no significant, standard theory that is continuously utilized. There are no published studies using the TPB with animal assisted interventions. There was little research published on attitudes and beliefs and no research found on predictors of health care professionals about intention to utilize animal assisted interventions in their practice. The use of a quantitative approach, which is interested in discovering the attitudes and beliefs of registered nurses about using animal assisted interventions, will add to the body of nursing knowledge on animal assisted interventions.

Implications for Health/Public Policy

Nurses should be proactive about healthcare and health care policies. Pet therapy or animal assisted interventions can be promoted in all the nursing curricula. This may help the nurses to be advocates of changing public policy and health policies in their institutions to include AAI or increase the amount and types populations where AAI are performed. The ultimate goal as it relates to policy would be for animal assisted interventions to be allowed in all health care settings since the benefits are very well documented in the literature. Nurses can and should advocate for this beneficial activity to increase the quantity where AAI is occurring in health care.

Scope and Limitations of the Study

Scope refers to the parameters that were studied. This study explored attitudes and beliefs of registered nurses and other predictors of intention to use AAI in clinical practice. This study sampled registered nurses in the state of Florida. Eligibility criteria to participate in the study included being over 18 years of age, able to read English, have access to the Internet and a computer, have access to AAI in their clinical setting and licensed by their professional organization in the state of Florida. Exclusion criteria were if they were not licensed by their professional organization and not able to read English, not having access to a computer, not having access to AAI in their clinical setting, or if they were not registered nurses. Limitations to the research study included the possibility for a small sample size of registered nurses that cannot be generalized beyond what was learned in one southeastern state. Another limitation was that

participants may not answer the questions honestly. Furthermore, since this researcher is a novice, that may be a limitation. Correspondingly, a causal relationship between the variables cannot be established, as the research findings only described relationships between the variables.

Threats to External and Internal Validity

Four types of validity affect the rigor of a quantitative research study, and two of these are external and internal validity. These four types of validity often compete with each other, so researchers need to be aware of this and make priorities that are best suited for their study (Polit & Beck, 2012). There are ways to enhance internal validity both by the research design as well as the analysis. Selecting representative people for the study can enhance external validity.

Threats to External Validity

According to Polit and Beck (2012) "external validity is the degree to which study results can be generalized to settings or samples other than the one studied" (p. 727). This research study used a convenience sample of registered nurses who reside in a Southeastern state. One way to control for threats to external validity is by having inclusion and exclusion criteria to participate in the study. The sample was only able to be generalized to the sample selected.

Threats to Internal Validity

Internal validity can be defined as "the extent to which it is possible to make an inference that the independent variable, rather than another factor, is truly causing the variation in the dependent variable" (Polit & Beck, 2012, p.

244). Threats to internal validity include temporal ambiguity, selection, history, maturation, mortality/attrition, testing, and instrumentation. The research design can also affect the internal validity. The data to be collected was self-reported, and this author assumed that participants answered the questions truthfully; however, because the survey was administered electronically, there was no way to monitor that. The design of the proposed research study was cross sectional and not longitudinal, so participants' attrition over time was not expected.

Chapter Summary

This chapter discussed the background of this quantitative study regarding animal assisted interventions and registered nurses' intention to use them in clinical practice. The problem statement, purpose statement, research questions, and hypotheses were discussed. Key terms were defined. The Theory of Planned Behavior was discoursed, as it is the theoretical framework that shaped this study. Theoretical and researcher assumptions as it relates to the study were described. The significance of the study to nursing education, practice, research, and health/public policy were also delineated. The scope and limitations were highlighted and threats to internal and external validity were described.

CHAPTER TWO

LITERATURE REVIEW

The purpose of this non-experimental study is to examine the constructs and test the propositions put forth by the TPB in regard to prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RN) licensed in Florida. A search of relevant literature across disciplines was conducted to explore the phenomenon of animal assisted interventions in nursing and other disciplines. Using ProQuest Central search engines, the following computerized databases were used for this search: ABI Inform (index of Business and Management), ArticleFirst, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Dissertation Abstracts, Educational Resource Information Center (ERIC), Medline, and Modern Language Association (MLA).

The key words used in the search were **pet therapy, animal assisted activities, animal assisted therapy,** and **animal assisted interventions and research.** Citations were limited by language to English and by subject to exploration of the concepts. A limitation was imposed to find literature published since 2008 with classics sought by reviewing citations in the published works. A random selection process delimited the profusion of theoretical references that were found. Synthesis of the research literature reveals what is known and not known about animal assisted interventions among health care providers.

There has been much research with animals since the 1960s, and the review of the literature shows the use of several terms such as animal assisted therapy, animal assisted activity, pet therapy, therapy dogs, dog visitation therapy,

and animal facilitated therapy. Research with the use of animals usually includes dogs and cats, but some research has been conducted using horses, birds, fish and farm animals. Research with animals has been conducted in multiple disciplines including the social sciences, social work, occupational therapy, physician assistants, psychiatry, education, the prison system, and nursing. However, this study limits the literature reviewed to the last 7 years, so not all of these disciplines were discussed. Typically, the research that was reviewed was conducted with dogs except in two instances, in mental health, where horses and dairy cattle were used.

This section will review the current literature on the use of animals in healthcare. Since there is lack of consensus on the terms used to describe the therapeutic use of animals in the healthcare setting, this literature review will use the terms provided in the research articles. As such, multiple, yet closely related terms were used. The literature review has been categorized under the following headings: research using animal assisted interventions in several disciplines and settings, research conducted globally on animal assisted interventions, and research on animal assisted interventions in the United States**.**

Research Using Animal Assisted Interventions in Several Disciplines and Settings

This section will review literature discussing the use of animal assisted interventions (AAI) in varied disciplines and settings. This form of therapy has been used in the prison system. A systematic literature review by Matuszek (2010) discussed how correctional facilities have used pet therapy with multiple

types of animals. The author discussed that as far back as the early 1900s, prisons were using pets as companions for the inmates. In addition, the article discoursed two current programs for pet therapy, which are Inmate Dog Alliance Project of Idaho where inmates socialize and train dogs and Puppies Behind Bars. The Inmate Dog Alliance Project helps many shelter dogs and many of the dogs that the prisoners' train to be used for service or assistance dogs. The Puppies Behind Bars program uses the prison inmates to help train service and/or law enforcement dogs. This program benefits both the dogs and the prisoners by helping the prisoners contribute something productive to society and they are able to give and receive unconditional love from the dogs. Both of these programs teach the prisoners important values such as empathy and responsibility.

The social work professionals have studied the use of pets in their profession. Risley-Curtiss (2010) conducted a national, non-experimental, descriptive, random sampling, mixed methods study of 1,649 social workers where the author explored the knowledge of social workers regarding human and companion animal relationships. A researcher-created, 38-item questionnaire was used to measure the study variables. The items were created to measure exposure to information or knowledge of animal human relationships or bonds, whether social workers included companion and other animals in their assessments and treatments, and what education and training they had regarding human and companion animal relationships. Some of the items on the questionnaire were on a three-point or five-point Likert type scale where others required yes/no responses. In addition to the main study instrument, the researcher also collected

demographic data. The data analyses were conducted using descriptive statistics with frequencies and means.

The researcher reported that on the items that related to exposure to information about the animals and the link between animal abuse and human violence, the majority had read or heard about it. The researcher also reported that even more participants knew about the positive impact animals have on adults at 97.8 %, children at 92.1% and elderly at 97.9%. However, 69.7% had not heard about treatment of clients who abuse animals whereas 71.2% had heard about treating clients who have lost a companion animal. Regarding the question about animals in assessments and treatments, the researcher reported that two thirds of the social workers surveyed do not include questions about companion animals during the intake assessments. Furthermore, only 23.2 % or 381 participants use animals as part of their interventions in practice. However, of these 381 participants, 86 use AAA when visiting elderly and 143 participants use animal assisted therapy. The most common animals included are dogs and cats; however, a multitude of other pets were also included. These types of animals were pocket pets such as hamsters or guinea pigs and farm animals. Several findings were reported from the qualitative questions. When asked about how animals were involved in practice, 79 participants brought their own animal to therapy sessions, and 26 participants allowed the client to bring their own personal pet to the sessions.

The researcher reported the five main reasons for not including animals in social workers practice, which includes: against agency policy, clients may have

allergies, fear of liability if the animal hurts a client or is afraid, never really considered using animals in sessions and had no training. To answer the last research question regarding education and training, 95.7% said they had no training about companion animals or using animals in their practice. Even the respondents who used animals in their practice, 82.2% had no special training. Lastly, 79.3% of the participants would like to have more information about the human animal bond. The researchers concluded that more social workers should include animals in their practice to improve their client services and more education is needed in this area in the social worker curriculum.

Another research study by Risley-Curtiss et al. (2013) explored factors that affect social workers from including animals in their practice. The research design is a non-experimental, descriptive correlational study. The sample consisted of 1,262 social workers. The instrument that was used was self-created from an instrument the researchers had previously developed and had 19 questions instead of the original 48 questions. Questions on the survey addressed participants' personal experience with animals, participants' exposure to information, how much participants had heard about the human-animal relationship, and inclusion of animals during various areas of practice. The researchers also collected demographic data. Demographic data were analyzed using descriptive statistics to compute frequencies and measures of central tendencies. Additionally, logistic regression was used, and all variables were entered into each model simultaneously.

The researchers reported on four dependent variables which were: whether social workers include questions about animals on their intake assessments, include animals in their interventions, treat animal abuse, and treat the loss of an animal. The researchers found that the model was significant for seven independent variables when explaining whether social workers included questions about animals on their intake assessment (x^2=187.44, p- < .001). The seven independent variables included: if the social worker's primary client population was children, if the primary client population was older adults, if the social worker had been exposed to information about the treatment of animal abuse and the link with domestic violence, the more they were exposed to information on treatment of animal abuse, if they knew other colleagues who included animals in their practice, if they wanted to learn more about human animal relationships and if they worked with clients that suffered an animal loss. Regarding the question about including animals in their interventions as social workers, they reported that this model was significant as well for 11 variables. (x^2 = 243.76, p < .001). Seven of the 11 variables were related to their exposure to the animal human relationship. The more information that they had on multiple topics related to animals, the more likely they were to include animals in their interventions with clients. The topics included the link between animal abuse and domestic violence, how animals positively influence humans, treating clients who have lost a companion animal, if they knew other social workers who were using animals in their practice, if they had special training about using animals in their social worker practice, and simply wanting to know more about animal human

relationships. The other four variables included working with elders, having their own companion animals, if they currently treated clients for animal abuse or clients for companion animal grief and loss.

Regarding the questions about animal abuse, the model was also significant for five variables that explained whether participants treated clients for animal abuse ($x^2 = 159.57$, $p < .001$). The five variables are not working with nonelderly adults, knew more information about treatment of people who abuse animals, knew other social workers that include animals in their practice, including animals in their interventions, and treating clients with grief and loss related to losing a companion animal. Finally, to answer the last question regarding treatment of animal loss, this model was significant as well with eleven variables explaining whether participants were more likely to treat clients for animal loss. The 11 variables were being Caucasian, working with non-elderly adults, working with individuals, working with family issues, having more exposure to AHR, having little information on treating clients who abuse animals, having more information about animal loss, knowing other social workers who use animals in their practice, having animals of their own, social workers who asked about animals in their intake assessments and included them in interventions. The researchers declared that one of the most important findings in the study was that if social workers knew other colleagues that use animals in their practice, they were more likely to do it as well. This variable was significant in all four models.

Occupational therapists also use animal assisted therapy in their discipline. Beck, et al. (2012) conducted a quasi-experimental pretest, posttest, nonrandomized control group quantitative research study about the effects of AAT on wounded military personnel and their life skills program. They wanted to determine if wounded warriors who participated in animal assisted therapy (AAT) with dogs while they attended a Life Skills program would show improvement in their moods, decreased stress, decreased fatigue, increased resilience, and improved daily function as they transition into the next phase of their lives. The research was conducted over 8 weeks, and the participants filled out surveys three times including at the beginning, after 4 weeks, which was post intervention, and at 8 weeks. The instruments used included a demographic survey, the Profile of Mood States, the Perceived Stress Scale, the Connor-Davidson Resilience Scale, the Fatigue Scale, the Functional Status Questionnaire, and the Occupational Self-Assessment. Twenty-four participants were in this study. All participants attended the Life Skills classes on stress management, communication, anger management, and healthy living for at least three classes but could attend up to six. The experimental group also had AAT sessions with a dog and its handler for 30 minutes after every class. The AAT consisted of practicing basic dog obedience commands, and once successful with that, they could do activities such as walking, petting or brushing the dog.

The researchers found no statistical differences in the groups in the areas of mood states, stress levels, resilience fatigue and most of the measures of the daily function and the research article did not provide the numerical statistics for

this. However, the researchers did report numerical statistics on three subscales of the Functional Status Questionnaire they found significant differences. These included a Friedman's test for comparison and the results are for psychological function $x^2(2) = 7.9$ $p < .05$, work performance $x^2(2) = 18.86$ $p<.000$ and quality of interaction $x^2(2) = 23.48$ $p<.001$. Regardless of the non-statistical findings between groups, there was anecdotal evidence that the participants expressed satisfaction and pleasure with the AAT and were disappointed to see it end. The participants also expressed they enjoyed the sessions with dogs. The authors cited limitations of the study to include a small sample size and that the veterans said that they are mandated by the chain of command to fill out the surveys so at least a few admitted to circling anything just to complete them. The researchers still recommend using AAT with veterans and a mixed method study with AAT and the military population using a larger sample size is needed.

In the education literature, researchers are using pets to help children read in school. According to Friesen (2010), who summarized and organized the research that was done on animal assisted programs with children in school, educators have been using therapy dogs as far back as 30 years ago. The author articulated that the use of therapy dogs has physiological, emotional, social, and physical support for children and those dogs may supplement education objectives in schools. The article reported that dogs help to lower children's blood pressure and heart rate when the child reads aloud. Researchers have found that children seem to be more attentive, responsive, and cooperative with adults when the therapy dog is around. The author concluded the article after reviewing the

literature about animal-assisted programs with children in school by saying that instead of animal assisted therapy, a better way to name it would be to call it animal assisted learning.

Several research studies explored the relationship between pet therapy and loneliness and other mental health issues such as depression, mood disorders, anxiety, and self-perceived health. Black's (2012) study using a non-experimental descriptive correlational quantitative research design was aimed at discovering whether pet ownership and attachment are related to loneliness and social support. The researcher used a non-randomized sample of 293 rural adolescent students in two public high schools. The instruments used in this study included the revised UCLA Loneliness Scale, the Companion Animal Bonding Scale (CABS), and the social support questionnaire short form (SSQSR) as well as a demographic survey. The Loneliness Scale is a Likert type scale with 20 questions with answers ranging from *never* to *often*. The higher the score is, the higher the loneliness. The CABS is a Likert scale that has eight items. The higher the score on this scale, the more the participant is attached to his or her pet. The SSQSR measures two aspects of social support, which include the number of humans in the network and the perceived satisfaction, rating it on a scale of very dissatisfied to very satisfied. The higher the score is, the higher the social support.

The researcher reported that mean loneliness scores for adolescents without a pet was significantly higher (39.5 *SD* = 9.2) than the mean of loneliness for those with a pet (33.7 *SD* = 8.8). Data were analyzed using a one-way

ANOVA to further test for statistical significance and found that loneliness was statistically significant among the adolescents who did not own a pet. (F (1, 266) =17.3, $p < .001$). The researcher also ran other statistical tests such as multiple regression analysis between social support and pet variables but found no statistical significance. A univariate ANOVA was computed to determine group differences between the demographic variables, which included gender, age, ethnicity/race, family structure, number of siblings, and stepsiblings and housing type with loneliness. Again, no statistical significance was found, and the number was not reported. Overall, the research demonstrated that companion animals are helpful in decreasing loneliness among adolescents. It was found that pet owners reported lower loneliness scores than non-pet owners. Recommendations from the researcher include introducing pet therapy into academic and health settings for adolescents. The researcher also recommended that professionals in the health care areas including social workers, education, psychology, and veterinary medicine could all work together with nursing to promote these human companion animal relationships.

Krause-Parello (2012) conducted a non-experimental quantitative research study exploring the relationships of loneliness, pet attachment support, human social support, and depressed mood with pet ownership and older women. The researcher's sample was a convenience sample of 159 older women who owned either a cat or a dog and were between ages 55-84 and lived independently. The researcher used the Lazarus and Folkman stress, coping and adaptation theory to guide the study. Several instruments were used in this study including a

demographic survey where the usual demographic questions were asked. Psychological general well-being (PGWB) schedule: depressed mood subscale was used to measure depressed mood. This is a three-item Likert type scale ranging from zero to five where higher scores indicate lower degrees of depressed moods. The Revised UCLA Loneliness scale measured loneliness. This is a 20-item Likert type scale with items ranging from one to four. Higher scores mean higher levels of loneliness. The Pet Attachment Scale measured pet attachment support. This instrument uses nine items on a Likert type scale with scores ranging from one to five and higher scores indicated higher levels of attachment to the pet. The Coping Strategy Indicator measured human social support: Seeking Support Subscale. This instrument is an 11-item Likert type scale that ranges from one to three with higher scores indicating use of that coping strategy.

A positive relationship was found between pet attachment support and loneliness. (r = .19, p = .01). Regression analyses were conducted to evaluate whether pet attachment mediated the relationship between loneliness and depressed mood. The results indicated a significant effect (B =.188, p = .017). Since a relationship was found between loneliness and pet attachment support, women may rely on their pets in times of loneliness. It is recommended that health providers screen about coping mechanisms, depression as well as assessing relationships with pets in the geriatric population. It is also recommended to advocate for AAA programs for seniors

Rosetti, DeFabiis, and Belpedio (2008) conducted a qualitative, exploratory study of 10 behavioral health staff wanting to answer three questions

that include: (a) What is the psychological impact of pet assisted therapy? (b) How does pet assisted therapy affect retention? and (c) How does it affect the delivery of mental health care for behavioral health staff? The researchers used a convenience sample of staff in a 100-bed behavioral health hospital near Chicago. A requirement for participation in the study was that should have been involved in a pet assisted therapy at least 3 months prior to the study. They recruited nine nurses and one counselor. The interviews were audio recorded, lasted 30 minutes, and the study was completed over 1 month. The transcripts were transcribed verbatim and a constant comparative method was used to develop themes.

Five main themes emerged including self-awareness, morale, innovative therapeutic strategies, challenges, and future directions. Regarding the theme of self-awareness, the staff members felt the dogs had a positive impact on self and felt that it was helpful to have the dogs available to pet and interact with during morning change of shift report. Regarding the theme of morale, the participants reported that the dogs have a positive effect on the therapeutic environment and appreciated the hospitals innovative philosophy. They said that having the dogs on the unit made them feel better. Regarding the innovative therapeutic strategies, participants reported "it makes the atmosphere more pleasant." They also said that the dogs help the clients in social interactions and with nonverbal communication. Under the theme of challenges, the participants reported that it takes a lot of time and preparation to have pet therapy, and if you have a pet therapy dog, it adds hours to your typical day because everybody wants to stop and see your therapy dog. Under the theme of future directions, the participants

indicated that they needed more education about using dogs in behavioral health and they want more pet assisted therapy groups. Overall, the researchers found that using pet assisted therapy in mental health has a positive impact on the nurses. The researchers recommended that administrators need to be aware of how important and beneficial pet assisted therapy is to the morale of the staff. They recommended that more research needs to be done to see if pet assisted therapy can increase recruitment and retention of staff.

Johnson et al. (2008) conducted a quantitative pretest posttest research on 30 adult patients undergoing non-palliative radiation therapy. The purpose was to explore the extent to which AAA affects the mood, self-perceived health, and sense of coherence among this group of patients. The study design was a longitudinal, randomized pretest/posttest design. The participants were 28 Caucasians and two African Americans. They randomly assigned participants to receive 12 dog visits, 12 human visits, or 12 quiet reading sessions over a period of 4 weeks. The instruments utilized for the study included a demographic survey, the Profile of Mood States (POMS), the Self-Perceived Health Questionnaire, the Orientation to Life Questionnaire (OTLQ), and an exit questionnaire. The experimental group met with the dogs three times per week for 15-minute sessions for a period of 4 weeks.

The findings include for the demographic questionnaire there were no differences between the three groups for age, gender, race, education, or cancer site. As for the mood and sense of coherence scores, the researchers calculated a Wilcoxon rank sign test that compared differences among means for each variable

of the mood state including tension, anger, fatigue, depression, vigor, and confusion. Negative scores meant that pretest scores were higher than posttest scores. There were no statistical differences found between or within groups for the mood states and the dog visits, human visits, and reading. For the self-perceived health scores, differences were calculated by subtracting the pretest scores from the posttest scores, which showed the dog group believed their emotional health improved; however, the scores were not statistically significant. Dog visit -0.40 $p = 1.00$, human visit -0.33, and reading -0.12. As far as the exit interview and perceived helpfulness of the interventions, one participant wrote that visiting with the dog decreased anxiety, and he would recommend it. Seventy percent ($n = 10$) of the dog visits participants would recommend the intervention to another patient. Overall, even though the results were not statistically significant, they found that patients receiving the animal assisted activity viewed that their health improved and that all of the activities with the dogs were helpful.

After reviewing the information presented in this category, AAI have been researched by several disciplines including social workers, occupational therapists, education and nursing. AAI are also taking place in a variety of settings including hospitals, nursing homes, prisons, behavioral health, oncology, pediatrics, and outpatient centers. The research with animals has a broad range including pet ownership and the human companion relationship as well as animal assisted therapy for the military personnel to using animals with children in schools to help encourage them read. Whether the research used participants own

pets or a therapy pet, the research clearly demonstrates multiple healthful benefits including decreasing loneliness, increasing positive moods, and decreasing depression, increasing a perceived sense of good health and when AAI occurs on a nursing unit, it even impacts the nursing staff in a positive direction. Even with all of this beneficial research, there are no published studies conducted regarding the attitudes and beliefs of registered nurses and AAI, which leaves a gap in the literature that needs to be studied.

Research Conducted Globally on Animal Assisted Interventions

There are published studies on animal assisted interventions in several countries including Japan, Australia, and Norway relative to this nurse's research. A quantitative, quasi-experimental design study conducted in Japan by researchers Kumasaka et al. (2012) studied 20 patients in a palliative care unit in a general hospital in Japan. The study examined changes in patient mood through animal assisted activities in a palliative care unit. In this facility, AAA are actively encouraged; however, many hospitals do not have policies that allow AAA. They used trained animals including dogs, cats, and rabbits. They allowed participants to interact with animals for 30 minutes and assessed them with the Lorish and Maisiak Face Scale. The Face Scale has 20 different faces that show extreme pain to extreme joy. The participants point to a face at the beginning and again at the end of the intervention. Lower numerical scores indicated higher levels of pleasure. All of the numerical values were lower in after the intervention than before. The researchers reported that they used SPSS Statistics 20 and independent *t* inspection to analyze their data. The mean before score on

the face scale was 8.10 (SD 3.48) and 2.66 (SD1.99) after intervention with $p < 0.01$. They found that participating in an animal assisted activity improved the patient's moods. The researchers recommended further research addressing quality of life and allowing the creation of hospital rooms that would allow companion animal visits.

Kawamura et al. (2009) conducted a qualitative phenomenological study with eight elderly institutionalized Japanese older adults. The purpose of this study was to explore the participants' perceptions of AAA since they had been participating in AAA for two years and to identify the relevance of the perceptions to clinical nursing practice. All eight of the participants had mild dementia. Data were collected via semi-structured interviews for 30-50 minutes using three open-ended questions that included: What was AAA like for you? What are your feelings towards the dogs at AAA? What are your feelings toward the volunteers? All of the interviews were audio recorded and transcribed. The interactions with the dogs were twice per month for 2-hour sessions for 2 years. Participants were able to hold, feed, and play with the dogs.

Six themes emerged from the analysis of data: positive feelings about the dogs, confidence in oneself, recalling fond memories about dogs, a break from the daily routine, interacting with the other residents through dogs, and enhanced communication with volunteers. Regarding the theme for positive feelings about the dogs, seven out of eight participants had owned a dog prior, and they felt positive emotional feelings when the dogs visited. They also shared that it was one of the most pleasurable parts of their life at the nursing home when the dogs

visited. Regarding the theme of confidence in oneself, participants took ownership of the dogs and expressed confidence in raising the dogs and taking care of them. Regarding the theme of recalling fond memories about dogs, when the dogs would visit, it reminded them of their own pets and began sharing both happy and sad memories of their own pets. Regarding the theme of a break from the daily routine, some participants verbalized that this was a stress reliever when the dogs came to visit, and they felt they had more interactions with the other residents and staff during the dog visits.

As for the theme of interacting with other residents through dogs, the participants felt that the dog visits increased interactions with staff and residents. In discussing the last theme of enhanced communication with volunteers, the participants enjoyed the volunteers who brought the dogs who were mostly university students and they enjoyed communicating with young people. Overall, AAA positively influenced participants. The researchers realize the limitation was the small sample size and in only one nursing home. They recommended that a more comprehensive study with a larger sample size be conducted. In addition, they also recommended a more widespread implementation of AAA for institutionalized older adults.

Tsai et al. (2010) conducted a quantitative experimental design research study to assess the effect of animal assisted therapy on stress responses in hospitalized children. The study included a sample of 15 hospitalized children (eight girls, seven boys) ranging in age from 7 to 17 in Japan. This study looked at the effects of animal assisted therapy on reducing physiological indicators of

stress, including systolic blood pressure (SBP), diastolic blood pressure (DBP), heart rate (HR), and psychological (fear and anxiety). Two interventions were included, which were completing a puzzle and interacting with a dog. The child was allowed to touch, pet, and brush the dog. Both interactions lasted for 6-10 minutes, and they each participated in both the puzzle and the dog sessions. The instruments used in this study included a demographic survey. They also recorded BP and HR every 2 minutes for 6 minutes prior to the intervention and during the intervention and post intervention. The instruments were completed after the intervention. The researchers used descriptive statistics, multiple regression analyses, *t*-tests, and ANOVA to test the hypotheses.

As far as the physiological outcomes, systolic BP decreased and was significantly lower after AAT than before. There was also a difference noted in the sequencing of the interventions; however, in the AAT first sequence, the results were not significant. In addition, DBP decreased significantly after AAT visits (t (14) = 2.94, p = 0.001). However, there were no significant findings related to HR (F (2,26) = 4.80, p = 0.82). As far as the psychological outcomes, a score of 34 on the child medical fear indicates a medium level of medical fear and the higher the score, the greater the fear. There were no significant differences found in medical fear scores after interventions (F (1,13) = 3.79, p=0.073) where medical fear after the AAT visit (M=31.73, SEM=1.63) was similar to level of fear before the visit (M = 30.40, SEM = 1.52).

As for the State-Anxiety scale, scores can range from 20-60 with higher scores meaning higher anxiety. There was no evidence that the AAT visit

decreased participants' anxiety. The researchers reported that the children did not have any existing anxiety according to the tool used, which was the Spielberger State Trait Anxiety inventory for children. Overall, they found that though the children's anxiety and medical fear did not differ, their systolic and diastolic blood pressures did decrease. The researchers acknowledge some limitations such as small sample size, so they recommend replicating the study with a larger sample size. They also acknowledged that the patients were not as stressed pre-intervention as in other studies and in future studies if the participants are higher stressed the benefit of AAT might be demonstrated more significantly.

Another quantitative, experimental study conducted by Moretti et al. (2011) explored the effects of pet therapy on cognitive function, mood, and perceived quality of life among 21 elderly patients with mental illnesses in Italy. Ten participants were assigned to the experimental group who received a 90-minute activity with a pet once a week for 6 weeks and 11 to the control group. The instruments used in this study included the Mini-Mental State Examination (MMSE) and the Geriatric Depression Scale (GDS). A brief questionnaire regarding self-perceived quality of life was also used. Most (n = 20, 95.2%) of the participants were women. The intervention was 90 minutes once per week for 6 weeks. Participants were able to stroke, hold, walk, talk, and play with the animals under supervision. MMSE and GDS mean scores were compared between and within groups by student t-test.

The researchers found that on the GDS an improvement was made in both groups; however, in the experimental or pet group, the mean score decreased from

5.9 (*SD* = 4.7) to 2.7 (*SD* = 3.1) with a $p = 0.013$. There was also an improvement in cognitive function as measured by the MMSE. As far as the self-perceived QOL questionnaire, five subjects in the pet group felt a positive effect. All participants found the pet session enjoyable and interesting and nine out of 10 found the pets had a calming effect. Eighty percent ($n = 8$) of participants wanted to continue the pet experience. The researchers used independent and paired sample tests to compare frequencies and means between and within groups. The researchers found that the patients improved on the depression scale as evidenced by the mean score decreasing from 5.9 to 2.7 $p = 0.013$ as well as the Mini Mental state exam where the mean increase was 4.5 scores $p = 0.06$ after having a pet therapy intervention. The researchers were aware of limitations such as the small sample size and they questioned also whether some of the benefit of the pet therapy may have been due to the human handlers that accompany the dogs. They concluded that evidence continues to support pet therapy with elderly patients as well as those with psychiatric problems.

In addition, Australian researchers Prosser et al. (2008) used a mixed method approach where they used a quasi-experimental pre-intervention post-intervention surveys design of 18 older people in Australia. As for the qualitative part of this study, the researchers used observation and journaling. They listened to the conversations and watched their reactions. This was an exploratory pilot study of which the purpose was to see if a companion animal program would improve the health and wellbeing of aged care facility residents. The visiting companion animal intervention was for one and a half hours once a week for 6

weeks. The animals were dogs, puppies, cats, kittens, rabbits, and guinea pigs. Volunteers managed the animals. Pre- and post-intervention questionnaires were completed including a Geriatric Depression Scale (GDS) and a questionnaire that focused on the mental health and general wellbeing. Researchers gave the second questionnaire to the staff as well. GDS results were compared from pre- and post-intervention.

There was no statistical significance found on the scores of the GDS; however, there was not any table or chart presented with the numerical data. Nevertheless, results indicated that there was an increase in social interactions and the participants talked frequently about the animals visiting. They also found that participants often complained about their health, but during the pet visits, they did not complain. The authors found that the participants wanted to continue the companion animal visitation program going. They found three emerging themes including the enjoyment of contact with the animals, increased communication and social interaction, and the variety it brought to their lives. However, the themes were not explained in detail. These results differ from Moretti et al. (2011) research, which found improvement on the scores of the GDS. Overall, these researchers found that companion animal's foster relationships, but they did not change the scores on the geriatric depression scale. The researchers recommended that staff allow this helpful and beneficial therapy to the patients which should provide a visiting companion animal program.

Pedersen, et al. (2011) conducted a research study in Norway by using a mixed methods approach with 14 participants with clinical depression to

investigate a farm animal assisted intervention that took place twice a week for 12 weeks. More specifically, they used dairy cattle to examine the relationship between work and contact with farm animals and change in depression, anxiety, and self-efficacy among persons with clinical depression. The participants were placed on eight dairy farms in Norway and participated in multiple activities on the farms including, milking, fetching feed, cleaning, moving animals, hand feeding animals, milk feeding calves, technical preparation before milking, grooming animals mucking, physical contact with animals observing animals, inactivity, other activity, dialog with the famer and talking to animals. The participants were video recorded twice during the study and the activities listed above were categorized based on time spent doing each activity. Participants filled out questionnaires before and after the intervention. The quantitative instruments used in this study were the Beck Depression Inventory, the State-Trait Anxiety Inventory State Subscale, and the Generalized Self Efficacy Scale. For statistical analysis, the researchers calculated correlations using a Spearman's Rho.

As far as the depression scale, several of the work tasks had the greatest decline in depression and they were milking procedures (r=-0.62, p=.02) and moving animals (r=-0.58, p =0.03). As far as the anxiety scale, again moving animals and reduction in anxiety was significant (r = -0.66, p = 0.01) and milking procedures showed a favorable reduction in anxiety (r = -0.67, p = 0.01). As far as self-efficacy, there was only one significant correlation and that was high levels of mucking gave a reduction in perceived self-efficacy (r = -0.64, p = 0.01).

These researchers concluded that overall, there is a favorable decline in levels of anxiety and depression during the intervention with the farm animals but only with the complex work tasks. The researchers acknowledged some limitations of the study including having no control group and since the participants were being videotaped that their choice of work tasks may have been influenced. The researchers concluded that when participants master the work skills, then there is a positive effect of farm animal-assisted interventions.

In reviewing the information presented in this category, the research includes qualitative, quantitative, and mixed methods as the research design. The research also uses a variety of terms with animals including AAA, AAT, pet therapy, and visiting companion animals. A wide variety of animals are included in research ranging from just dogs to cats, kittens, rabbits and guinea pigs and farm animals. Most of the international studies have small sample sizes ranging from eight to 20 participants. Frequently the interventions with the animals researched psychological factors including anxiety, depression, moods, perceived quality of life, general wellbeing, and self-efficacy. All of these studies demonstrated positive healthy effects of using AAI. There were no published studies using the TPB in regard to AAI in the international studies, which leave a gap as it relates to this phenomenon of interest that needs to be studied.

Research on Animal Assisted Interventions in the United States

Next, this researcher will present the current research completed in the United States. A quantitative, experimental, research study by Dietz, Davis, and Pennings (2012) was conducted using a convenience sample of 153 children to

evaluate animal assisted therapy group treatment for child sexual abuse. This study compared three group therapies, which include the following conditions: one group with no therapy dogs, the second group had therapy dogs but no stories, and the last group had therapy dogs with stories. Participants were randomly assigned to one of the three group therapies. The purpose of the study was to compare and evaluate the effectiveness of these three group therapies and see if there was improvement in the participant's trauma symptoms including anxiety, depression, anger, PTSD, dissociation, and sexual concerns. The study used a convenience sample of 153 children ranging in ages from 7 to 17. A one-way ANOVA was computed to test differences in age among the children groups and no significant difference was found ($p > 0.05$).

The no dog group had standard therapy for 12 weeks. The dogs no stories group had visits with dogs one time per month for an average of four visits by the dogs during each participant's treatment. Dogs and handlers joined the group for 10-15 minutes as part of the introductory activity and were available in the lobby 30 minutes before the group. The dogs with stories followed the same format as the dogs no stories group. The stories were written from a dog's perspective. The researchers used the Trauma Symptom Checklist for Children (TSCC), and it was administered prior to the first group session and again at the conclusion of the group sessions. This is a 54-item instrument that measures anxiety, depression, anger, PTSD, dissociation, overt dissociation, fantasy dissociation, sexual concerns, sexual preoccupation, and sexual distress.

Their study results showed significant decreases in anxiety, depression, anger, post-traumatic stress disorder, dissociation, and sexual concerns when animal assisted therapy as in the dogs with stories and the dogs no stories groups was used. The researchers acknowledged the limitations in the study of no random assignment to the experimental groups and no control group. However, the researchers concluded that this is important research as it demonstrates the support for another way to help children who are sexual abuse survivors. Therapy dogs help children feel safe, loved, and accepted, which can help them cope with the abuse. They recommend that AAT might not be appropriate for all children who have been sexually abused; it is an additional effective strategy for helping them cope.

Another quantitative, three groups randomized repeated measures experimental design research study by Cole et al. (2007) explored animal assisted therapy in patients hospitalized with advanced heart failure. The objectives of the study were to determine whether a 12-minute hospital visit with a therapy dog improved hemodynamic measures, lowered neurohormone levels, and decreased state anxiety. There were 76 participants in this study, which the researchers randomly assigned into three groups. One group received a 12-minute visit from a volunteer with a therapy dog, another group had a 12-minute visit with a volunteer, and the last group was the control group. Hemodynamic measures obtained included heart rate, respiratory rate, systolic and diastolic blood pressures. The researchers also recorded mean arterial pressures, systolic and diastolic pulmonary artery pressures, pulmonary capillary wedge pressure right

atrial pressure, cardiac output, cardiac index, and systemic vascular resistance. These hemodynamic measures were done prior to the intervention, 8 minutes into the intervention and four minutes after the intervention and included a blood draw for neurohormone levels, which includes epinephrine and norepinephrine at the same. The Spielberger State Trait Anxiety inventory was completed pre- and post-intervention to measure anxiety. Data analysis was calculated by using means and standard deviations for all variables. Differences among groups were calculated using a one-way ANOVA or all mixed model analyses were done using SAS statistical software using a mixed model to test of differences among the three groups at the three-time points.

The researchers reported significant decreases in state anxiety in the dog-volunteer group (-6.65 units, $p = .002$) as compared to the control group. The baseline values during and after for systolic pulmonary artery pressure (PAP) and pulmonary capillary wedge pressure (PCWP) decreased significantly more in the volunteer-dog group than the control group. Moreover, the same occurred with the neurohormone levels. They decreased significantly in the volunteer-dog group. Overall, these researchers found that heart failure patients that had a 12-minute hospital visit with a therapy dog have lower cardiopulmonary pressures, lower neurohormone levels and anxiety levels than the other two groups. However, heart rate, blood pressure, cardiac index, and SVR were not significantly affected by the intervention. The researchers acknowledged some limitations such as if the participants had continuous medications infusing that that might have affected the neurohormone levels and the short amount of time

(12 minutes) for data collection could have been an issue. However, the researchers concluded that a larger study is needed to confirm these results and to examine whether AAT can decrease length of stay or affect other issues such as heart failure patient's quality of life measures. In addition, they determined that AAT is an effective adjunctive treatment and healthcare providers should continue to offer it.

Adamle et al. (2009) used a convenience sample of 246-college freshman to evaluate college students' interest in pet therapy. The purpose of the study was to find out if college freshmen were interested in a pet therapy program to help them with social support for stressful periods and to find out about their relationship with pets. This was a preliminary, cross sectional, research design to collect both quantitative and qualitative data. First, the participants completed the questionnaires for the quantitative portion of the study and then they had a 20-minute presentation about pet therapy with six dogs and handlers in the room. At the end of the presentation, the participants were allowed to ask questions and answer questions about past experiences with pet therapy. These interactions were recorded for the qualitative data, which was collected for future qualitative analysis. Next, the participants got to mingle and have physical contact with the therapy dogs and handlers. Data analysis was performed to look at differences using the Mann-Whitney U test at p =.05.

The researchers found that participants that had pets at home, 92.5% considered them an integral part of their life. They also found that 90.3% felt that the pets comforted them during stressful times. The researchers also found that

there is a difference in comfort by type of pet. Those with dogs overwhelmingly conveyed receiving support and comfort from their dog as compared to cat owners. (76.6% and Mann-Whitney U = 4, 0.24, p = .00). Surprisingly, only 41% had ever heard of pet therapy; however, 96% expressed a positive interest in having a pet therapy program on their campus. These researchers identified and recommended that the college students felt that certified pet therapy dogs could benefit college freshman during their first year away from home. One of the students wanted to know if the program of pet therapy could be available on the campus at any time. The researchers also communicated that more research is needed to understand the human-animal relationship and the therapeutic benefits for healthy populations such as college students.

Abate et al. (2011) conducted a pilot study to explore the impact of canine assisted ambulation (CAA) on hospitalized chronic heart failure (CHF) patients' ambulation outcomes and satisfaction. The goals of the study were to see if using CAA encouraged more patients with CHF to ambulate further and to see if patient satisfaction increased. This was a quantitative, prospective study that used historical comparison and random selection in data analysis. The researchers had a convenience sample of 64 patients who had a diagnosis of HF, were not afraid of a dog and had no allergies to a dog. The study lasted 10 months. Researchers used a CAA data collection tool, which measured the number of steps ambulated regardless of the time spent and demographic data. They also used a patient CAA satisfaction survey that used a Likert scale of strongly agree to strongly disagree for five questions. Statistical analysis included the use of a McNemar test with

the continuity correction, which revealed that CAA significantly decreased patients' refusal of ambulation ($x^2_1 = 11.077$, $p = .0009$).

The researchers also found that the CAA group walked an average of 235.7 (SD, 82) steps versus the historical group that walked an average of 120.2 (*SD* = 101.1) steps, thus demonstrating that the CAA group walked statistically significant more steps than the historical group ($p < .0001$), which was almost twice as far. Regarding the satisfaction questions, all patients responded positively to the CAA. Some indicated that they did not realize how far they walked as they were focusing on the dog. Some even verbalized the only reason they wanted to walk was for the chance to walk with the therapy dog. The researchers indicated that this study could be replicated with all different types of hospitalized patients such as post-surgical patients or patients who have had a stroke. They also think CAA has the potential to reduce hospital length of stay which could be a significant cost savings for the health care institutions as using CAA is a low cost or no cost therapy.

In addition, Bibbo (2013) researched 34 facility staff members' perceptions of an AAA in an adult outpatient regional cancer center in Northern California. The researcher used a quantitative quasi-experimental posttest design, and the participants answered the questions after four weeks of AAA visitation. The purpose of the study was to find out the perceptions of staff members of using an AAA in an outpatient regional cancer center. The researcher had five teams of volunteers and dogs to visit the facility for 4 weeks ranging from 20-90 minutes each time. They visited two separate waiting rooms and the infusion

therapy room. They also visited patients who consented to a visit. The staff was then invited to fill out a researcher created instrument. The instrument had three sections and 26 items on a Likert scale with answers ranging from one disagree completely to nine completely agree. Data analyses were conducted using Pearson's product moment correlation coefficients to determine relationships between perceptions. Analysis of variance (ANOVA) was also used to determine differences between group responses based on the experiential items.

The researcher reported the findings in four sections. This first section was perceptions of animal-assisted activities' means, standard deviations, and ranges. The researcher concluded that if participants have negative perceptions of AAA in general, then it correlated with negative perceptions of the facility using AAA. An example of this is if the participants verbalized that animals should not be allowed in health care settings, it was correlated to participants thinking AAA increased the risk of infection. $R = 0.816$, $p < 0.001$. The researcher also found that positive perceptions of AAA were positively correlated with positive perceptions of the facility using AAA. An example of this is if they liked the idea of AAA, then it positively correlated with participants stating that AAA is appropriate for patients with cancer, $r = 0.662$, $p < 0.001$. The results of the data regarding the interaction with visiting AAA teams were reported in the second section. The researcher conducted a one-way ANOVA and a post-hoc Tukey ($F_{2, 31} = 5.6$, $p = 0.008$) and found that participants who had substantial direct interaction agreed significantly more with the appropriateness of AAA ($X = 8.67$, $SD = 0.96$). The third area the researcher reported was about AAA, extra stress,

and work, and there were no statistical differences after using a paired samples *t*-test. The researcher did not report the numerical statistics. The last area the researcher reported was with interactions with the handler versus the dog and again using a paired samples *t*-test; there was no statistical difference (Handler r = 0.403 and Dog r = 0.375). The researcher found that interacting with the dog handler and interacting with the dog were not significantly different however; it was positively correlated to acceptance of the AAA. Furthermore, the researcher concluded that AAA should be voluntary and available to both patients and staff members.

After reviewing the literature in this category, all the research reported in the United States was quantitative in design. Nurses as well as other professionals are conducting AAI research across the country in the United States. This research is making valuable contributions to the body of science. The sample size varied from 34 to 246 participants, so these studies had larger sample sizes than the research completed internationally. As with the studies conducted internationally, a variety of psychological factors were researched including anxiety, depression, anger, and PTSD. However, in the United States, research was also conducted regarding hemodynamic measures, neurohormone levels, and perceptions about AAI. As with the international research, a variety of terminology was used to describe the activities with animals including AAA, AAT, pet therapy, and CAA similar to studies completed internationally. Likewise, research completed internationally showed positive benefits of AAI, which were frequently reported in these studies. The research has demonstrated

how valuable AAIs are. However, there are no published studies on predictors of intention to use AAI in practice. This leaves a gap that needs to be studied.

Chapter Summary

This chapter discussed the review of the literature of AAI, which demonstrated that AAI continue to have many therapeutic benefits. The review of the literature included the relevant research in several disciplines and settings where AAI is taking place. This chapter also reviewed the qualitative and quantitative research globally as well as in the United States where AAI are being researched. Animals are being used in many different settings with many different disciplines, including nursing, social work, occupational therapy, education, and prison systems. As the historical review has demonstrated, AAI is important locally, nationally, and internationally, and many international organizations have been established to promote AAI to improve the level of health and wellbeing in society.

CHAPTER THREE

METHODS

The overall purpose of the study was to examine the constructs and test the propositions put forth by the theory of planned behavior (TPB) in regard to prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RN) licensed in Florida. To accomplish this purpose, the study proceeded through four distinct phases. Each phase of the study yielded data that informed the subsequent phase. Phases one, two, and three were considered preliminary to Phase four, the main component of the study, in which theory testing occurred. Chapter Three presents the information relevant to each phase of the study.

First, processes were employed to operationally define the specific constructs of the TPB, attitudes, perceived norms, perceived behavioral control, and intention to use animal assisted interventions (AAI), based on input from individuals representing the population of interest, RNs in Florida. The information collected was used to construct an instrument following Fishbein & Ajzen's (2010) model for constructing a research instrument using the TPB. This instrument was evaluated by both a panel of experts and by statistical testing to ensure that it is psychometrically appropriate for the population. Once finalized, the instrument was used to collect data from a representative sample of the population, which measured these constructs and tested the propositions of the theory.

Overview of the Design

The paradigm, which frames the phenomenon of interest, is the positivist or the quantitative approach. According to Creswell (2009), quantitative research tests objective theories by examining relationships between variables. Quantitative research also uses variables that are measured with instruments. These instruments produce numerical data that can be analyzed using statistical procedures (Creswell, 2009). This research tested the constructs of the TPB. In addition, the worldview of quantitative research is positivist and post-positivism.

This is a traditional form of research. It has also been called the scientific method or science research, positivist/post-positivist research, empirical science, and post positivism. Post positivism displays three characteristics, which include determination, empirical observation and measurement, and theory verification. Several assumptions of quantitative research exist, according to Creswell (2009). The theories are tested deductively, bias protection is built in, alternative explanations are controlled, and the researcher should be able to generalize and replicate the findings (Creswell, 2009). Other assumptions of the post positivists include that absolute truth can never be found. Furthermore, research is the process of making claims and then abandoning some of them, such as testing a theory.

Next, data, evidence, and rationale consideration help to shape the knowledge that is collected on instruments based on measurements completed by participants or observations recorded. Quantitative research seeks to develop true statements, such as causal relationships with experimental research that advance

the relationships between the variables. This is detailed in the research questions and hypotheses. Lastly, the researcher must be objective and show no bias. This is demonstrated with reliability and validity (Creswell, 2009).

This researcher has chosen to use two separate designs in order to create an instrument based on the TPB. Many types of designs can be used when conducting quantitative research, including experimental, quasi-experimental, or non-experimental. There are strengths and limitations of all designs. This research employed a non-experimental research design. Several types of non-experimental research exist, including correlational and descriptive research. Correlational design was used to examine relationships between variables. Descriptive design was also used to describe the relationships among the variables in this study (Polit & Beck, 2012). Each of the four phases is articulated below.

Inclusion Criteria

The target population and eligibility to participate remained consistent throughout the study, and each phase enforced the same protection of human subjects and be approved by the university Institutional Review Board (IRB) (see Appendix A), but each phase of the study recruited a unique set of individuals to serve as the sample and pose a unique research question and/or hypothesis. Appropriate research design was used to address each phase. Eligibility criteria to participate in all phases of the study includes: being over 18 years of age, able to read English, having access to and being able to use a computer and the Internet, working in or having access to animal assisted interventions in their agency, and being a RN licensed by the state of Florida. It is estimated that this researcher has

access to the email addresses of approximately 200,000 licensed RNs in the state of Florida for this study.

All individuals meeting these criteria were included; there are no exclusion criteria. All participants in each phase of the study provided demographic information that was used to both assure participation eligibility and to describe the sample for each phase of the study (see Appendices E, F, G, H).

Ethical Considerations/Protection of Human Subjects

The researcher followed all of the ethical guidelines that relate to the protection of human subjects when conducting all three phases of this research study. Respect for persons, justice, and beneficence are highly valued by the researcher and was adhered to. Respect for persons means that they were respected as human beings and were given the right of full disclosure of the study. Treating all participants in this study fairly and protecting their right to privacy fairly will demonstrate justice. Beneficence was demonstrated by trying to minimize harm to the research participants while at the same time increasing the benefits, perhaps not the actual participants, but to society as a whole. Prior to commencing this study, the researcher obtained approval from the Institutional Review Board (IRB) at Barry University (see Appendix A).

Potential participants in each phase were informed of this study and it was their choice as to whether they choose to participate. Cover letters (Appendix B) were provided in all four phases outlining the details of the study including: the aims, the fact that the study is anonymous, the fact that there are no risks or benefits to participating and that they can refuse to answer any question(s) or can

withdraw from the study at any time without penalty. Contact information for the researcher, the faculty sponsor, and the contact person for Barry University's IRB were also provided in the cover letter. During all phases of the research study, all responses were anonymous, which is a common practice while conducting quantitative research. With this being an anonymous study, the researcher was not able to link participants to the completed surveys.

In the first, third and fourth phases of the study, the researcher used SurveyMonkey© as a platform to access and recruit participants. The communication via SurveyMonkey included a cover letter (Appendix B) for all of the phases explaining the study. Since Phases one, three, and four used SurveyMonkey, they included a link to the study. The cover letter outlined the details of the study including the aims, the fact that the study is anonymous, the fact that there are no risks or benefits to participating, and the fact that they can refuse to answer any question (s) or can withdraw from the study at any time without penalty. Contact information for the researcher, the faculty sponsor and the contact person for Barry University's IRB will also be provided in the cover letter. Participants were reminded that the study is anonymous, and their email address will not be linked to their responses. Additionally, the researcher requested that SurveyMonkey block IP addresses. The researcher advised participants that the results of the study may be presented at a local or national conference in a podium or poster presentation format or published in a peer-reviewed journal; however, data were presented as an aggregate and anonymity was maintained.

Participants were reminded in the cover letter not to place any identifiers on the pages of the survey so that anonymity can be preserved. Completed surveys were only accessible to the researcher and the researcher's research advisors. The data on hard copy is stored in the researcher's home office in a locked cabinet. The computerized data from SurveyMonkey was kept in a password-protected external hard drive, which was also locked in the researcher's home office. After the desired sample size was obtained, the links to the SurveyMonkey website were closed and access to the survey was no longer available. All of the data is kept indefinitely in a secure location in the home office of the researcher.

Phase One: Instrument Development

Research Questions

Information collected in Phase one was used to answer the following research questions:

1. What terms do RNs licensed in the state of Florida use to describe the positive and negative aspects of using AAI? These terms were used to operationalize attitude towards using AAI.
2. Who are the referent groups identified by RNs licensed in the state of Florida as being influential in their decision to implement AAI? These referent groups were used to operationalize the subjective norms for these RNs.

3. What do RNs in the state of Florida perceive as the leading factors that either support or inhibit the use of AAI in the clinical area? These factors were used to operationalize perceived behavioral control for AAI.

This information was grouped into three subscales, one representing attitude, one representing subjective norm, and one representing perceived behavioral control.

Research Design

Phase one of the study was qualitative in nature. Members of the population were asked to provide terms that will describe beliefs about using AAI and to determine referent groups that are influential in this decision.

Setting

A sampling of 2,000 email addresses obtained from the Florida Board of Nursing was used to recruit participants for Phase one.

Sampling Strategy

A convenience sample of RNs licensed in the state of Florida was invited to participate in this study.

Determination of sample size. In accordance with Ajzen's (2010) recommendations for developing a research instrument, a small sample size was desired for this phase. Therefore, a maximum of 30 participants meeting eligibility were recruited to capture data that informed the researcher of behavioral outcomes, normative referents, and control factors. However, it is anticipated that saturation of data will be achieved with a lower number of participants.

Instrument

Questions for use in this phase were developed by the researcher based on Ajzen's (2010) recommendations on the creation of an instrument using the TPB. The questions were administered in the form of a survey, the Intention to Use Animal Assisted Interventions (IUAAI) instrument (Appendix E), and participants were asked to provide their responses in narrative form.

The following questions were asked: (a) to elicit data about behavioral outcomes, the participants were asked about the advantages and disadvantages of using AAI in their practice setting; (b) as far as eliciting data about normative referents, the participants were asked about individuals or groups that would approve or disapprove of using AAI in their clinical setting as well as individuals who are most likely and least likely to use AAI in the clinical setting; (c) to learn about control factors, participants were asked about any factors or circumstances that make using AAI easy or difficult.

Data Analysis Plan

Descriptive statistics were reported to describe the participants in this phase of the study. The participant responses to open-ended questions were coded and analyzed to uncover common themes. The survey results were looked at one by one as they came in, so this phase could be closed when saturation of data was reached. Themes were used to create the quantitative instrument to be used for phases two and three.

Procedures

Participants accessed the link for SurveyMonkey, which included the cover letter (see Appendix B) and demographic survey (see Appendix E). Participants were presented with a series of open-ended questions with text boxes with no word/character limit in which to respond.

Phase Two: Instrument Refinement

Phase 2 used a panel of experts to determine face and content validity of the newly created instrument. The information obtained and isolated into subscales in Phase 1 was subjected to review by a panel of experts and asked to provide an opinion regarding the readability of the items (face validity) and if they believed the items capture the meaning of the construct (content validity).

Research Questions

1. Do the newly created scale items that were generated from data obtained in Phase one and intended to operationalize the specific constructs of attitude, subjective norm, perceived behavioral control, and intention have face validity?
2. Do the newly created scale items that were generated from data obtained in Phase one and intended to operationalize the specific constructs of attitude, subjective norm, perceived behavioral control, and intention have content validity?

Research Design

In Phase two, the research design was quantitative and descriptive. The terms and referent groups identified in Phase one were used to construct a

research instrument

Setting

Participants for Phase two were recruited from a university in Florida.

Sampling Strategy

Participants in the first part of Phase two were RNs who were considered experts; however, they were not the same individuals who participated in Phase one. Nursing volunteers were recruited to provide expert opinion on the relevance of questions for the final instrument. This researcher sent the chair or dean of the department of nursing an email (Appendix C) requesting access to their registered nurses. The email also asked to allow a flyer (Appendix D) to be posted in their work area to inform them of the study. When permission was granted, a packet with hard copies of the data gathering materials, including cover letter and clear instructions were placed in a spot designated by the associate dean of the department along with a self-addressed stamped envelope for the data to be returned to the researcher.

Determination of sample size. The desired sample size for Phase two was based on the information provided by the individuals and the type of psychometric testing to be carried out. Information provided to assure face and content validity was provided by a sample of approximately ten RNs who will serve as a panel of experts. This number was determined by the literature, which typically says a small number of experts are needed to conduct face and content validity. Since this researcher planned to use items that achieve an 80% content validity rating, an even number such as ten was selected.

Alternative sampling strategy. If there are not enough participants are recruited from the strategy outlined above, an alternative strategy was considered. This researcher considered reaching out to the Pet Partners organization and asking for email address of registered nurses in Florida who work with Pet Partners and ask them to participate anonymously in this study after gaining the appropriate permissions. Additionally, this researcher considered reaching out to registered nurses who work in institutions that offer animal assisted interventions and by snowball sampling invited them to participate anonymously.

Instrument: Psychometric Estimates

Face and content validity. In addition to the demographic survey, participants in Phase Two were asked to carefully review each of the items and to determine if, on face value, it appeared to make sense. Is the language used in the items logical? Participants were also asked to review each item to determine if they accurately represent the construct being measured. Face and content validity are not statistical properties but are a matter of expert judgment. However, Newman et al. (2013) have provided guidance to assist with the evaluation of content evaluation. Using this matrix, the list of potential items was included as the rows in the table of specifications matrix (Appendix E), while the columns reflected the intended instrument constructs (e.g., attitudes, subjective norms, perceived behavioral control, and intention to use AAI). Participants reviewed the items in relation to the column criteria and make a judgment for each item as to its relevance for inclusion in the IUAAI.

Data Analysis Plan

Validity. From the data submitted by participants, the researcher calculated percentage agreement across experts for each item. Those items having expert agreement of 80% or more were included in the IUAAI instrument.

Procedures

For the face and content validity testing, a packet containing hard copies of the cover letter (Appendix B), demographic survey (Appendix F), and the table of specifications matrix (Appendix F), and a stamped self-addressed envelope addressed to the researcher was placed in an area designated by the associate dean of the department. Instructions requested that participants critically review the list of questions represented in the matrix in regard to the construct addressed by each question.

Phase Three: Reliability Testing

Once the instrument was found to have face and content validity in Phase two, this phase was to pilot the newly refined instrument to determine its reliability. Data collected from members of the target population were used to estimate reliability as internal consistency, Cronbach's alpha (α). This information was considered and used to make any changes necessary to improve the performance of the newly developed instrument. Following data analysis and revisions, each item was attached to a numerical measure scale. The subscales generated continuous level data appropriate for parametric testing. The instrument was called the Intention to Use Animal Assisted Interventions

(IUAAI) instrument. The IUAAI was used to collect data from RNs in Phase four.

Research Question

1. Do the individual items and the subscales for attitude, subjective norm, perceived behavioral control, and intention achieve the benchmarks of acceptable reliability as internal consistency?

Research Design

In Phase three, the research design was quantitative and descriptive. The terms and referent groups identified in Phase one were used to construct a research instrument. This newly created instrument was used to collect data from members of the target population. The data collected was used to test for reliability of the instrument.

Setting

For Phase three or the reliability testing, participants were recruited from 60,000 email addresses from the Florida Board of Nursing.

Sampling Strategy

For the sample for reliability testing, registered nurses were recruited via email and asked to use the SurveyMonkey link to fill out the survey.

Determination of sample size. The desired sample size for Phase three was based on the information provided by the individuals and the type of psychometric testing to be carried out. Once the instrument was refined via content and face validity, a group of RNs were recruited and asked to respond to the items on the scales. These responses were used to calculate Cronbach's alpha,

a measure of reliability as internal consistency. Recommendations for sample size for reliability analysis vary. It is generally agreed that the larger sample sizes tend to produce a more accurate estimate of the population alpha. This study followed the guide from Conroy (n.d.) which is based on the rule of thumb of a minimum of ten subjects per item on the scale. There is a distinct difference between a subscale and a research instrument. The same people can provide responses on all of the scales and be used to test reliability for each scale and alphas will be obtained for each of the scales. There was a total of 37 items on the instrument, which consisted of four subscales, and since the highest subscale had 12 items, the estimated sample size needed was 120 participants.

Instrument: Psychometric Estimates

Reliability as internal consistency. Participants will respond to individual items on a seven-point Likert scale. Responses were used to calculate a statistic that evaluates internal consistency between items on the same scale to determine if they are measuring the same construct. Each item was correlated with all of the other items on the scale to determine the consistency in measuring a concept.

Data Analysis Plan

Reliability. Cronbach's alpha was calculated for each scale. Possible alpha values range from 0.00 to 1.00. Higher values reflect higher internal consistency, which is the most widely used reliability approach. A Cronbach's alpha greater than 0.70 is acceptable and desired (Polit & Beck, 2012) and was considered as an indication that the items are each measuring the same construct.

Any individual item that achieves a corrected inter-item correlation of less than 0.30 was deleted from the scale (Nunnally & Bernstein, 1994).

Procedures

For the reliability testing, the research packet containing the cover letter (Appendix B), demographic survey (Appendix G), and the IUAAI (Appendix G) were posted on SurveyMonkey. An email invitation was sent to the email addresses of RN's obtained through the Florida Board of Nursing to approximately 60,000 registered nurses on the list. The survey was open on SurveyMonkey until the desired number of participants was obtained. A reminder email was sent at weeks one and two to encourage participation. SurveyMonkey was set to allow only one survey completion per participant to prevent multiple responses from an individual. Completed survey responses were downloaded from SurveyMonkey by the researcher to the current version of Statistical Program for the Social Sciences (SPSS).

Phase Four: Theory Testing

Phase four used a quantitative, non-experimental, correlational, predictive design using the data collected using the IUAAI developed through Phases one and refined in Phases two and three. If the IUAAI instrument developed and refined in phase two and three is found to be reliable and valid, it will also be used in phase four. In Phase four, the data was explored, and quality control checks were carried out to assure accuracy of data entry. The psychometric property of reliability as internal consistency was tested; measures of central tendency for the scores for each of the constructs were calculated and reported. The data

representing the outcome variable, intent, were evaluated for distribution to assure the scores meet the assumption of normal distribution and are appropriate for parametric statistical testing. Lastly, the data was analyzed to test the research hypothesis.

Research Questions and Hypotheses

Research questions.

1. What is the relationship between RNs' attitude, subjective norm, perceived behavioral control, and intent toward AAI?
2. What is the individual contribution of each of the predictors to the model?

Hypotheses.

$H1_A$. There is a statistically significant relationship between the RNs' attitude, subjective norm, perceived behavioral control, and intent toward AAI.

Research Design

The research design employed in this study was a non-experimental, correlational, predictive design.

Setting

Participants for Phase four were recruited throughout the state of Florida. As of April 2016, there were 229,613 licensed RNs in the state of Florida. Currently, 63.9% work in hospitals, 8.1% in home health, 4.7 in ambulatory care, 5.3% in long term care, 3% in physician or HCP offices, 2% in public/community health and < 2/% is other. In order to access and recruit participants for Phase 4, the researcher contacted the administrators of the board of nursing of the Florida Department of Health and received permission to access email addresses for

licensed RNs (Appendix C). It is estimated that this researcher has access to approximately 200,000 licensed RNs emails in the state of Florida for this phase.

Sampling Strategy

A convenience sample of nurses licensed in the state of Florida was invited to participate in this study.

Determination of sample size. In order to determine an adequate sample size for the number of variables and the statistical techniques used to analyze the study data, a priori estimation of the sample size was made based on the power analysis using G*Power 3.1.9.2 (Faul, Erdfelder, Buchner, & Lang, 2009). The target sample size has been determined based on the number of variables and the statistical tests being used. The research hypothesis includes three independent or predictor variables, attitude, subjective norm, perceived behavioral control, and one dependent variable or outcome criterion, intention. All variables are measured at the continuous data level.

For linear multiple regression, anticipating a medium effect, $r = .15$, a power level of 0.80, three predictors and level of significance set at .05 to control the probability of making a Type I error, the minimum number of fully completed surveys with valid data needed is 77. Since this survey was sent to approximately 60,000 potential participants the researcher correctly predicted that the minimum number of surveys needed was easily met.

Researcher Developed Instrument

Attitude scoring. The items on the subscale for attitude provided a Likert type scale, with 1 indicating a more *negative attitude* and 7 indicating a more

positive attitude and increments between these extremes. Items were summed for a composite score representing attitude; higher scores indicate more positive attitude. Possible range of scores was 7-49 since the final version of this subscale included 7 items.

Subjective norm scoring. Subjective norm consists of two separate but connected measures. For each referent group identified, the participant was asked three items about their perception that the referent group thinks they should perform the behavior. The other item addresses the participant's motivation to comply with the opinion of the referent group regarding the behavior. All items provided a Likert-type response scale ranging from 1 to 7. For the items that address perception of referent group opinion, 1 indicates *definitely disagree* and 7 indicates *definitely agree* and increments between these extremes. For items addressing motivation to comply, 1 indicates *not at all likely* and 7 indicates *very likely* and increments between these extremes. The scores of the first 3 items were summed then divided by 3 because there are 3 items, which provides a mean for these 3 items. That number was then multiplied by the corresponding motivation to comply item to ascertain the subjective norm. Higher scores indicate higher subjective norms.

Perceived behavioral control scoring. The items on the subscale for perceived behavioral control provided a Likert type scale, with 1 indicating *definitely disagree* and 7 indicating *definitely agree* and increments between these extremes. Items were scored so that higher scores indicate more positive perceived behavioral control.

Intent scoring. The items on the subscale for intent provided a Likert type scale, with 1 indicating *definitely disagree* and 7 indicating *definitely agree* and increments between these extremes. Items were scored so that higher scores indicate more intent to use AAI.

Procedures

Following completion of Phases one, two, and three of the study, the final draft of the research instrument was submitted to the university IRB for approval. Once IRB approval was obtained, the research packet containing the cover letter (Appendix B), demographic survey (Appendix H) and the IUAAI (Appendix H) were posted on SurveyMonkey. An email invitation was sent to the email addresses of RNs obtained through the state. The survey was open on SurveyMonkey until the desired number of participants is obtained. A reminder email was sent out at 1 week to encourage participation in the study. Completed survey responses were downloaded from SurveyMonkey by the researcher to the current version of Statistical Program for the Social Sciences (SPSS).

Data Analysis Plan

Survey forms were reviewed for complete data. Surveys with incomplete or missing data were not used in the data analysis. Descriptive statistics including measures of central tendency and frequencies were calculated to describe the sample. The data for the dependent variable was evaluated for outliers, values greater or less than three standard deviations from the mean, using stem and leaf analysis; however, outliers were retained in the statistical analysis. Measures of central tendency and measures of variation were calculated for each variable.

Reliability was also calculated based on the data provided by the sample in this phase.

Statistical assumptions and hypothesis testing. Prior to hypothesis testing, data for the dependent variable were evaluated to assure it met the assumptions of parametric statistical testing. Normality of distribution of scores was evaluated using a histogram with a fitted normal curve superimposed and checked with the Kolmogorov-Smirnoff (*KS*) test. A significant value for the *K-S* test will indicate that the scores are not normally distributed.

The theoretical propositions were tested by means of a multiple linear regression analysis, forced entry method, whereby all predictors are forced into the model simultaneously. Multiple linear regression is appropriate for at least three variables that are measured as continuous level data. Using linear multiple regression analysis imposes additional assumptions: a linear relationship between the independent and dependent variables and little or no multicollinearity in the data. The linearity assumption was tested with scatterplots. Multicollinearity was checked against three criteria: the correlation matrix among all independent variables where the correlation coefficients should be less than .08, tolerance values should be >.2 and variance inflation factor (VIF) values should be < 10. The assumption that the errors in the prediction, residuals, are not linearly auto correlated was tested with a scatter plot and using the Durbin-Watson's (*d*) test. The range of the Durbin-Watson statistic is 0 to 4; a value between 1.5 and 2.5 indicates there is no autocorrelation (Vogt & Johnson, 2011).

Chapter Summary

This chapter presented the methods that were used to accomplish the purpose of the study, which was to examine the constructs and test the propositions put forth by the TPB regarding prediction of intention to use AAI in clinical practice among RNs licensed in Florida. Since this study had four phases, each phase was presented separately. Participants in each phase were members of the target population, provided demographic data, which verifies their eligibility, and were under the protection of human research subjects. In each section, the research design unique to the phase was presented along with the process that was used to accomplish and evaluate the tasks inherent in the phase.

In Phase one, members of the target population provided qualitative data, which was used to construct a preliminary research instrument designed to measure the theoretical constructs. Phase one terminated in the construction of the instrument involving structure of Likert-type response options.

Phase two again requested data from members of the target population. This set of participants served as an expert panel to provide feedback regarding face and content validity of the newly constructed instrument. Phase three had a set of participants who were asked to complete the research instrument. This data was used to test for reliability as internal consistency of the items included on the scales. Revisions to the instrument were made based on feedback from these two sets of participants. Phases two and three were terminated when all feedback had been considered and a final draft of the instrument had been approved.

In Phase four, the newly constructed and refined instrument was taken to members of the target population. These participants completed the instrument. Data provided was subjected to tests to assure that it meets the assumptions of parametric testing and, if appropriate, parametric statistical processes were used to test the hypotheses and answer the research questions.

CHAPTER FOUR

FINDINGS OF THE STUDY

The purpose of this non-experimental study was to examine the constructs and test the propositions put forth by the Theory of Planned Behavior (TPB) regarding prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RNs) licensed in Florida. Animal assisted interventions can be described as interventions that intentionally incorporate animals into health care for the purpose of therapeutic gains to improve health and wellness. In this setting, the animal is part of a volunteer therapy animal team, which includes the animal and a handler. This study explored registered nurses in Florida attitudes, subjective norms, and perceived behavioral control in regard to intention to use these animal assisted interventions in their clinical setting. This study progressed through four distinct phases. The first three phases were preliminary work to develop and test an instrument (IUAAI) that was used to collect the data to test the hypothesis in phase four. Each of these phases is presented separately.

This chapter will describe the results and findings according to the phase of research. First, phase one data will be reported including a description of the sample, instrument development and the terms identified. Next, the findings of phase two will be reported including validity testing, description of the sample and content and face validity results. Then, results for phase three, which was the reliability phase, will be presented and includes the description of the sample, reliability as internal consistency and the final instrument and scoring. Finally,

results from phase four which is the theory testing phase are presented by describing the sample, exploring the data including descriptive values for the scores on the scales, reliability as internal consistency, distribution of scores, testing for assumption of independence of independent variables and the results of the hypothesis testing. This section will end with a chapter summary.

Phase One: Description of the Sample

In phase one, processes were employed to operationally define the specific constructs of the TPB, which includes attitudes, perceived norms, perceived behavioral control, and intention to use animal assisted interventions (AAI), based on input from individuals representing the population of interest, RNs in Florida. In accordance with Fishbein & Ajzen's (2010) recommendations for developing a research instrument, a small sample size was desired for phase one. Therefore, a maximum of 30 participants meeting eligibility were recruited to capture data that informed the researcher of behavioral outcomes, normative referents, and control factors. However, after reviewing the participants' responses and obtaining similar responses, data collection was completed with 21 participants or 70% of the estimated sample size anticipated prior to the study.

All 21 (100%) participants currently have AAI in their healthcare institution. The sample consisted of 21 participants, males (n = 2, 9.5%) and females *(*n = 19, 90.5%) whose ages range from 31 to 77 years (M = 56.48, SD = 12.01). Regarding education, the participants' level of education was varied and ranged from associate degree (n = 5, 23.8%), bachelor's degree (n = 9, 42.8%), master's degree (n = 5, 28.6) and one participant had a doctoral degree (4.8%).

Participants' health care specialty was mostly in other (*n* = 8, 38%) or critical care/emergency room (*n* = 7, 33.3%). One participant worked in medical/surgical (4.8%) and one participant worked in long-term care (4.8%). Participants have been licensed as RNs from 5 to 57 years (*M* = 26.43, *SD* = 15.60). Most of the participants were employed full time (*n* = 12, 57.1% and per diem/adjunct (*n*=8, 38.1%). One was working part time (4.8%). Most currently own pets (*n* = 16, 76.1%) and the rest of them have owned pets in the past (*n* = 5, 23.8%). The overwhelming majority had dogs (*n* = 20, 95%) or cats (*n* = 15, 71.4%). Some had birds (*n* = 5, 23.8%), some had rabbits (*n* = 7, 33.3%) and five had horses (*n* = 5, 23. 8%). The ethnicity of the participants in phase one was mostly White or Caucasian (*n* = 17, 81%), one Black or African American (*n* = 1, 4.7%), one Hispanic or Latino (*n* = 1, 4.7%) and two preferred not to answer (*n* = 2, 9.5%). Selected demographic data for the sample is presented in Table 1.

Table 1

Demographic Data for Phase 1 Participants (N = 21)

Characteristic	*n*	%
Education		
Associate degree	5	23.8
Bachelor's degree	9	42.8
Master's degree	6	28.6
Doctoral degree	1	4.8
Employment status		
Full time	12	57.1
Per diem/adjunct	8	38.1
Part time	1	4.8
Health care specialty		
Critical care/emergency room	7	33.3
Other	8	38.0
Medical/surgical	1	4.8
Long term care	1	4.8

Home health	1	4.8
Ambulatory care	1	4.8
Psychiatric/mental health	2	9.5

Phase One: Instrument Development

In phase one, the research participants responded to three open-ended research questions. The first research question was, "What terms do RNs licensed in the state of Florida use to describe the positive and negative aspects of using AAI?" The specific open-ended questions that were to assist in relation to that research question asked were (1) "What do you see as the advantages of having AAI in your practice setting?" (2) "What do you see as the disadvantages of having AAI in your practice setting?" and (3) "What else comes to mind when you think about having AAI in your practice setting?" The answers received from these three questions were used to create the attitude items on the research instrument. A total of 11 items were created for the first draft of the research instrument based on the responses from the participants.

The second research question for this phase was "Who are the referent groups identified by RNs licensed in the state of Florida as being influential in their decision to implement AAI?" To elicit information to answer this research question, participants were asked four specific questions (#4 - #7on the survey) including (4) When it comes to using Animal Assisted Interventions (AAI) in your clinical setting, there might be individuals or groups who would think you

should or should not use AAI. Please list individuals or groups who would approve using AAI in your clinical setting. (5) Please list individuals or groups who would disapprove or think you should not use using AAI in your clinical setting. (6) Sometimes when we are not sure what to do, we look to see what others are doing. Please list individuals or groups who are most likely to use AAI in your clinical setting. (7) Please list individuals or groups who are least likely to use AAI in your clinical setting. Using the answers from these participants, three referent groups were identified and a total of nine items were created for the first draft of the research instrument based on the responses from the participants.

The third research question for phase one was, "What do RNs in the state of Florida perceive as the leading factors that either support or inhibit the use of AAI in the clinical setting? Two specific questions (#8 - #9 on the survey) were asked, which include (8) Please list any factors or circumstances that make it easy or enable you to incorporate AAI in your clinical setting. (9) Please list any factors or circumstances that make it difficult or prevent you from incorporating AAI in your clinical setting. The answers received from these questions were used to create the perceived behavioral control items on the research instrument. A total of 10 items were created for the first draft of the research instrument based on the responses from the participants. The items for the construct related to intent were formatted from the literature review.

Terms Identified

Attitude. Eleven items were created from the advantages and disadvantages that were used to describe advantages and disadvantages of using

AAI in their clinical setting. The participants indicated that the advantages include making work more enjoyable for patients and staff, calms patients, can bring feelings of happiness and joy to patients and families, can reduce anxiety and depression, may improve physical health and promote healing, and reduces stress. The disadvantages included patients may have an allergy to the animals, some patients are afraid of animals; animals are unclean or unhygienic and may cause or increase infections.

Subjective norms. The participants identified significant referents including nurses, specific specialties of nurses, administration and different terms for administrators such as managers and patients and specific groups of patients and visitors. These were logically grouped into three categories including nurses, administration and patients. For each of these three groups, three questions were created on the first draft of the instrument. These groups were used to operationally define the subjective norms and were matched with a corresponding item that asked the extent of motivation to comply with these referent groups.

Perceived behavioral control. Ten items were created from the data obtained from the participants' reports of factors that make it easy or difficult to use AAI in their clinical settings. The participants said factors that make it easy are if there are enough animals/handlers, having buy-in or support from administration, having the knowledge or education about AAI, and having policies and/or procedures to support the use of AAI. The participants said that factors that make it difficult include similar ideas including lack of support from administration, not having policies and/or procedures to support the use of AAI,

infection control issues and certain clinical areas where AAI would be inappropriate such as operating rooms, burn units, isolation patients to name a few.

Intention. The four items for intention were created from the literature review and are commonly formatted this way.

Phase Two: Validity Testing

After the IUAAI instrument was created from the data obtained in Phase one, it consisted of 37 items for the four constructs of attitudes, subjective norms, perceived behavioral control, and intention. The goal of this phase was to have experts critically evaluate the newly created research instrument for face and content validity.

Description of the Sample

Information obtained to assure face and content validity was provided by a sample of approximately five RNs who served as a panel of experts. This number was determined by the literature, which typically states a small number of experts are needed to conduct face and content validity. Data collection was completed with five participants or 50% of the estimated sample size of 10 anticipated prior to the study. In the published research studies that used TPB that explained in detail how many experts were used to ascertain content validity, the number ranged from four to 10 experts (Cote et al. (2011), Gavaza et al. (2014), Steele and Porche (2005), Rahnama et al. (2013), and Wayuhuerd et al. (2010). The actual number obtained for this study was consistent with the published research.

The sample included five participants, 100% female, whose ages ranged from 40 to 63 years (M = 53.8, SD = 9.98). Three of the five (60%) research participants are prepared at the master's degree level while two (40%) participants had achieved the doctoral level. One (20%) participant works in the critical care/emergency room area; two (40%) participants work in obstetrics/gynecology, and two (40%) participants work in a medical/surgical setting. The nurses in this study have been licensed as RNs from 15 to 41 years (M = 31, SD = 11.2). All five (100%) research participants are employed fulltime and currently have AAI in their healthcare institution. Most participants currently own pets (n = 3, 60%), and the rest of the participants owned pets in the past (n = 2, 40%). The research participants had cats, dogs and birds. The ethnicity of the participants in this phase was White or Caucasian (n = 3, 60%) and only one participant was Black or African American (n = 1, 20%), and only one was Asian or Pacific Islander (n = 1, 20%).

Content and Face Validity

In Phase two, the research participants were asked to review the newly created Intention to Use Animal Assisted Intervention (IUAAI) instrument which had 37 items for face and content validity to answer two research questions. The first research question was, "Do the newly created scale items which were generated from data obtained in Phase one and intended to operationalize the specific constructs of attitude, subjective norms, perceived behavioral control, and intention have face validity?" Five respondents reviewed the survey and occasionally made comments such as on one of the attitude items, stated "only if

they are animal lovers" but since they still agreed with the item, none of the comments were substantive enough to change any of the wording.

The second research question asked, "Do the newly created scale items that were generated from data obtained in Phase one and intended to operationalize the specific constructs of attitude, subjective norms, perceived behavioral control, and intention have content validity?" To answer this question, a content validity matrix (see Appendix F) was made by the researcher of the items on the instrument and any item with an 80% or more agreement (n=37) was included on the survey. Most items had 100% agreement except for four items. These four items still had an 80% agreement, which met the benchmark, so all of the original items were included on the final instrument.

Phase Three: Reliability Testing

In phase three, one research question was asked: Do the individual items and the subscales for attitude, subjective norms, perceived behavioral control, and intention achieve the benchmarks of acceptable reliability as internal consistency? The instrument that was developed in Phase one called the IUAAI and reviewed for content and face validity in Phase two was then subjected to analyses of reliability as internal consistency in phase three.

Description of the Sample

The estimated sample size for phase 3 reliability testing was guided by Conroy (n.d.), which is based on the rule of thumb of a minimum of ten subjects per item on the scale. There is a distinct difference between a subscale and a research instrument. The same people can provide responses on all of the scales

and be used to test reliability for each scale and alphas will be obtained for each of the scales. (Conroy, n.d.) There was a total of 37 items on the instrument, which consisted of four subscales, and since the highest subscale had 12 items, the estimated minimal sample size needed was 120 participants.

The sample for Phase three consisted of 276 RNs, which exceeded the number anticipated, who are working in facilities that offer AAI. Of the 276, 273 reported gender as males (n = 23, 8.4%) and females (n = 250, 91.6%). Two hundred seventy-three reported their age, which ranged from 22 to 77 years (M = 46.57, SD = 12.20). Most of the research participants' have at least a bachelor's degree (n = 126, 45.7%) or master's degree (n = 70, 25.4%). The number of years as a licensed RN reported by 274 participants ranged from 1 year to 57 years (M = 17.74, SD = 13.47). Most of the participants work full time (n = 222, 80.4%), and almost all of them own pets (n = 238, 86.2%). Of these participants, 225 (81.5%) are White/Caucasian, 20 (7.2%) are Black or African American, nine (3.3%) are Asian or Pacific Islander, 10 (3.6%) are Hispanic/Latino and eight (2.9%) did not provide a response from this sample. Information related to their area of health care specialty reported by 263 participants is provided in Table 2.

Table 2

Health Care Specialty of Phase 3 Participants (N = 263)

Health care specialty	*n*	%
Medical/surgical	43	15.6
Pediatrics	26	9.4
Obstetrics/gynecology	7	2.5
Critical care/emergency room	65	23.6
Psychiatric/mental health	10	3.6
Hospice	19	6.9
Long term care	21	7.6
Home health care	7	2.5
Ambulatory care	9	3.3
Physician or health care professional office	2	0.7
Community/public health	3	1.1
Other	64	23.2

Reliability as Internal Consistency

Cronbach's alpha (α) was calculated for the four scales and used to explain reliability as internal consistency. Only data from scales that contained complete responses to all items were used in the analysis. The scale measuring attitudes/beliefs had 11 items; 263 participants completed this scale. Initial calculation indicated that for the 11 items, α =.786, corrected item-total correlation ranged from .114 to .692. Four of these items were reverse coded, and these four items had corrected item-total correlations less than 0.30. The criteria to remove poorly functioning items of less than 0.30 (Nunnally & Bernstein, 1994), was implemented. When these four items were removed, results improved, α =. 964, corrected item total correlation ranges from .746 to .935. Therefore, the number of items on the scale for use in Phase four was reduced to seven. The four items removed from the attitudes scale were:

1. Using animal assisted interventions should not be done because patients may have an allergic reaction.
2. Using animal assisted interventions should not be done because many patients are afraid of animals.
3. Using animal assisted interventions should not be done because animals can be unclean or unhygienic.
4. Using animal assisted activities should not be done due to increased risk of infection.

The scale measuring subjective norms had 12 items and was completed by 259 participants. Initial calculation for this scale resulted in α = .927; corrected

item-total correlation ranged from .566 to .749. This scale of subjective norm had alpha values that exceeded the benchmark of 0.70 and were accepted as evidence that the items on the individual scales were measuring the same construct.

The scale measuring perceived behavioral control had 10 items, which were completed by 258 participants. Initial calculation of reliability found α = .450. Three of these items were reverse coded and had negative corrected item-total correlations ranging from -.268 to -.603. The criteria to remove poorly functioning items of less than .30 (Nunnally, 1978), was implemented. When these three items were removed, the results improved, α =. 863, corrected item total correlation ranges from .513 to .736. Therefore, seven items on this scale will be used in Phase four. The three items that were removed were:

1. There are factors outside of my control that could prevent me from using animal assisted interventions in my clinical practice.
2. It is difficult to use animal assisted interventions in my clinical setting due to infection control issues.
3. It is difficult to use animal assisted interventions in certain clinical areas such as the operating room, burn units or bone marrow transplant units.

The intent subscale had four items, which were completed by 260 participants. Initial calculation found α = .927 and corrected item-total correlation ranged from .630 to .917. The intent scale had alpha values that exceeded the benchmark of 0.70 and were accepted as evidence that the items on the scales were measuring the same construct. Table 3 provides a summary of the

reliability values for the four subscales on the IUAAI after the seven items that did not meet acceptable criteria were removed.

Table 3

Summary of Reliability Values for the Scales (N = 263)

Scale	*n*	Number of items on scale	Corrected item-total correlation range	α
Attitudes/beliefs	263	7	[.75, .94]	.96
Subjective norm	259	12	[.57, .75]	.93
Perceived behavioral control	258	7	[.51, .74]	.86
Intent to use AAI	260	4	[.63, .92]	.93

Final Instrument Description and Scoring

The final form of the instrument included four scales. This section provides a description of these four scales and the scoring plan for each. For all scales, higher scores indicated a stronger, more positive belief of the variable.

Attitudes

The scale to measure attitudes regarding animal assisted interventions consisted of seven items, measured on a Likert scale of 1 to 7, with possible scores ranging from 7 to 49. Higher scores indicate more positive attitude toward AAI.

Subjective Norms

The scale to measure subjective norm consists of three referents including nurses, administrators, and patients; each referent measure includes three statements regarding the participant's perception of the referents' opinion with a Likert response from 1 to 7, and one statement regarding the participant's motivation to comply with the referent's opinion with a Likert response from 1 to 7. The three statements regarding the referents were summed and then divided by three for a mean score for the three items. This mean score was then multiplied by the value for the one item measuring motivation to comply with the referents' opinion. For example, if the participant gave a 7 to each of the three items about nurses then the average of those 3 items was 7. That score was then multiplied by the motivation to comply score and if that was a 7 then the score for nurses was 7 times 7 or 49. If the participant did the same for the administrators and the patients then the total scores of 49 plus 49 plus 49 would give them a subjective

norm score of 147, which is the highest possible subjective norm score. The result is one score for each participant representing subjective norm. The possible scores range from 3 to 147. Higher scores indicated higher levels of subjective norms.

Perceived Behavioral Control

The scale to measure perceived behavioral control consists of seven items, measured on a Likert scale of 1 to 7, with possible scores ranging from 7-49. Higher scores indicated more positive perceived behavioral control.

Intent

The scale to measure intent consists of four items with a Likert response from 1 to 7. Responses to the four items were summed for a possible score range of 4 to 28. Higher scores indicated more intent to use AAI.

Phase Four: Testing the Theory

The purpose of Phase four was to examine the psychometric properties of the (IUAAI) instrument developed and refined throughout phases one, two and three and to use the instrument to collect data to measure the constructs and test the propositions of the TPB in relation to the intent of RNs to use AAI.

Description of the Sample

The estimated sample size needed for phase four was 77. A total of 40,000 individuals were sent an email invitation; 546 accepted the invitation by clicking on the survey. Of these, 429 did not meet eligibility because their workplace did not provide opportunity for AAI. The remaining 117 made up the sample, which exceeded the estimated sample size of 77 of 11 males (9.4%) and

106 females (90.6%), ranging in age from 23 to 82 years (n = 116, M = 45.9, SD = 13.5). Almost half of participants had a bachelor's degree (n=57, 48.7%). Twenty-five of them had a master's degree (21.4%) and twenty-nine of them had an associate degree (24.8%) and six had a diploma degree (5.1%). About a quarter of participants reported that they worked in critical care/emergency department (n = 29, 24.8%). Nineteen participants stated they worked in medical/surgical units (n = 19, 16.2%), 11 participants worked in pediatrics (9.4%), eight in psychiatric/mental health (6.8%), five work in hospice (4.3%), nine in long term care (7.7%), and nine in perioperative care (7.7%). All of the rest of the categories had less than five participants and are listed in Table 4. Participants have been licensed as a RN between one and 55 years (M = 17.0, SD = 13.8). All participants (100%) are employed as a RN; 97 (82.9%) are employed fulltime; eight (6.8%) are employed part time and 12 (10.3%) are employed on a per diem or adjunct basis. The sample has an affinity toward animals. The majority of participants (97, 82.9%) currently own at least one pet; only two (1.7%) have never owned a pet, 18 (15.4%) do not currently own a pet but have owned one or more pets in the past. Of those who currently own pets, the most frequently reported type of pet is a dog (n = 101, 86%). Almost half (n = 56, 48%) of the sample own a cat; 26 (22%) owns a rabbit, and 25 (21%) owns birds. However, the majority (n=58, 50%) own multiple pets which include domesticated animals like dogs and cats, reptiles, fish, birds, Guinea pigs, chinchillas, and a variety of farm animals. The race/ethnicity of these participants was primarily White or Caucasian (n = 96, 82.1%) with five (4.3%) being Asian

or Pacific Islander, seven (6.0%) Black or African-American, seven (6.0%) Hispanic or Latino and two (1.7%) preferring not to answer the item. The educational background and specific field of healthcare specialty of the participants is provided in Table 4.

Table 4

Educational Background and Field of Healthcare Specialty of the Participants (N = 117)

Characteristic	*N*	%
Education		
Diploma	6	5.1
Associate degree	29	24.8
Bachelor's degree	57	48.7
Master's degree	25	21.4
Health care specialty		
Medical/surgical	19	16.2
Pediatrics	11	9.4
Obstetrics/gynecology	3	2.6
Critical/emergency department	29	24.8
Psychiatric/mental health	8	6.8
Hospice	5	4.3
Long-term care	9	7.7

Home health care	2	1.7
Ambulatory care	3	2.6
Community/public health	2	1.7
Cardiac catheterization lab	3	2.6
Diabetes educator	1	0.9
Rehabilitation	3	2.6
Case management	2	1.7
Peri-operative care	9	7.7
Oncology	4	3.4
Corrections	1	0.9
Risk management	1	0.9
Health care technology	1	0.9
Administration	1	0.9

Exploring the Data

Data were explored to determine the descriptive values of the scores for all the scales. Some scales did not contain complete responses; only complete scales were used in the analysis. Review of these omitted responses showed they appear to be random and likely the result of responses not being registered in the online

system. Scores for the scales were tested for reliability as internal consistency. The distribution of the scores measuring the outcome variable, intent to use AAI, was evaluated.

Descriptive Values for the Scores on the Scales

The scores for each scale were calculated according to the scoring plan. With a mean score of 6.24 on a 1 to 7 scale, attitude toward using AAI was very high; subjective norm toward the behavior was about mid-range (M = 102.74, possible range 3 to 147). Perceived behavioral control (M = 4.58) and intention (M = 5.25) were measured on a 1 to 7-point scale so these scores are slightly greater than mid-range. While the participants tend to be pet owners and report a very high level of attitude toward using AAI, the lower subjective norm and behavioral control scores may be related to the nursing unit in which the participant is employed. Participants working in peri-operative care, which includes the operating room, health care technology, cardiac catheterization lab, risk management, administration, or obstetrics/gynecology, which includes labor and delivery, likely perceive that referent groups consider these inappropriate areas for animals and they do not intend to implement this strategy in these areas. Table 5 presents a summary of the description of these values.

Table 5

Descriptive Values for the Predictor and Outcome Variables *(N = 117)*

Variable	*n*	Number of items on scale	*M*	*SE*	Actual Range	Possible Range
Attitudes/beliefs	113	7	6.24	0.08	[4, 7]	[1, 7]
Subjective norm	115	12	102.74	3.33	[5, 147]	[3, 147]
Perceived behavioral control	113	7	4.58	0.12	[1, 7]	[1, 7]
Intent to use AAI	116	4	5.25	0.14	[1, 7]	[1, 7]

Reliability as Internal Consistency

The items on the scales were subjected to analysis using Cronbach's alpha (α). The benchmark for acceptable reliability of items were a corrected item-total correlation of at least 0.30 and at least 0.70 for the entire scale. All items fall within these parameters indicating that the scales are reliable among this sample. Table 6 provides a summary of the reliability values for the entire 30-item scale, inclusive of the subscales, and the four subscales.

Table 6

Summary of Reliability Values for the Scales (N = 117)

Scale	*n*	Number of items on scale	Corrected item-total correlation range	α
Entire scale	107	30	[.42, .86]	.96
Attitudes/beliefs	113	7	[.60, .91]	.94
Subjective norm	115	12	[.68, .81]	.94
Perceived behavioral control	113	7	[.51, .76]	.87
Intent to use AAI	116	4	[.81, .95]	.96

Distribution of Scores

Scores for the outcome variable, intent to use AAI, range from a minimum of 1 to a maximum of 7. Measures of central tendency (*n* = 116, *M* = 5.25, *SE* = 0.14, 95% CI lower bound = 4.99 to upper bound = 5.52, *Md* = 5.25) indicate that the *M* and *Md* for the scores are the same. Stem and leaf plot did not identify any extreme scores at either the lower end or the upper end of the distribution.

Distribution of these scores was examined. Measures for skewness and kurtosis indicate the extent to which a distribution departs from the normal curve; values that depart from zero indicate that the distribution, to some extent is not normal. The value for skewness, -.75, *SE* = .23, indicates that the scores tend to

skew to the left with scores piling up on the higher side of the distribution. The measure of kurtosis, .54, *SE* = .45, indicates that the scores tend to assume a somewhat pointed curve. The significant Kolmogorov-Smirnov (*K-S*) statistic, .14, *df* = 116, *p* = .00, indicates that the distribution of scores for intent is not normal. This finding is consistent as illustrated by the Q-Q plot of the scores for intent, which demonstrates that the scores have some deviation from normality. As the scores violate the assumption of normal distribution, the findings cannot be generalized beyond this sample. The histogram of scores for the outcome variable, intent to use AAI, is presented in Figure 2; the Q-Q plot of these scores is presented in Figure 3.

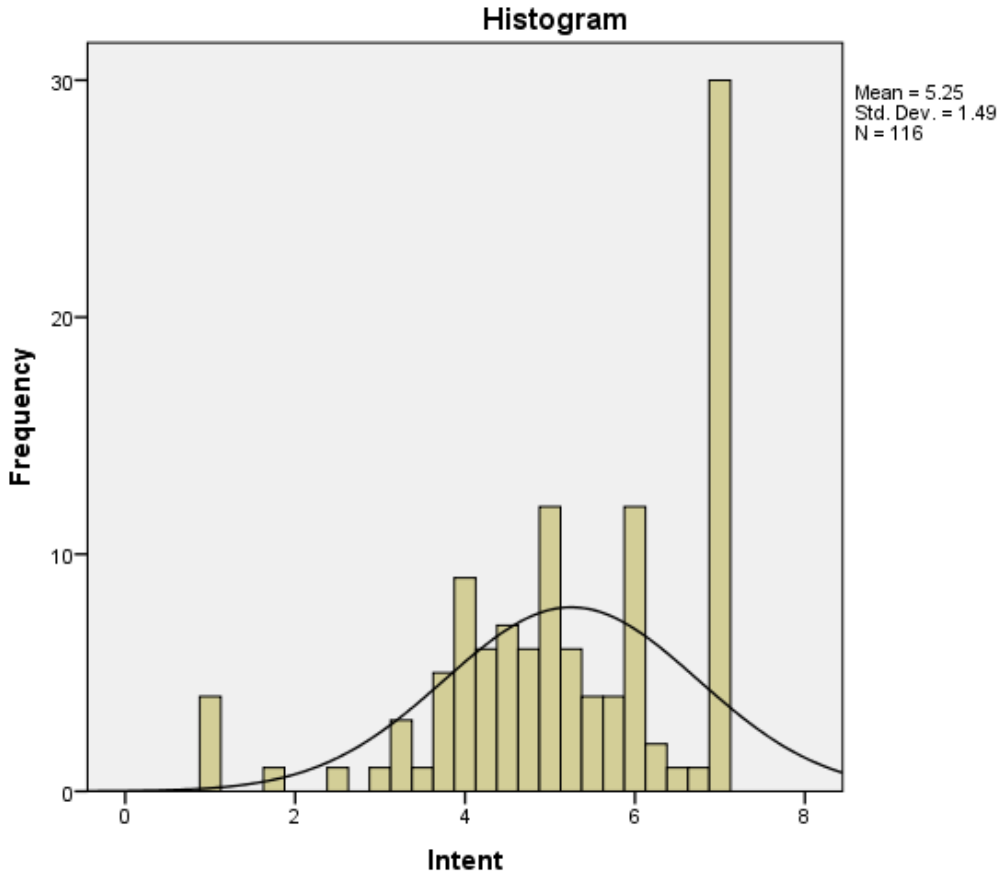

Figure 2. Histogram of scores for intent to use AAI.

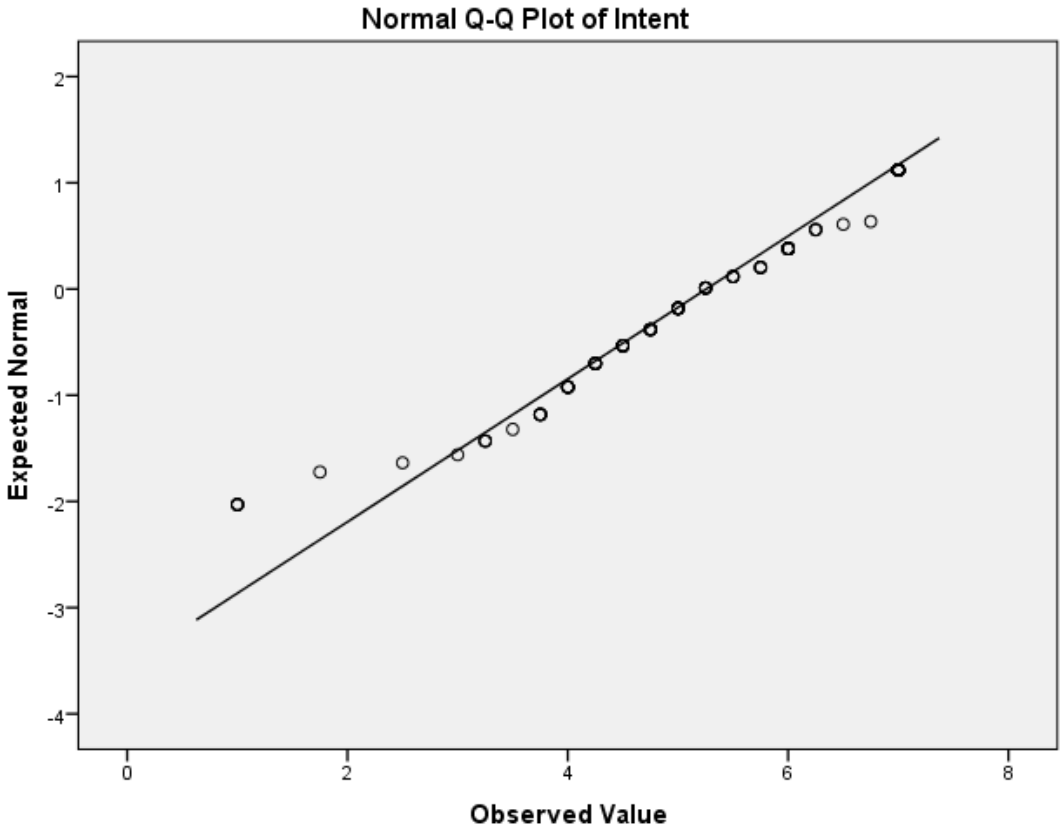

Figure 3. Q-Q plot of scores for intent to use AAI.

Testing for the Assumption of Independence of Independent Variables

Prior to hypothesis testing, the assumption of independence of the predictor variables was assessed using collinearity statistics for tolerance and variance inflation factor (VIF). Multicollinearity exists when there is a strong correlation between two or more independent predictors. The tolerance is the proportion of the variability in one independent variable that is not explained by the other independent variables. Tolerance values may range from 0 to 1; the bigger the tolerance, the more useful the independent variable is to the analysis; the smaller the tolerance, the higher the collinearity. A tolerance value of .10 or

smaller indicates severe collinearity. In this study data, the tolerance values ranged from a low of 0.36 to a high of 0.71.

The VIF indicates whether an independent variable has a strong linear relationship with the other independent variables. If the VIF values exceed 10, or if the average VIF is greater than 5, multicollinearity is a concern. In this data set, VIF values range from 1.4 to 2.8, below the 10 benchmark; the average is 2.17, which is also below the benchmark of 5. Lastly, the Durbin-Watson's (*d*) statistic of 1.9 is close to 2 and between 1 and 3, which indicates there is no autocorrelation between the predictor variables (Field, 2009).

Hypothesis Testing

One hypothesis was posed; there is a statistically significant relationship, uniquely and as a linear composite, between the RNs' attitude, subjective norm, perceived behavioral control, and intent toward AAI. This research hypothesis anticipated that there is a significant positive predictive relationship between the three predictors and the outcome variable.

Bivariate correlation indicates that each of the predictors, uniquely, is positively and significantly correlated to the outcome variable while not correlated with each other (see Table 7). Multiple regression analysis was used to test if attitude, subjective norm, and perceived behavioral control, as a linear composite, significantly predicted participants' intent. The results of the regression indicate that the model, in combination, predicts 74.2% of the variance in intent, $R^2 = .75$, adjusted $R^2 = .742$, $F\ (3, 103) = 102.87$, $p < .000$. This percentage is large and statistically significant.

To understand the contribution of each of these variables to the prediction, the beta weights (*B*) for each predictor variable must be examined, along with its significance, while holding the other predictor variables constant. Beta weights are used to determine the amount of increase or decrease anticipated in the score for the outcome variable based on the incremental increase or reduction of the beta weight for that predictor variable.

The *B* associated with attitude is 0.14 indicating that the value of intent will increase by 0.14 with each increase of one unit in scores for attitude; however, this increase is not statistically significant, $p = .18$, so the variable, attitude, does not make a contribution to the model. On the other hand, subjective norm and perceived behavioral control are positively associated with intent such that for each additional one unit of increase in subjective norm, intent is predicted to increase by 0.03 ($p < .000$) and for each one unit of increase in perceived behavioral control, intent is predicted to increase by 0.31 ($p < .001$). Therefore, in this model, both subjective norm and perceived behavioral control contribute to the prediction of intent; perceived behavioral control is the strongest predictor of intent. These results indicated that using the model consisting of subjective norm and perceived behavioral control is a much better predictor of intent than would be predicted based on simply chance. Summary of these results is presented in Tables 7 and 8.

Table 7

Means, Standard Deviations, and Intercorrelations for Intent to use AAI and Predictor Variables

Variable	*M*	*SD*	1	2	3
Intent to use AAI	5.25	1.51	.48**	.85**	.73**
Predictor variable					
1. Attitude	6.25	.84	--	.53	.30
2. Subjective norm	102.85	36.14	--	--	.73
3. Perceived behavioral control	4.56	1.24	--	--	--

**$p < .01$.

Table 8

Regression Analysis Summary for Variables Predicting Intent to use AAI

Variable	*B*	95% CI	β	*t*	*p*
(constant)	0.28	[-0.95, 1.51]		0.46	.650
Attitude	0.14	[-0.07, 0.35]	.08	1.34	.183
Subjective norm	0.03	[0.02, 0.03]	.62	7.59	.000
Perceived behavioral control	0.31	[0.13, 0.49]	.25	3.45	.001

Note. R^2 = .75 (N = 107, p = .000). CI = confidence interval for *B*.

Chapter Summary

This study consisted of four phases, with each phase building on the results obtained in the previous phase. Data were collected at each phase from volunteer participant's representative of the target population. Information obtained in Phase one was used to construct a survey instrument consisting of four subscales: attitude toward animal assisted interventions, subjective norm related to animal assisted interventions, perceived behavioral control related to animal assisted interventions, and the intention of RNs using animal assisted interventions in the clinical setting.

Phase two tested content and face validity of the newly developed research instrument (IUAAI) that was created to measure attitude, subjective norm, perceived behavioral control, and intention toward animal assisted interventions of RNs in Florida. The instrument was found to be valid for the population being studied.

In Phase three, the instrument that was constructed and refined through Phases one and two was used to collect data to determine reliability. By removing seven items, the final instrument and its four subscales consisting of 30 questions were considered reliable.

The last and final phase four answered the two research questions: (a) What is the relationship between RNs' attitude, subjective norm, perceived behavioral control, and intent toward AAI? and (b) What is the individual contribution of each of the predictors to the model? It also answered one research hypothesis, which stated there is a statistically significant relationship between the RNs' attitude, subjective norm, perceived behavioral control and intent toward AAI.

The scores for the dependent variable, intent, were not normally distributed. Despite non-normal distribution, parametric testing was applied, and the research hypothesis was partially supported by regression analysis revealing that 74.2% of the variance in intention $R^2 = .75$, adjusted $R^2 = .742$, $F(3, 103) = 102.87$, $p < .000$ is explained by subjective norm and perceived behavioral control as effective predictors of intention toward RN's in Florida using animal assisted interventions.

CHAPTER FIVE

SUMMARY AND DISCUSSION

The purpose of this non-experimental study was to examine the constructs and test the propositions put forth by the Theory of Planned Behavior (TPB) regarding prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RN) licensed in Florida. This study progressed through four distinct phases because the researcher used the TPB to guide the study, which required an instrument to be created by the researcher and tested for reliability and validity prior to hypothesis testing in the final phase. This chapter summarizes the study in terms of the problem, purpose, hypotheses for each phase, data collection methods, participants' demographics, and background characteristics. Next, study results are discussed in terms of significant and non-significant predictor variables regarding intention to use AAI in clinical practice. Strengths and limitations are then highlighted, and implications of the study are addressed with regard to nursing education, practice, research health, and public policy. Finally, recommendations for future research are proposed.

Summary of the Findings

Conventional medicine has long held a mechanistic view of illness. This conventional worldview asserts that if an illness could be properly diagnosed, it is typically treated with the use of conventional methods such as drugs, surgery, and therapy. However, various holistic approaches have emerged that have been shown to effectively augment conventional methods. One highly effective non-

conventional modality to improve health and healing has been through the use of animals.

The use of animal assisted interventions (AAI) has been shown to have many salubrious effects, including improvements in loneliness, depression, moodiness, quality of life, stress, test anxiety, fatigue, and perceived health (Black, 2012; Dietz et al., 2012; Krause-Parello, 2012; Johnson et al., 2008). Based on the abundant evidence about the healthful effects of AAI, nurses should encourage and facilitate increased use of AAI as a complementary and alternative treatment modality. However, this beneficial therapy is underutilized in the healthcare system of the United States (Buettner, 2011). This underuse regarding AAI merits further research to explore the attitudes and beliefs among registered nurses to find out what the predictors are for intention to use these interventions in their practice. Furthermore, the exploration of the use of AAI has been a recognized area of research since the 1960s. The literature is unclear as to whether the reason involves the attitudes and beliefs of health care workers toward AAI, a lack of knowledge, or both. Even though there is an abundance of literature lauding the benefits of AAI in healthcare, there is a paucity of research in this specific area regarding attitudes and beliefs of registered nurses toward AAI.

Using the constructs of the theory of planned behavior (TPB) is the aim of this research study to develop an instrument to assess the attitudes and beliefs of registered nurses and to implement this instrument to discover predictors of registered nurse's intent to use AAI in clinical settings. The purpose of this non-

experimental study was to examine the constructs and test the propositions put forth by the TPB in regard to prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RN) licensed in Florida. The ultimate goal was to determine what the registered nurse's attitudes and beliefs are about AAI so that the barriers to using AAI can be addressed and interventions designed to address those barriers so that this modality may be used in providing care by registered nurses.

This research study was conducted through four phases. Each phase had specific research goals, and questions. Each phase built on the previous phases. Ultimately, a survey was constructed, and this instrument (IUAAI) was developed based on Ajzen's TPB using the guidelines of his recommendations on the creation of an instrument. Each of the phases had distinct research questions and/or hypothesis and the following is a summary based on the phase of the research.

Phase One: Instrument Development

In Phase one of the study, members of the population of interest, which were registered nurses practicing in Florida, were asked to qualitatively respond to the following: (a) To elicit data about behavioral outcomes, the participants were asked about the advantages and disadvantages of using AAI in their practice setting, (b) In terms of eliciting data about normative referents, the participants were asked about individuals or groups that would approve or disapprove of using AAI in their clinical setting as well as individuals who are most likely and least likely to use AAI in the clinical setting, (c) To learn about control factors,

participants were asked about factors or circumstances that make using AAI easy or difficult. Data were analyzed by identifying common terms for the attitudes, subjective norms, and perceived behavioral control constructs as indicated by the participants and using those common terms to create the items on the IUAAI questionnaire. A demographic survey was also included (see Appendix E) to be able to describe the demographic characteristics of the participant sample and assure that the participants met the inclusion and exclusion criteria.

Phase Two: Instrument Refinement

In the Phase two of the study, the data from Phase one including the answers to the questions related to the behavioral outcomes, normative referents, and control factors that are specific to the use of AAI by nurses were incorporated to create the IUAAI instrument. This data was used to construct an instrument to measure the Theory of Planned Behavior constructs (Ajzen, 2010) related to the use of AAI among registered nurses in Florida. The instrument is called the Intention to Use Animal Assisted Interventions (IUAAI) instrument. The instrument measured four constructs including attitudes, subjective norms, perceived behavioral control, and intention. The IUAAI was used to collect data from registered nurses in phases three and four. Content validity for the items on the IUAAI was ascertained using a table of specifications methodology (Newman et al., 2013). Face and content validity were conducted in this phase using a panel of experts to review the items on IUAAI instrument.

Therefore, the questions posed in this phase were:

1. Do the newly created scale items that were generated from data obtained in Phase 1 and intended to operationalize the specific constructs of attitude, subjective norm, perceived behavioral control, and intent have face validity?

2. Do the newly created scale items that were generated from data obtained in Phase one and intended to operationalize the specific constructs of attitude, subjective norm, perceived behavioral control, and intent have content validity?

The data analysis was by expert opinion for face validity and for content validity. A content validity matrix was used and if 80% or greater of the participants agreed with the item, then the item was kept and included on the IUAAI for the next phase.

Phase Three: Reliability Testing

Once face and content validity were obtained, the researcher created instrument was sent to RNs in Florida to obtain data to ascertain reliability of the instrument via Cronbach's alpha. The research question for this phase was:

1. Do the individual items and the subscales for attitude, subjective norms, perceived behavioral control, and intent achieve the benchmarks of acceptable reliability as internal consistency?

Phase Four: Instrument Testing

During Phase four of this study, the instrument (IUAAI) that was developed and refined in Phases two and three was utilized to collect data from a

sampling of registered nurses in Florida who met the inclusion criteria for this study and were willing to participate. In this phase, the researcher sought to answer the following questions and hypothesis.

1. What is the relationship between RN attitudes, subjective norms, perceived behavioral control and intent toward AAI?
2. What is the individual contribution of each of the predictors to the model?

$H1_A$. There is a statistically significant relationship between the RNs' attitudes, subjective norms, perceived behavioral control and intent toward AAI.

Data were collected over a total of 12 months for all four phases. All four phases had a researcher created demographic questionnaire. In phase one, the IUAAI consisted of nine open-ended questions. In phases two and three, the IUAAI consisted of 37 items measuring four constructs of attitudes, subjective norms, perceived behavioral control, and intention. In the final phase four, the IUAAI was modified and consisted of 30 items that measured the same four constructs. Participants were recruited via email and SurveyMonkey for phases one, three, and four. The emails were obtained from a database of emails from the Florida Board of Nursing. Phase two participants were recruited from a university in South Florida.

Each phase of this study used a different design. Phase one of the study was qualitative in nature. Members of the population were asked to provide terms that described beliefs about using AAI and to determine referent groups that are influential in this decision. In Phase two, the research design was quantitative and descriptive. The terms and referent groups identified in Phase one were used to

construct a research instrument and test for content and face validity. In Phase three, the research design was quantitative and descriptive. This newly created instrument, which was refined in Phase two was used to collect data from members of the target population. The data collected was used to test for reliability of the instrument. In Phase four, the research design employed in this phase of the study was a non-experimental, cross-sectional correlational/predictive design.

Data from the participants in Phase one were analyzed and categorized into three groups of data so that the instrument could be constructed. The most frequent words and phrases were used to make the IUAAI instrument for the constructs of attitudes, subjective norms and perceived behavioral control. Eighty-two participants began answering the survey but only 21 met the inclusion criteria or completed the survey. Data in phase two was reviewed using a matrix table for content validity and reviewed for comments regarding face validity. A total of seven surveys were collected but only five met the inclusion/exclusion criteria or completed the survey. Data in phases three and four were analyzed with the use of the Statistical Program for the Social Sciences (SPSS) 24.0 software. Descriptive statistics were computed, and reliability estimates were obtained for all four subscales of the IUAAI. Hypothesis testing was conducted using multiple regression analysis. A total of 276 surveys were completed and collected via Survey Monkey for phase three. A total of 117 surveys were completed and collected via SurveyMonkey for Phase four. Statistical analyses revealed that the hypothesis in phase four was partially supported since the linear

combination of the predictors revealed a significant regression model with two of the three predictors including subjective norms and perceived behavioral control were significant predictors of RNs in Florida intention to use AAI in clinical practice.

Discussion of the Findings

Study findings are discussed in this section. A convenience sampling strategy was used to gather data from Florida RNs in all four phases of this study. First, participants' demographic and background characteristics are presented. Secondly, hypotheses and relationships found between major study variables are discussed. Since this is the first study using TPB in regard to RNs intention to use AAI in clinical practice, comparisons with previous studies are limited.

Demographic and Background Characteristics

Since this study consisted of four distinct phases, the demographic information is discussed for each phase. An overwhelming majority of the study participants were women in all of the phases. Phase one had 90.5% females (n = 19, 90.5%); phase two had 100% females (n = 5, 100%); phase three had 91.6% (n = 250, 91.6%) females; and phase four also had 90.6% females (n = 106, 90.6%). This is not surprising and is consistent with the national percentage of females in nursing according to the American Nurses Association (ANA), which is 91% (NursingWorld.org, 2014). This is also consistent with data from Florida Center of Nursing (FCN) that report 88.9% of the professionally active nurses in Florida are females, of those who specified their gender. (Florida Center for Nursing, 2016)

Regarding the demographic of age, in Phase one, participants ranged in age from 31 to 77 years old, (M = 56.48, SD = 12.01). In Phase two, participants ranged in age from 40 to 63 years old, (M = 53.8, SD = 9.98). In Phase three, participants' age ranged from 22 to 77 years old, (M=46.57, SD=12.20). In Phase four, participants' age ranged from 23 to 82 years old, (M = 45.9, SD = 13.2). According to NursingWorld.org, the national average age of an RN is 50, which is very close to the sample in all four phases of the study. This is also consistent with the average age of RN's in Florida, which is 47.5 according to the FCN. (Florida Center for Nursing, 2016).

Another demographic item inquired about the participants' highest level of education. The RNs in this study are highly educated. Close to almost half of all participants in this study reported having a baccalaureate degree in nursing. Regarding level of education, in phase one, almost half had a bachelor's degree (n = 9, 42.8%) nearly a third had a master's degree (n = 6, 28.6) and one participant had a doctoral degree (n = 1, 4.8%). However, in phase two, all of the participants had either a master's degree (n = 3, 60%) or a doctoral degree (n = 2, 40%). This was important because this phase of the study was for content and face validity where a panel of experts was needed to critically evaluate the newly created instrument. Participants' education in phase three was similar to phase one, where again, almost half had a bachelor's degree (n = 126, 45.7%) and almost a quarter of them had a master's degree (n = 70, 25.4%). Finally, participants' education in phase four was also similar to phases one and three in which almost half had their bachelor's degree (n = 57, 48.7%) and almost a

quarter of them have master's degrees (*n* = 25, 21.4%). Again, this data is similar to the national average of 55% of the RN workforce holds a bachelor's degree or higher (NursingWorld.org, 2014). However, the FCN reports that only 37.7% of Florida RNs have a bachelor's degree in nursing. (Florida Center for Nursing, 2016).

Another demographic item inquired about the field of health care specialty the participant worked in. For Phase one, most participants worked in the area of other. (*n* = 8, 38%). The second highest specialty area was critical care or emergency room (*n* = 7, 33.3%), and psych/mental health was the third highest (*n* = 2, 9.5%). For Phase two, there were only five participants and who said their field of health care specialty was critical care or emergency room (*n* = 1, 20%), medical/surgical (*n* = 2, 40%) and obstetrics/gynecology (*n* = 2, 40%). For Phase three, the highest percentages of health care specialty were in critical care or emergency room (*n* = 65, 23.6%), medical surgical (*n* = 43, 15.6%) pediatrics (*n* = 26, 9.4%), and other (*n* = 64, 23.2%). For Phase four, the highest percentages of nurses worked in critical care or emergency department (*n* = 29, 24.8%), medical-surgical (*n* = 19, 16.2%) or pediatrics (*n* = 11, 9.4%) or long-term care (*n* = 9, 7.7%).

In addition, another demographic item that was addressed was how many years the participants had been licensed as a RN. The phase one participants had been licensed as RNs for almost a quarter of a century ranging from 5 to 57 years (*M* = 26.43, *SD* = 15.60). In phase two, the participants had been licensed almost a third of a century ranging from 15-41 years (*M* = 31, *SD* = 11.2). Phase three

participants had been licensed almost a fifth of a century ranging from 1 year to 57 years (M = 17.74, SD = 13.47). Phase four participants were similar in years licensed to Phase three participants ranging from one to 55 years (M = 17.0, SD = 13.8).

With regards to employment status, an overwhelming majority of participants in all the phases of the study were employed full time. Most participants in Phase one were employed full time (n=12, 57.1%); in Phase two, all participants were employed full time (n=5, 100%); Phase three participants were almost all employed full time (n = 222, 80.4%); and Phase four was similar with most participants employed full time (n = 97, 82.9%). This is similar to the FCN statistic that reported that 83% of the RNs in Florida are working full time. (Florida Center for Nursing, 2016).

Two demographic questions addressed pet ownership. If participants owned pets, they were also asked to disclose what kinds of pets they had. Regarding owning any pets, again, an overwhelming majority of participants in all the phases of the study admitted to owning a pet. In Phase one, more than three quarters of the participants admitted to current pet ownership (n = 16, 76.1%). In Phase two, more than half owned pets (n = 3, 60%). In Phase three, almost all of the participants owned pets (n = 238, 86.2%) Similarly, in Phase four, almost all of the participants owned pets (n = 97, 82.9%). The participants have an affinity toward animals, which is consistent with the general population. According to statistics regarding ownership of pets, 68% of U.S. households or about 85 million families own a pet. This number has increased from 1988 when

only 56% of households had a pet. According to the American Society for the Prevention of Cruelty to Animals (ASPCA),2016, families in the United States own 78 million dogs and 85.8 million cats. Approximately 44% of all households in the United States have a dog and 35% have a cat. This researcher was unable to find data on how many RNs nationally or locally own a pet.

Regarding ethnic background, the primary race/ethnicity reported by participants in all four phases was White or Caucasian. In Phase one, the participants were 81% White or Caucasian. In Phase two, more than half were White or Caucasian (*n* = 3, 60%) and only 20% were Black or African American (*n* = 1, 20%). In Phase three, most of the participants were White/Caucasian (*n* = 225, 81.5%) and less than 10% were Black or African American (*n* = 20, 7.2%). Similarly, in Phase four of the study, the majority of the participants were White/Caucasian (n = 96, 82.1%), and only a small percentage was Black or African American (*n* = 7, 6.0%). The demographic for the study had a slightly higher number of White participants than the demographic in Florida from the Florida Center for Nursing (2016) where only 64.7% of the RNs are White or Caucasian. The participants in this study had a lower amount of Blacks or African American as the Florida Center of Nursing shows that 13.6% of Florida RNs are Black (Florida Center for Nursing, 2016). However, the national average from Minority Nursing.org states that 23.6% of RNs are Black (Minority Nurse, n.d.)

Relationship Between Major Study Variables

This study used the variables of attitudes, subjective norms, and perceived behavioral control to predict intention to use AAI in Florida RNs clinical setting. These variables were measured by the researcher created IUAAI instrument that had 30 items.

Hypothesis One

This hypothesis stated that there is a statistically significant relationship between the RNs' attitude, subjective norms, perceived behavioral control and intent toward AAI. The predictor variables were attitude, subjective norms, and perceived behavioral control. Results of the linear multiple regression analysis showed that two of the three predictor variables provided significant contribution. Subjective norms ($p < 0.000$) along with perceived behavioral control ($p < 0.001$) provided significant contribution towards Florida RNs intention to use AAI in their clinical practice. The regression model successfully predicted 75% of the variance for intention to use AAI in clinical practice.

Significant Variable: Subjective Norms

The TPB defines subjective norms as consisting of the individual's normative beliefs toward what others perceive to be the correct outcome of the behavior (Ajzen & Fishbein, 1980). Furthermore, subjective norms are defined as a person's belief that the people who they consider as most important think the person should or should not perform the behavior in question. According to the TPB, subjective norms are when the individual considers specific individuals or groups that think the person should or should not engage in this behavior. The

TPB implies that a person considers the expectations of others in their environment. Therefore, in this study, if the RNs in Florida believe that others see this behavior (AAI) as having a positive outcome, the registered nurses will more likely be influenced by those persons perceptions and in turn will more likely carry out the behavior which in this study the behavior was AAI.

These results are similar to results obtained by social workers in a study that explored factors that affect social workers from including animals in their practice. The research study by Risley-Curtiss et al. (2013) found that social workers also valued the opinions of their peers. In fact, the researchers declared that one of the most important findings in the study was that if social workers knew other colleagues that use animals in their practice then they were more likely to use them also.

Several other studies that used TPB found subjective norm to be a significant predictor of intention as well. Even though there are no other studies that used the TPB related to animals there are other researchers that used the TPB and found the construct of subjective norm to be a significant predictor. These include research studies by Lino, et al (2014), Rahnama et al. (2013), Wayuhuerd et al. (2010), Werner (2012). The findings of these studies are briefly summarized below.

Lino et al. (2014) used the TPB to explore attitudes and beliefs about dietary supplements among HIV-positive black women. The researchers found that attitudes along with subjective norms and perceived behavioral control predicted 69% of the variance for the participants' intention to use dietary

supplements. The researchers also concluded that intention to use dietary supplements can be predicted by combining attitudes (adjusted R^2 0.580, $p <$ 0.001), subjective norms (adjusted R^2 0.689, $p < 0.0001$ and perceived behavioral control (adjusted R^2 0.667, $p < 0.001$). This showed 69% of the variance was explained ($p < 0.0001$) for the participant's intention to use dietary supplements.

Another research study that used TPB and found subjective norms to be a significant predictor of intention was conducted by Werner (2012) in Jerusalem and investigated intention to work with individuals with dual diagnosis (DD). The researcher wanted to test the TPB among students from various professions including nursing. Pearson correlations were performed on the data and all of the TPB constructs including attitudes ($r = 0.39$, $p < .001$), subjective norms ($r =$ 0.50, $p < .001$), controllability ($r = -0.13$, $p < .001$) were correlated with the intention to treat individuals with DD. The researcher found that the constructs of attitudes and perceptions of subjective norms predicted their intention to work with individuals with dual diagnosis.

In addition, a research study using a cross-sectional, correlational research design from Bangkok, Thailand was conducted by Wayuhuerd et al. (2010) to find out about condom use behavior in Thai adolescents using the TPB. The statistical analysis included Pearson correlation to determine relationships among the variables. The researchers concluded that attitude toward condom use; subjective norms, and perceived behavioral control were found to be positively correlated with intention to use condoms. However, they found that perceived behavioral control predicted 34% of the variance.

Finally, a quantitative research study in Iran by Rahnama et al. (2013) investigated the withdrawal method and women's intention to switch over and use oral contraceptives (OC). These researchers also had similar results with subjective norm aiding in the prediction of intention to switch over and use OC. The researchers found that past behavior, perceived behavior control, attitude and subjective norms accounted for 36% of the variance in intention to use OC.

The IUAAI was used to measure this construct and this section of the instrument consisted of nine questions and three motivation to comply questions. The three referent groups identified as most important and influential in this study were RNs nursing colleagues, administrators and patients. Questions in this section included items for each of the three groups that stated nursing colleagues/administrators/patients think that I should/will support my decision/would approve of me using AAI in my clinical practice. The mean for the subjective norm subscale was $M = 102.74$ ($SE = 3.33$) with participants scores ranging from 3 to 147. The distribution of scores indicates that on average, RNs who took part in the study had higher levels of subjective norms.

Registered nurses identified three groups that were important and influential to them when they make decisions regarding AAI in phase one of this research, and it proved to be a significant predictor of intention to use AAI in clinical practice for this study. This result makes sense. If you agree with and have positive attitudes toward AAI, and have seen it implemented successfully at another institution, you might have intention to use AAI. However, if you do not have administrative support, you will not be allowed. In addition, teamwork and

collaboration are important to nurses. Nurses are usually team players and want to fit in with the team. If the culture on a particular nursing unit is where nursing colleagues do not want you use AAI, then it most likely will not happen. Finally, it is obvious that if patients do not think RNs should use AAI with them, then nurses would definitely not pursue it. However, if the patients are asking for RNs to bring in the animals, nurses want to make their patients happy and would most likely call to have the AAI implemented.

Significant Variable: Perceived Behavioral Control

The TPB defines perceived behavioral control (PBC) as the perception of a person's ability to perform a behavior of interest. This perception is determined by factors that make it easy or difficult to perform the behavior. Participants were asked in phase one of the study to elucidate factors that impede or facilitate using AAI and these items were built into questions to measure PBC on the IUAAI.

The IUAAI was used to measure this construct and this section of the instrument consisted of seven items. The seven questions asked the participants about confidence in using AAI, having the knowledge to use AAI, whether AAI was entirely within their control, whether it was unlikely for the RN to encounter difficulties when using AAI, whether there were enough animals and handlers to use AAI, if they had support from administration and whether they had policies and procedures or guidelines to follow when using AAI. The mean for the perceived behavioral control subscale was $M = 4.58$ ($SE = 0.12$) with participants' scores ranging from 1-7. Higher scores indicate a higher level of perceived behavioral control.

Registered nurses supplied the reasons that facilitated or impeded them using AAI during Phase one of this research study. Those reasons were converted to questions on the final IUAAI that was used for this construct in phase four. The finding that registered nurses have higher levels of perceived behavioral control is expected. Most of the nurses in this study have animals of their own and had a high level of positive attitude towards AAI. If they felt they could control the use of AAI in clinical practice meaning they had the knowledge, confidence, access to enough animals/handlers, support from administration, and policies and procedures or guidelines to follow to implement AAI, then they would.

Several other studies that used TPB found perceived behavioral control to be a significant predictor of intention as well. Even though there are no other studies that used the TPB related to animals there are other researchers that used the TPB and found the construct of perceived behavioral control to be a significant predictor.

Lino et al. (2014) used the TPB to explore attitudes and beliefs about dietary supplements among HIV-positive black women. The researchers found that attitudes along with subjective norms and perceived behavioral control predicted 69% of the variance for the participants intention to use dietary supplements. The researchers also concluded that intention to use dietary supplements can be predicted by combining attitudes (adjusted R^2 0.580, $p <$ 0.001), subjective norms (adjusted R^2 0.689, $p < 0.0001$ and perceived behavioral

control (adjusted R^2 0.667, p<0.001). This showed (69% of the variance was explained, $p < 0.0001$) the participant's intention to use dietary supplements.

In addition, a research study using a cross-sectional, correlational research design from Bangkok, Thailand was conducted by Wayuhuerd et al. (2010) to find out about condom use behavior in Thai adolescents using the TPB. The statistical analysis included Pearson correlation to determine relationships among the variables. The researchers concluded that attitude toward condom use; subjective norms and perceived behavioral control were found to be positively correlated with intention to use condoms. Also, they found that perceived behavioral control predicted 34% of the variance.

Finally, a quantitative research study in Iran by Rahnama et al. (2013) investigated the withdrawal method and women's intention to switch over and use oral contraceptives (OC). These researchers also had similar results with perceived behavioral control aiding in the prediction of intention to switch over and use OC. The researchers found that past behavior, perceived behavior control, attitude and subjective norms accounted for 36% of the variance in intention to use OC.

Nonsignificant Variable: Attitudes

The TPB defines attitude as the positive or negative feelings that have an influence on an individual's decision-making process towards a particular behavior. Individuals are more likely to perform the behavior for which they have a positive attitude towards its outcome than a behavior for which they perceive

would have a negative outcome. Participants in Phase one of this study were asked to identify the positive and negative aspects of using AAI in their clinical practice. Data from this phase was used to create the seven items on the IUAAI for the construct of attitude on the final phase. Scores ranged from 1-7 with higher scores indicating a more favorable attitude toward AAI.

The mean score for attitudes was $M = 6.25$, on a 1-7 scale, which indicates a highly favorable attitude toward AAI; however, it was not statistically significant in predicting intention to use AAI in clinical practice. It was surprising that the construct of attitudes ($p = .183$) did not provide significant contribution to RNs intention to use AAI in clinical practice. This is an unexpected finding and not consistent with other research using TPB. However, in the frequently asked questions on Ajzen website, he states that having one construct, in this case, attitudes, not be statistically significant, does not disprove the theory. It just means that for this population and this behavior, attitudes were not statistically significant for RNs intention to use AAI in clinical practice.

One possible explanation for this could be that the nurses were very honest in answering the questions the instrument posed but the right questions were not asked. They have favorable attitudes towards AAI, but the setting that they work in does not allow AAI due to potential infection control reasons such as the operating room, the burn unit, or the cardiac catheterization lab. Another possible explanation is that they work off shifts like nights and weekends and the animals are only available on day shifts during the week. This study looked at predictors of intention to use AAI in registered nurses clinical setting. They

might have favorable attitudes toward AAI, but their specialty unit will not allow it, therefore, they do not intend to use AAI in their specific clinical setting. Perhaps using a more direct question such as will your nursing unit allow AAI to occur instead of asking do you currently have AAI in your clinical setting should be asked in a future study. Moreover, asking questions regarding the shift that the nurses work should also be included. The question asked in this study may have been misinterpreted by some of the participants in this study. In contrast to the findings of this study, several other studies that used the TPB found attitudes to be a significant predictor of intention. Even though there are no other studies that used the TPB related to animals there are other researchers that used the TPB and found the construct of attitudes to be a significant predictor.

Lino et al. (2014) used the TPB to explore attitudes and beliefs about dietary supplements among HIV-positive black women. The researchers found that attitudes along with subjective norms and perceived behavioral control predicted 69% of the variance for the participants' intention to use dietary supplements. The researchers also concluded that intention to use dietary supplements can be predicted by combining attitudes (adjusted R^2 0.580, $p <$ 0.001), subjective norms (adjusted R^2 0.689, $p < 0.0001$ and perceived behavioral control (adjusted R^2 0.667, $p < 0.001$). This showed (69% of the variance was explained, $p < 0.0001$) for the participant's intention to use dietary supplements.

Another research study that used TPB and found attitudes to be a significant predictor of intention was conducted by Werner (2012) in Jerusalem and investigated intention to work with individuals with dual diagnosis (DD).

The researcher wanted to test the TPB among students from various professions including nursing. Pearson correlations were performed on the data and all of the TPB constructs including attitudes ($r = 0.39$, $p < .001$), subjective norms ($r = 0.50$, $p < .001$), controllability ($r = -0.13$, $p < .001$) were correlated with the intention to treat individuals with DD. The researcher found that the constructs of attitudes and perceptions of subjective norms predicted their intention to work with individuals with dual diagnosis.

In addition, Rosetti et al. (2008) conducted a qualitative study about staff in a behavioral health hospital and wanted to answer how having pet assisted therapy affected behavioral health staff. The results demonstrated that using pet assisted therapy in mental health had a positive impact on the nurses. The researchers also uncovered a theme of morale and found that the dogs have a positive effect on the therapeutic environment. They said that having the dogs on the unit makes them feel better.

Similarly, Bibbo (2013) researched staff members' perceptions of an AAA in an adult outpatient regional cancer center in Northern California. The researcher concluded that if participants have negative perceptions of AAA in general, then it correlated with negative perceptions of the facility using AAA. An example of this is if the participants verbalized that animals should not be allowed in health care settings, it was correlated to participants thinking AAA increased the risk of infection, $r = 0.816$, $p < 0.001$. The researcher also found that positive perceptions of AAA were positively correlated with positive perceptions of the facility using AAA. An example of this is if they liked the idea

of AAA then it positively correlated with participants stating that AAA is appropriate for patients with cancer $r = 0.662$, $p < 0.001$.

Assumptions of the model. The TPB was valuable as the theoretical framework that guided this study. The constructs of attitudes, subjective norms, perceived behavioral control, and intention were valuable in the prediction of RNs intention to use AAI in clinical practice. In this study, only subjective norms and perceived behavioral control were statistically significant for prediction of intention. Attitude was not statistically significant and that was surprising to the researcher. One assumption of the theory is that the person has acquired the opportunities and resources to be successful in performing the desired behavior, regardless of intention. In this study, there may not have been adequate opportunities or resources such as animals/handlers available on the weekends or night shifts and the participants were not asked about this specifically. They were asked if they currently had AAI in their clinical setting. A follow-up question of such as do you have access to AAI in your setting during the shifts you are working? This theory does not account for other variables that factor into account for intention such as fear, threat, mood or past experiences. In addition, one of the questions on the instrument asked about patients being afraid of animals but none of the questions asked about whether the nurse had a fear of animals. This theory does not consider anything about actual control over the behavior. The theory only addresses perceived behavioral control, which was a significant predictor of intention in this study. The RNs in this study felt that if they had control over AAI, then the intended to use AAI in their clinical setting.

Significance of the Study

Research studies are important in order to glean information on what is beneficial and impactful to our patients in the medical system in order to improve the quality and safety of healthcare. There is a clear consensus for evidence-based practices and research. Increasingly, research studies are presented and quoted in academia and the media. Quality research provides credibility and the basis for best practices and guides decisions about research that can affect all aspects of our lives. This study is particularly significant due to the sheer breadth of its wide-reaching application since using AAI could be beneficial to so many members of society across the lifespan and could be used in multiple healthcare settings. Ultimately, research can change the way healthcare jobs are performed, enhance patient satisfaction, and may also influence public policy.

Significance to Nursing

This study adds to the body of knowledge in nursing in the area of animal assisted interventions in the healthcare setting. Additionally, the study could inform nursing practice on how to include animal assisted interventions in their practice, which may also enhance the work environment for nurses and patients alike. Many of the RNs' colleagues in the healthcare field are also interested in and are currently using animals in their clinical settings. For instance, social workers are using AAI in their clinical practice and encouraging other social workers to do so. Occupational therapists are also increasingly using animals in their practice and refer to this as animal assisted therapy. Likewise, animal assisted interventions are becoming increasingly more common now in school

settings where teachers have incorporated using animals, which is, referred to as animal assisted education (AAE) with children are reading to dogs (Friesen, 2010). The judicial system has even gotten involved and animals are allowed to be with children during trials if requested. It is important to explore and discuss the implications of this study regarding AAI on nursing education, practice, research, and health/public policy.

Implications for Nursing Education

The literature review demonstrated multiple research findings indicating the many benefits of AAI including both physiological and psychological benefits. The benefits of AAI in multiple settings with multiple populations across the lifespan have been well documented through an abundance of research studies in the United States as well as internationally. Many of nursing's colleagues including occupational therapy, social work and educators in K-12 are using AAI in a variety of settings.

The findings of this study provide insight into the positive impact of subjective norms, which are groups of people who nurses value, their opinions, and perceived behavioral control towards intent to use animal assisted interventions in clinical practice among RN's in Florida. This information can be beneficial for nurse educators in academia for the pre-licensure students to make sure this information is disseminated and addressed in nursing curricula. In the pre-licensure arena, information should be provided about the multiple benefits of AAI and the variety of populations across the lifespan that AAI is appropriate for. Discussions should include a list of the positive effects of AAI in the clinical

setting as well as how to implement this activity with the patient's in different units. The curriculum should include a list of organization that provides AAI and the CDC guidelines should be discussed as well.

In the clinical settings, nurse educators should make the nurses aware of this beneficial alternative modality to care, which has a positive impact on patients, and be on the forefront of encouraging and implementing AAI. The results of this study demonstrated the importance of buy-in from the administrators as well as their nursing colleagues with intention to use AAI in their clinical setting. Perhaps more education needs to be directed towards administration in healthcare setting. If they could be educated regarding all the health benefits of AAI, then maybe they would be more likely to advocate for the nurses in their healthcare institutions to use AAI more.

Implications for Nursing Practice

The nurses in the study disclosed that if their patients, administrators, and other nurses wanted them to use AAI in clinical practice that they would. This was the construct of subjective norm in this study. These three groups of people opinions were important to the participants. Nurses also indicated that if they have some level of control over making AAI happen, then they intended to use AAI. The items relating to perceived behavioral control (PBC) included having adequate knowledge, having enough animals and handlers, having support from administration, and having policies and procedures or guidelines to follow.

These findings may guide RNs to assess, develop, implement, and evaluate guidelines or policies to help them facilitate AAI in clinical practice.

From this research, it still remains unclear if most hospitals have written policies and procedures to guide the nurses when implementing AAI. This issue was brought to light during phase one of this study where nurses communicated that if they had clear policies and procedures to follow then that would help them to implement AAI into practice and conversely, if they did not have clear policies and procedures to follow, it would be a barrier to implementing AAI. This is a potential area of need and clinical nurses in practice should be included in discussions regarding best practices for AAI on their units and help to write the policies and procedures.

Another finding from this study gleaned in phase one was regarding infection risk with animals in the clinical setting. This seems to be a logical concern for nurses who are instrumental in preventing infections in clinical settings. It is also unclear if they are aware of the CDC guidelines and the risk of zoonotic infections to their patients. Perhaps if they had more education regarding the infection risk and were aware of the guidelines to follow from the CDC, this concern might be mitigated. This is an area where the nurse educators could discuss during educational offerings. Another finding from phase one of the research demonstrated a theme that if nurses did not have the knowledge or education about AAI then they thought it would be a barrier to implementation. Perhaps nurse educators in the clinical setting need to conduct lunch and learns on this topic or develop continuing education units (CEUs) about AAI.

Data collection during phase one highlighted that some nurses also felt that animals are unclean and unhygienic. If clinical nurses had clear policies and

procedures to follow along with more education regarding AAI, they would understand the rules regarding AAI and that the animals are required to have a bath, have a veterinarian certification, be clean and groomed and free from fleas and/or other signs of infection and that the risk of transmitting an infection is quite low.

In phase one, a concern of the participants was potentially there are not enough animals and handlers. Typically, the animals and handlers are volunteers. Again, it is unclear if this is a problem. Maybe nurses want to implement AAI, but the animals and handlers are only available during the week or only on day shift. Perhaps, AAI is only available during those shifts and this research did not address what shift the nurses worked. If the nurses were given a monthly schedule when the animals and handlers were available, maybe they would be more inclined to call for their patients to get AAI. Nurses, who are in practice, and love animals could go through the certification process or volunteer process at their institutions and bring more animals to the hospitals by getting involved. Nurses would need to find out the specific protocol at their healthcare institution because it seems to be wide and varied.

Implications for Nursing Research

The most important implication of the findings of this study is in the field of nursing research. There have been many studies regarding AAI in the literature however, there was no consistent theoretical framework presented. This research addressed the constructs of attitudes, subjective norms, perceived behavioral control with intention to use AAI in clinical practice using the TPB.

The TPB has been widely used in many disciplines of research including nursing research however; this is the first study that used the TPB as a theoretical framework to study RNs' attitudes, subjective norms, and perceived behavioral control with intention to use AAI in clinical practice in Florida. Consequently, the TPB could be used in future studies to test the propositions of the theory to see if comparable results are obtained. Identifying the factors that contribute to intention to use AAI can further improve the use of this beneficial modality in the clinical setting.

This study's finding that subjective norms, which in this study were the nurses, administrators and patients, are very important to the Florida RNs and that if they have support from these three groups of people, they are more likely to implement AAI in their clinical setting. This study also highlighted that if RNs in Florida perceived that they had control over implementing AAI, then they intended to do so. Therefore, by identifying these factors in this research study, more AAI can occur in the clinical setting. This study contributes to nursing research by adding to the body of knowledge regarding RNs attitudes, subjective norms, and perceived behavioral control about AAI and their intention to use AAI in their clinical settings in Florida.

Implications for Health and Public Policy

The findings from this study demonstrated that RNs have favorable attitudes toward AAI. However, the significant predictors of intention to use AAI in the clinical setting included subjective norms, which incorporated other nurses, support from administration, and patients. The results also showed that perceived

behavioral control was a significant predictor for intention to use AAI. The research also highlighted that nurses need policies and procedures to follow to implement AAI. When all of these factors are implemented, AAI might occur more frequently. These findings have significant implications for health policy.

Nurses need to be on the forefront of helping to change the policies regarding AAI to allow more clinical settings to accommodate animal assisted interventions. More nurses are encouraged and are choosing to hold positions on boards of healthcare institutions and they can have a direct impact on policy making decisions regarding allowing animal assisted interventions in their clinical settings. The findings from this study demonstrated that subjective norms, which included administrator approval, was important to registered nurses and if they had administrative support, they were more likely to use AAI in their clinical setting. If nurses in administrative positions, were educated about AAI and could network and engage other professions such as occupational therapy (OT) and social work (SW) who also use AAI, they could work collaboratively to get new policies/procedures implemented.

It was clear from the research results obtained in Phase one where nurses revealed if they had clear policies and procedures that would help them to be more likely to implement AAI. Therefore, policies and procedures need to be created so that RNs have guidelines to follow. The CDC has published guidelines to follow with the use of animals in the healthcare setting. This should help nurses to implement AAI. It is unclear from this research how many institutions actually have policies and procedures already in place. An assumption by this

researcher was that if AAI was allowed in the institution, then there must be a policy.

Additionally, volunteer handler and animal usually do AAI and they usually go through the volunteer office for training prior to being allowed in the hospital. Since the research has clearly delineated that this is such a beneficial, healthy adjuvant therapy that helps many patient populations across the lifespan, policies need to be created so that providers can get reimbursed for this form of therapy. Several disciplines are using animals therapeutically with their patients including Social Work and Occupational Therapy. Currently, only a few examples can be found where some reimbursement was happening through insurance companies. (Morrison, 2007, p. 59). If more nurses wanted to implement AAI and received proper training and collaborated with other professionals, they might have more collective power to try to obtain reimbursement from insurance companies.

Lastly, multiple organizations are involved with animals in the healthcare setting depending on the area of the country and the guidelines of the hospitals. Pet Partners is one nationally recognized organization, but there are many other local organizations where you can get training as a handler and certification for your pet to become active in AAI. Again, perhaps by working with these well-known organizations, policies can be changed at the local, state and national level to get reimbursement for this beneficial activity.

Strengths and Limitations of the Study

The outcome of this study was that the TPB was able to partially predict intent to use animal assisted activities among RNs in Florida. Two of the constructs, subjective norms, and perceived behavioral control were statistically significant. The study presents many strengths and limitations. Strengths and limitations are listed and discussed in the sections below.

Strengths

Many strengths are worth mentioning, which may have enhanced the study findings:

1. This study was the first to measure and test the constructs of attitudes, beliefs, subjective norms, and perceived behavioral control regarding the intention to use animal assisted interventions among registered nurses in Florida.
2. Another strength of this study was using SurveyMonkey for three out of four phases of data collection which facilitated easy survey access and eliminated data entry as the data was easily downloaded from the SurveyMonkey website. By not having to manually enter the data, the risk of making an error is lowered.
3. The flexibility of a cross-sectional data collection at one particular point in time allowed for a quick response through SurveyMonkey.
4. The researcher created the instrument Intention to Use Animal Assisted Interventions proved to be reliable with a Cronbach's alpha of 0.96.

5. In Phase four, 74.2% of the variance was explained by subjective norms and perceived behavioral control to predict intention to use AAI in the clinical setting.
6. Another strength of this study was the length and the rigor of data collection through four phases, which lasted for 12 months.
7. This study addressed gaps in the literature related to exploring attitudes, subjective norms and perceived behavioral control related to AAI.

Limitations

There were several limitations to this study associated with the research methodology.

1. A convenience sample was recruited via SurveyMonkey. Because of the sampling method used, it cannot be assumed that the participants in this study are truly representative of the larger population of RN' in Florida. This limits generalizability to only this group.
2. The format of a self-report questionnaire, which is open to potential inaccuracies and dishonesty by participants, may have influenced the study's results. To decrease this potential effect and to promote a more accurate assessment, the researcher utilized an anonymous, on line web-based method to encourage participants to answer honestly.
3. Using an online web-based method like SurveyMonkey was the only method to participate in the study, which may have excluded nurses who did not access their email during the study duration or did not have the

time to log on and complete the study therefore limiting participation in the research study.

4. Since the study was descriptive correlation, no causal statements can be made.
5. The sample size was small even though it met the G power analysis criteria. A larger sample size with a normally distributed curve would help to increase generalizability.
6. Because of testing assumptions for statistical tests and a normal distribution was not obtained in this study, the findings are only generalizable to the sample in this study.
7. The TPB predicts intention but does not examine observable behavior. Participants may have stated that they intend to use AAI but without observing the behavior, cannot say that they actually incorporated it into their practice. However, this study's purpose was only to look at intention and not actual use.

Recommendations for Future Study

This study contributed to the body of knowledge in nursing and strengthens the understanding of subjective norms and perceived behavioral control on intention to use AAI in clinical practice. Although the study's findings added to nursing knowledge, more questions arise, and more research should be conducted regarding animal assisted interventions and nurses. More research is needed to more fully understand the role that the constructs of the TPB play in the prediction of intent towards animal assisted interventions among RNs in Florida.

This study should be replicated, and the findings verified using a larger sample of the targeted population. Future studies regarding predictors of intent towards animal assisted interventions need to be completed.

The finding that attitudes were not statistically significant in predicting intention to use AAI in clinical practice was unexpected. The nurses in the study did have favorable attitudes towards AAI with a mean of $M = 6.23$ just not enough to be statistically significant. One potential reason is that nurses are aware of AAI and have positive attitudes toward AAI but work in areas that AAI would not be allowed such as the operating room, cardiac catheterization lab, burns units, or isolation areas. Perhaps a future study could refine the IUAAI instrument to include specific questions such as: Do you have the ability to use AAI on your clinical unit? This study asked a more open question, which just asked if they had access to AAI in their clinical setting. In other words, the nurses might have access at their institution and have favorable attitudes about AAI, but their specific unit would not allow it. Another pertinent question would be to ask if you have ever recommended the use of AAI in your clinical setting for your patients. Perhaps additional research will get different results on this construct if different questions were asked.

There are over 200,000 licensed, practicing registered nurses in Florida. Results from this study revealed positive attitudes towards AAI in clinical practice. However, in the final phase of this study, many more nurses ($n = 429$) attempted to participate in the study; however, they did not meet the inclusion criteria due to a lack of access to AAI in their clinical setting. More research

needs to be done regarding these nurses and why they do not have access to AAI in their clinical setting. This researcher currently cannot find any statistics indicating the prevalence of the use of AAI in the clinical settings.

In addition, this research was only conducted in one state in the southeast United States. There might be more favorable attitudes regarding AAI or better access to AAI in other areas of the United States. This research could be done in other states or nationally to see if there are differences in the areas of the country where nurses live and practice.

Another idea for a future research study could also include examining the demographic variables and see if any of them predicted intention to use AAI in clinical practice. The majority of participants had pets of their own or had owned pets in the past. Specific areas of practice could be looked at to see if more AAI is done in certain units such as hospice, pediatrics, and long-term care in comparison to other units like the literature suggests.

Some of the questions originally developed in phases one through three had to be eliminated for the final phase of data collection in order to create an instrument that was reliable. Perhaps future research could reword those seven items that were eliminated in phase three to make the instrument reliable, to see if rewording them creates a reliable instrument and then data could be collected on those questions as well. In addition, a future study could be designed as a longitudinal study that could explore the construct of intention with actual behavior. This study was a cross sectional study that only gathered data at one point in time and looked at intention but not actual behavior.

Finally, the TPB was used as the theoretical framework to guide this study. Perhaps continuing to look for another theory or developing a new theory may be a future study. The instrument in this study was designed for Florida RNs who had access to AAI in their clinical practice using guidelines developed by the TPB. Although reliability and validity were tested and found to be appropriate for use within this population, testing this instrument with each subsequent sample is recommended.

Conclusions

The purpose of the study was to examine the constructs and test the propositions put forth by the TPB regarding prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RN) licensed in Florida. It was anticipated that the ultimate goal was to determine what the registered nurse's attitudes and beliefs are about AAI so that the barriers to using AAI can be addressed and interventions designed to address those barriers so that this modality may be used in providing care by registered nurses. This study progressed through four distinct phases with purposes unique to each phase. Phase one employed a qualitative approach where members of the target population were asked to answer open ended questions and addressed three research questions to create the items on the IUAAI instrument for the constructs of attitude, subjective norms and perceived behavioral control. Questions were not asked about intent during this phase as the items are typically formatted in a similar manner from the literature review.

In Phase two, these answers were used to construct a research instrument to measure attitudes, subjective norm, and perceived behavioral control regarding intention to use animal assisted interventions among registered nurses in Florida. This newly created instrument was then given to experts to determine for content and face validity. Two research questions were asked in this phase and the instrument was found to have face and content validity. There were 37 items on this scale including 11 items for the attitudes scale, 12 items for the subjective norms scale, 10 items for perceived behavioral control scale, and four items for the intention scale. Five experts reviewed the instrument for face and content validity and all 37 items had at least an 80% agreement on the content validity matrix and since 80% was the benchmark for inclusion, all 37 items were included for the next phase.

In Phase three, the instrument was tested for reliability using a Cronbach alpha with 276 participants and after removing seven of the 37 items; the instrument was reliable based on the psychometrics. In phase four, the final form of the research instrument was used to collect data from 117 participants who were registered nurses in Florida to measure attitudes, subjective norm, and perceived behavioral control with intention to use animal assisted interventions in clinical practice. These measures were then used to test the propositions of the TPB.

Two research questions and one hypothesis for this final phase of data collection were formulated, tested and partially supported. Hypothesis one used linear multiple regression analysis and found two of the three predictors,

subjective norm and perceived behavioral control were significant predictors of intention to use animal assisted interventions. This hypothesis was partially supported since the standard multiple linear regression analysis conducted showed that the linear combination of the predictor revealed a significant regression model, F (3, 103) = 102.87, p = .00. with an R2 value of 0.75, an indication that 74.2% of the variance of uncertainty can be accounted for by the linear combination of subjective norms and perceived behavioral control. Approximately 75% of the variance of intention to use AAI can be accounted for by subjective norms and perceived behavioral control.

Despite study limitations and lack of prior use of this framework in a study like this, the TPB is an exceptional theoretical framework for understanding the behavior related to animal assisted interventions among RN's in Florida. The TPB provided the vehicle by which to measure individuals' intent to use animal assisted interventions in clinical practice. The constructs of attitudes, subjective norms, and perceived behavioral control were able to be studied using this theoretical framework.

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APPENDIX A

IRB APPROVAL LETTERS

BARRY UNIVERSITY

This section contains IRB approval for Phases 1-4.

Barry University
Division of Academic Affairs

Institutional Review Board
[redacted]

Research with Human Subjects
Protocol Review

Date:	November 10, 2016
Protocol Number:	161110
Title:	Attitudes and Beliefs as Predictors of Intention to Incorporate Animal Assisted Interventions into Practice among Registered Nurses in Florida
Name:	Ms. Sharon Wright [redacted]
Sponsor:	Dr. Lilia Ferrona Beason

Dear Ms. Wright:

On behalf of the Barry University Institutional Review Board (IRB), I have verified that the specific changes requested by the IRB have been made. Therefore, I have granted final approval for this study as exempt from further review.

As principal investigator of this protocol, it is your responsibility to make sure that this study is conducted as approved by the IRB. Any modifications to the protocol or consent form, initiated by you or by the sponsor, will require prior approval, which you may request by completing a protocol modification form.

It is a condition of this approval that you report promptly to the IRB any serious, unanticipated adverse events experienced by participants in the course of this research, whether or not they are directly related to the study protocol. These adverse events include, but may not be limited to, any experience that is fatal or immediately life-threatening, is permanently disabling, requires (or prolongs) inpatient hospitalization, or is a congenital anomaly cancer or overdose.

The approval granted expires on November 14, 2017. Should you wish to maintain this protocol in an active status beyond that date, you will need to provide the IRB with and IRB Application for Continuing Review (Progress Report) summarizing study results to date.

If you have questions about these procedures, or need any additional assistance from the IRB, please call the IRB point of contact, [redacted] or send an e-mail to [redacted]. Finally, please review your professional liability insurance to make sure your coverage includes the activities in this study.

Sincerely,

David M. Feldman, PhD
Chair, Institutional Review Board

[redacted]

Cc: Dr. Lilia Ferrona Beason

Barry University
Division of Academic Affairs

Institutional Review Board
[redacted]

Research with Human Subjects
Protocol Review

Date:	February 16, 2017
Protocol Number:	170207
Title:	Attitudes and Beliefs as predictors of Intention to Incorporate Animal Assisted Interventions into Practice among Registered Nurses in Florida (Phase II Protocol 161101)
Approval Date:	February 16 2017
Name:	Ms. Sharon Wright
Address:	[redacted]
Sponsor:	Dr. Ferrona Beason

Dear Ms. Wright:

Your protocol has been reviewed and accepted as exempt from further review. You may proceed with data collection.

As principal investigator of this protocol, it is your responsibility to make sure that this study is conducted as approved by the IRB. Any modifications to the protocol or consent form, initiated by you or by the sponsor, will require prior approval, which you may request by completing a protocol modification form.

It is a condition of this approval that you report promptly to the IRB any serious, unanticipated adverse events experienced by participants in the course of this research, whether or not they are directly related to the study protocol. These adverse events include, but may not be limited to, any experience that is fatal or immediately life-threatening, is permanently disabling, requires (or prolongs) inpatient hospitalization, or is a congenital anomaly cancer or overdose.

The approval granted expires on February 23, 2018. Should you wish to maintain this protocol in an active status beyond that date, you will need to provide the IRB with and IRB Application for Continuing Review (Progress Report) summarizing study results to date.

If you have questions about these procedures, or need any additional assistance from the IRB, please call the IRB point of contact, Mrs. Barbara Cook at [redacted] or send an e-mail to [redacted] Finally, please review your professional liability insurance to make sure your coverage includes the activities in this study.

Sincerely,

David M. Feldman, PhD
Chair, Institutional Review Board
Barry University

[redacted]

Cc: Dr. Ferrona Beason

Note: The investigator will be solely responsible and strictly accountable for any deviation from or failure to follow the research protocol as approved and will hold Barry University harmless from all claims against it arising from said deviation or failure.

Barry University

Division of Academic Affairs

Institutional Review Board [redacted]

Research with Human Subjects
Protocol Review

Date:	June 13, 2017
Protocol Number:	170606
Title:	Attitudes and Beliefs as Predictors of Intention to Incorporate Animal Assisted Interventions into Practice among Registered Nurses in Florida
Approval Date:	June 12, 2017
Name:	Ms. Sharon Wright
Address:	[redacted]
Sponsor:	Dr. Ferrona Beason

Dear Ms. Wright:

Your protocol has been reviewed and accepted as exempt from further review. You may proceed with data collection.

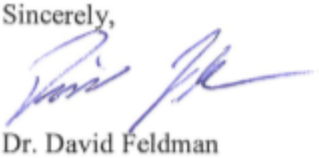
As principal investigator of this protocol, it is your responsibility to make sure that this study is conducted as approved by the IRB. Any modifications to the protocol or consent form, initiated by you or by the sponsor, will require prior approval, which you may request by completing a protocol modification form.

It is a condition of this approval that you report promptly to the IRB any serious, unanticipated adverse events experienced by participants in the course of this research, whether or not they are directly related to the study protocol. These adverse events include, but may not be limited to, any experience that is fatal or immediately life-threatening, is permanently disabling, requires (or prolongs) inpatient hospitalization, or is a congenital anomaly cancer or overdose.

The approval granted expires on January 15, 2018. Should you wish to maintain this protocol in an active status beyond that date, you will need to provide the IRB with and IRB Application for Continuing Review (Progress Report) summarizing study results to date.

If you have questions about these procedures, or need any additional assistance from the IRB, please call the IRB point of contact, Mrs. Barbara Cook at [redacted] or send an e-mail to [redacted] Finally, please review your professional liability insurance to make sure your coverage includes the activities in this study.

Sincerely,



Dr. David Feldman
Chair, Institutional Review Board

[redacted]

Cc: Dr. Ferrona Beason

Note: The investigator will be solely responsible and strictly accountable for any deviation from or failure to follow the research protocol as approved and will hold Barry University harmless from all claims against it arising from said deviation or failure.

Barry University

Division of Academic Affairs

Institutional Review Board
[redacted]

Research with Human Subjects
Protocol Review

Date:	September 22, 2017
Protocol Number:	170606
Title:	Attitudes and Beliefs as Predictors of Intention to Incorporate Animal Assistance Interventions into Practice among Registered Nurses in Florida
Meeting Date:	June 12, 2017
Name:	Ms. Sharon Wright [redacted]
Sponsor:	Dr. Ferona Beason

Dear Ms. Wright:

Your protocol has been reviewed and accepted as exempt from further review. You may proceed with data collection.

As principal investigator of this protocol, it is your responsibility to make sure that this study is conducted as approved by the IRB. Any modifications to the protocol or consent form, initiated by you or by the sponsor, will require prior approval, which you may request by completing a protocol form.

It is a condition of this approval that you report promptly to the IRB any serious, unanticipated adverse events experienced by participants in the course of this research, whether or not they are directly related to the study protocol. These adverse events include, but may not be limited to, any experience that is fatal or immediately life-threatening, is permanently disabling, requires (or prolongs) inpatient hospitalization, or is a congenital anomaly cancer or overdose.

The approval granted expires on July 15, 2018. Should you wish to maintain this protocol in an active status beyond that date, you will need to provide the IRB with and IRB Application for Continuing Review (Progress Report) summarizing study results to date.

If you have any questions about these procedures, or need any additional assistance from the IRB, please call the IRB point of contact, [redacted] or send an email to [redacted] Finally, please review your professional liability insurance to make sure your coverage includes the activities in this study.

Regards,

David M. Feldman, PhD
Chair, Institutional Review Board
[redacted]

Note: The investigator will be solely responsible and strictly accountable for any deviation from or failure to follow the research protocol as approved and will hold Barry University harmless from all claims against it arising from said deviation or failure.

APPENDIX B

COVER LETTERS

BARRY UNIVERSITY

This section contains cover letters for Phases 1-4.

Approved by Barry University IRB :
Date : 11/11/16
Signature :

Institutional Review
Board Protocol Form
12

Appendix D
Cover Letter for SurveyMonkey

Dear Research Participant:

Your participation in a research project is requested. The title of the study is Attitudes and Beliefs as Predictors of Intention to Incorporate Animal Assisted Interventions into Practice among Registered Nurses in Florida.

The research is being conducted by Sharon Y. Wright, MS, RN a doctoral student in the College of Nursing and Health Sciences at Barry University, and it is seeking information that will be useful in the field of nursing. The aims of the research are to examine the constructs and test the propositions put forth by the Theory of Planned Behavior (TPB) regarding prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RN) licensed in Florida. In accordance with these aims, participants are asked to access the Survey Monkey site, read the instructions, consent to participate, and respond to the survey questionnaire. I anticipate the number of participants to be approximately 30 for this phase.

If you decide to participate in this research, you will be asked to do the following: Answer the questions on two surveys. One is a demographic survey which should take no more than 5 minutes to complete. The second survey should take no more than 10 minutes to complete for a total time of approximately 15 minutes to complete.

Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects. You may choose not to answer any or all questions.

There are no known risks to participants in this study. The following procedures will be used to minimize these risks: You can skip any questions you do not want to answer. There are no direct benefits to you for participating in this study; however, your participation will contribute to research in nursing and animal assisted interventions.

As a research participant, information you provide is anonymous, that is, no names or other identifiers will be collected. SurveyMonkey.com allows researchers to suppress the delivery of IP addresses during the downloading of data, and in this study no IP address will be delivered to the researcher. However, SurveyMonkey.com does collect IP addresses for its own purposes. If you have concerns about this you should review the privacy policy of SurveyMonkey.com before you begin.

By completing and submitting this electronic survey you are acknowledging that you are at least 18-years-old and that you voluntarily agree to participate in the study.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Sharon Y. Wright, by phone at [redacted] or by email at [redacted]. My advisor, [redacted] or via email at [redacted]. You may also contact the Institutional Review Board point of contact, [redacted] or by email at [redacted].

Thank you for your participation.
Sincerely,

Revised 10/27/2016

Approved by Barry University IRB
Date: 2/17/17
Signature:

Institutional Review Board
Protocol Form
8

Appendix C
Barry University
Cover Letter for Phase Two

Dear Research Participant:

Your participation in a research project is requested. The title of the study is "Attitudes and Beliefs as Predictors of Intention to Incorporate Animal Assisted Interventions into Practice among Registered Nurses in Florida".

The research is being conducted by Sharon Y. Wright, MS, RN a doctoral student in the College of Nursing and Health Sciences at Barry University, and is seeking information that will be useful in the field of nursing. The aims of the research are to (1) construct a valid and reliable instrument to measure attitudes, subjective norms, perceived behavioral control, and intention to use animal assisted interventions (AAI) among registered nurses in Florida and (2) to investigate the predictive relationships between attitudes, perceived norms and perceived behavioral control in relation to participants' intention to use AAI in their clinical setting.

In accordance with these aims, the following procedures will be used: Participants will be asked to complete a demographic survey and review an instrument for face and content validity by filling out a Content Validity Matrix. We anticipate the number of participants to be 10. The total time commitment is 20 minutes.

If you decide to participate in this research, you will be asked to do the following: Complete the Content Validity Matrix. You will place an X in the box next to each item stating whether you agree or disagree that the item is addressing the construct that the researcher intended it to address. You will also be looking at each item for face validity to see if the language is easy to read. You will be able to place any comments in the comment box next to each item. It is estimated to take you approximately 15 minutes to complete the matrix. You will also be asked to complete a demographic survey which should take no more than 5 minutes to complete.

Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects on your current employment. You may chose not to answer any question or questions.

There are no known risks to you. There are no direct benefits to you for participating in this study; however, your participation will contribute to research in nursing and animal assisted interventions.

As a research participant, information you provide will be kept anonymous, that is, no names or other identifiers will be collected on any of the instruments used. Data will be kept in a locked file in the researcher's office. By completing and returning this survey you have shown your agreement to participate in the study.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Sharon Y. Wright, by phone at [redacted] or by email at [redacted] My faculty sponsor, Dr. Ferrona Beason, may be contacted at [redacted] or via email at [redacted] You may also contact the Institutional Review Board point of contact, Barbara Cook, by phone at [redacted] or by email at [redacted]

Thank you for your participation.

Sincerely,

Sharon Y. Wright, MS, RN, CNE

Approved by Barry University IRB
Date: 6/2/17
Signature:

Appendix B
Barry University
Cover Letter-Survey Monkey Phase Three

Dear Research Participant:

Your participation in a research project is requested. The title of the study is Attitudes and Beliefs as Predictors of Intention to Incorporate Animal Assisted Interventions into Practice among Registered Nurses in Florida.

The research is being conducted by Sharon Y. Wright, MS, RN a doctoral student in the College of Nursing and Health Sciences at Barry University, and it is seeking information that will be useful in the field of nursing. The aims of the research are to examine the constructs and test the propositions put forth by the TPB regarding prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RN) licensed in Florida. My goal is to collect data from approximately 370 participants. In accordance with these aims, participants are asked to access the Survey Monkey site, read the instructions, consent to participate, and respond to the survey questionnaire.

If you decide to participate in this research, you will be asked to do the following: Answer the questions on the survey which consists of two questionnaires. The demographic questionnaire will take 5 minutes to complete and the Intention to Use Animal Assisted Interventions (IUAAI) instrument will take 15 minutes to complete. Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects.

There are no known risks to participants in this study. The following procedures will be used to minimize these risks: You can skip any questions you do not want to answer. There are no direct benefits to you for participating in this study; however, your participation will contribute to research in nursing and animal assisted interventions.

As a research participant, information you provide is anonymous, that is, no names or other identifiers will be collected. SurveyMonkey.com allows researchers to suppress the delivery of IP addresses during the downloading of data, and in this study no IP address will be delivered to the researcher. However, SurveyMonkey.com does collect IP addresses for its own purposes. If you have concerns about this you should review the privacy policy of SurveyMonkey.com before you begin.

By completing and submitting this electronic survey you are acknowledging that you are at least 18-years-old and that you voluntarily agree to participate in the study.

If you have any questions or concerns regarding the study or your participation in the study, you may contact [redacted] or by email at [redacted] My faculty sponsor, [redacted] may be contacted at [redacted] You may also contact the Institutional Review Board point of contact, [redacted] or by email at [redacted]

Thank you for your participation.

Sincerely,

Sharon Y. Wright

Approved by Barry University IRB
Date: 9/2017
Signature:

Appendix D
Barry University
Cover Letter-Survey Monkey Phase Four

Dear Research Participant:

Your participation in a research project is requested. The title of the study is Attitudes and Beliefs as Predictors of Intention to Incorporate Animal Assisted Interventions into Practice among Registered Nurses in Florida.

The research is being conducted by Sharon Y. Wright, MS, RN a doctoral student in the College of Nursing and Health Sciences at Barry University, and it is seeking information that will be useful in the field of nursing. The aims of the research are to examine the constructs and test the propositions put forth by the Theory of Planned Behavior (TPB) in regard to prediction of intention to use animal assisted interventions (AAI) in clinical practice among registered nurses (RN) licensed in Florida. My goal is to collect data from up to 120 participants. In accordance with these aims, participants are asked to access the Survey Monkey site, read the instructions, consent to participate, and respond to the survey questionnaire.

If you decide to participate in this research, you will be asked to do the following: Log on to Survey Monkey and answer the questions on the survey which consists of 2 questionnaires. The Intention to Use Animal Assisted Interventions questionnaire is estimated to take no more than 15 minutes to complete. The demographic questionnaire is estimated to take no more than 5 minutes to complete.

Your consent to be a research participant is strictly voluntary and should you decline to participate, or should you choose to drop out at any time during the study, there will be no adverse effects.

There are no known risks to participants in this study. The following procedures will be used to minimize these risks: You can skip any questions you do not want to answer. There are no direct benefits to you for participating in this study; however, your participation will contribute to research about animal assisted interventions.

As a research participant, information you provide is anonymous, that is, no names or other identifiers will be collected. SurveyMonkey.com allows researchers to suppress the delivery of IP addresses during the downloading of data, and in this study no IP address will be delivered to the researcher. However, SurveyMonkey.com does collect IP addresses for its own purposes. If you have concerns about this you should review the privacy policy of SurveyMonkey.com before you begin.

By completing and submitting this electronic survey you are acknowledging that you are at least 18-years-old and that you voluntarily agree to participate in the study.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, [redacted] or by email at [redacted] My faculty sponsor, [redacted] may be contacted at [redacted] Or via email at [redacted] You may also contact the Institutional Review Board point of contact, [redacted] or by email at [redacted]

Thank you for your participation.

Sincerely,

Sharon Y. Wright

APPENDIX C

APPROVAL LETTERS

BARRY UNIVERSITY

Email permission from the Florida Board of Nursing

Ms. Wright,

Thank you for your email. Attached you will find a copy of our Licensure Data Download guide – this will have the instructions on how to obtain the information that you are requesting. Please let us know if you have any additional questions or concerns.

Tihara A. Rozier

Regulatory Supervisor

Florida Board of Nursing

Administrative/Support Unit

[redacted]

From: Sharon Wright [redacted]
Sent: Friday, April 17, 2015 10:18 AM
To: [redacted]
Subject: Contact via Florida | Board of Nursing - Email data base for doctoral research

From:
Sharon Wright - [redacted]

Subject: *Email data base for doctoral research*

Message Body:

Good morning,

I wanted to know how I go about requesting emails for the Florida RN's so

that I may send them a link to survey monkey for my doctoral dissertation research.

Will you also tell me how many RN's that would give me access to please?

Thanks.

Email permission from associate dean for Phase 2 data collection

Fri 2/24, 8:05 AM
Wright, Sharon (Barry Student);
McFadden, John J
Inbox

Dear Ms. Wright,
I am responding for Dean John McFadden.
I am granting you access to Barry University's CNHS Nursing faculty for Phase 2 of your dissertation pending IRB approval.
You will be allowed to post flyers at designated areas for recruitment. You may not have direct access to the email addresses, but my office will be able to forward your recruitment e-mail to the prospective participants. Finally, you may not have access to the mailboxes, but you may leave the research packets in the Nursing Office reception area for the faculty participants to pick-up.
Kindly send me a copy of the IRB approval prior to commencing your recruitment. Good luck in your study.
Please do not hesitate to contact me if you have any questions.
Sincerely,
Dr. Umadhay

Barry University

Tony Umadhay, PhD, CRNA, ARNP
Associate Dean

College of Nursing & Health Sciences
Barry University
[redacted]

APPENDIX D

FLYER

BARRY UNIVERSITY

Registered Nurse Flyer

Registered Nurse Volunteers Needed to Review Instrument for Face and Content Validity

The research instrument is being developed to explore the attitudes and beliefs of registered nurses about animal assisted interventions in their clinical setting.

- Participation is strictly voluntary and your responses will be kept anonymous
- Please participate ONLY if you have access to Animal Assisted Interventions.
- **If you would like to participate, please complete the packet in your mailbox which includes a demographic survey, which should take no more than 5 minutes as well as reviewing the research instrument which should take no more than 15 minutes to complete. Once you are done, please place the surveys into the self-addressed stamped envelope provided and mail the completed survey back to me.**

Thank you!
Sharon Y. Wright, MS, RN, CNE Principal Investigator
Barry University Doctoral nursing student
Contact Information:
Researcher - Sharon Wright Phone: [redacted]
Email: [redacted]
Faculty Supervisor - Dr. Ferrona Beason Phone: [redacted]
Email: [redacted]
Barry University IRB Contact: Barbara Cook Phone: [redacted]
Email: [redacted]

APPENDIX E

SURVEY INSTRUMENTS FOR PHASE ONE

BARRY UNIVERSITY

DEMOGRAPHIC SURVEY

INTENTION TO USE ANIMAL ASSISTED INTERVENTIONS SURVEY FOR PHASE 1

Barry University

Demographic Survey used for Phase 1-3

1. Do you currently have Animal Assisted Interventions in your clinical setting?
    1. Yes
    2. No
2. What is your gender?
    1. Male
    2. Female
3. What is your age? State number: _____
4. What is the highest level of education you have completed?
    1. High School
    2. Bachelor's degree
    3. Master's degree
    4. Doctoral degree
5. What field of health care is your specialty?
    1. Medical surgical
    2. Pediatrics
    3. Obstetrics gynecology
    4. Critical care or emergency room
    5. Psychiatric mental health
    6. Hospice
    7. Long term care

8. Home health
9. Ambulatory care
10. Physician or HCP office
11. Community/Public health
12. Other: Please specify_____

6. How many years have you been a licensed registered nurse? State number: _____
7. What is your employment status?
    1. Full time
    2. Part time
    a. Per diem or adjunct
8. Do you own any pets?
    1. Yes
    2. No, I have never owned a pet.
    3. No, although I have owned one or more pets in the past.
9. If yes, please tell me what kind of pet(s) you have you ever owned? Select all that apply.
    1. Cat
    2. Dog
    3. Bird
    4. Rabbit
    5. Other, please specify._____
10. What is your ethnic background?

1. American Indian or Alaskan Native
2. Asian or Pacific Islander
3. Black or African American
4. Hispanic or Latino
5. White/Caucasian
6. Prefer not to answer

Directions

Please take a few minutes to tell me what you think about the possibility of incorporating animal assisted interventions (AAI) into your clinical practice. AAI has been defined as being goal oriented and structured that intentionally incorporates animals into health for the purpose of therapeutic gains to improve health and wellness. The animal is part of a volunteer therapy animal team which includes the animal and a professional. Another more common term is pet therapy. There are no right or wrong responses; I am merely interested in your personal opinions. In response to the questions below, please list the thoughts that come immediately to mind. Write each thought on a separate line.

1. What do you see as the advantages of having Animal Assisted Interventions in your practice setting?

2. What do you see as the disadvantages of having Animal Assisted Interventions in your practice setting?

3. What else comes to mind when you think about having Animal Assisted Interventions in your practice setting?

4. When it comes to using Animal Assisted Interventions (AAI) in your clinical setting, there might be individuals or groups who would think you should or should not use AAI. Please list individuals or groups who would approve or think you should use AAI in your clinical setting.

5. Please list individuals or groups who would disapprove or think you should not use Animal Assisted Interventions (AAI) in your clinical setting.

6. Sometimes when we are not sure what to do, we look to see what others are doing. Please list individuals or groups who are most likely to use Animal Assisted Interventions (AAI) in your clinical setting.

7. Please list individuals who are least likely to use animal assisted interventions (AAI) in your clinical setting.

8. Please list any factors or circumstances that would make it easy or enable you to incorporate Animal Assisted Interventions in your clinical setting.

9. Please list any factors or circumstances that would make it difficult or prevent you from incorporating Animal Assisted Interventions (AAI) into your clinical setting.

Barry University

Phase One Instrument

Please take a few minutes to tell me what you think about the possibility of incorporating animal assisted interventions (AAI) into your clinical practice. AAI has been defined as being goal oriented and structured that intentionally incorporates animals into health for the purpose of therapeutic gains to improve health and wellness. The animal is part of a volunteer therapy animal team which includes the animal and a professional. Another more common term is pet therapy. There are no right or wrong responses; I am merely interested in your personal opinions. In response to the questions below, please list the thoughts that come immediately to mind. Write each thought on a separate line.

Behavioral Outcomes

What do you see as the advantages of having AAI in your practice setting?

_____
_____
_____
_____
_____
_____
_____
_____

What do you see as the disadvantages of having AAI in your practice setting?

_____
_____
_____
_____
_____
_____
_____
_____

What else comes to mind when you think about having AAI in your practice setting?

_____
_____
_____

Normative referents

When it comes to using AAI in your clinical setting, there might be individuals or groups who would think you should or should not use AAI.

Please list individuals or groups who would approve or think you should use AAI in your clinical setting.

Please list individuals or groups who would disapprove or think you should not use AAI in your clinical setting.

Sometimes when we are not sure what to do, we look to see what others are doing. Please list individuals or groups who are most likely to use AAI in your clinical setting.

Please list individuals who are least likely to use AAI in your clinical setting.

Control factors

Please list any factors or circumstances that would make it easy or enable you to incorporate AAI in your clinical setting,

Please list any factors or circumstances that would make it difficult or prevent you from incorporating AAI into your clinical setting,

APPENDIX F

SURVEY INSTRUMENTS FOR PHASE TWO

BARRY UNIVERSITY

DEMOGRAPHIC SURVEY

INTENTION TO USE ANIMAL ASSISTED INTERVENTIONS SURVEY IN A CONTENT VALIDITY MATRIX

FOR PHASE 2

Demographic Survey used for Phase 1-3

1. Do you currently have Animal Assisted Interventions in your clinical setting?
    1. Yes
    2. No
2. What is your gender?
    1. Male
    2. Female
3. What is your age? State number: _____
4. What is the highest level of education you have completed?
    1. High School
    2. Bachelor's degree
    3. Master's degree
    4. Doctoral degree
5. What field of health care is your specialty?
    1. Medical surgical
    2. Pediatrics
    3. Obstetrics gynecology
    4. Critical care or emergency room
    5. Psychiatric mental health
    6. Hospice
    7. Long term care
    8. Home health
    9. Ambulatory care

10. Physician or HCP office
11. Community/Public health
12. Other: Please specify_____

6. How many years have you been a licensed registered nurse? State number: _____
7. What is your employment status?
    1. Full time
    2. Part time
    3. Per diem or adjunct
8. Do you own any pets?
    1. Yes
    2. No, I have never owned a pet.
    3. No, although I have owned one or more pets in the past.
9. If yes, please tell me what kind of pet(s) you have you ever owned? Select all that apply.
    1. Cat
    2. Dog
    3. Bird
    4. Rabbit
    5. Other, please specify._____
10. What is your ethnic background?
    1. American Indian or Alaskan Native
    2. Asian or Pacific Islander

3. Black or African American
4. Hispanic or Latino
5. White/Caucasian
6. Prefer not to answer

Intention to Use Animal Assisted Interventions Instrument (IUAAI)

Instructions: You are being asked to critically evaluate each item below for content and face validity. Please look at each item and decide if you agree or disagree that it is assessing for the construct the researcher thinks it is. You may also use the comment box for any item to share your thoughts about readability, grammar, etc….

Item #	Attitude: Attitude is defined by Ajzen and Fishbein (1980) as the positive or negative feelings or favorable or unfavorable attitudes that have an influence on an individual's decision-making process towards a behavior. The following items are intended to assess for the construct of attitude. Please mark an X if you agree or disagree that this item is assessing for attitude.	Agree	Disagree	Comments
1	Using animal assisted interventions makes working in my clinical setting more enjoyable for me. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
2	Using animal assisted interventions makes the patients happier. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
3	Using animal assisted interventions helps calm patients. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			

4	Using animal assisted interventions helps to reduce patient's anxiety and depression. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
5	Using animal assisted interventions brings joy and happiness to patients/families. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
6	Using animal assisted interventions improves physical health and promotes healing in patients. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
7	Using animal assisted interventions reduces stress for patients. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			

8	Using animal assisted interventions should not be done because patients may have an allergic reaction. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			

9	Using animal assisted interventions should not be done because a lot of patients are afraid of animals. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
10	Using animal assisted interventions should not be done because animals can be unclean or unhygienic. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
11	There is an increased risk of infection when using animal assisted interventions. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			

Item #	Subjective Norm: Subjective norm consists of the individual's normative beliefs towards what others perceive to be the correct outcome of the behavior (Ajzen & Fishbein, 1980). If the individual believes that others see this behavior as having a positive outcome, the individual will more likely be influenced by his or her perception and in turn will be more likely to carry out the behavior. Do most people approve or disapprove of this behavior? The following items are intended to assess for the construct of subjective norm. Please mark an X if you agree or disagree that this item is assessing subjective norm.	Agree	Disagree	Comments

1	My nursing colleagues think that I should utilize animal assisted interventions in clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
2	My nursing colleagues will support my decision to incorporate animal assisted interventions into my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
3	My nursing colleagues would approve of me using animal assisted interventions. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
4	Administrators think that I should utilize animal assisted interventions in clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
5	Administrators will support my decision to incorporate animal assisted interventions into my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
6	My administrators would approve of me using animal assisted interventions. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
7	Patients think that I should utilize animal assisted interventions in clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			

8	Patients will support my decision to incorporate animal assisted interventions into my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
9	My patients would approve of me using animal assisted interventions. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			

Item #	Perceived behavioral control: Refers to a person's perception of how easy or difficult it will be to perform the behavior The following items are intended to assess for the construct of perceived behavioral control. Please mark an X if you agree or disagree that this item is assessing perceived behavioral control.	Agree	Disagree	Comments
1	I am confident that I could utilize animal assisted interventions in my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
2	I have the knowledge needed to effectively use animal assisted interventions as a component of patient care in my clinical setting. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
3	Using animal assisted interventions in my patient care at my clinical setting is entirely within my control. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			

4	It is unlikely that I will encounter difficulties that would prevent me from using animal assisted interventions when I need to. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
5	There are factors outside of my control that could prevent me from using animal assisted interventions in my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
6	There are enough available animals/handlers to use animal assisted interventions in my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
7	I have support from administration to use animal assisted interventions in my clinical setting. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
8	I have policies and procedures/guidelines to follow when using animal assisted interventions in my clinical setting. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
9	It is difficult to use animal assisted interventions in my clinical setting due to infection control issues. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
10	It is difficult to use animal assisted interventions in certain clinical areas such as the operating room, burn units or bone marrow transplant units. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			

Item #	Intention: Intent is defined as how hard an individual is willing to try to perform a behavior (Ajzen, 1991). The following items are intended to assess for the construct of intention to use animal assisted interventions. Please mark an X if you agree or disagree with this item.	Agree	Disagree	Comments
1	I intend to use animal assisted interventions in my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
2	I will try to use animal assisted interventions in my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
3	I plan on using animal assisted interventions in my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			
4	I want to use animal assisted interventions in my clinical practice. 1 2 3 4 5 6 7 Definitely disagree Definitely agree			

APPENDIX G

SURVEY INSTRUMENTS FOR PHASE THREE

BARRY UNIVERSITY

DEMOGRAPHIC SURVEY

INTENTION TO USE ANIMAL ASSISTED INTERVENTIONS SURVEY FOR PHASE 3

1. Do you currently have Animal Assisted Interventions in your clinical setting?
    1. Yes
    2. No
2. What is your gender?
    1. Male
    2. Female
3. What is your age? State number: _____
4. What is the highest level of education you have completed?
    1. High School
    2. Bachelor's degree
    3. Master's degree
    4. Doctoral degree
5. What field of health care is your specialty?
    1. Medical surgical
    2. Pediatrics
    3. Obstetrics gynecology
    4. Critical care or emergency room
    5. Psychiatric mental health
    6. Hospice
    7. Long term care
    8. Home health
    9. Ambulatory care

10. Physician or HCP office
11. Community/Public health
12. Other: Please specify_____

6. How many years have you been a licensed registered nurse? State number: _____
7. What is your employment status?
    1. Full time
    2. Part time
    3. Per diem or adjunct
8. Do you own any pets?
    1. Yes
    2. No, I have never owned a pet.
    3. No, although I have owned one or more pets in the past.
9. If yes, please tell me what kind of pet(s) you have you ever owned? Select all that apply.
    1. Cat
    2. Dog
    3. Bird
    4. Rabbit
    5. Other, please specify._____
10. What is your ethnic background?
    1. American Indian or Alaskan Native
    2. Asian or Pacific Islander

3. Black or African American
4. Hispanic or Latino
5. White/Caucasian
6. Prefer not to answer

1. Using animal assisted interventions makes working in my clinical setting more enjoyable.

Definitely disagree	Disagree	Strongly disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

2. Using animal assisted interventions makes the patients happier.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

3. Using animal assisted interventions helps calm patients.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

4. Using animal assisted interventions helps to reduce patient's anxiety and depression.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

5. Using animal assisted interventions brings joy and happiness to patients and families.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

6. Using animal assisted interventions improves physical health and promotes healing in patients.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

7. Using animal assisted interventions reduces stress for patients.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

8. Using animal assisted interventions should not be done because patients may have an allergic reaction.

Definitely agree						Definitely disagree
○	○	○	○	○	○	○

9. Using animal assisted interventions should not be done because a lot of patients are afraid of animals.

Definitely agree						Definitely disagree
○	○	○	○	○	○	○

10. Using animal assisted interventions should not be done because animals can be unclean or unhygienic.

Definitely agree						Definitely disagree
○	○	○	○	○	○	○

11. Using animal assisted activities should not be done due to increased risk of infection.

Definitely agree						Definitely disagree
○	○	○	○	○	○	○

12. My nursing colleagues think that I should utilize animal assisted interventions in clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

13. My nursing colleagues will support my decision to incorporate animal assisted interventions into my clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

14. My nursing colleagues would approve of me using animal assisted interventions.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

15. How likely are you to want to use animal assisted interventions if your nursing colleagues want you to use them?

Definitely should not						Definitely should
○	○	○	○	○	○	○

16. Administrators think that I should utilize animal assisted interventions in clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

17. Administrators will support my decision to incorporate animal assisted interventions into my clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

18. How likely are you to want to use animal assisted interventions if your administrators think you should use them?

Not at all likely						Very likely
○	○	○	○	○	○	○

19. My administrators would approve of me using animal assisted interventions.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

20. Patients think that I should utilize animal assisted intventions in clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

21. Patients will support my decision to incorporate animal assisted interventions into my clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

22. How likely are you to use animal assisted interventions if your patients want you to use them?

Very unlikely						Extremely likely
○	○	○	○	○	○	○

23. My patients would approve of me using animal assisted interventions.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

24. I am confident that I could utilize animal assisted interventions in my clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

25. I have the knowledge needed to effectively use animal assisted interventions as a component of patient care in my clinical setting.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

26. Using animal assisted interventions in my patient care at my clinical setting is entirely within my control.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

27. It is unlikely that I will encounter difficulties that would prevent me from using animal assisted interventions when I need to.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

28. There are factors outside of my control that could prevent me from using animal assisted interventions in my clinical practice.

Definitely agree						Definitely disagree
○	○	○	○	○	○	○

29. There are enough available animals/handlers to use animal assisted interventions in my clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

30. I have support from administration to use animal assisted interventions in my clinical setting.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

31. I have policies and procedures or guidelines to follow when using animal assisted interventions in my clinical setting.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

32. It is difficult to use animal assisted interventions in my clinical setting due to infection control issues.

Definitely agree						Definitely disagree
○	○	○	○	○	○	○

33. It is difficult to use animal assisted interventions in certain clinical areas such as the operating room, burn units or bone marrow transplant units.

Definitely agree						Definitely disagree
○	○	○	○	○	○	○

34. I intend to use animal assisted interventions in my clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

35. I will try to use animal assisted interventions in my clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

36. I plan on using animal assisted interventions in my clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

37. I want to use animal assisted interventions in my clinical practice.

Definitely disagree						Definitely agree
○	○	○	○	○	○	○

APPENDIX H

SURVEY INSTRUMENTS FOR PHASE FOUR

BARRY UNIVERSITY

DEMOGRAPHIC SURVEY

INTENTION TO USE ANIMAL ASSISTED INTERVENTIONS SURVEY FOR PHASE 4

Demographic Survey used for Phase 4

1. Do you currently have Animal Assisted Interventions in your clinical setting?
    1. Yes
    2. No
2. What is your gender?
    1. Male
    2. Female
3. What is your age? State number: _____
4. What is the highest level of education you have completed?
    1. Diploma
    2. Bachelor's degree
    3. Master's degree
    4. Doctoral degree
5. What field of health care is your specialty?
    1. Medical surgical
    2. Pediatrics
    3. Obstetrics gynecology
    4. Critical care or emergency room
    5. Psychiatric mental health
    6. Hospice
    7. Long term care
    8. Home health

9. Ambulatory care
10. Physician or HCP office
11. Community/Public health
12. Other: Please specify_____

6. How many years have you been a licensed registered nurse? State number: _____
7. What is your employment status?
    1. Full time
    2. Part time
    3. Per diem or adjunct
8. Do you own any pets?
    1. Yes
    2. No, I have never owned a pet.
    3. No, although I have owned one or more pets in the past.
9. If yes, please tell me what kind of pet(s) you have you ever owned? Select all that apply.
    1. Cat
    2. Dog
    3. Bird
    4. Rabbit
    5. Other, please specify._____
10. What is your ethnic background?
    1. American Indian or Alaskan Native

2. Asian or Pacific Islander
3. Black or African American
4. Hispanic or Latino
5. White/Caucasian
6. Prefer not to answer

Intention to Use Animal Assisted Interventions Phase 4

Instructions

For questions 11-40: Please take a few minutes to tell me what you think about animal assisted interventions (AAI) in your clinical practice. AAI have been defined as being goal oriented and structured that intentionally incorporates animals into health for the purpose of therapeutic gains to improve health and wellness. The animal is part of a volunteer therapy animal team which includes the animal and a professional. Another more common term is pet therapy. There are no right or wrong responses; I am merely interested in your personal opinions. Please answer each of the following questions by clicking on the circle that best describes your opinion. Some of the questions may appear to be similar, but they do address somewhat different issues. Please read each question carefully. This survey has 30 questions and should take less than 15 minutes to complete.

11. Using animal assisted interventions makes working in my clinical setting more enjoyable.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

12. Using animal assisted interventions makes the patients happier.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

13. Using animal assisted interventions helps calm patients.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

14. Using animal assisted interventions helps to reduce patient's anxiety and depression.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

15. Using animal assisted interventions brings joy and happiness to patients and families.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

16. Using animal assisted interventions improves physical health and promotes healing in patients.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

17. Using animal assisted interventions reduces stress for patients.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

18. My nursing colleagues think that I should utilize animal assisted interventions in clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

19. My nursing colleagues will support my decision to incorporate animal assisted interventions into my clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

20. My nursing colleagues would approve of me using animal assisted interventions.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

21. How likely are you to want to use animal assisted interventions if your nursing colleagues want you to use them?

Not at all likely			Neutral			Very likely
○	○	○	○	○	○	○

22. Administrators think that I should utilize animal assisted interventions in clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

23. Administrators will support my decison to incorporate animal assisted interventions into my clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

24. My administrators would approve of me using animal assisted interventions.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

25. How likely are you to want to use animal assisted interventions if your administrators think you should use them?

Not at all likely			Neutral			Very likely
○	○	○	○	○	○	○

26. Patients think that I should utilize animal assisted interventions in clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

27. Patients will support my decison to incorporate animal assisted interventions into my clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

28. My patients would approve of me using animal assisted interventions.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

29. How likely are you to want to use animal assisted interventions if your patients want you to use them?

Not at all likely			Neutral			Very likely
○	○	○	○	○	○	○

30. I am confident that I could utilize animal assisted interventions in my clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

31. I have the knowledge needed to effectively use animal assisted interventions as a component of patient care in my clinical setting.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

32. Using animal assisted interventions in my patient care at my clinical setting is entirely within my control.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

33. It is unlikely that I will encounter difficulties that would prevent me from using animal assisted interventions when I need to.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

34. There are enough available animals/handlers to use animal assisted interventions in my clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

35. I have support from administration to use animal assisted interventions in my clinical setting.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

36. I have policies and procedures or guidelines to follow when using animal assisted interventions in my clinical setting.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

37. I intend to use animal assisted interventions in my clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

38. I will try to use animal assisted interventions in my clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

39. I plan on using animal assisted interventions in my clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

40. I want to use animal assisted interventions in my clinical practice.

Definitely disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Definitely agree
○	○	○	○	○	○	○

APPENDIX I

RESEARCH STUDY GRID

BARRY UNIVERSITY

Phase #	Research Questions	Research Hypotheses	Instrument	Statistical Test & Results
1	What terms do RNs licensed in the state of Florida use to describe the positive and negative aspects of using AAI?		Researcher created Intention to Use AAI (IUAAI) instrument	Analyze themes; look for common terms The participants said the advantages or positive aspects included making work more enjoyable for patients and staff, calms patients, can bring feelings of happiness and joy to patients and families, can reduce anxiety and depression, may improve physical health and promote healing, and reduces stress. The disadvantages or negative aspects included patients may have an allergy to the animals, some patients are afraid of animals, animals are unclean or unhygienic and may cause or increase infections.
1	Who are the referent groups identified by RNs licensed in the state of Florida as being influential in their decision to implement AAI?		Researcher created Intention to Use AAI (IUAAI) instrument	The participants identified significant referents including nurses, specific specialties of nurses, administration and different terms for administrators such as managers and patients and specific groups of patients and visitors. These were logically grouped into three categories including nurses, administration and patients.

1	What do RNs in the state of Florida perceive as the leading factors that either support or inhibit the use of AAI in the clinical area?		Researcher created Intention to Use AAI (IUAAI) instrument	Analyze themes; look for common terms The participants said factors that make it easy are if there are enough animals/handlers, having buy in or support from administration, having the knowledge or education about AAI, and having policies and/or procedures to support the use of AAI. The participants said that factors that make it difficult include similar ideas including lack of support from administration, not having policies and/or procedures to support the use of AAI, infection control issues and certain clinical areas where AAI would be inappropriate such as operating rooms, burn units, isolation patients to name a few.
2	Do the newly created scale items which were generated from data obtained in Phase 1 and intended to operationalize the specific constructs of attitude, subjective norm, perceived behavioral control, and intention have face validity?		Researcher created Intention to Use AAI (IUAAI) instrument	None; expert opinion From the data obtained in Phase one, the researcher created a 37 item IUAAI which nursing experts reviewed for content and face validity and based on the criteria from the content validity matrix for including any item that had 80% agreement, all items were

				included on the IUAAI for the next phase.
2	Do the newly created scale items which were generated from data obtained in Phase 1 and intended to operationalize the specific constructs of attitude, subjective norm, perceived behavioral control, and intention have content validity?		Researcher created Intention to Use AAI (IUAAI) instrument Content Validity Matrix	Face and Content Validity Calculating percent of agreement by experts: need 80% agreement to use the item From the data obtained in Phase one, the researcher created a 37 item IUAAI which nursing experts reviewed for content and face validity and based on the criteria from the content validity matrix for including any item that had 80% agreement, all items were included on the IUAAI for the next phase.
3	Do the individual items and the subscales for attitude, subjective norm, perceived behavioral control, and intention achieve the benchmarks of acceptable reliability as internal consistency?		Researcher created Intention to Use AAI (IUAAI) instrument	This research question was answered by a Cronbach alpha on each of the four subscales that met the benchmarks of acceptable reliability. Once seven items were removed, all of the subscales met reliability Attitudes (α=. 964), subjective norms (α = .927), perceived behavioral control (α =. 863) and intention (α =.927).
4	What is the relationship between RN's attitude, subjective norm, perceived behavioral control and intent toward AAI?	There is a statistically significant relationship between the RN's attitude, subjective	Researcher created Intention to Use AAI (IUAAI) instrument	This hypothesis was partially supported since the standard multiple linear regression analysis conducted showed that the linear combination of the predictor revealed a

		norm, perceived behavioral control and intent toward AAI.		significant regression model, F (3, 103) = 102.87, p = .00. with an R2 value of 0.75, an indication that 74.2% of the variance of uncertainty can be accounted for by the linear combination of subjective norms and perceived behavioral control. Approximately 74.2% of the variance of intention to use AAI can be accounted for by subjective norms and perceived behavioral control.
4	What is the individual contribution of each of the predictors to the model?		Researcher created Intention to Use AAI (IUAAI) instrument	The B associated with attitude is 0.14 indicating that the value of intent will increase by 0.14 with each increase of one unit in scores for attitude; however, this increase is not statistically significant, p = .18, so that the variable, attitude, does not make a contribution to the model. On the other hand, subjective norm and perceived behavioral control are positively associated with intent such that for each additional one unit of increase in subjective norm, intent is predicted to increase by 0.03 (p < .000) and for each one unit of increase in perceived behavioral control, intent is predicted to increase by 0.31

				(p < .001). Therefore, in this model, both subjective norm and perceived behavioral control contribute to the prediction of intent; perceived behavioral control is the strongest predictor of intent.

APPENDIX J

VITA

BARRY UNIVERSITY

January 3, 1966	Born – Elkton, MD
1988-1998	Staff Nurse, Assistant Clinical Manager, Sinai Hospital Baltimore, MD
1994	MS, University of Maryland Baltimore, MD
1998-1999	Staff Nurse, The Toledo Hospital Toledo, OH Nursing Instructor, Medical College Of Ohio, Toledo, OH
2000-2002	Disease manager, CorSolutions Fort Lauderdale, FL
2002-2004	Staff Nurse, Northwest Medical Center, Margate, FL
2004-2014	Nursing faculty, Barry University Miami Shores, FL
2014-2016	Director of Clinical Learning Labs & Simulation, Galen College of Nursing, St. Petersburg, FL
2016-present	Nursing faculty, Florida Gulf Coast University, Fort Myers, FL

PUBLICATIONS

Lamet, A, Sonshine, R., Walsh, S., Molnar, D & **Rafalko, S.** (2011). "A pilot study of a creative bonding intervention to promote nursing students' attitudes towards taking care of older people" *Nursing Research and Practice*, 2011.

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