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Walden University

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Samantha Vita Abate

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Walden University
2020

Abstract

Nurse Leaders' Perspectives on Animal-Assisted Interventions

by

Samantha Vita Abate

MSN, Sacred Heart University, 2015

MSHS, University of Medicine and Dentistry of New Jersey, 2013

BS, Rowan University, 1998

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Nursing

Walden University

August 2020

Abstract

Knowledge deficits and unfavorable attitudes are commonly cited barriers that prevent adoption of animal-assisted interventions (AAIs). Nurse leaders' (NLs') knowledge of and attitudes toward AAIs have not been well documented in the literature. The purpose of this study was to identify NLs' perspective on AAI, including their usage, knowledge, and attitudes. This information may be helpful in overcoming common barriers to AAI usage. The theory of transformational leadership guided this 3-manuscript dissertation study, which included 3 studies on NLs' use of AAIs, the relationship between NLs' knowledge of AAIs and NLs attitudes toward AAIs, and the potential impact of AAI program exposure on NLs' knowledge and attitudes. An anonymous web-based survey was used to collect data for this quantitative study. Two hundred NLs participated in the study. Results showed that NLs utilize AAIs in patient care across a variety of healthcare settings and patient populations. NLs in settings where an active AAI program was in place had greater knowledge and more positive attitudes than NLs in settings with no AAI program ($F = 12.281$, $p < 0.001$). The relationship between NLs' knowledge and their attitudes toward AAIs with dogs and towards the benefits of AAIs was weak (R square = 0.056, R square = 0.130 respectively). The significant impact of organizational exposure to AAIs and the weak relationship between AAI attitudes and AAI knowledge indicates that NLs' may benefit from additional exposure to AAI programs and to peer-reviewed AAI research. Overcoming barriers and increasing access to AAIs may mitigate the effects of many common health and wellness problems such as pain, behavioral and cognitive disorders, isolation, stress, and anxiety.

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Dedication

This dissertation is dedicated to nurse researchers and their mentors. My work is dedicated to nursing scientists who are formally trained as such and provide the evidence on which we build our professional practice and to aspiring nursing researchers at the bedside who know there must be a better way and take actions to test their hypotheses. My dissertation is dedicated to the mentors who turn nurses into scientists and scholars by the example they set, by offering their support, and by sharing their knowledge.

In my career I have encountered so many nurses who have had brilliant ideas that wither untested because no one told them they could “do” research. I am grateful beyond words that when I had my idea that heart failure patients might be more willing to get up and walk if they could walk with a therapy dog, those around me told me I could and that I should “do” research. The entire trajectory of my life shifted that day, the ultimate result of that shift being this PhD dissertation. To thine ownself be true.

Acknowledgments

Grateful appreciation is extended to my beloved family and friends without whom my academic career, culminating in this dissertation, would not have been possible. You have inspired me, supported me, made allowances for me, listened to me whine, and cared for me (and my dogs) for decades now. I would not be the person (or doctoral candidate) I am today without you Mom and Dad, Sam, Bruce, Lori, Jackie, Sherri, Beth, and Todd. Acknowledgement is also owed to my nursing mentors: Michele Zucconi (who took a chance on me when I was a new graduate and didn't laugh when I asked to bring my dog to work) and Dr. Terri Spoltore (who taught me to be a nurse and saved my doctoral education when I was sure I was in over my head). Humble appreciation is extended to my doctoral committee, Dr. Mary Martin and Dr. Janice Long, without whom this dissertation would still be just an idea. All doctoral candidates should be so fortunate to have the benefit of your expertise and guidance. Acknowledgement is owed to my fellow students Dr. Heather Clesi and Dr. Angela Vitale—sometimes knowing we really were all in this together made all the difference. Appreciation is also extended the nurse leaders who took time, while navigating a constantly evolving novel viral pandemic, to complete this study survey or share the survey invitation (especially Dr. Robert Hess whose efforts ultimately resulted in reaching my goal accrual). And finally, gratitude is extended to my niece and nephew, Izzy and Ben. Decades ago, an aunt of mine told me I would be the first Dr. Abate. I've always understood that to mean there would be more after me. Thinking that the next Dr. Abate could be either one of you has kept Aunt Lala inspired and motivated.

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Part 1: Overview

Introduction

Animal-assisted intervention (AAI) encompasses several different modalities in which specially trained therapy animals (often dogs), together with their trained handlers, interact with individuals for therapeutic purposes. The role and function of therapy animals are separate from the role and function of service animals (also usually dogs), which provide a specified service for a person with a diagnosed disability, and emotional support animals, which provide companionship to individuals with varying degrees of emotional disorders (Schoenfeld-Tacher, Hellyer, Cheung, & Kogan, 2017). The benefits of AAIs across the lifespan are numerous and well documented. AAIs have been shown to be beneficial in the care of patients with behavioral wellness disorders and those experiencing distress. AAIs also show promise in mitigating loneliness and agitation in elderly individuals as well as aiding pain management strategies (Kamioka et al., 2014; Lundqvist, Carlsson, Sjodahl, Theodorsson, & Levin, 2017; Maujean, Pepping, & Kendall, 2015). Given the increasing prevalence of behavioral illness, stress, and chronic diseases, coupled with the aging American population and the growing opioid crisis, increased access to AAIs can benefit many patients (American Psychological Association, 2017; Mental Health America, 2018; NIH National Institute on Drug Abuse, 2019; Raghupathi & Raghupathi, 2018; U.S. Department of Health and Human Services, 2018). Better understanding the utilization of AAIs and the barriers that may prevent them may cause positive social change by increase access to an evidence-based intervention that can improve patient outcomes and well-being.

Problem Statement

Unfavorable attitudes toward the use of animals in healthcare settings and knowledge deficits among healthcare providers regarding the therapeutic use of animals in healthcare have been recognized as key barriers to the adoption of AAIs (Black, Chur-Hansen, & Winefield, 2011; Johnson, Odendaal, & Meadows, 2002; Kamioka et al., 2014). But little research exists on healthcare providers' attitudes and knowledge of AAIs. Work on this topic has been focused on specific disciplines outside of nursing (such as physicians or psychiatrists) or on interprofessional teams. The attitudes and knowledge of nurses or nurse leaders (NLs) have not been individually addressed. The scope of AAIs in various types of healthcare organizations (such as hospitals versus long-term care facilities and academic versus non-academic medical centers) have also not been studied. Subsequently, there is no evidence of the knowledge and attitudes of NLs in these organizations (Abrahamson, Cai, Richards, Cline, & O'Haire, 2016; Bibbo, 2013; Black et al., 2011; Pinto, DeSantis, Moretti, Farina, & Ravarotto, 2017; Yap, Scheinberg, & Williams, 2017). This lack of evidence may be a key barrier in adopting the modality given the decision-making role NLs hold in a variety of different types of American healthcare organizations and settings (American Organization of Nurse Leaders [AONL], 2015).

The purpose of this study was to generate evidence regarding the knowledge level and attitudes of NLs regarding the use of AAIs in U.S. healthcare organizations. Given the role that knowledge deficits and unfavorable attitudes play as barriers to the adoption of AAI programs, more research is needed to examine the perspectives on and utilization

of AAIs by NLs in a variety of different healthcare organizations and settings (Black et al., 2011; Johnson, 2002; Lundqvist et al., 2017; Pinto et al., 2017). The limited work existing which explores healthcare providers' knowledge of AAIs is not specific to nurses or nursing decision makers, and recommends further study (Black et al., 2011; Pinto et al., 2017). In this dissertation, I sought to identify how NLs' utilize AAIs in a variety of practice settings. Additionally, I explored differences in NLs' knowledge of and attitudes toward AAIs in the context of their exposure to them in professional practice as well the relationship between NLs' knowledge of AAIs and their attitudes toward them. Work done to address any opportunities for improvement in knowledge and/or attitudes discovered as a result of this study may increase patient access to valuable AAIs. Access to AAIs may inspire positive social change by improving outcomes in critical areas such as the management of pain, chronic illness, and mental health disorders.

Background

The use of companion animals for therapeutic purposes can be seen throughout history. The first documented use of animals can be traced to 18th century England where companion animals were used as an adjunct to care for the mentally ill (Milligan, n.d., Morrison, 2007). Some scholars have also suggested that the ancient Greeks may have used animals, specifically horses, to bring joy to critically ill patients (Alliance of Therapy Dogs, n.d.; Morrison, 2007). Further, Florence Nightingale and Sigmund Freud were both noted to have incorporated animals into their practices after having noted the comfort they could offer patients (Milligan, n.d.; Trinity Rose Animal Assisted Therapy, n.d.)

AAIs encompass several submodalities including animal-assisted activities, animal-assisted education, animal-assisted visitation, resident animals, and animal-assisted therapy. The American Veterinary Medicine Association (n.d.) defines each submodality based on the presence or absence of goal-directed activities, the setting/purpose of the intervention, and the participants in the interactions (i.e., volunteer only or trained practitioner and volunteer). Although the exact mechanism by which AAIs benefit patients is not known, the bond between humans and animals is thought to be the source of the therapeutic effects. Most researchers suggest that positive interactions with animals result in the release of hormones including oxytocin, cortisol, epinephrine, and norepinephrine. Other mechanisms may include the stimulation provided by interacting with animals or by the relaxing activity animal interactions can provide (Bert et al., 2016; Human Animal Bond Research Institute, n.d.).

Search Strategy

The Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, Pro-Quest, and PsychInfo databases were searched. Searches were not limited to only available full-text or by date but were limited to English language and to peer-reviewed, scholarly journals. The key words searched for this study included: *Animal Assisted Therapy, Pet Therapy, Animal Assisted Interventions, Animal Assisted Therapy Barriers, Pet Therapy Barriers, Animal Assisted Intervention Barriers, Animal Assisted Therapy and Knowledge, Animal Assisted Therapy and Attitudes, Animal Assisted Interventions and Knowledge, Animal Assisted Therapy and Attitudes, Pet Therapy and Knowledge,* and *Pet Therapy and Attitudes, Pet Therapy and Outcomes, Animal Assisted*

Therapy and Outcomes, and *Animal Assisted Interventions and Outcomes*. These search terms yielded a total of 1,220 results. Due to the overlapping purview of the multiple databases searched, duplicate citations were returned, which were eliminated. Because general information regarding AAIs is significant only to this study (not the phenomenon of interest), preference was given to systematic reviews rather than individual studies on the application of AAIs in various isolated patient populations or settings except when specific and measurable patient outcomes were provided. Articles focused solely on the application of AAIs outside of healthcare settings (such as in schools or libraries) were also not included. References for each included paper were reviewed to identify additional potential sources. A total of 41 AAI studies were included in this review of the literature.

Additional searches containing terms related to the study population, NLs, were conducted. These terms included: *Nurse Executive Decision Making*, *Nurse Executive Scope of Practice*, *Nurse Leader Decision Making*, and *Nurse Leader Scope of Practice*. These searches were also not limited to date or to full-text availability but were limited to English language. Though non-research articles were included and the limiter for peer reviewed, scholarly publications was removed. These searches returned a total of 102 articles. Articles that did not focus on the role functions or decision-making capability of nurse executives or NLs were removed as were commentary or editorial articles focused on the experiences of single individuals. Duplicates were also removed. A total of 18 articles were ultimately included. Notably, the following search terms did not yield any meaningful results: *Nurse Executive and Animal Assisted Therapy*, *Nurse Executive and*

Animal Assisted Intervention, *Nurse Executive and Pet Therapy*, *Nurse Leader and Animal Assisted Therapy*, *Nurse Leader and Animal Assisted Intervention*, and *Nurse Leader and Pet Therapy*. These searches yielded general AAI articles that included only a casual mention of a leader (not necessarily a nurse). No literature was discovered that described the knowledge and/or attitudes of NLs related to AAIs or that was focused on only nurses' knowledge of or attitudes toward AAIs.

Animal-Assisted Interventions

Dogs are the most commonly encountered therapy animals, but other animals have included cats, guinea pigs, birds, cows, rabbits, and ferrets. Larger animals, such as a dolphin or farm animals, are more rarely seen (Berget et al., 2008; Kamioka et al., 2014). The application of AAIs varies between settings and patient populations. In some cases, therapy animals are present in the care environment to serve as a source of companionship or distraction (American Veterinary Medicine Association, n.d.; Crowley-Robinson & Blackshaw, 1998). In other cases, engaging patients in the care of the animals themselves may serve as a therapeutic modality (Berget, Ekeberg, & Braastad, 2008; Berget, Grepperud, Aasland, & Braastad, 2013). Most frequently, AAIs are delivered as an adjunct to standard treatment modalities, where the animal accompanies patients during treatment sessions to relieve stress or anxiety and serves as the focus of therapy sessions to encourage communication or interaction, offers comfort, or acts as an incentive to participate. Therapy animals may also simply visit with patients such as common rooms or in the patient's room to ease loneliness or provide stimulation. In these scenarios, the individual may or may not interact directly with the therapy animal

based on their own preference (Charry-Sanchez, Pradilla, & Talero-Gutierrez, 2018; Cipriani et al., 2013; Lundqvist et al., 2017; Maujean et al., 2015; Nimer & Lundahl, 2007).

Although the quality of AAI studies varies and many suffer from methodological limitations related to variations in intervention dose or low sample size, most trials result in at least minimal improvements in patient outcomes coupled with negligible or non-existent levels of risk or harm (Charry-Sanchez et al., 2018; Friedmann & Krause-Parello, 2018; Lundqvist et al., 2017; Maujean et al., 2015). Further, randomized controlled trails on the benefits of AAIs, though not common, have shown at least one positive benefit on conditions such as schizophrenia, depression, cancer, heart failure, mobility disorders, mental illness, neurologic disorders, and substance abuse disorders. The greatest degree of benefit was seen in studies in which AAIs were used to mitigate psychosocial symptoms such as anxiety, stress, and mood (Kamioka et al., 2014). Evidence also supports the use of AAIs in conditions including autism spectrum disorder, behavioral and mental health disorders, dementia, multiple sclerosis, stroke, and spinal cord injuries. Positive improvements in stress, anxiety, pain, and vital signs were seen across medical and psychiatric patient populations as well as in patients of all ages (Bert et al., 2016; Charry-Sanchez et al., 2018; Nimer & Lundahl, 2007). Literature focused specifically on the use of therapy dogs has also indicated positive impacts on emotional state, mental state, and quality of life in both adult and pediatric patients. Similar benefits were also seen in patients with cognitive disorders (Lundqvist et al., 2017).

In the elderly population specifically, commonly documented benefits have included improved social interaction, better emotional stability, increased participation in activities of daily living, improved communication, diminished agitation, lessened apathy, improved nutritional intake, and better overall mood (Cipriani et al., 2013; Yakimicki, Edwards, Richards, & Beck, 2019; Zafra-Tanaka, Pacheco-Barrios, Tellez, & Taype-Rondan, 2019). In behavioral wellness patients, commonly identified patient populations to benefit from AAI included those with autism spectrum disorder, schizophrenia, and post-traumatic stress disorder resulting from a variety of causes both in childhood and adulthood. Specific benefits for adult and pediatric behavioral wellness patients have included decreasing anxiety, stress, and isolation. Improved communication, social interaction, and overall well-being were also seen in this patient population (Maujean et al., 2015; O'Haire, 2013; O'Haire, Guerin, & Kirkham, 2015).

Attitudes Toward Animal-Assisted Interventions

Researchers have utilized web-based surveys, paper surveys, and qualitative interviews to assess healthcare providers knowledge of, attitudes toward, and perceptions of AAIs (Bibbo, 2013; Eaglin, 2008; Mood et al., 2002, Pinto et al., 2017; Yap et al., 2017), addressing general attitudes as well as in specific settings or with specific populations. Web-based surveys have been commonly used in studies with large sample sizes or those that recruited participants across multiple locations. There has also been research focused on attitudes and perceptions of healthcare providers regarding specific, facility-based AAI programs (Bibbo, 2013; Black et al., 2011l; Eaglin, 2008; Moody et al., 2002; Pinto et al., 2017; Schoenfeld-Tacher et al., 2017; Yap et al., 2017).

General attitudes toward animal-assisted interventions. Previous studies have shown general positive attitudes toward AAIs. For example, Pinto et al. (2017) assessed Italian physicians' knowledge of and attitudes toward AAIs and found that more than 90% were in favor of AAIs despite having no formal training on the topic. Respondents believed that AAIs reduced isolation and loneliness, fostered the development of positive emotions and relationships, provided distraction and recreational entertainment, and improved both self-esteem and levels of pleasure hormones (Pinto et al., 2017). In another study, a multidisciplinary team of hospital staff members (including nurses, support staff, and volunteers) provided similar positive commentary regarding the use of AAIs (Abrahamson et al., 2016). Additionally, an interdisciplinary team (composed of clinical and non-clinical providers) in an outpatient cancer care center reported that they were largely accepting of offering AAIs to their patients, though some respondents reported mixed feelings because patients missed their own dogs after interacting with the therapy dog (Abrahamson et al., 2016; Bibbo, 2013).

Although the use of AAIs is seen formally and informally in the care of geriatric patients, only one study was available to assess the attitude of nursing home providers (Charry-Sanchez et al., 2018; Cherniack & Cherniak, 2014; Cipriani et al., 2013; Crowley-Robinson & Blackshaw, 1998; Kamioka et al., 2014). Crowley-Robinson and Blackshaw (1998) assessed the attitudes of Australian nursing home providers toward AAIs as well as toward pets in general. Most respondents (72%) believed that an AAI program would be a positive addition to the facility; of those, 62% preferred the therapy dog to live at the facility. The respondents who had a more favorable attitude toward pets

were more likely to respond favorably to the idea of an AAI program (Crowley-Robinson & Blackshaw, 1998).

Attitudes toward animal-assisted interventions in behavioral healthcare. The attitudes of both psychologists and interprofessional behavioral health teams have been assessed (Black et al., 2011; Rosetti, DeFabiis, & Balpedio, 2008). Australian psychologists, for example, demonstrated a general acceptance of AAIs across the lifespan tempered by a need for additional research to better demonstrate the efficacy of these interventions (Black et al., 2011). The interprofessional teams, including nurses and therapists, felt that in offering AAIs, they were providing an innovative treatment that benefitted patients. They also reported that AAIs improved the team's moral and enhanced their own self-awareness. However, these providers identified obstacles related to the organization's AAI policies and the additional time needed to incorporate AAIs into their daily routines (Rossetti et al., 2008). Attitudes toward AAIs used in outpatient behavioral care settings, such as a program that allowed behavioral health patients to work with farm animals, were also favorable (Berget et al., 2008; Berget, Grepperud, Aasland, & Braastad, 2013). The team of psychologists, psychiatrists, nurses, social workers, and therapists agreed that the AAI with farm animals promoted human interaction and was more productive than standard occupational therapy activities. These providers also felt that patients should have an increased access to AAIs (Berget et al., 2008). Results specific to nurses were not reported in any behavioral wellness studies. Suggestions for future work include the need for more respondents and a more diverse

group of disciplines (Berget et al., 2008; Berget et al., 2013; Black, 2011; Rossetti et al., 2008).

Attitudes related to animal-assisted interventions with children. Despite the potential vulnerability of pediatric patients, most pediatric providers have held positive attitudes toward the use of AAIs with children (Eaglin, 2008; Moody, Maps, & O'Rourke, 2002; Yap et al., 2017). For example, an interprofessional group of providers caring for disabled children reported that AAIs were beneficial for their patients. More than half of these respondents (52%) felt AAIs should be added to standard treatment regimens (Yap et al., 2017). Attitudes of interprofessional teams (including physicians, nurses, and allied health professionals) in a pediatric acute care hospital have also reported that the program improved the atmosphere on the unit and distracted pediatric patients from their illness or discomfort. In this case, the perceptions and attitudes of the nonclinical staff were more favorable than those of the clinical staff (Moody et al., 2002). More recent work has indicated that though most (87%) interprofessional pediatric hospital providers (including pediatric residents, psychiatrics, and nursing students) had no formal education on AAIs, they all agreed the therapy animals provided a source of support for their patients. Respondents also reported that AAIs improved social interactions, decreased stress, distracted patients from their illness, added a human element to the organization, and improved the organization's reputation. Providers reported being concerned about potential allergies, an increased workload, and the potential for patient injury (Eaglin, 2008). The attitudes of nurses who cared for pediatric

patients were not specifically studied. Researchers have recommended larger studies be conducted in the future (Eaglin, 2008; Moody et al., 2002; Yap et al., 2017).

Knowledge of Animal-Assisted Interventions

There are knowledge deficits regarding the applicability, safety, and efficacy of AAIs for both healthcare providers and lay people (Black, 2011; Linder et al., 2017; Pinto, 2017; Schoenfeld-Tacher et al., 2017). Knowledge deficits specific to the role various assistance (service dogs, emotional support dogs, and therapy dogs) were reported among a large spectrum of the general public who responded to a web-based survey (Schoenfeld-Tacher et al., 2017). When studying the AAI practices of healthcare facilities, Linder, Siebans, Mueller, Gibbs, and Freeman (2017) documented knowledge deficits regarding infection control best practices for AAI programs. Additional work, with a broader scope of respondents, has been recommended (Linder et al., 2017; Schoenfeld-Tacher et al., 2017).

Research specific to healthcare providers' knowledge of AAIs was less available than work assessing healthcare providers opinions and attitudes. Research has identified both a lack of AAI training and a lack of operational AAI knowledge (Black, 2011; Pinto et al., 2017). In a sample of Italian physicians, a small percentage of respondents (28.1% to 33.9%) were able to identify various forms of AAIs. Some providers (25.4%) relied on their patients to provide them with information about AAIs. Others reported that they learned about AAIs from non-institutional (35.4%) and formal institutional websites (24%; Pinto et al., 2017). A similar lack of knowledge has been seen in behavioral healthcare providers who had experience in offering AAIs to patients of all ages (Black et

al., 2011). Providers who participated in an AAI program that employed the care of farm animals into behavioral healthcare programs also acknowledged that they needed to learn more. They were both willing and motivated to do so (Berget et al., 2008; Berget et al., 2013). In each case, researchers have recommended more research conducted with a more robust sample and to potentially stratify the sample by discipline (Berget et al., 2013; Black et al., 2011; Pinto et al., 2017).

Animal-Assisted Intervention Barriers and Risks

Both Kamioka, et al. (2014) and Cherniack (2014) conducted literature reviews which identified knowledge deficits and/or individual concerns about AAIs on the part of decision makers as a barrier to AAI adoption. Across more than 20 years of literature, AAIs have been shown as largely safe and well received adjuncts to standard treatments. However, concerns regarding liability and/or safety were often cited as barriers against initial AAI adoption (Cherniak & Cherniak, 2014; Johnson, Odendaal, & Meadows, 2002; Kamioka et al., 2014). A lack of knowledge regarding the safety and efficacy of AAIs is also found in individuals who have adopted AAIs (Black et al., 2011).

Specific concerns related to infection control, allergies, and potential injury were noted as barriers in various studies (Eaglin, 2008; Friedmann & Krause-Parello, 2018; Johnson, Odendaal, & Meadows, 2002; Moody et al., 2002; Trembath, 2014). However, the primary risks associated with AAIs, animal bites and zoonotic infection, are minimal (Bert et al., 2016). Risk is further decreased when the animals are carefully chosen, the animals and handlers are properly trained, the policies and procedures of the programs well-designed, and patients selected appropriately (Bert et al., 2016; Khan & Farrag,

2000). For example, screening patients for allergies prior to initiating a visit and judiciously following infection control and hand hygiene protocols can lower the risk of an adverse patient event (Bert et al., 2016).

Less commonly reported barriers have included those related to complicated institutional policies, concerns to the additional work involved in providing AAIs, and the potential for a negative emotional response if or when AAIs are discontinued (Bert et al., 2016; Bibbo, 2013; Crowley-Robinson & Blackshaw, 1998; Eaglin, 2008; Friedmann & Krause-Parello, 2018; Johnson et al., 2002). Skepticism, moderate to low quality evidence, and overall unfavorable attitudes toward pets were also referenced as barriers in individual studies (Bert et al., 2016; Lundqvist et al., 2017; Charry-Sanchez et al., 2018).

Patient Outcomes Associated with Animal-Assisted Interventions

Exposure to AAIs can result in measurable improvements in outcomes in patients across the entire lifespan and in various healthcare settings. Because AAI teams most commonly work as volunteers, organizational investment in AAI programs are often not prohibitive. Further, when working as volunteers, most registered therapy animals carry their own insurance through their registering organization (Glenk, 2017; Love on a Leash, n.d.; Morrison, 2007; Murthy et al., 2015; Pet Partners, n.d.; Therapy Dogs International, n.d.). In addition to less well-defined benefits such as improving quality of life, mitigating pain, and facilitating patient engagement, AAIs also offer an opportunity for healthcare facilities to make measurable improvements in tangible patient outcomes

(Bert et al., 2016; Charry-Sanchez et al., 2018; Kamioka et al., 2014; Lundqvist et al., 2017; Maujean et al., 2015).

In elderly patients, exposure to AAIs have been effective in mitigating symptoms that increase the risk of both patient and staff injury. For example, exposure to therapy animals can decrease the number and frequency of agitated behaviors (Morrison, 2007). Further, when added to standard reality orientation treatment protocols, AAIs result in improved geriatric depression as measured by the Geriatric Depression Scale and cognitive function measured sing the Mini-Mental Status Exam (Menna, Santaniello, Gerardl, DiMaggio, & Milan, 2016).

When incorporated into the care of patients with a variety of cognitive disorders, AAIs offer a variety of benefits to patients that can not only improve their overall prognosis but potentially also decrease their reliance on healthcare services. For example, when AAIs were incorporated into standard speech therapy protocols for aphasia, patients showed statistically significant improvements in their spontaneous communications (Morrison, 2007). Patients who undergoing cognitive rehabilitation therapy for traumatic brain injuries have demonstrated improvements in executive function, social skills, mood regulation, learning, memory and attention span when AAIs were incorporated into their standard treatment regimen (Stapleton, 2016). Similarly, patients recovering from strokes showed marked improvement in their mobility and physical function (including ability to transfer from bed to chair and/or wheelchair) when AAIs were incorporated into their rehabilitation care (Fujisawa, Kumsaka, & Arakida, 2019). These improvements in mobility not only improve patient prognosis and function,

they also mitigate common risk factors for conditions associated with limited mobility including pressure injury, muscle loss, and respiratory complications (Jones et al., 2019). A similar improvement in mobility was seen in hospitalized heart failure patients who were offered an AAI to encourage ambulation. Patients who walked with a therapy dog not only walked significantly farther than patients who walked with an aide alone, they were also discharged approximately one day sooner than those who did not walk with the therapy dog (Abate, Zucconi, & Boxer, 2011).

AAIs also offer organizations the opportunity to measurably improve patient outcomes in several potentially difficult to manage conditions such pain and anxiety. Most notably, exposure to an AAI has recently and repeatedly been linked with a decreased need for opioid pain management in a variety of patient populations. For example, pediatric surgical patients offered AAIs required less pain medications than those who were not offered an AAI (Morrison, 2007). A similar decrease in reported pain and need for pain medication was also seen in adult patients having undergone total joint arthroplasty. Patient experience/satisfaction scores with pain management were improved in these patients despite the decreased use of pain medications (Harper et al., 2015; Havey, Vlasses, Vlasses, Ludwig-Beymer, & Hackbarth, 2014). Further, joint-replacement patients who were exposed to AAIs post-operatively used more than 5mg morphine equivalent daily doses less than those who were not exposed to AAIs, and no surgical site infections were seen in the patients who were exposed to AAIs (Havey et al., 2014). A decreased need for both pain and anxiolytic medications was also seen in emergency department patients who were offered AAIs as part of their care. In a small

population (n = 40) of Emergency Department patients, only one patient who was offered an AAI required an opioid medication, and only two required oral anxiolytics. Of the forty Emergency Department patients who were not exposed to AAIs, seven required opioid analgesia and seven required anxiolytics, all of which were administered parenterally (Kline, 2019).

AAIs do not only show promise in mitigating the need for opioid analgesia, they offer potential benefits to patients recovering from substance abuse disordered. When AAIs were offered as part of a 4-week substance (alcohol and drug) rehabilitation program, patients showed significantly more prosocial behaviors (as measured by the Social Behaviors Scale) compared to those who received the normal standard rehabilitation course. This is noteworthy given that prosocial behaviors are a well-established predictor of substance abuse recovery (Marr et al., 2000).

Finally, AAIs have shown promise in improving formal measures of both employee and patient experience and satisfaction. For example, offering AAIs have repeatedly been shown to help reduce stress and burnout in healthcare providers—both of which are noted predictors of costly turnover (Bert et al., 2016; Bibbo, 2013; Ginex et al., 2018; Rossetti, 2008). In traditionally challenging practice settings, such as inpatient oncology units, AAIs have resulted in both improved compassion satisfaction and decreased burnout in healthcare providers (Ginex et al., 2018). Improved patient satisfaction scores, including improvements in Consumer Assessment of Healthcare Providers and Services were frequently seen as a result of AAI programs (Bert et al., 2016; Harper et al., 2015; Lundqvist, et al., 2017). These improvements may be

especially salient to organizational leaders, including NLs, given the potential return on investment they offer when volunteer AAI programs are leveraged to maximize value-based purchasing reimbursement (Centers for Medicare and Medicaid Services, 2017).

Nursing Leaders

The role of NLs varies from institution to institution. Across the spectrum of healthcare services, NLs have traditionally supervised the nursing care delivered in their organizations (Tarrant & Sabo, 2010). More recently the oversight of NLs, especially those who function in an executive role, has grown to include oversight of all patient care services and operations. With this change, a focus on interprofessional leadership and interprofessional decision-making have become critical elements of the role (Larson, 2017; Tarrant & Sabo, 2010). NLs' responsibilities now frequently include involvement in budgeting decisions, strategic organizational planning, policy development and implementation, organizational growth and expansion, meeting regulatory requirements, and joint leadership with the medical staff (Burkett, 2016; Luanaigh, 2016; Morjikian, Kimball, & Joynt, 2007; Tarrant & Sabo, 2010). Inherent in this expanded role is the need for NLs to facilitate collaborative and interprofessional decision making, especially in times of change (Bradley, 2014; Morjikian et al., 2007). This is especially true for NLs in executive practice whose leadership role includes multiple facilities within a large healthcare system (Bradley, 2014).

NLs face a number in challenges in their multi-faceted roles including those related to communication, fiscal constraints, and conflicting perceptions of their role (Morjikian, 2007; Wells, 1999). Despite these challenges, NLs are often recognized for

the unique perspective and the clinical judgement they bring to the collaborative decision-making process. Further, NLs are often called upon to establish a link between medical leaders and non-clinical organizational executives (Morjikian et al., 2007; Wells, 1999). NLs' decisions can impact multiple facets of their organizations including the ability to satisfy regulatory requirements, meet patient and family expectations of care, and maintain employee satisfaction. The results of NLs' decision-making may also impact the quality and outcomes of care delivered in the organization (Luanaign, 2016). Successful NLs must demonstrate the ability to facilitate innovation, influence diverse teams, and inspire collaboration (Larson, 2017). NLs who use a transformational leadership style are most likely to operationalize positive outcomes and be viewed as effective leaders by their teams (Dunham-Taylor, 2000).

Transformational Leadership in Nursing

Transformational leaders are often considered to be visionary and charismatic in their approach to leadership (Northouse, 2019). The theory of transformational leadership (TL) asserts that transformational leaders provide individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence to those around them (Wilkes University, 2014). Using these qualities, transformational leaders successfully guide their followers through change and toward a desired future state. Transformational leaders, however, do not simply lead through change, they frequently inspire it (Northouse, 2019; Wolf, 2012). The American Nurses' Credentialing Center's Magnet Recognition Program (n.d.) defines a transformational NL as a leader who possesses "vision, influence, clinical knowledge, and a strong expertise in

relating to professional nursing practice" (para. 6). Transformational leaders also inspire innovation and creativity in their followers (American Nurses' Credentialing Center, n.d.; Northouse, 2019).

Early explorations of the theory of TL in the context of nursing were conducted by McDaniel and Wolf (1992) who proposed that the elements of TL were a good fit for the evolving role of NLs practicing in a rapidly changing healthcare industry. Transformational leaders likely excel at leading interprofessional groups and making collaborative decisions given that their "shared leadership style reinforces the value of the individual contributions and considerations" (McDaniel & Wolf, 1992, p. 64). A TL style can also be closely linked to favorable attitudes toward the adoption of new evidence-based practices (Aarons, 2006). More recently, a TL style has been associated with the ability to overcome overcoming conflict and harness the creativity and knowledge base of diverse teams, enabling them to work collaboratively in the development of new knowledge (Mahmood & Khattak, 2017; Mitchell & Boyle, 2008).

The influence of TL on outcomes such as nursing retention and nursing satisfaction are well-established (Brewer et al., 2016; Khan, Griffin, and Fitzpatrick, 2018; Krepia, Katsaragakis, Kaitelidou, & Prezerkos, 2018). However, a TL style can have broader implications. For example, the use of a TL style by NLs has been linked to the empowerment and autonomous decision-making abilities of front-line nurses (Khan et al., 2018). A transformational NL style has also recently been associated with the provision of care that meets patient expectations (Krepia et al., 2018). Further, the intellectual stimulation provided by transformational NLs encourages staff to try new

solutions or behaviors (McDaniel & Wolf, 1992, p. 61), which can help them adapt to changes in healthcare (to Weng, Huang, Chen, & Chang, 2015). TL has been associated with an organizational climate that is favorable toward innovation in practice while remaining focused on patient safety (Weng et al., 2015).

Finally, when facing organizational change, transformational NLs pay close attention to facts and patterns (Wolf, 2012). They also play a key role in the development and operationalization of strategic organizational goals and priorities (Wolf, 2012). The adoption of AAIs into an acute care setting is often considered innovative and requires collaboration among diverse teams (Charry-Sanchez, 2018; Johnson et al., 2002; Nimer, & Lundahl, 2007). As such, the tenets of TL theory are relevant to an investigation involving both NLs and AAIs.

Summary of Existing Literature and Gaps in the Literature

AAIs are a low risk, effective adjunctive modality that can improve outcomes in a variety of patient populations and settings. Although additional research is needed to strengthen the body of evidence in support of AAIs, existing work has established that the benefits of AAI outweigh the risks. Despite the documented benefits of AAIs, barriers persist that can complicate or limit the adoption of AAIs into various organizations and settings. Varying opinions regarding the efficacy of AAIs and knowledge deficits regarding the risks, benefits, and evidence-based applications of AAIs are frequently cited barriers against AAI adoption.

The role of NLs is expanding, as is their capacity to influence professional nursing practice and interprofessional decision making. Thus, NLs are uniquely poised to

advocate for and/or lead the adoption of innovation, patient-centered initiatives, such as AAIs, into their organizations' practice. However, to date, the AAI knowledge and AAI attitudes of these leaders have not been studied. This study can fill this gap in existing knowledge.

Overview of the Manuscripts

Reason for Three Studies

For this study, I proposed three separate studies that individually addressed characteristics associated with the availability and utilization of AAIs, the relationship between NLs' knowledge of AAIs and NLs' attitudes toward AAIs, and differences between the knowledge and attitudes of NLs whose organizations do and do not offer AAIs. Although the same constructs (availability of AAIs, knowledge of AAIs, and attitudes toward AAIs) were common to all three studies, each study approached the problem from a unique perspective. The first study was focused on contextualizing the current state of how NLs report that they and their organizations are utilizing AAIs in U.S. healthcare organizations and to contribute to the overall body of knowledge related to use of AAIs. The second study stood alone in examining the relationship between two common barriers to AAI adoption (knowledge deficits and unfavorable attitudes), regardless of whether AAIs are available in the NLs' organization. Finally, the third study approached barriers against AAI adoption from a comparative perspective by examining differences in knowledge and attitudes between NLs whose organizations do and do not utilize AAIs into their practice.

Integration of Manuscripts

The data for all three studies were collected simultaneously with one anonymous web-based survey open to NLs from hospitals and other healthcare centers and organizations across the United States. Though the content of each manuscript focused on a different gap in AAI literature, the three studies complement each other with an increasingly more focused approach to addressing the role that organizational and NL attributes, knowledge, and attitudes play in precluding or facilitating the availability of AAIs. Collectively, the three manuscripts offer a more comprehensive view of the current state of NLs' utilization of and perspectives on AAIs in the United States and provide information that can be used as a guide to removing barriers that often limit access to AAIs.

Manuscript 1

Problem. Large scale studies on the current state of AAIs in healthcare organizations and utilization of AAIs by NLs are lacking. Without this contextual and background information, organizations seeking to offer AAI programs may encounter barriers related to a lack of evidence that describes the prevalence of AAI programs in a variety of healthcare settings.

Research question. What are the characteristics of NLs and healthcare organizations that do and do not offer animal-assisted interventions?

Hypotheses. Given the nature of this study, null and alternative hypotheses were not applicable.

Nature of study and design. For this study I utilized a quantitative, nonexperimental, descriptive, exploratory design. A quantitative approach is best suited to collecting data from a large study population (Field, 2013; Ponto, 2015), as was the plan for the study. A descriptive, exploratory approach is most appropriate when little information on the phenomenon is available to provide contextual or background information (Jupp, 2006). Additionally, the use of a quantitative survey methodology was consistent with the approach used by other researchers who have conducted multi-site studies of AAIs (Abrahmanson et al., 2016; Bibbo, 2013; Linder et al., 2017; Pinto, DeSantis, Moretti, Farina, & Ravarotto, 2017; Yap et al., 2017). To accomplish a similar inquiry in a population of Untied States NLs, a web-based survey (Appendix A) was utilized. Participants were invited through a professional organization electronic newsletter, social media posts, the university research participant pool, and a recruiting e-mail—all of which contained a link to the web-based survey platform (Appendix B, Appendix C).

According to the AONL (2015), a NL or a nurse in executive practice "sets the vision for nursing practice in the delivery of safe, timely, efficient, equitable, and patient-centered care" (p. 3). However, the role of NL is not limited to only those in executive practice. A NL utilizes interprofessional collaboration to improve the quality and the experience of patient care "regardless of their education level, title, or setting" (AONL, 2015. p. 3). Accordingly, the NLs invited to participate in this study were also not limited according to their job title, nursing degree, or practice setting.

Sources of data. NLs' characteristics and hospital characteristics were collected in the introductory sections of the electronic survey. This introductory section, which I designed, included information such as tenure as a NL (in the form of continuous data), NL educational level (in the form of categorical data), and whether the NL is a pet owner (in the form of dichotomous categorical data). NLs were also asked to provide a self-assessment of their interprofessional decision-making authority within the organization using a 10-point Likert scale. Organizational characteristics included items such as the categorical hospital type (governmental or nongovernmental and acute care versus long-term care versus specialty), continuous hospital size, and categorical hospital recognition status (Magnet or Pathway to Excellence designation). The introductory section also assessed for the presence of an active AAI program, yielding dichotomous (yes or no) nominal data. Finally, in the introductory section, NLs who do not currently have an AAI program present in their organization were asked whether they would utilize AAIs if they were available.

Manuscript 2

Problem. Unfavorable attitudes toward AAIs and deficient knowledge of AAIs on the part of healthcare decision-makers are often barriers to the adoption of AAIs. Without information regarding the relationship between NLs' knowledge and NLs' attitudes, guidance as to how to best remove these barriers is lacking.

Research questions. RQ1: What is the relationship between nurse leaders' self-assessed knowledge of animal-assisted interventions, nurse leaders' professional

knowledge of animal-assisted interventions and nurse leaders' attitudes toward the use of animal-assisted interventions with dogs?

RQ2: What is the relationship between nurse leaders' self-assessed knowledge of animal-assisted interventions, nurse leaders' professional knowledge of animal-assisted interventions and nurse leaders' attitudes toward the benefits of Animal Assisted Interventions?

Hypotheses. $H_0$1: There is no relationship between nurse leaders' self-assessed knowledge, nurse leaders' professional knowledge of animal-assisted interventions and their attitudes toward animal-assisted interventions with dogs.

$H_0$2: There is no relationship between nurse leaders' self-assessed knowledge, nurse leaders' professional knowledge of animal-assisted interventions and their attitudes toward the benefits of animal-assisted interventions.

H_a1: There is a relationship between nurse leaders' self-assessed knowledge of animal-assisted interventions, nurse leaders' professional knowledge of animal-assisted interventions and their attitudes toward animal-assisted interventions with dogs.

H_a2: There is a relationship between nurse leaders' self-assessed knowledge of animal-assisted interventions, nurse leaders' professional knowledge of animal-assisted interventions and their attitudes toward the benefits of animal-assisted interventions.

Nature of study and design. For this study I utilized a quantitative, nonexperimental, descriptive design. This quantitative approach was appropriate as described in Manuscript 1 and was consistent with the designs used by researchers who have previously studied knowledge of and attitudes toward AAIs (Abrahmanson et al.,

2016; Bibbo, 2013; Linder et al., 2017 Pinto et al., 2017; Yap et al., 2017). Data needed were collected from the same study population (NLs in various roles and settings across the United States) and same online survey proposed in Manuscript 1. The survey included, in addition to the demographic introductory session, survey sections focused separately on the NLs' self-assessed knowledge of AAIs, NLs' professional knowledge of AAIs, NLs' attitudes toward AAIs with dogs, and NLs' attitudes toward the benefits of AAIs.

Sources of data. NLs' knowledge and attitudes of AAIs was measured by web-based survey questions drawn from Pinto et al.'s (2017) and Schoenfeld-Tacher et al.'s (2017) work (see Appendix D for permissions). These instruments were not modified from their original format. The original authors established content validity for both of these instruments (Pinto et al., 2017; Schoenfeld-Tacher et al., 2017). NLs' attitudes toward AAIs were quantified by two different measures. The first (attitudes toward AAIs with dogs) combined the Likert scale (ordinal) responses to Questions 30 through 24 drawn from Schoenfeld-Tacher et al.'s work. The second measure (attitudes toward the benefits of AAIs) combined the Likert (ordinal) responses to Questions 43 through 49 drawn from Pinto et al.'s work. NLs' self-assessment of their AAI knowledge was measured by combining the Likert (ordinal) responses to Questions 27 through 29 drawn from Schoenfeld-Tacher et al.'s work. Finally, NLs' professional knowledge of AAIs was measured by combining the categorical responses to Questions 35 to 38 drawn from Pinto et al.'s work.

Manuscript 3

Problem. Although knowledge deficits and unfavorable attitudes toward AAIs are common barriers to the implementation of AAIs, it is unclear to what extent either are present in NLs or to what extent an existing AAI program may influence knowledge or attitudes. Without this information, strategies to remove these barriers may be arbitrarily applied.

Research question. Are there differences in the knowledge of and attitudes toward the use of animal-assisted interventions between nurse leaders whose organizations have and animal-assisted interventions program into practice and those whose organizations do not?

Hypotheses. H_0: There is no difference in the professional or self-assed knowledge of animal-assisted interventions between nurse leaders in organizations that have an animal-assisted intervention program and nurse leaders in organizations do not have an animal-assisted intervention program. There is no difference in attitudes toward animal-assisted interventions with dogs or attitudes toward the benefits of animal-assisted interventions between nurse leaders in organizations that have an animal-assisted intervention program and those in organizations that do not have an animal-assisted intervention program.

H_a: There is a difference in the professional or self-assed knowledge of animal-assisted interventions between nurse leaders in organizations that have an animal-assisted intervention program and nurse leaders in organizations do not have an animal-assisted intervention program. There is a difference in attitudes toward animal-assisted

interventions with dogs or attitudes toward the benefits of animal-assisted interventions between nurse leaders in organizations that have an animal-assisted intervention program and those in organizations that do not have an animal-assisted intervention program.

Nature of study and design. The nature of this study is quantitative and utilized a comparative, quasi-experimental, nonequivalent group approach. A quantitative approach is best suited to collect data from a large study population and is consistent with the approaches used by other researchers who have examined knowledge of and attitudes toward AAIs (Field, 2013; Pinto et al., 2017; Ponto, 2015; Schoenfeld-Tacher et al. , 2017). A quasi-experimental, nonequivalent group design was suited to this type of study as comparisons were made between two distinct groups that were not randomly assigned (Field, 2013). The same study population (NLs in various roles and settings across the United States) and web-based survey (used in Manuscripts 1 and 2) were used to answer Research Question 3.

Sources of data. The presence of an AAI program was assessed in the previously described introductory portion of the web-based survey (Appendix A). The response to this question yielded dichotomous (yes or no) nominal data and was used to separate the two groups to be compared. NLs' attitudes toward AAIs was quantified by two different measures for this study. The first (attitudes toward AAIs with dogs) combined the Likert scale (ordinal) responses to Questions 30 through 34 drawn from Schoenfeld-Tacher et al.'s (2017) work. The second (attitudes toward the benefits of AAIs) combined the Likert (ordinal) responses to Questions 43 through 49 drawn from Pinto et al.'s (2017) work. NLs' self-assessment of their AAI knowledge was measured by combining the

Likert (ordinal) responses to Questions 27 through 29 drawn from Schoenfeld-Tacher et al.'s work. Finally, NLs' professional knowledge of AAIs was measured by combining the categorical responses to Questions 35 to 38 drawn from Pinto et al.'s work.

Significance

Potential Contributions That Advance Knowledge in the Discipline

AAIs do not typically require a physician order and therefore can be autonomously incorporated into patient care (Carmack & Fila, 1989; Ernst, 2013). However, an existing AAI policy or program must be in place within the organization for the interventions to be offered. NLs frequently have the authority to adopt novel strategies, such as AAIs, that have the potential to improve patient outcomes (American Nurses' Credentialing Center, n.d.; AONL, 2015). Thus, understanding the NL characteristics, organizational characteristics, NL knowledge, and NL attitudes most closely associated with the adoption of AAIs offers organizations the chance to identify potential strengths and barriers that may impact their own AAI adoption. Further, the information resulting from this study may result in targeted programs to address specific knowledge deficits and/or unfavorable attitudes that may affect the adoption of an AAI program. The adoption of AAI programs into a variety of healthcare organizations offers these organizations the potential to improve many patient and employee outcomes including quality of life, opioid use, the complications of immobility, length of stay, employee and patient injury risk, patient experience scores, and risk factors commonly associated with employee burn-out and turn-over (Abate et al., 2011; Fujisawa et al.,

2019; Gimex et al., Harper et al., 2015; Havey et al., 2014; Kline et al., 2019; Stapleton, 2016).

Potential Contributions to Policy or Practice

NLs, by virtue of their role, are accountable for nursing professional practice at the point of care and, in some cases, at the organizational level. As such, the NL is also responsible for patient outcomes (Burkett, 2016; Larson, 2017; Luanaigh, 2016; Morjikian, Kimball, & Joynt, 2007; Tarrant & Sabo, 2010). The decision-making capacity of NLs, particularly those in executive practice, has become increasingly relevant given the increase of multi-site healthcare systems beginning late in the last century. As various organizations merge, NLs in executive practice or groups of NLs in other leadership roles are frequently charged with making decisions about strategic organizational initiatives, standardizing patient care policies, and implementing new models of care (Bradley, 2014; Kingston, 2013; Morjikian, 2007). As detailed in the knowledge competency outlined by the AONL (2015), NLs are expected to know and set standards of practice and inspire performance improvement while mitigating risk and ensuring patient safety. NLs have been chosen for this project because, due to the scope of their practice, their knowledge and attitudes are likely to play a central role in determining whether AAIs are accepted in the organization's practice.

Potential Implications for Positive Social Change

The results of this research may effect positive social change, as they may be useful in designing interventions to remedy identified healthcare leaders' (including NLs') knowledge deficits and thus improve attitudes. By mitigating the barriers from

knowledge deficits and unfavorable attitudes, NLs may more readily adopt AAI programs into their organizations. By raising awareness AAIs as treatment options in healthcare settings, he study may create positive social change by increasing the use of AAIs in healthcare and thereby improving patient experience and patient outcomes such as reducing the pain, anxiety, stress, and loneliness often associated with illness, injury, and admission to a healthcare facility (Kamioka et al., 2014; Lundqvist et al., 2017; Maujean et al., 2015). Further, understanding the characteristics that are associated with AAI availability may help organizations interested in initiating an AAI program identify key organizational strengths and barriers.

Summary

Although AAIs are generally accepted as safe and effective, unfavorable attitudes toward AAIs and knowledge deficits regarding AAIs remain significant barriers that limit AAI adoption. Despite these barriers, little work has addressed the knowledge and attitudes of healthcare providers, and specifically those of nurses and NLs. Large-scale studies examining the availability of utilization of AAI programs are also absent from the literature. This study sought to fill these gaps through three complementary manuscripts that address the current state of AAI availability and utilizations (as reported by NLs) in a variety of U.S. healthcare organization as well as the attitudes and knowledge of their NLs. The information gathered in this study can support future AAI program implementation which, in turn, may create positive social change by offering substantial benefits to various patient populations including the elderly, those who are in pain, and those who struggle with mental illness.

Part 2: Manuscripts

Manuscript 1

Nurse Leader Reports of Animal-Assisted Intervention Availability in U.S. Healthcare Organizations

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Nursing

Walden University

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Outlet for Manuscript

The *Journal of Holistic Nursing* is a peer-reviewed nursing publication published by Sage that has been in publication for more than 20 years. The *Journal of Holistic Nursing* publishes qualitative studies, quantitative studies, and literature reviews. The mission of the *Journal of Holistic Nursing* is to "advance the science and practice of holistic nursing and healthcare" (Journal of Holistic Nursing, n.d., para. 1), which fits with the intent of the study. The first study of this dissertation may provide foundational information that could facilitate the adoption of an AAI program in healthcare settings, increasing the availability of a holistic nursing practice. Animal-assisted interventions (AAIs) are considered both nurse-driven and holistic interventions (Alliance of Therapy Dogs, n.d.; Carmack & Fila, 1989; Ernst, 2013; Milligan, n.d.; Trinity Rose Animal Assisted Therapy, n.d.), but large scale studies on the current state of AAIs are absent from current literature (Abrahamson, Cai, Richards, Cline, & O'Haire, 2016; Black, Chur-Hansen, & Winefield, 2011; Lundqvist, Carlsson, Sjodahl, Theodorsson, & Levin, 2017; Pinto, DeSantis, Moretti, Farina, & Ravarotto, 2017). The potential results of this study may further the science and evidence base in support of AAIs.

Publishing requirements for the *Journal of Holistic Nursing* can be found here: https://us.sagepub.com/en-us/nam/journal/journal-holistic-nursing#submission-guidelines. References are to be formatted according to the *Publication Manual of the American Psychological Association 6th Edition*. In addition to a 200-word abstract, research submissions should include:

> a clear and concise summary of the purpose and aims of the research, background and significance including relevant literature, theoretical framework or orientation, the design, the participants, data collection and analysis processes and procedures, ethical protections, credibility and legitimacy issues and approaches, findings, and implications of findings, particularly as they relate to practice. (Journal of Holistic Nursing, n.d., para. 18)

Components and headings used in recently published *Journal of Holistic Nursing* articles include introduction (no heading), Background (includes the literature broken down into subtopic headings; the search strategy is not described), Method (includes subheadings for research questions, procedures, instruments, and data analysis), Findings (broken down into content-specific subheadings), and Discussion (includes a general discussion as well as subheadings for limitations and conclusions).

Abstract

Purpose

The purpose of this study was to utilize information provided by nurse leaders (NLs) to determine the prevalence of and trends in animal-assisted intervention (AAI) usage in a variety of healthcare organizations across the United States.

Method

This study was a part of a larger study and larger anonymous web-based survey of NLs' perspectives on AAIs. NLs were recruited via postings on social media, on a professional nursing organization's webpage and in their e-newsletter, and in an online university's research participant pool.

Findings

NLs reported AAI usage in all types of healthcare organizations, with acute care hospitals being the most common. AAIs were used with patients of all ages from pediatric through geriatric and all acuity levels from outpatient and ambulatory settings to critical care and behavioral health.

Conclusions

AAIs are a common adjunct to standard healthcare practices. They are used in a wide variety of healthcare organization types and across the country. NLs reported the usage of AAIs in all age groups and with patients of all acuity levels.

Keywords: Animal-Assisted Interventions, Animal-Assisted Therapy, Pet Therapy, Nurse Leaders

Introduction

Despite the documented benefits of animal-assisted interventions (AAIs), large scale studies on the prevalence of AAI programs in healthcare organizations are lacking (Abrahamson et al., 2016; Black et al., 2011; Lundqvist, Carlsson, Siodahl; Theodorsson, & Levin, 2017; Pinto et al., 2017). Further, larger studies on the types and characteristics of healthcare organizations and nurse leaders (NLs) who utilize AAIs in the patient care practices do not exist (Charry-Sanchez, Pradilla, & Talero-Gutierrez, 2018; Kamioka et al., 2014; Lundqvist et al., 2017). Most literature has been focused on individual AAI interventions or programs and is therefore limited to specific patient populations such as pediatric or behavioral wellness patients (Charry-Sanchez et al., 2018; Maujean, Pepping, & Kendall, 2015) and specific practice settings such as a single long-term care facility (Cipriani et al., 2013).

The aim of this study was to describe the current state of AAIs in a variety of American healthcare organizations including the utilization of AAIs by NLs. This was accomplished by examining the characteristics of NLs who work for organizations that offer AAIs compared to those that do not. Information such as the prevalence of AAI use in acute and long-term care facilities, the types of patient populations AAIs are being utilized with, and the involvement of NLs in AAI decision-making can be useful for organizations seeking to understand the current state of AAI usage before considering implementing a program of their own.

The benefits of AAIs address many of the challenges facing patients including pain, anxiety, stress, and loneliness (Kamioka et al., 2014; Lunqvist et al., 2017; Maujean

et al., 2015). Further, AAIs offer NLs an opportunity to introduce a cost-effective modality that can improve both patient and staff outcomes in their organization. These outcomes include a number of timely and relevant measures including the use of opioid pain medications, risk for both staff and patient injury, patient experience scores, employee satisfaction and burn-out, effectiveness of treatment, and risk for healthcare acquired complications (Abate, Zucconi, & Boxer, 2011; Fujisawa et al., 2019; Gimex et al., Harper et al., 2015; Havey, Vlasses, Vlasses, Ludwig-Beymer, & Hackbarth, 2014; Kline et al., 2019; Stapleton, 2016). However, an existing AAI program must be in place within the organization for these benefits to be realized. Thus, information about the current state of AAI programs in healthcare organizations has the potential to guide NLs who advocate for the addition of AAI interventions into their practice setting.

By generating new knowledge, including which organizational characteristics and which NL characteristics are associated with AAI availability (and nonavailability), this study may allow NLs to strategically develop successful AAI programs. Knowledge such as which organizational characteristics are typically associated with nonavailability of AAI programs may help NLs who seek to increase the holistic and integrative care modalities available to their patients by proactively identifying and addressing potential barriers.

Background

Animal-Assisted Interventions

The origins of using of companion animals for therapeutic purposes can be traced 18th century England where domestic animals were used as a patient-centered adjunct to

standard care for the mentally ill (Milligan, n.d.; Morrison, 2007). In the 21st century, AAIs include several submodalities including animal-assisted activities, animal-assisted education, animal-assisted visitation, resident animals, and animal-assisted therapy. The American Veterinary Medicine Association (n.d.) defines each submodality based on the presence or absence of goal-directed activities, the setting/purpose of the intervention, and the participants in the interactions (i.e., animal handler only or trained practitioner and animal handler). In modern nursing practice, AAIs primarily function as a holistic and patient-centered adjunct to standard treatment modalities. In various in- and out-patient settings, the breadth of AAI usage ranges from patients being actively engaged in an activity with the therapy animal to the therapy animal offering comfort or enhancing wellbeing simply through their presence (American Veterinary Medicine Association, n.d.; Berget, Ekeberg, & Braastad, 2008; Berget, Grepperud, Aasland, & Braastad, 2013; Charry-Sanchez et al., 2018; Cipriani et al., 2013; Crowley-Robinson & Blackshaw, 1998; Lundqvist et al., 2017; Maujean et al., 2015; Nimer & Lundahl, 2007).

Benefits of Animal-Assisted Interventions

Although the exact way AAIs deliver their benefits is not known, the bond between humans and animals is thought to be the source of AAI's therapeutic effects. Most researchers believe that positive interactions with animals result in the release of advantageous hormones. AAIs may also provide stimulation or relaxation to patients as they interact, either in a group setting or individually, with therapy animals (Human Animal Bond Research Institute, n.d.).

Evidence supports the beneficial use of AAIs in patients across the lifespan and in various healthcare settings. Though the design scope of existing AAI research varies from randomized control trials to qualitative studies, and many studies suffer from methodological limitations such as small sample size or lack of control group, most studies result in at least minimal improvements in patient outcomes (Bert et al., 2016; Charry-Sanchez et al., 2018). For example, AAIs have shown to be beneficial when employed with pediatric patients, adults, and geriatric patients as well as in acute care, long-term care, and outpatient settings. Across these settings, AAIs have shown to be of benefit in numerous conditions including autism spectrum disorder, behavior and mental health conditions, chronic pain, dementia, multiple sclerosis, stroke, spinal cord injuries, and other chronic diseases (Bert et al., 2016; Charry-Sanchez et al., 2018; Nimer & Lundahl, 2007). The evidence-based benefits of AAIs emphasize their holistic nature by non-pharmacologically impacting the emotional, spiritual, and physical well-being of individuals. These benefits include decreasing pain, increasing food consumption, promoting social interaction, improving emotional stability, mitigating anxiety, decreasing stress, improving quality of life, enhancing participation in activities of daily living, lessening agitation and apathy, and moderating vital signs (Bert et al., 2016; Charry-Sanchez et al., 2018; Cipriani et al., 2013; Kamioka et al., 2014; Lundqvist et al., 2017; Maujean et al., 2015; O'Haire, Guerin, & Kirkham, 2015; Nimer & Lundahl, 2007; Yakimicki, Edwards, Richards, & Beck, 2019; Zafra-Tanaka, Pacheco-Barrios, Tellez, & Taype-Rondan, 2019).

In specific settings and patient populations, AAIs have shown to bring about measurable improvements in meaningful patient outcomes. For example, when AAIs are added to the standard treatment regimens for patients having undergone total joint replacement surgery, patients required less opioid pain medication, reported less pain, and scored their satisfaction with pain management higher than those patients who did not receive AAIs as part of their care (Haprer et al., 2015; Havey et al., 2014). Similarly, patients in the Emergency Department who received AAIs also needed significantly less opioid medication and anxiolytics than those who did not receive AAIs during their Emergency Department care (Kline, 2019). Diminished pain and a decreased need for pain medication were also seen in pediatric surgical patients who were exposed to AAIs (Morrison, 2007). In inpatient settings, AAIs have also been associated with a decreased length of stay, improved mobility, and increase participation in rehabilitative care (Abate et al., 2011; Fujisawa, Kumsaka, & Arakida, 2019; Stapleton, 2016). AAIs also offer benefits to healthcare providers including aiding in the mitigation of key predictors of costly turn-over including stress, burnout, and compassion fatigue (Bert et al., 2016; Bibbo, 2013; Ginex et al., 2018; Rossetti, 2008).

The levels of risk and/or harm associated with AAIs are negligible. These risks are further decreased when patients are selected carefully and policies are evidence based (Charry-Sanchez et al., 2018; Friedmann & Krause-Parello, 2018; Lundqvist et al., 2017; Maujean et al., 2015).

Animal-Assisted Interventions and Nursing Practice

Nurses are positioned to advocate for the adoption of AAIs into patient care because of the holistic nature of their practice. According to the Code of Ethics for Nurses, "Optimal nursing care enables the patient to live with as much emotional, social, and religious or spiritual well-being as possible and reflects the patient's own values," (American Nurses Association, 2015, p. 18). Using AAIs provides a level of emotional care that can address non-physical reactions to illness such as loneliness, depression, or isolation (Bert et al., 2016). Most AAIs do not require a physician order and therefore can be autonomously incorporated into patient care by nurses (Carmack & Fila, 1989; Ernst, 2013). NLs, in particular NLs who have adopted a transformational leadership (TL) style, have unique qualities which may facilitate the adoption or growth of AAI programs. TL theory states that by considering emotions, values, ethics, and standards and by focusing on long-term goals, transformational leaders do not simply successfully lead through change, they inspire it (Northouse, 2019; Wolf, 2012). TL in nursing has been associated with the creation of a practice environment that is supportive of innovation and focused on the collaborative improvement of outcomes (Weng, Huang, Chen, & Chang, 2015).

Gap in Existing Literature

Although there is evidence to support the addition of AAIs in various types of healthcare organizations and settings, these studies have been in one single setting such as one unit or one hospital. The prevalence or overall availability of AAIs is not known (Charry-Sanchez, et al., 2018; Kamioka et al., 2014; Lundqvist et al., 2017; Maujean et

al., 2015; Nimer & Lundahl, 2007). NLs, given the nature of their role, are likely to have decision making influence over the availability and utilization of AAIs in their organization (American Organization of Nurse Leaders, 2015; Morjikian, Kimball & Joynt, 2007; Wolf, 2012). However, information regarding the characteristics of NLs who have (or whose organizations have) incorporated AAIs into their practice (and those who have not incorporated AAIs) have not been studied (Charry-Sanchez, et al., 2018; Kamioka et al., 2014; Lundqvist et al., 2017; Maujean et al., 2015; Nimer & Lundahl, 2007).

Methods

Study Design

This descriptive, nonexperimental, exploratory study was intended to serve as foundational work for future studies. Social media and electronic study advertisements were used for sample recruiting and an anonymous web-based survey was used for data collection. A convenience sample of nursing leaders were recruited to provide information on their experience with AAIs and on how AAIs are utilized in their organizations. This study aimed to provide NL reported data describing how AAIs are utilized in healthcare organizations across the country.

Research Question

The research question for this study was "What are the characteristics of NLs and healthcare organizations that do and do not offer animal-assisted interventions?" Large scale studies examining the prevalence of AAIs in various types of healthcare organizations and various types of patient populations do not exist. Similarly, no work

exists to describe how NLs do (or do not) utilize AAIs in their organizations and practice (Charry-Sanchez et al., 2018; Kamioka et al., 2014; Lundqvist et al., 2017; Maujean et al., 2015; Nimer & Lundahl, 2007). Without this information, NLs seeking to add AAIs to patient care practices in their units, departments, or organizations may face barriers related to a lack of evidence and/or perceived risk.

Procedures

Participants. The AONL does not limit the title of NL to individuals in a specific practice setting, at specific educational levels, or in specific job title. Instead, NLs are defined by their scope of practice. According to the AONL (2015), the role of NLs is to "set the vision for nursing practice in the delivery of safe, timely, efficient, equitable and patient-centered care. Working within a collaborative and interprofessional environment, the nurse in executive leadership practice is influential in improving the patient experience of care (including quality and satisfaction), improving the health of populations and reducing the per capita cost of health care." (p. 2). Because of the scope of this important role, the AONL has recently changed their organization name from the American Organization of Nurse Executives to the AONL to be more inclusive of NLs in a variety of roles and job titles (AONL, 2015). Potential participants were screened for inclusion by allowing them to self-select whether they meet the AONL description of NLs.

Ethical protections. Institutional review board (IRB) approval was obtained from Walden University prior to the initiation of any research activities. As described, participants were directed to a web-based surveying platform to participate in the study.

A description of the study and of the participants' rights was included on the first page of the web-based survey. Respondents who chose not to participate were free to do so and respondents were free to terminate their participation or cease answering questions at any time.

Data collection procedures. A recruiting advertisement was created for this study. The advertisement included a brief overview of the study, a link to the web-based surveying platform and a dedicated email address created specifically for the study. After IRB approval, the advertisement was posted on the Principal Investigator's social media pages and in nursing-focused social media groups (such as university nursing student and alumni groups). The advertisement was also posted on the social media pages of nursing organizations that permitted research recruitment. All social media postings were configured to allow viewers to share the advertisements on their own social media pages. A recruiting email was also created and approved by the IRB to be used in response to any potential participant who contacted the Principal Investigator via the dedicated email address. The recruiting email employed a snowball sampling strategy and invited the recipient to forward the email to any of their colleagues or contacts who might be interested in participating. Finally, an invitation to participate in the study was posted on the research section of a nursing leadership organization's website, in the same organization's electronic newsletter and on a large online university's research participant recruiting page.

Upon accessing the web-based survey, participants were presented with an overview of the study and asked to agree to participate. After agreeing, participants were

asked to self-identify if they met the AONL's description of an NL. Only demographic information, not the identity of the NLs or their organizations, was collected to protect the anonymity of the participants. The web-based survey platform was configured to not collect the respondent's IP address. Because of the anonymity of the participants and the non-inflammatory nature of the web-based survey, there was minimal risk associated with participating in the study.

Variables. The primary variable of interest for this study was the presence of an AAI program in the NL's organization. The presence of an AAI program was collected as dichotomous categorical data: yes (there is an active AAI program in their organization) or no (there is not an active AAI program in their organization). An "active" program was defined as one in which therapy animals are routinely making visits to the organization. Other demographic variables were collected which describe both the NL and their organization. Demographic variables related to the NL included items such as the NL's education level, years of nursing and leadership experience, and their pet ownership status. Demographic variables related to the organization included items such as the type of organization, organizational location, and organizational size.

Instruments

The data collected for this study was drawn from a larger study and larger parent web-based survey which also addressed NLs' knowledge of and attitudes toward AAIs. The first portion of that survey was an investigator created demographic section designed specifically for this study. The demographic items, such as pet ownership and NL tenure, were selected based on the relevance of these items demonstrated in the review of

literature (Abrahamson et al., 2016; Mitchell & Boyle, 2009; Schoefeld-Tacher et al., 2017; Weng et al., 2015). Information about the characteristics of the organization were informed by the categories of demographic data collected and reported by the American Hospital Association and in other AAI studies (American Hospital Association, 2019). Because the demographic portion of the survey was developed by the investigator, a panel of NLs were asked to review a paper copy of the survey to provide feedback on the instrument's layout and organization. These NLs did not answer the questions, instead they only provided feedback on the questions to improve the validity of the content.

Data Analysis Methods

Upon the completion of data collection, survey responses were downloaded from the web-based survey platform into an excel spreadsheet then transferred into SPSS (Statistical Package for the Social Sciences) Version 24 for analysis. The data analysis strategy for this study consisted primarily of descriptive statistics. As inferential statistics were not used, the sample size was not dependent on an a priori power analysis (see Field, 2013). Few similar studies are available for sample size comparison with existing studies ranging from nine healthcare providers (Abrahamson et al., 2016) to more than 500 Italian physicians (Pinto et al., 2017).

Findings

Description of Population

A total of 305 NLs agreed to participate and indicated that their role aligned with the provided definition of a NL. Surveys in which the NL did not complete the scored portions of the larger parent survey and those in which the NL did not report the presence

or absence of an AAI program were removed, leaving a total of 200 surveys to be included in this analysis. Of these, 72 NLs (36%) reported that they did not have an active AAI program in their organization, and 128 NLs (64%) reported that they did have an active AAI program. Most respondents (*n* = 137, 68.5%) reported their organization type as an acute care hospital. Fewer respondents reported their organizations as being specialty hospitals (*n* = 16, 8%), long-term care facilities (*n* = 14, 7%), and outpatient centers (*n* = 13, 6.5%). The remaining respondents reported their organization types as "other" such as physician offices and home health organizations. Nurse manager was the most commonly reported job title (*n* = 81,40.5%), followed by director (*n* = 60, 30%), vice president (*n* = 13, 6.5%), and chief nursing officer (*n* = 11, 5.5%). The remaining respondents held other titles such as assistant nurse manager, clinical nurse specialist, or educator. Respondents were drawn from across the country. Most respondents (*n* = 92, 46%) were from the South, followed by the Northeast (*n* = 57, 28.5%), as defined by the U.S. Census Bureau. Fewer respondents were from the Midwest (*n* = 28, 14%) and the West (*n* = 23, 11.5%).

Nurse Leader Characteristics

NLs had between 4 and 52 years of nursing experience (mean 25.52 years, *SD* 11.79) and reported between 1 and 44 years of nursing leadership experience (mean 14.07 years, *SD* 10.99). Most nursing leaders (*n* = 95, 47.5%) reported holding a master's degree in nursing. Only six NLs (3%) reported holding an associate degree or diploma in nursing. Forty-six NLs (23.5%) reporting holding a doctoral degree; of these 21 held a Doctor of Nursing Practice, 21 held a PhD (Doctor of Philosophy), and the

remaining five held another type of doctoral degree. Most NLs (*n* = 176, 88%) reported having been pet owners during their nursing leadership tenure.

NLs were asked to rank their level of decision-making authority on a scale of 0 to 10 with 0 equating to no decision-making authority, 5 equating to decision making authority that was limited to their local department or unit level, and 10 equating to decision-making authority that extended to the entire organization. The mean level of decision-making authority reported by the responding NLs was 5.82 (*SD* 2.14). NLs were also asked to rate their level of interprofessional decision making using Benner's Novice to Expert Model (Benner, 1982). One NL reported themselves as a beginner (0.5%), 19 NLs (9.5%) reported themselves as advanced beginners, 43 (21.5%) reported themselves as competent, 91 (45.5%), reported themselves as proficient, and 46 (23%) reported themselves as experts.

Organizational Characteristics

Most of the NLs reported their organizations to be in either suburban (*n* = 85, 42.5%) or urban (*n* = 81, 40.5%) settings. Only 34 (17%) NLs reported their organizations as being rurally located. Of the NLs who reported their organizations as hospitals, there were slightly more community hospitals (*n* = 89) than academic medical centers (*n* = 76). Most NLs also reported their organizations as being non-government owned, non-profit organizations (*n* = 146, 73%). Only 6 organizations were federally owned (3%), slightly more (*n* = 17, 8.5%) were owned by local or state governments. Only 31 (15.5%) NLs reported their organizations to be privately owned and operating in a for-profit status. Most organizations (n=150, 75%) were part of a larger system. NLs

were asked to report if their organizations held either Magnet or Pathway to Excellence designation from the American Nurses' Credentialing Center. Less than half of the NLs' organizations (*n* = 75; 37.5%) were Magnet designated, 44 (22%) of the NLs' organizations were Pathway to Excellence designated.

Utilization of Animal-Assisted Interventions

Utilization of AAIs was present across all geographical regions of the United States of America (Table 1). Significant differences were not seen across the four United States Census Bureau regions ($X^2 = 7.318$, $p = 0.062$). AAIs were used most commonly in the south (70.65%) and least commonly in the mid-west (42.86%). There were significant differences in the utilization of AAIs (Table 2) by organization type ($X^2 = 27.56$, $p<0.001$). For example, most NLs practicing in Acute Care Hospitals (*n* = 102, 74.45%) and Specialty Hospital (*n* = 10, 62.5%) reported their organizations did have an active AAI Program. Conversely, the majority of long-term care facilities (*n* = 8, 57.14%) and outpatient centers (*n* = 11, 84.62%) did not have an active AAI program. When considering the utilization of AAIs between different types of hospitals, there was not a significant difference ($X^2 = 2.128$, $p = 0.145$) between AAI usage in Academic Medical Centers (77.16%) and Community Hospitals (67.42%). Significant differences were, however, seen in the utilization of AAIs by the setting of the organization ($X^2 = 7.082$, $p = 0.029$). For example, rural organizations (*n* = 16, 47.06%) reported utilizing AAIs less frequently those in urban (*n* = 59, 72.84%) and suburban (*n* = 53, 62.35%) settings. Similarly, significant differences ($X^2 = 13.874$, $p = 0.003$) were also seen in the utilization of AAIs based on the ownership status of the organization (Table 3) with the

use of AAIs being least common in privately owned, for-profit hospitals. Organizations that were part of a larger system were significantly more likely ($X^2 = 7.407$, $p = 0.006$) to have an AAI program. More system-based ($n = 104$, 69.33%), versus stand-alone, organizations had an AAI program. When considering organizational credentialing programs, there were significant differences ($X^2 = 11.204$, $p = 0.001$) in the proportion of Magnet® recognized hospitals that had an AAI program ($n = 69$, 55.2%) versus those that did not ($n = 56$, 44.8%). Significant differences were not seen when comparing Pathway to Excellence® recognized organizations to those who were not Pathway to Excellence recognized. AAI usage was reported in all therapeutic areas, across the continuum of patient acuity, and with patients of all ages (Table 4). The most commonly reported application of AAIs was in adult medical-surgical units ($n = 86$, 43.2%). The least commonly reported utilization was in the maternal-child health population ($n = 18$, 9.0%).

Table 1

Assisted-Animal Intervention Usage by Region

		Region			
		Midwest	Northeast	South	West
AAIPROG	No	16	20	27	9
	Yes	12	37	65	14
Total		28	57	92	23

Table 2

Assisted-Animal Intervention Usage by Organization Type

		Organization Type					
		Acute Care Hospital	Long Term Care Facility	Other	Outpatient Center	Specialty Hospital	Total
AAI	No	35	8	12	11	6	72
Program	Yes	102	6	8	2	10	128
Total		137	14	20	13	16	200

Table 3

Assisted-Animal Intervention Usage by Organization Ownership

		Organization Owner				
		Federal Government Owned	For Profit	Non-Government Non-Profit	State or Local Government	Total
AAIPROG	No	2	20	43	7	72
	Yes	4	11	103	10	128
Total		6	31	146	17	200

Table 4

Assisted-Animal Intervention Usage by Patient Population

Population	*n* (%)
Adult Medical Surgical	86 (43.2)
Pediatric Medical Surgical	46 (23.1)
Adult Behavioral Health	25 (12.6)
Pediatric Behavioral Health	20 (10.1)
Adult Oncology	47 (23.6)
Pediatric Oncology	22 (11.1)
Adult Critical Care	47 (23.6)
Pediatric Critical Care	20 (10.1)
Geriatrics	54 (27.1)
End of Life	59 (29.6)
Emergency Department	28 (14.1)
Maternal Child Health	18 (9.0)
Outpatient	23 (11.6)
Staff Focused Interventions	23 (11.6)

Only thirty-three NLs reported being involved in their organization's decision to implement an AAI program. When an NL was involved in the decision (Table 5), the organization was significantly more likely to have an active AAI program ($X^2 = 8.966$, $p = 0.003$). Of note is the fact that there was a significant difference ($t = 3.977$, $p < 0.001$) in the self-assessed decision making authority of nursing leaders who were (n=33, mean 7.12, *SD* 1.916) and were not (n = 160, mean 5.53, *SD* 2.125) involved in the decision to utilize AAIs. Nearly all of the NL's (n = 64, 92.75%) whose organization did not have an AAI program said they would use utilize AAIs if they were available.

Table 5

NL Involvement in AAI Decision Making

			NL Involved in AAI Program Decision		
			No	Yes	Total
AAI PROGRAM	No	Count	63	4	67
		% within Involved In Decision	39.4%	12.1%	34.7%
	Yes	Count	97	29	126
		% within Involved In Decision	60.6%	87.9%	65.3%

Discussion

Although significant variations have been seen among healthcare organization types and settings, the NLs surveyed in this project reported wide-spread use of AAIs. These findings align with the wide variety of healthcare settings and patient populations in which AAI programs have been shown to benefit patients and improve outcomes

(Charry-Sanchez et al., 2018; Kamioka et al., 2014; Lundqvist et al., 2017; Maujean et al., 2015; Nimer & Lundahl, 2007). However, the NLs reported AAI use less frequently in long-term care facilities than acute care hospitals despite evidence that suggests the use of AAIs can positive impact both the physical and emotional well-being of geriatric patients. For example, AAIs have been associated with improved dietary intake, better socialization, improved mood, increased ability to engage in activities of daily living, and increased socialization in elderly patients (Cipriani et al., 2013; Zafra-Tanaka, Pacheco-Barrios, Tellez, & Taype-Rondan, 2019).

Findings also showed that NLs in for-profit organizations were the least likely to report the presence of an AAI program when compared to government-owned and not-for-profit organizations. This finding is somewhat unexpected as AAIs have been shown to be a cost-effective modality and a modality that can provide beneficial returns with minimal investment. AAI programs are commonly staffed by volunteer animal and handler teams, and most teams carry their own liability and accident insurance provided by the therapy animal registering organization. Accordingly, AAIs programs are typically not cost-prohibitive; however, the potential benefits of an AAI program can reduce costs and may improve value-based purchasing driven reimbursement (Centers for Medicare and Medicaid Services, 2017; Glenk, 2017; Love on a Leash, n.d.; Morrison, 2007; Murthy et al., 2015; Pet Partners, n.d.; Therapy Dogs International, n.d.). AAI programs can improve both patient and staff satisfaction. For example, patients who were offered AAIs after joint-replacement surgeries not only utilized less opioid pain medications but reported higher satisfaction with pain management when compared to

patients who did not have AAIs incorporated into their care (Harper et al., 2015; Havey, Vlasses, Vlasses, Ludwig-Beymer, & Hackbarth, 2014). Healthcare provider exposure to AAIs has also reduced costly healthcare provider turnover (stress and burnout) and increased satisfaction with care the care they provide (Bert et al., 2016; Bibbo, 2013; Ginex et al., 2018; Rossetti, 2008). An increased focus on patient and employee outcomes may be the driving force behind the increased likelihood of AAI programs being available in organizations that have earned Magnet recognition from the American Nurses' Credentialing Center, which emphasizes empirical outcomes. Other key elements of Magnet designation include a focus on empowering nurses to improve outcomes in the areas of nurse engagement, patient experience, and patient safety through innovation, evidence-based practice, and research (American Nurses Credentialing Center, 2017).

The adoption of AAI programs by healthcare organizations that are part of a larger system is encouraging. It is possible that the responses of each NL whose organization is part of a larger system may be reflective of AAI availability across numerous other facilities beyond their own if these organizations have system-wide policies in place. However, the lack of NL involvement in AAI decision-making was discouraging. Very few NLs reported being involved in their organization's decision to implement AAIs, despite the fact that the NLs were highly educated, long-tenured nurses and leaders. This may be related to the finding that, on average, the NLs in this study did not report a decision-making influence that extended beyond their local unit or

department despite the fact that they largely assessed themselves to be proficient in making inter-professional decisions.

Holism, or viewing individuals as a whole being comprised of the equally important and interdependent components body, mind, and spirit, has been a hallmark of nursing practice for decades (American Nurses Association, 2015; McEvoy & Duffy, 2008; Papathanasiou, Sklavou, & Kourkouta, 2013). Nurses, including NLs, are often seen as the coordinators of interprofessional care, especially for medically complex patients (Scholz, & Minaudo, 2015). As such, it is surprising that more NLs were not involved in their organization's decision to incorporate AAIs, which can provide numerous physical and emotional benefits to patients (Lunqvist et al., 2017). More research is needed to determine why this was the case. It is possible that these programs simply pre-dated the NLs assuming a position in which they may have had a role in the decision making. However, the mean duration of AAI program existence in this study was approximately seven years (range: one year to thirty-five years) although the mean tenure of NLs' leadership roles was fourteen years.

Limitations

In the absence of comprehensive databases, web-based surveys and snowball samples can offer researchers access to otherwise hard to reach populations including geographically diverse respondents. However, this method also presents various limitations including low response rates and the potential for response bias (see McRobert, Hill, Smale, Hay, & van der Windt,2018). In the case of this study, the majority of respondents (88%) were pet owners and more respondents had an AAI

program in their organization than did not. This may indicate a potential self-selection bias by individuals who have experience with or are interested in AAIs (Bethlehem, 2010). Non-response was also a limitation for this project in particular as data collection began in conjunction with the declaration of the novel coronavirus pandemic (Cucinotta & Vanelli, 2020). As the novel virus spread throughout the United States of America, many health (and nursing) focused social media sites changed their policies to prohibit visitor postings. The focus of NLs and their professional organizations also shifted (necessarily so) to the coronavirus response. Finally, as this study utilized a convenience sample, it is possible that multiple NLs from the same organization responded to the survey which as the potential to skew the data (see Behtlehem, 2010).

Recommendations

Additional research on the prevalence of AAI programs across the country can help add to the evidence base in support of the safe and widespread use of AAI programs. The addition of AAI related questions to other large-scale healthcare organization demographic surveys may help decrease potential self-selection bias associated with research focused solely on AAI. Research which assesses the utilization of AAIs in various patient populations and by various healthcare disciplines may also help add to the base of existing knowledge regarding the availability and breadth of AAI programs in the United States and beyond. Adverse events associated with AAIs were not assessed in this project. Although they are rarely reported, large-scale data assessing the prevalence of AAI related adverse events may also help overcome barriers commonly associated with AAI adoption (Bert et al., 2016).

Conclusion

The NLs who participated in this study reported wide-spread utilization of AAIs across a broad cross-section of healthcare settings. AAI programs were present in all types of health organizations and in all geographic regions of the country. NLs reported experience in using AAI programs with diverse patient populations including all age groups, with inpatients and outpatients, with critically patients and with patients at the end of life, and with their staff as well. Although NLs were infrequently involved in the decision to adopt AAIs, most who did not have access to AAIs reported that they would utilize them if they were available. This information may help NLs and/or other healthcare decision makers recognize that, while novel, AAIs are a commonly accepted and beneficial holistic adjunct to patient care practice.

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Manuscript 2

The Relationship Between Nurses Leaders' Knowledge of Animal-Assisted Interventions and their Attitudes Toward Them

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Outlet for Manuscript

JONA: Journal of Nursing Administration is focused on covering "developments and advances in patient care leadership" (The Journal of Nursing Administration, n.d., para. 1). Although the Journal of Nursing Administration is not a research journal, the editors aim to provide actionable content, informed by research findings, that can influence practice (Journal of Nursing Administration, n.d.). Interdisciplinary collaboration, organization-wide projects, and innovations are among the topics of interest for the journal. Animal-assisted interventions (AAIs) programs often involve multiple disciplines in the planning and implementation process. Once in place, AAIs are often utilized by various disciplines throughout an entire organization (Abrahamson, Cai, Richards, Cline, & O'Haire, 2016; Bibbo, 2013; Lundqvist, Carlsson, Sjodahl, Theodorsson, & Levin, 2017). AAIs are also often considered to be innovative, especially in the acute care setting (Charry-Sanchez, Pradilla, & Talero-Gutierrez, 2018; Rossetti, DeFabiis, & Belpedio, 2008).

Manuscripts should be prepared using the *American Medical Association Manual of Style* (10th edition) and can contain no more than 3,600 words (including the abstract and references) and four figures or tables. Information about institutional review board (IRB) approval and informed consent should be included for applicable projects (Journal of Nursing Administration, n.d.). Specific headings are not indicated, however, a recent manuscript reporting on survey research utilized the following sections: introduction (not labeled with a heading), and background (labeled with topic-specific subheadings), methods (subheadings: instrument, subject contact method, data collection method, data

collection method, IRB information), results, discussion (including limitations and recommendations; see Seguin, 2019). The author guidelines for the *Journal of Nursing Administration* can be found here: http://edmgr.ovid.com/jona/accounts/ifauth.htm.

Abstract

Objective

The objective of this study was to determine the relationship between nurse leaders' (NLs') knowledge of animal-assisted interventions (AAIs) and their attitudes toward them.

Background

Knowledge deficits and unfavorable attitudes are commonly cited barriers to AAI adoption. However, little research exists that examines AAI knowledge and attitudes, particularly those of NLs.

Methods

Participants were recruited to participate in an anonymous web-based survey through postings on social media, in an online university's participant pool, and in a professional nursing organization's e-newsletter and their member webpage.

Results

NLs are fairly knowledgeable about AAIs and generally favorable toward them. However, the association between knowledge and attitudes, while significant, was weak. Notably, NLs frequently sought information from non-peer-reviewed sources.

Conclusion

An opportunity exists to increase NLs' professional knowledge of AAIs. This may further improve their attitudes. Improving both knowledge and attitudes may improve outcomes by mitigating barriers and increasing the availability of AAIs.

Introduction

Animal-assisted interventions (AAIs) include numerous different modalities in which specially trained therapy animals interact with individuals, usually patients, for therapeutic purposes. AAIs have been shown to improve outcomes in a wide variety of patient populations including those who suffer from chronic diseases, dementia, mental illnesses, anxiety, pain, stress, and loneliness. The benefits of AAIs have been documented in patients of all ages and in a variety of settings including acute care hospitals, long-term care facilities, behavioral wellness programs, and outpatient settings (Abrahamson, Cai, Richards, Cline, & O'Haire, 2016; Bert et al., 2016; Charry-Sanchez, Pradilla, & Talero-Gutierrez, 2018; Cherniack & Cherniack, 2014; Kamioka et al., 2014; Lundqvist, Carlsson, Sjodahl, Theodorsson, & Levin, 2017; Maujean, Pepping, & Kendall, 2015; O'Haire, 2013; Yakimicki, Edwards, Richards, & Beck, 2019). Despite the many documented benefits of AAIs, barriers prevent implementation of AAI programs into clinical practice (Black, Chur-Hansen, & Winefield, 2011; Cherniack & Cherniack, 2014; Kamioka et al, 2014; Trembath, 2014).

Primary among the barriers limiting access to AAIs is a lack of knowledge regarding the safety and efficacy of AAIs on the part of organizational decision makers (Black et al., 2011; Cherniak & Cherniak, 2014; Kamiok et al., 2014; Trembath, 2014). Nursing leaders (NLs) are frequently key decision makers in their organizations (Larson, 2017). As such, they are uniquely positioned to influence the adoption of novel patient care practices (American Organization of Nurse Leaders [AONL], 2015; Burkett, 2016; Larson, 2017; Luanaigh, 2016; Tarrant & Sabo, 2010). By better understanding NLs'

knowledge of and attitudes toward AAIs, knowledge deficits and unfavorable attitudes that could potentially preclude the use of AAI may be proactively addressed.

Work on healthcare providers' knowledge of and attitudes toward AAIs has focused on interprofessional teams or professionals in specific disciplines outside of nursing. Although nurses were sometimes included in the interprofessional teams studied, their perceptions were not individually evaluated (Berget, Grepperud, Aasland, & Braastad, 2013; Bibbo, 2013; Black et al., 2011; Crowley-Robinson & Blackshaw, 1998; Eaglin, 2008; Moody, Maps, & O'Rourke, 2002; Pinto, DeSantis, Moretti, Farina, & Ravarotto, 2017; Rossetti et al., 2008; Trembath, 2014; Yap, Scheinberg, & Williams, 2017). The problem addressed by this study was a lack of evidence examining NLs' knowledge of and attitude toward AAIs and the relationship between their knowledge and attitudes.

Literature Review

Attitudes toward animal-assisted interventions. Behavioral healthcare providers typically report positive attitudes toward AAIs as an adjunct to existing treatment modalities. Interprofessional providers who have been exposed to AAIs in the care of behavioral health patients have reported that AAIs not only enhanced the therapeutic milieu but also improved both patients' and their own sense of wellbeing and self-awareness (Black et al., 2011; Rossetti et al., 2009; Berget et al., 2013). An interdisciplinary group of providers who utilized AAIs with children also believed that AAIs should be more regularly incorporated into treatment plans (Eaglin, 2008; Moody et al., 2002; Yap et al., 2017). When unfavorable attitudes toward AAIs were

encountered, they were typically related to reservations about an increased workload for providers and risk of illness or injury (Eaglin, 2008; Yap et al., 2017).

Knowledge of animal-assisted-interventions. Common AAI knowledge deficits include a lack of familiarity with the roles of various assistance animals (service animals, emotional support animals, and therapy animals) as well infection control risk and infection risk-mitigation strategies (Linder, Siebans, Mueller, Gibbs, and Freeman, 2017; Schoenfeld-Tacher, Hellyer, Cheung, and Kogan, 2017). Formal training on AAIs is also lacking, leaving healthcare providers to sometimes learn about the modalities from their patients or unvetted web-based sources (Black et al., 2011; Pinto et al., 2017). Despite a lack of formal training, providers largely report that they are willing and motivated to learn more about AAIs (Berget et al., 2008; Berget et al., 2013; Pinto et al., 2017).

Transformational leadership. Transformational Leadership (TL) has been associated with nursing leadership for decades (McDaniel & Wolf, 1992; Northouse, 2019; Wolf, 2012). Since its incorporation into the American Nurses' Credentialing Center's model for Magnet recognition program, TL has become increasingly associated with supportive practice environments that emphasize nursing empowerment, high-quality patient outcomes, and continual performance improvement (American Nurses' Credentialing Center, 2017; Khan, Quinn Griffin, & Fitzpatrick, 2018; Weng, Huang, Chen, & Chang, 2015). Because AAIs can be considered innovative and have been associated with improved patient outcomes; the tenets of TL informed the selection of NLs as the population for this study.

Gap in existing literature. Most frequently, AAI attitudes and knowledge are studied in the context of an individual program or within a specific practice setting (Abrahamson et al., 2016; Berget et al., 2013; Bibbo, 2013; Crowley-Robinson & Blackshaw, 1998; Moody, Maps, & O'Rourke, 2002). The knowledge and attitudes of nurses, and more specifically NLs, have not been individually studied (Black et al., 2011; Eaglin, 2008; Pinto et al., 2017; Rossetti et al., 2008; Trembath, 2014; Yap et al., 2017). This study sought to help better understand this relationship between knowledge and attitudes in a population of NLs.

Methods

Research Questions

The research questions for this study were "What is the relationship between NLs' self-assessed knowledge of AAIs, NLs' professional knowledge of AAIs and NLs' attitudes toward the use of AAIs with dogs?" and "What is the relationship between NLs' self-assessed knowledge of AAIs, NLs' professional knowledge of AAIs and NLs' attitudes toward the benefits of AAIs?"

Instrumentation

The instrument utilized in this study was comprised of an investigator-developed demographic survey as well as questions drawn from two published instruments. The demographic survey collected information regarding the NLs and their practice settings. Both knowledge of and attitudes toward AAIs were assessed using published questions from Pinto et al.'s (2017) survey previously used to study the AAI knowledge and attitudes of Italian physicians and Schoenfeld-Tachher et al.'s (2017) survey previously

used to study the general public's perceptions of various assistance dogs. Permission to use these instruments was secured prior to study initiation. Both Pinto et al. and Schoenfeld-Tacher et al. established validity of their instruments prior to conducting their respective studies. NLs' attitudes toward AAIs and their knowledge of AAIs were each quantified by two different measures as shown in Figure 1.

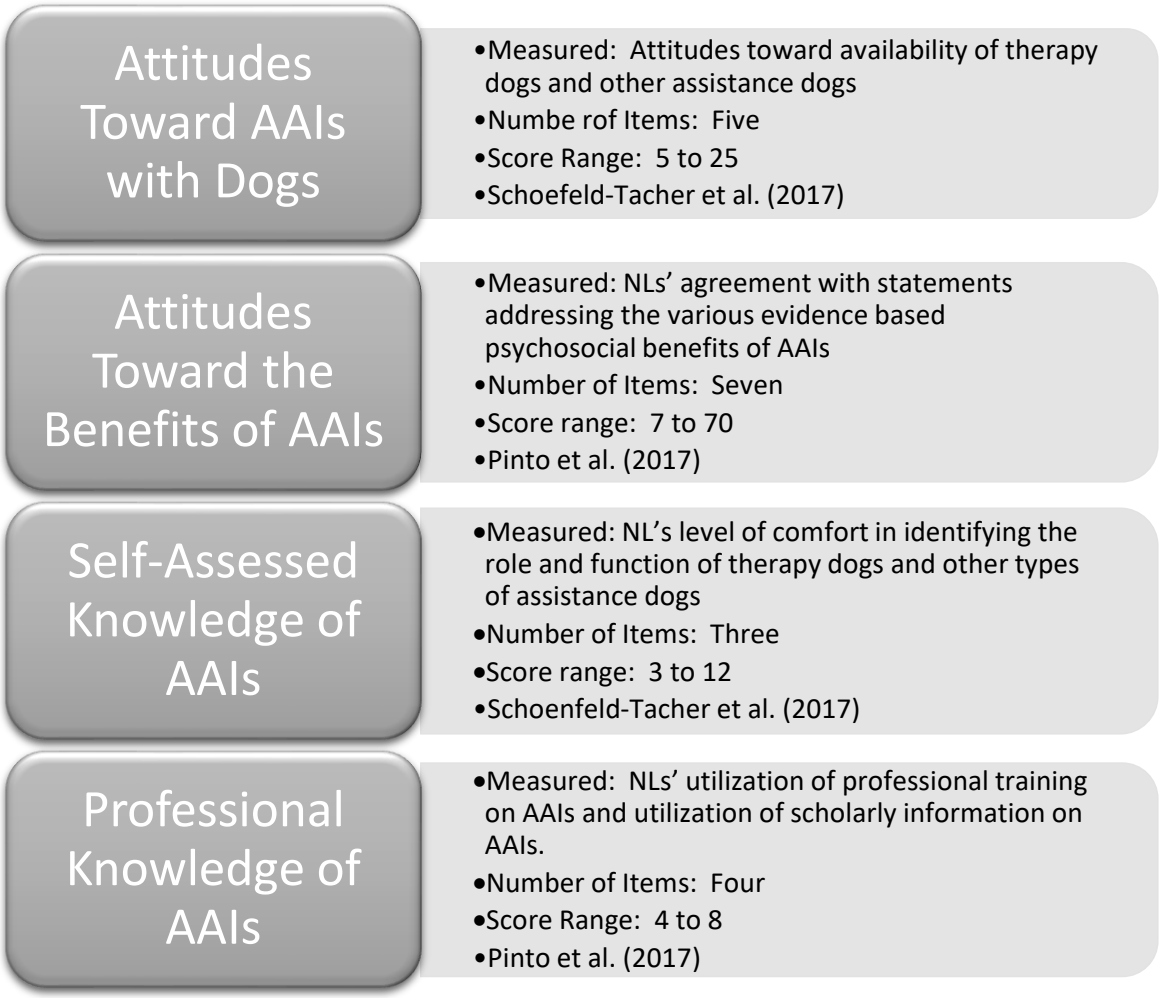

Figure 1. Measures of animal-assisted intervention attitudes and knowledge.

Subjects

NLs were recruited from a variety of healthcare settings across the United States. The AONL does not limit the title of NL according to job title, practice setting, or educational level (AONL, 2015). Accordingly, this study included any NL who self-identified themselves as meeting the AONL's description of a NL.

Subject Contact Methods

Participants were recruited using an IRB approved advertisement posted in a professional nursing leadership organization's electronic newsletter, on nursing focused social media sites, on the webpage of a leadership focused professional nursing organization, and on a large online university's research participant pool webpage. Social media posts also encouraged potential respondents to share the advertisement on their own social media pages in a method similar to that used in traditional snowball sampling (see McRobert, Smale, Hay, & van der Windt,2018). A dedicated email address was created specifically for this project. Interested participants who contacted the Principal Investigator via the email address received a recruiting email in response which employed a snowball sampling methodology by asking potential respondents to share the recruiting email with interested colleagues (see McRobert, et al., 2018).

Data Collection Methods

IRB approval was received from the university prior to the initiation of any research activities. Respondents who choose not to participate were free to do so and participants were free to terminate their participation at any time. After agreeing to participate, the participants were asked to self-identify if they meet the AONL's

description of a NL before proceeding. Only demographic information, not the identity of the NLs or their organizations, was collected to protect the anonymity of the participants. The web-based survey platform was configured to not collect the participant's IP address.

Data Analysis Methods

Upon the completion of data collection, the Primary Investigator downloaded survey responses from the web-based survey platform into an excel spreadsheet then transferred them into SPSS (Statistical Package for the Social Sciences) Version 24 for analysis. Surveys in which the participant did not provide an answer to all the questions used to create each of the four previously described variables were removed from the data prior to analysis.

Multiple linear regression was selected to assess the relationship between NLs' knowledge of AAIs with dogs and their attitudes toward AAIs and between NLs' professional knowledge of AAIs and their attitudes toward AAIs. The combination of multiple ordinal or categorical variables into one score allowed these data to be treated as continuous and thus analyzed with a parametric test (see deWinter & Dodou, 2012; Sullivan & Artino, 2013).

The assumptions for the use of linear regression testing were met. A normality assessment of the data showed some slight skewing, however the assumption was not markedly violated and a decision was made to proceed with the analysis as the results of a regression analysis are fairly robust against violation of normality (see Field, 2019;

Laerd, n.d.). The actual sample size (n = 200) resulted in a highly powered study (Power = 0.998).

Results

Participants and Demographics

A total of 305 participants accessed the web-based survey and agreed to participate. After incomplete surveys were removed 200 responses remained. NL characteristics can be seen in Table 6. Most NLs (n = 127, 64%) reported that their organization had an active AAI program. NLs in the role of nurse manager (n = 81, 40.5%) and nursing director (n = 60, 30%) compromised the majority of the sample population. NLs reported between 4 and 52 years of nursing experience (mean 25.52 years, *SD* 11.79) and between 1 and 44 years of nursing experiences (mean 14.07 years, *SD* 10.99). Most of the NLs (n = 176, 88%) reported being a pet owner during their tenure as a NL. Cronbach's Alpha testing showed that three of the four variables used in this study exceeded the expected value of 0.7: self-assessed knowledge = 0.822, attitudes toward AAIs with dogs = 0.732, professional knowledge = 0.677, and attitudes toward the benefits of AAIs = 0.926.

Table 6

Nurse Leader Characteristics

Nursing Role		*n* (%)
	Nurse Managers	81 (40.5)
	Nurse Director	60 (30)
	Vice President	13 (6.5)
	Chief Nursing Officer	11 (5.5)
	Other	35 (17.5)
Nurse Leader Education		n (%)
	Associate or Diploma	6 (3)
	BSN	52 (36)
	MSN	95 (47.5)
	Doctoral Degree	47 (23.5

Organization characteristics can be seen in Table 7. Most NLs (*n* = 137, 68.5%) worked in acute care hospitals of which there were slightly more community hospitals than academic medical centers. Most organizations (*n*=150, 75%) were part of a larger system. Less than half (*n* = 75, 37.5%) of the organizations had been designated as Magnet organizations by the American Nurses' Credentialing Center. Fewer (*n* = 44, 22%) organization has been designated as Pathway to Excellence Organization by the American Nurses' Credentialing Center.

Table 7

Organizational Characteristics

Practice Setting		*n* (%)
	Acute Care Hospital	137 (68.5)
	Long Term Care facilities	14 (7.0)
	Specialty Hospitals	16 (8.0)
	Outpatient Centers	13(6.5)
	Other	20 (10.0)
Organization Location		
	South	92 (46.0)
	Northeast	57 (28.5)
	Midwest	28 (14.0)
	West	23 (11.5)
Organization Ownership		
	Non-Government Non-Profit	146 (73.0)
	For Profit	31 (15.5)
	State or Local Government	17 (8.5)
	Federal Government	6 (3.0)

Nurse Leaders' Knowledge of Animal-Assisted Interventions

NLs' self-assessed knowledge of AAIs ranged from 3 (the minimum possible score) to 12 (the maximum possible score) with a mean score of 9.36 (*SD* 1.923). NLs' professional knowledge of AAIs ranged from 4 (the minimum possible score) to 8 (the maximum possible score) with a mean score of 5.19 (*SD* 1.301).

Relationship Between Nurse Leaders' Knowledge of Animal-Assisted Interventions and their Attitudes Toward Animal-Assisted Interventions with Dogs

The score for NLs' attitudes toward AAIs involving dogs ranged from fourteen to twenty-five with a mean of 22.04 (*SD* 2.751). Although the association between NLs' attitudes toward AAIs in which dogs are involved (the outcome variable) and the two predictor variables (NLs' self-assessed knowledge of AAIs and NLs' professional knowledge of AAIs) was low ($R = 0.361$), it was significant ($F = 14.764$, $p < 0.001$).

Only 13.0% of the variability in NLs' attitudes toward AAIs involving dogs was explained by the combination of the NLs' professional knowledge of AAIs and their self-assessed knowledge of AAIs (*R* square = 0.130). More specifically (see Table 8), NLs' self-assessed knowledge contributed significantly to their attitudes toward AAIs with dogs ($B = 0.483$, $p = 0.006$) with each one-point increase in self-assessed knowledge increasing their attitude score by approximately half a point. Interestingly, NLs' professional knowledge of AAIs did not significantly contribute to their attitudes toward AAIs with dogs ($B = 0.088$, $p = 0.165$) as each one-point increase in the measure of professional knowledge equated to less than one-tenth of a point increase in their attitudes.

Table 8

Nurse Leaders' Attitudes Toward Animal-Assisted Interventions with Dogs

Model		Unstandardized Coefficients		Standardized Coefficients			95% CI for B		Correlations			Collinearity Statistics	
		B	*SE*	Beta	*t*	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	17.066	.959		17.796	.000	15.175	18.957					
	SELF-ASSESSED KNOWLw/ DOGS	.483	.112	.337	4.328	.000	.263	.703	.359	.295	.288	.726	1.377
	PROF KNOWL AAIs	.088	.165	.042	.536	.593	-.237	.413	.218	.038	.036	.726	1.377

Note. a. Dependent variable = attitudes toward animal-assisted interventions with dogs

Relationship Between Nurse Leaders' Knowledge and their Attitudes Toward the Benefits of Animal-Assisted Interventions

Scores for NLs' attitudes toward the benefits of AAIs ranged from thirteen to seventy with a mean of 55.89 (*SD* 13.933). Although the association between NLs'

attitudes toward the benefits of AAIs (the outcome variable) and the two predictor variables (NLs' self-assessed knowledge of AAIs and NLs' professional knowledge of AAIs was also fairly low (R = 0.236), it was significant (F = 5.799, p = 0.004). Only 5.6% (R square = 0.056) of the variability in NLs' attitudes toward the benefits of AAIs was explained by the combination of the NLs' professional knowledge of AAIs and their self-assessed knowledge of AAIs. More specifically (See Table 9), NLs' self-assessed knowledge contributed significantly to their attitudes toward the benefits of AAIs (B = 1.628, p = 0.006) with each one-point increase in self-assessed knowledge increase their attitude score by more approximately one and one-half points. Again, NLs' professional knowledge of AAIs did not significantly contribute to their attitudes toward benefits of AAIs (B=0.214, p=0.806) as each one-point increase in the measure of professional knowledge equating to less than one-quarter of a point increase in their attitudes toward the benefits of AAIs.

Table 9

Nurse Leaders' Attitudes Toward the Benefits of Animal-Assisted Interventions

		Unstandardized Coefficients		Standardized Coefficients			95% CI for B		Correlations			Collinearity Statistics	
Model		B	*SE*	Beta	*t*	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	39.548	5.062		7.813	.000	29.565	49.530					
	PROF KNOWL of AAIs	.214	.870	.020	.246	.806	-1.502	1.930	.138	.017	.017	.726	1.377
	SELF-ASSESSED KNOWLw/DOGS	1.628	.589	.225	2.766	.006	.467	2.789	.235	.193	.192	.726	1.377

Note. a. Dependent variable = attitudes toward benefits of animal-assisted interventions

Discussion

Within the general public, misconceptions regarding the need for and function of various assistance animals (including therapy animals, service animals, and emotional support animals) are common (Schoenfeld-Tacher et al., 2017). Among defined groups of healthcare providers, such as Italian physicians, attitudes toward AAIs were favorable, even when the providers reported no formal knowledge of AAIs (Pinto et al., 2017). This study examined whether similar themes existed among a population of NLs and if a relationship existed between the NLs knowledge of AAIs and their attitudes toward AAIs. Similar work had not been previously undertaken.

NLs learned about AAIs from a variety of sources, the most common of which was from their colleagues (n = 79). Additionally, NLs learned about AAIs from social media (n = 58) or from specialized medical journals (n = 57). Books, cultural or voluntary association programs, and traditional media outlets such as radio, television, and newspapers were the least common sources of AAI information (see Table 10).

Table 10

Animal-Assisted Intervention Information Sources Used by Nurse Leaders

Information Source	*n*
Colleagues	79
Professional Meetings and Conferences	63
Institutional Websites	62
Social Media	58
Specialized Medical Journals	57
Inservice	46
Non-Institutional Websites	24
Training Activities	23
Radio, TV, Newspaper	17
Voluntary or Cultural Association Programs	15
Books	15

Most NLs agreed or strongly agreed that they were comfortable in defining the roles and functions of a therapy dog (n = 169, 84.5%). However, it is unclear where they obtained this information, as most NLs (n = 129, 64.5%) reported not having sought information on AAIs and only 47 (23.5%) had attended any kind of informational meetings on AAIs. This lack of formal training is inconsistent with recommendations for the safe and effective implementation of AAI programs in healthcare settings which emphasize the use of evidence-based practices (Ernst, 2013; Murthy et al., 2015). The lack of formal training on AAIs may also be partially responsible for the knowledge deficits which are commonly identified as a barrier to AAI adoption or program expansion (Black et al., 2011; Cherniak & Cherniak, 2014; Johnson, Odendaal, & Meadows, 2002; Kamioka et al., 2014).

Despite the lack of formal training on AAIs, most NLs reported a favorable attitude toward AAIs involving dogs and a favorable attitude toward the benefits of AAIs. These findings are in keeping with previous studies which found that nurses' knowledge of complementary therapies was not specifically related to their attitudes toward them (Trail-Maban, Mao, & Bawel-Brinkley, 2013). However, existing research also demonstrated that nurses who are interested in various types of complementary therapies are more likely to actively seek additional information on the modalities (Balouchi, Mahmoudirad, Hastings-Tolsma, Shorofi, Shahdadi, & Abdollahimohammad, 2018). If this is the case for AAIs, NLs' additional information seeking may contribute to a higher level of self-assessed AAI knowledge, and subsequently, more favorable attitudes toward AAIs.

The significant relationship between NLs' self-assessed knowledge (rather than professional knowledge) and their attitudes toward AAIs demonstrate that NLs who consider themselves to be more knowledgeable about AAIs are more inclined to have a positive attitude toward them. NLs in this study reported that the AAI programs in their organizations had been in place for between 0 and 35 years (mean 6.9 years, *SD* 6.2 years) with 10 years being the most commonly reported duration (n = 29). Given the tenure of these AAI programs and the tenure of the NLs' themselves, it is likely that the NLs have been briefed on the purpose, scope, or guidelines of their organization's AAI program and/or that they have encountered organizational policies governing the access afforded other types of assistance animals (such as service animals or emotional support animals). In the absence of more formal or professional training on the modality, these encounters (related to daily operations) may have caused NLs to feel reasonably well-informed about AAIs.

The lack of a significant relationship between professional AAI knowledge and attitudes toward the benefits of AAIs was surprising. Some benefits of AAIs, such improved mood or social interaction, are likely perceptible to even just casual observers of AAI interactions (Charry-Sanchez et al., 2018; Friedman & Krause-Parello, 2018). Other benefits, however, are more subtle and/or difficult to observe and measure. These benefits, such as hormone modulation or relationship building, are more likely to be presented in professional knowledge-sharing venues such as academic journals or scholarly conferences (Kamioka et al., 2014; Maujean et al., 2015). As such, I anticipated that NLs who were more professionally knowledgeable about AAIs would likely have

more favorable attitudes toward the benefits of AAIs. Here again, the prevalence of informal sources of AAI information may be contributory. For example, feel-good stories in which AAIs produce tangible benefits such as joy or companionship, are more likely to be encountered on some of the most commonly reported information sources (such as social media or institutional websites). The measure of professional knowledge included items that assessed nuanced knowledge of AAIs (such as understanding the differences between animal-assisted activities and animal-assisted therapies; Pinto et al., 2017). NLs may not have encountered this type of information from the sources they consulted and therefore may have scored lower in this measure, further weakening the relationship between professional knowledge and attitudes toward AAI benefits.

One final potential explanation for the lack of a substantial relationship between NLs' knowledge and attitudes is their experience with companion animals. Most NLs' reported being pet owners and more than half of the NLs reported an active AAI program in their organization. Although the role of exposure to an AAI program has not been previously studied, pet ownership is understood to contribute to a more favorable opinion toward AAIs in both healthcare providers and the general public (Abrahamson et al., 2016; Pinto et al., 2017; Schoenfeld-Tacher et al., 2017).

Recommendations

Based on the findings of my study, NLs may benefit from additional scholarly education on AAIs. Given the weak link between NLs' knowledge of AAIs and their attitudes toward AAIs, additional research is needed to better understand what, in addition to knowledge, may influence NLs' attitude toward AAIs. Suggestions for future

research include accessing a larger sample size or limiting the sample to only NLs who have made decisions for or against the implementation of AAIs. Future work may also benefit from the use of additional measures of AAI knowledge designed specifically for nurses or multidisciplinary healthcare providers.

Implications

Increasing NLs' knowledge of the evidence-based benefits of AAIs may improve their attitudes toward AAIs. Improving NLs' attitudes toward AAIs, coupled with increasing their knowledge, may help overcome common barriers limiting AAI availability (Black et al., 2011; Cherniack & Cherniack, 2014; Kamioka et al, 2014; Trembath, 2014). Increasing access to AAIs offers NLs and healthcare organizations the opportunity to utilize a novel and low-risk, nurse-driven modality that can improve both patient outcomes and patient experience. Many of these benefits (such as improved pain management, decreased stress and anxiety, enhanced mood and vital sign stability, increased physical activity, and reduced agitation) address key patient challenges frequently seen U.S. healthcare organizations (Bert et al., 2016; Charry-Sanchez, et al., 2018; Cipriani et al., 2013; Kamioka et al., 2014; Lundqvist et al., 2017; Maujean et al., 2015; O'Haire, Guerin, & Kirkham, 2015; Nimer & Lundahl, 2007; Yakimicki et al., 2019; Zafra-Tanaka, Pacheco-Barrios, Tellez, & Taype-Rondan, 2019).

Limitations

Collecting an adequate sample size of NLs was a limitation for this study. The study opened for enrollment less than ten days before the novel coronavirus was a declared a pandemic. Further, this study may have suffered from a potential recruitment

bias in which NLs who were personally or professionally interested in AAIs may have elected to participate (see Bethlehem, 2013). This study was further limited by the availability of instruments designed to measure attitudes toward and knowledge of AAIs. The instruments employed in this study, while validated, were designed specifically for use in other populations such as physicians and the general public (Pinto et al., 2017; Schoenfeld-Tacher et al., 2017).

Conclusion

The association between the combination of NLs' professional and self-assessed knowledge and the variability in both measures of their attitudes toward AAIs, while significant, was low. Most notably, professional knowledge did not significantly contribute to the variability seen in NLs' attitudes toward the benefits of AAIs or attitudes toward AAIs with dogs. This may be due, in part, to the informal sources from which NLs seek information on AAIs. Because unfavorable attitudes and knowledge deficits are commonly cited barriers which limit the availability of AAIs, more study is needed to understand the origins of NLs' attitudes toward AAI. The findings of this study suggest that although the relationship between knowledge and attitudes is weak, an opportunity for improvement exists in improving NLs' knowledge of the evidence-base supporting the safe and effective use of AAIs.

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Manuscript 3

Nurse Leaders' Attitudes Toward and Knowledge of Animal-Assisted Interventions in Organizations with and without Therapy Animal Programs

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Outlet for Manuscript

Complementary Therapies in Clinical Practice is a peer-reviewed and internationally distributed journal published by Elsevier. The journal targets healthcare providers across various disciplines and is focused on meeting the needs of providers seeking to integrate complementary therapies into their clinical practice. Among the aims of the journal are to disseminate peer-reviewed research that addresses the implementation of complementary therapies into practice, complementary therapy problem management and policy development, and change management related to complementary therapies. The journal utilizes their own formatting for citations and references. Suggested headings for manuscript are Introduction, which includes the objectives and background information but not a detailed literature review; Materials and Methods; Theory/Calculations; Results; Discussion; and Conclusions (Complementary Therapies in Clinical Practice, 2019). Recently published research articles for this journal have used the following section headings: Introduction, Materials and Methods (subheadings: sample and setting, data collection—which provides a description of instruments, data analysis, and ethics—including institutional review board approval numbers), Results, Discussion (including limitations and implications for practice), and Conclusion (including a disclosure of funding and competing interests, a CRediT contribution statement, and acknowledgements). The guidelines for authors can be found here:

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Animal-assisted interventions (AAIs) are typically delivered as an adjunct to traditional standards of care and thus considered a complementary therapy (Lundqvist, Carlsson, Sjodahl, Theodorsson, & Levin, 2017; Morrison, 2007), which fits with this journal. This third manuscript seeks to identify any existing relationships between nurse leaders' (NLs') knowledge of AAIs and/or attitudes toward AAIs and the availability of an AAI program within the organization. The information generated by this study can influence several areas of interest for the journal including AAI program implementation and AAI policy development.

Abstract

Objectives

The objective of this study was to examine the impact of exposure to an animal-assisted intervention (AAI) program on nurse leaders' (NLs') knowledge of and attitudes toward AAIs.

Results

The results of this anonymous web-based survey show that NLs were fairly knowledgeable about AAIs and generally favorable toward them. NLs who were exposed to an AAI program in their organizations were more favorable and more knowledgeable. Exposure to an active AAI program accounted for 21% of the variance seen in the linear combination of NLs' self-assessed knowledge of AAIs, professional knowledge of AAIs, attitudes toward AAIs with dogs, and attitudes toward the benefits of AAIs with the greatest impact being on NLs' professional knowledge (15.7%).

Conclusion

Exposure to an AAI program can help improve NLs' attitudes and knowledge. Improving knowledge and attitudes has the potential to mitigate common barriers to AAI adoption. Doing so may improve patient outcomes by increasing the availability of AAIs.

Keywords: *Animal Assisted Interventions, Animal Assisted Therapy, Pet Therapy, Nurse Leaders*

Introduction

Animal-assisted interventions (AAIs) have been used for centuries as an adjunct to standard healthcare practices (Alliance of Therapy Dogs, n.d.; Milligan, n.d.; Trinity Rose Animal Assisted Therapy, n.d.). In modern practice, AAIs include a variety of modalities that range from direct interaction between an individual and a trained therapy animal for a therapeutic purpose to the passive presence of a therapy animal to enhance a therapeutic environment (American Veterinary Medical Association, n.d.). The safety and efficacy of AAIs have been shown in diverse patient populations including children, adults, and the elderly as well as in those receiving care for a variety of medical and psychological conditions (Bert Gualano, Camussi, Pieve, Voglino, & Siliquini, 2016; Charry-Sanchez, Pradilla, & Talero-Gutierrez, 2018; Nimer & Lundahl, 2007). Despite these benefits, unfavorable attitudes and misinformation or knowledge deficits are commonly reported barriers to the adoption, continuation, and expansion of AAI programs (Black, Chur-Hansen, & Winefield, 2011; Johnson, Odendaal, & Meadows, 2002; Kamioka et al., 2014).

Summary of Existing Literature

Practitioners including Florence Nightingale and Sigmund Freud have acknowledged the beneficial role animals can play in improving the engagement and comfort of patients (Milligan, n.d.; Morrison, 2007; Trinity Rose Animal Assisted Therapy, n.d.). In current literature, the phrase *animal assisted interventions* is used to describe several modalities in which specially trained animals interact with individuals for therapeutic purposes. These modalities include animal-assisted activities and animal-

assisted therapies. Animal-assisted activities are a passive interaction between the animals and individuals which typically are intended to improve mood or quality of life. Animal-assisted therapies are a goal-directed intervention typically intended to augment the treatment process as a means toward a desired end (American Veterinary Medicine Association, n.d.).

AAIs have been successfully incorporated into the care of patients across the entire lifespan, from pediatric patients through geriatric patients (Charry-Sanchez et al., 2018; Cherniack & Cherniack, 2014; Eaglin, 2008; Kamioka et al., 2014). Evidence supports the use of AAIs in a variety of healthcare settings including outpatient areas, acute care hospitals, long-term care facilities, and behavioral wellness programs (Charry-Sanchez et al., 2018; Cherniack & Cherniack, 2014; Friednmann & Krause-Parello, 2018; Lundqvist et al., 2017). With these settings and patients, AAIs have helped in the management of a variety distressing symptoms including pain, anxiety, agitation, fear, and loneliness. AAIs have also shown to be effective in improving patients' engagement in their care, social interaction, quality of life, and well-being. Research also exists that demonstrates the ability of AAIs to aide in normalizing patients' hemodynamic measurements and vital signs. In addition to symptom management, AAIs have been a useful adjunct in the care of patients suffering from autism, dementia, post-traumatic stress disorder, mental illness, and a variety of chronic medical conditions (Abrahamson, Cai, Richards, Cline, & O'Haire, 2016; Bert et al., 2016; Charry-Sanchez et al., 2018; Cherniack & Cherniack, 2014; Kamioka et al., 2014; Maujean et al., 2015; Nimer & Lundahl, 2007).

Often the barriers encountered in adopting AAIs into practice are related to knowledge deficits or the individual opinions and concerns of organizational decision makers (Black, 2011; Cherniack & Cherniack, 2014; Kamioka et al., 2014). A lack of knowledge can result in concerns related to infection control, allergies, and risk for injury (Eaglin, 2008; Friedmann & Krause-Parello, 2018; Moody et al., 2002; Trembath, 2014). Unfavorable opinions include apprehension about potentially increasing healthcare providers' workload, skepticism regarding the benefits of AAIs, and concerns about consequences of discontinuing AAIs (Bert et al., 2016; Bibbo, 2013; Charry-Sanchez et al., 2018; Crowley-Robinson & Blackshaw, 1998; Eaglin, 2008; Friedmann & Krause-Parello, 2018; Lundqvist et al., 2017).

Research examining healthcare providers' knowledge of AAIs and their attitudes toward AAIs is limited, despite the role these attributes may play in the implementation of AAIs into clinical care. Available literature suggests that knowledge deficits regarding AAI are commonly seen in healthcare providers as well as the general public (Berget, Ekeberg, & Braastad, 2008; Black, 2011; Pinto, 2017; Schoenfeld-Tacher, Hellyer, Cheung, & Kogan, 2017). While the attitudes of providers are generally favorable, theyare often not well educated about the uses and benefits of AAIs or their associated risks (Berget, Grepperud, Aasland, & Braastad, 2013; Bibbo, 2013; Pinto et al., 2017). However, despite a lack of formal education, providers are willing to learn more (Abrahamson et al., 2016; Bibbo, 2013; Pinto et al., 2017). In pediatric and behavioral healthcare specifically, providers have indicated that they were in favor of increasing access to AAIs. Nevertheless, even when providers believed that AAIs were safe and

effective, their positive attitudes were tempered by concerns related to their perception of risk and barriers created by complicated organizational policies (Black et at., 2011; Eaglin, 2008; Rossetti et al., 2008; Yap, Scheinberg, & Williams, 2017).

Despite the role knowledge of AAIs and attitudes toward AAIs play in the availability of therapy animal programs, healthcare providers attitudes toward AAIs and their knowledge of AAIs have not been extensively studied and not studied on a large scale. Nurses' and healthcare leaders' perspectives on AAIs have not been independently studied. More specifically, NLs' attitudes toward AAIs and their knowledge of AAIs have not been individually examined. Existing work has also not specifically addressed any potential effect exposure to AAIs may have on attitudes toward and/or knowledge of AAIs (Berget et al., 2013; Bibbo, 2013; Black et al., 2011; Crowley-Robinson & Blackshaw, 1998; Eaglin, 2008; Moody et al., 2002; Pinto et al., 2017; Rossetti et al., 2008; Trembath, 2014; Yap et al., 2017).

Aim

The aim of this study was to examine potential differences in NLs' attitudes toward and knowledge of AAIs between NLs have been exposed to an active AAI program into their practice and NLs who have not. Better understanding these differences has the potential to influence the development of strategies that proactively address the knowledge deficits or unfavorable attitudes that may preclude patient and staff access to AAIs.

Materials and Methods

Sample and Setting

NLs from a variety of healthcare settings across the United States served as the study population for this research. The American Organization of Nurse Leaders (AONL) does not limit the title of NL to any specific job title, practice setting, or at any specific educational level (AONL, 2015). Accordingly, the title, educational level, and practice setting for participants in this study was not limited. Instead, respondents were asked to self-report whether they meet the AONL's description of a NL. Those who agreed moved forward to the web-based survey. NLs from any type of healthcare organization setting anywhere in the United States were eligible for participation in this web-based study.

Data Collection

Collection strategies. A web-based survey methodology was used to collect data from a large cross-section of NLs working in various roles, geographic areas, and practice settings. The use of a web-based survey is consistent with the methodology used by other researchers who have studied healthcare providers' attitudes toward and knowledge of AAIs in both large- and small-scale studies and in other populations (Pinto et al., 2017; Schoenfeld-Tacher et al., 2017). After institutional review board (IRB) approval, a brief invitation containing a link to the web-based survey and contact information for the Principal Investigator was featured in a professional nursing leadership organization's electronic newsletter and on the research section of their website. A recruiting flyer was posted on nursing-focused social media sites as well as

on the Principal Investigator's Facebook page, and a brief advertisement was placed on a large online university's research participant pool website. The flyer included a link to the web-based surveying platform as well as contact information for the Principal Investigator and the post was configured to allow potential respondents to share the post on their own social media sites. A dedicated e-mail address was created specifically for this project. Interested participants who contacted the Principal Investigator via the e-mail address received a recruiting e-mail in response, which included a link to the online survey platform and employed a snowball sampling methodology by asking potential respondents to share the recruiting email with interested colleagues (see Field, 2013; McRobert, Hill, Smale, Hay, & van der Windt, 2018).

Instrumentation. This study utilized an investigator-developed demographic survey as well as two previously published instruments (Pinto et al., 2017; Schoenfeld-Tacher et al., 2017). The demographic portion of the survey collected information the NLs and their practice settings, including whether an active AAI program existed in their organization. Both Pinto et al. (2017) and Schoenfeld-Tacher et al. (2017) established validity of their instruments prior to conducting their respective studies and provided permission for their instruments to be used in this study.

Nurse leaders' attitudes toward animal-assisted interventions. NLs' attitudes toward AAIs was assessed with two separate measures: attitudes toward AAIs with dogs and attitudes toward the benefits of AAIs. Attitudes toward AAIs with dogs was calculated by combining the responses to five Likert scale questions that measured NLs' attitudes toward the use and availability of therapy dogs as well as other assistance dogs

such as emotional support dogs and service dogs. Each item was measured on a 5-point Likert scale and the total scores for this measure ranged from 5 to 25 (Schoenfeld-Tacher et al., 2017). Attitudes toward the benefits of AAIs was calculated by combining combined the Likert responses to seven questions which asked NLs' to indicate their level agreement with various statements regarding the evidence based psychosocial benefits of AAIs including the mitigation of loneliness, improvement of mood, facilitation of relationships. Each individual item was measured on a 10-point Likert scale with total scores ranging from seven to seventy (Pinto et al., 2017).

Nurse leaders' knowledge of animal-assisted interventions. Knowledge of AAIs was also assessed via two separate measures: self-assessed knowledge of AAIs and professional knowledge of AAIs. The measure for NLs' self-assessment of their AAI knowledge asked NLs' to rate their level of comfort in defining the role and function of several kind of assistance dogs including therapy dogs. The total score for this measure was calculated by combing the responses to three Likert scale questions, possible scores for this measure ranged from 3 to 12 (Schoenfeld-Tacher et al.'s, 2017). NLs' professional knowledge of AAIs utilized four questions which asked NLs' to report to if and how they had sought scholarly information or formal training on AAIs and if they had obtained knowledge about various forms of AAIs. The scores for this measure ranged from 4 to 8 (Pinto et al., 2017).

Data Analysis

Analytical strategies. Once data collection was complete (and goal accrual was met), survey responses were downloaded from the web-based survey platform into an

excel spreadsheet then transferred them into SPSS (Statistical Package for the Social Sciences) Version 24 for analysis. Because the responses to multiple Likert scale responses were combined into one score, the knowledge and attitude data for this study was treated as continuous and parametric testing was used (see deWinter & Dodou, 2012; Field, 2009; Sullivan & Artino, 2013). A multiple analysis of variances (MANOVA) test, rather than a series of multiple t-tests, was used to assess for significant differences in the four dependent variables and the independent variable. The use of a single MANOVA test reduced the chance of type one error and allowed for a possible relationship between the four predictor variables (see Field, 2013; Sullivan & Artino, 2013). Before analysis, the data were tested to determine if the assumptions for MANOVA testing were met (see Field, 2013; Laerd, n.d.). A total of thirteen outlier cases were removed and the Pillai's Trace test was use in place of Wilk's Lambda to address potential assumption violations. Although there were potential violations discovered related to multi-collinearity, due to the overall sample size and the presence of four dependent variables, these borderline violations were determined not to be considerable enough to warrant the use of non-parametric testing (see Field, 2013; Warner, 2012).

Ethics

IRB approval was obtained from Walden University (approval #02-03-20-0082990) prior to the initiation of any research activities. All participants, regardless of recruitment method, were directed to the web-based surveying platform to participate in the study. Before beginning the survey, potential participants were presented with a brief

description of the study and their rights as research participants. Throughout the study, only demographic information, not the identity of the NLs or their organizations, was collected. To further protect the anonymity of respondents, the web-based survey platform was configured to not collect the respondent's IP address. No questions required a mandatory response and participants were free to terminate their participation at any time. There was minimal risk associated with participating in this voluntary, anonymous survey.

Results

Demographics

A total of 305 NLs accessed the online survey and agreed to participate. Of these, 200 NLs completed all the questions necessary to calculate scores for the four dependent variables and indicated whether their organization had an active AAI program (the independent variable). After 13 outliers were removed, a total of 187 participants remained. Though the removal of the outliers did decrease the threats to validity, it also slightly lowered the power of the study leaving the final power at 0.778 (see Faul, Erdfelder, & Lang, 2007). Cronbach's Alpha testing was completed to assess the reliability of the four instruments used. Three of the four measures exceeded the expected value of 0.7: self-assessed knowledge = 0.822, attitudes toward AAIs with dogs = 0.732, professional knowledge = 0.677, and attitudes toward the benefits of AAIs = 0.926.

Of the 187 participants, 124 NLs (66.3%) reported that their organizations had an active AAI program, and 63 (33.7%) reported that their organization did not have an

active AAI program. NLs reported between 4 and 56 years of nursing experience (mean 25.27 years, *SD* 11.89) and between 1 and 45 (mean 13.76, *SD* 10.99) years of leadership experience. Participants reported leadership roles spanning the continuum from assistant nurse managers to chief nursing officers with nurse managers (*n* = 78, 41.7%) and directors (*n* = 54, 28.9%) being the most common. Most NLs were also pet owners during their leadership tenure (*n* = 166, 88.8%). Healthcare organizations from all four U.S. Census Bureau regions were represented with suburban organizations being the most commonly reported healthcare organization setting. Healthcare organizations of all types were represented in this sample (Table 11) with acute care hospitals being the most common and both community hospitals and academic medical centers represented. Most organizations (*n* = 143, 76.5%) were part of a larger system, and most organizations were not Magnet (*n* = 114, 61%) or Pathway to Excellence (*n* = 145, 77.5%) designated.

Table 11

Healthcare Organization Types

	n	%
Acute Care Hospital	130	69.5
Long Term Care Facility	14	7.5
Other	19	10.2
Outpatient Center	10	5.3
Specialty Hosp	14	7.5
Total	187	100.0

Overall Results

Scores for all four dependent variables were higher in organizations with an active AAI program (Table 12). There was a statistically significant difference in the linear

combination of all four measures of knowledge and attitudes between organizations that did and did not have an active AAI program ($F = 12.281$, $p < 0.001$). More specifically, 21.3% of the variance seen in the linear combination of all four measures knowledge and attitudes could be attributed to the presence of an active AAI program ($\eta 2 = 0.213$). When performing the MANOVA analysis, the results of Levene's Test of Equality of Error Variances were significant for all four measures of knowledge and attitudes. However, according to Field (2013) and Huberty and Morris (1989), Levene's test is likely too sensitive for this application and frequently disregarded. Accordingly, this violation was not considered detrimental to the validity of the results. It is notable that these significant results did not resolve even when the study data was bootstrapped to 1,000 cases.

Table 12

Nurse Leaders' Knowledge and Attitudes Toward Animal-Assisted Interventions

AAI Program		Self-Assessed Knowledge	Attitudes Toward AAIs with Dogs	Professional Knowledge of AAIs	Attitudes toward the Benefits of AAIs
No	Mean	8.86	20.83	4.67	48.13
	N	63	63	63	63
	SD	1.585	3.329	.803	17.519
	Min.	6	14	4	13
	Max.	12	25	7	70
Yes	Mean	9.69	22.62	5.39	59.72
	N	124	124	124	124
	SD	1.772	2.058	1.366	9.518
	Min.	6	17	4	36
	Max.	12	25	8	70
Total	Mean	9.41	22.02	5.14	55.81
	N	187	187	187	187
	SD	1.753	2.687	1.251	13.870
	Min.	6	14	4	13
	Max.	12	25	8	70

Variations in Animal-Assisted Intervention Knowledge

Scores for self-assessed knowledge of AAIs ranged from 6 to 12 (mean 9.41 *SD* 1.753). NLs in organizations with an active AAI program assessed their own knowledge higher (mean 9.69, *SD* 1.771) than those in an organization without an AAI program (mean 8.86, *SD* 1.585). The presence of an AAI program contributed significantly to the difference in these scores ($F = 9.974$, $p = 0.002$), with 5.1% of the variance of NLs' self-assessed knowledge of AAIs explained by the presence of an AAI program ($\eta^2 = 0.051$).

Scores for professional knowledge of AAIs ranged from 4 to 8 (mean 5.14, *SD* 1.251). NLs in organizations with an active AAI program reported having more professional knowledge of AAIs (mean 5.39, *SD* 1.366) than NLs in an organization without an AAI program (mean 4.67, *SD* 0.803). The presence of an AAI program contributed significantly to this difference in professional knowledge ($F = 14.888$ $p < 0.001$), with 7.4% of the variance of NLs' professional knowledge of AAIs explained by the presence of an active AAI program ($\eta^2 = 0.074$).

Variations in Attitudes Toward Animal-Assisted Interventions

NLs' attitudes toward AAIs with dogs scores ranged from 14 to 35 (mean 22.02, *SD* 2.687). Attitudes were more favorable in among NLs whose organizations had an active AAI program (mean 22.62, *SD* 2.058) compared to those in organization did not have an active AAI program (mean 20.83, *SD* 3.329). The presence of an AAI program contributed significantly to the difference in these attitudes ($F = 20.622$, $p < 0.001$), with 10.0% of the variance of NLs' self-assessed knowledge of AAIs explained by the presence of an AAI program ($\eta^2 = 0.100$).

The scores measuring NLs' attitudes toward the benefits of AAIs ranged from 13 to 70 (mean 55.81, *SD* 13.87). NLs in organization with an active AAI program had more favorable attitudes toward the benefits of AAIs (mean 59.72, *SD* 9.518) than NLs in an organization without an AAI program (mean 48.13, *SD* 17.519). The presence of an AAI program contributed significantly to this difference in these NLs' attitudes toward the benefits of AAIs ($F = 34.412$, $p < 0.001$), with 15.7% of the variance of NLs' professional knowledge of AAIs explained by the presence of an active AAI program ($\eta^2 = 0.157$).

Discussion

Significance of Results

The results of this study are consistent with other work that has found that healthcare providers' attitudes toward AAIs are largely favorable (Abrahamson et al., 2016; Berget et al., 2013; Black et al., 2011; Eaglin et al., 2008; Rossetti, DeFabiis, & Belpedio et al., 2008). This study, however, was unique in that it measured the attitudes and knowledge of a defined population of healthcare providers (NLs) and sought to understand how one factor (the presence of an active AAI program) might have contributed to these attitudes and knowledge levels. It is unknown, based on these findings alone, if NLs in organizations with an active AAI program had more knowledge because they had the opportunity to witness or engage with an AAI program, if they were required to learn about AAI programs according to organizational requirements, or if exposure to the AAI program encouraged NLs to learn more about the programs on their own.

Knowledge deficits, misunderstandings, and general ambiguity regarding the roles and functions of various types of assistance dogs (service dogs, therapy dogs, and emotional support dogs) are common in the general public (Friedman & Krause-Parello, 2018; Schoenfeld-Tacher et al., 2017). These findings show that those same knowledge deficits are also present in NLs but less so in those who have been exposed to an active AAI program in their organization. It is notable that the presence of an AAI program contributed the least (of all four dependent variables) to self-assessed knowledge of AAIs, which asked the NLs to estimate their comfort in identifying the role and function of each of these types of assistance dogs.

Though the presence of an AAI program explained least amount of variance in the two measures of AAI knowledge, the presence of an AAI program contributed most substantially to variance in NLs' attitudes toward the benefits of AAIs. This may be due, in part, the tangible benefits an AAI interaction can have on individual patients. For example, even casual contact with AAIs may have allowed NLs to observe the positive impact therapy animals can have on patient's mood, agitation, pain, anxiety, or isolation (Charry-Sanchez et al., 2018; Maujean et al., 2015; Morrison, 2007). However, the NLs' attitudes toward the benefits of AAIs measure also included items that addressed NLs' attitudes toward more subtle, but still evidence-based, benefits of AAIs such as relationship building, self-esteem, and hormone modulation (Cherniack & Cherniack, 2014; Marr, 2000; Pinto et al., 2017; Trembath, 2014). NLs' in organization with an active AAI program may have the benefit of interacting with patients who recipients of AAIs, bedside nurses who care for patients who have benefitted from AAIs, and with

other NLs who have experience with AAIs. This close and frequent contact, afforded by the presence of an organizational AAI program, likely played a role in the NLs' ability to detect these more subtle benefits.

Limitations

This study was limited, in part, by challenges related to sample size accrual. IRB approval for this study was obtained in early March 2020. The web-based data collection occurred during the early phases of the 2020 novel coronavirus pandemic. The pandemic, appropriately, overtook content on nursing social media sites and in nursing focused electronic publications. Completing a survey was likely a low priority for NLs who were faced with navigating a constantly changing public health emergency. A larger sample size would also allow for more detailed sub-analyses such as comparing attitudes between different healthcare organization types or different nursing leadership roles as these factors could contribute organizational decision-making regarding AAI use. The data itself also presented a challenge. As previously described, data analysis revealed potential violations of assumptions that did not disappear even with bootstrapping procedures. Finally, limited instruments were available to measure knowledge of and attitudes toward AAIs. Future research may benefit from collecting more detailed information on AAI training and additional objective measures of AAI knowledge.

Implications for Practice

AAIs are typically considered to be a nursing intervention and rarely require a physician order (Carmack & Fila, 1989; Ernst, 2013). Therapy animals have been shown to be a beneficial adjunct in the care of patients across the lifespan, in numerous care

settings, in the management of both emotional and physical threats to wellness, and in addressing both acute and chronic conditions (Charry-Sanchez et al., 2017; Kamioka et al., 2014; Lunqvist et al., 2017; Maujean, Pepping, & Kendall, 2015). Given current trends in healthcare (such as the opioid crisis, the prevalence of mental health needs, and the aging American population) the number of patients who may benefit from AAIs is likely increasing (NIH National Institute on Drug Abuse, 2019; Raghupathi & Raghupathi, 2018; United States Department of Health and Human Services, 2018). Organizational availability of AAIs offer NLs a safe, cost-effective, and evidence-based opportunity to improve a number of relevant outcomes including patient experience scores , employee satisfaction, length of stay, injury risk, and the success of treatment regimens which require patient engagement or participation (Abate et al., 2011; Centers for Medicare and Medicaid Services, 2017; Fujisawa et al., 2019; Gimex et al., Glenk, 2017; Kline et al., 2019; Marr et al., 2000; Stapleton, 2016). This study provides a better understanding of key factors (knowledge and attitudes) which may influence NLs' decision to utilize or advocate for the adoption of AAIs in their practice or organization. These results quantify the positive influence exposure to an AAI program can have on multiple measures of NLs' attitudes toward and knowledge of AAIs. Accordingly, NLs (or other organizational leaders) seeking to add AAIs to their organization or practice may benefit from connecting with colleagues who already utilize AAIs. For example, if NLs encounter unfavorable attitudes and/or knowledge deficits, they might consider site visits to other organizations with AAI programs or engaging with the decision makers who oversee a thriving AAI program. Although both suggestions are likely not an

effective replacement for firsthand exposure to an active and successful AAI program, they may offer some of the benefits of AAI program exposure that were quantified in this study.

Conclusion

This study shows that NLs' generally have favorable attitudes toward AAIs and knowledge of AAIs. However, NLs' in organizations which have an active AAI program have more knowledge and more favorable attitudes than those without such exposure. The presence of an AAI program significantly contributed to NLs' professional knowledge of AAIs, their self-assessed knowledge of AAIs, their attitudes toward AAIs with dogs, and their attitudes toward the benefits of AAIs. Exposure to an active AAI program had the greatest impact was on NLs' attitudes toward the benefits of AAIs suggesting that NLs who are exposed to AAIs are more likely to recognize both the overt and more subtle evidence-based benefits that patients receive from participating in an AAI

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Declaration of Competing Interests

There are no competing interests to declare for this project.

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Part 3: Summary

Integration of Three Studies

Common Themes

Together, these three studies provide new knowledge regarding how NLs perceive, learn about, and use AAIs in their practice. This is the first study that has attempted to discover trends in AAI usage across multiple types of healthcare organizations and at the national level (Charry-Sanchez et al., 2018; Friedmann & Krause-Parello, 2018; Johnson, Odendaal, & Meadows, 2002). Despite the decision-making role NLs frequently play in their organizations, their AAI knowledge and attitudes have not been individually studied in previous works (Abrahamson et al., 2016; AONL, 2015; Bibbo, 2013; Black et al., 2013; Burkett, 2016; Luanaigh, 2016; Morjikian, Kimball, & Joynt, 2007; Pinto et al., 2017; Tarrant & Sabo, 2010; Yap et al., 2017). Studies have predominately been on attitudes toward AAIs in the context of a specific AAI program, such as an oncology unit or pediatric ward or single long-term care facility, or in a specific group of health care providers, such as Australian psychologists or Italian physicians (Bibbo, 2013; Black et al., 2011; Crowley-Robinson & Blackshaw, 1998; Eaglin, 2008; Pinto et al., 2017). Thus, the attitudes and knowledge of nurses and/or NLs have not previously been individually examined as they have in these three studies. This study was also unique in that it measured the knowledge and attitudes in NLs who did not have direct contact with an AAI program as well as those who did.

The results of the three studies confirm that most NLs have knowledge about and positive toward AAIs. However, NLs were infrequently educated on AAIs with most of

their information coming from their colleagues. In fact, NLs are as likely to learn about AAIs from social media as they are from more scholarly sources such as professional conferences or journals. This finding may explain why the presence of an AAI program significantly contributes to the variability seen in both NLs' knowledge and their attitudes. The positive impact that the presence of an AAI program had on NLs' knowledge and attitudes is consistent with the favorable attitudes seen in studies on attitudes toward individual programs (Abrahamson et al., 2016; Bibbo, 2013; Black et. al, 2011; Pinto et al., 2017; Yap et al., 2017).

Relation to Conceptual Framework

These studies were guided by the principles of TL because of its focus on innovation and outcome improvement and its applicability to nursing leadership (Aarons, 2006; McDaniel & Wolf, 1992; Weng, Huang, Chen, & Chang, 2015; Wolf, 2012). The NLs in this study, who were predominately nurse managers and directors, had decision-making authority that was limited to their own departments or units. Although many of the NLs (n = 128; 64%) in this study reported that their organizations had an AAI program, few (n = 33, 17.1%) NLs were involved in the decision to implement AAIs in their organizations. This lack of decision-making involvement is somewhat in conflict with the tenets of TL, especially because nearly all (93.8%) of the NLs whose organizations did not have AAI programs in their organizations indicated that they would utilize them if they were available. The widespread use of AAIs and the role that AAI program exposure played in explaining variance in NLs' attitudes toward the benefits of

AAIs indicates that another theory, perhaps one focused on holistic practice, may have been a better fit (McEvoy & Duffy, 2008; Papathanasiou, Sklavou, & Kourkouta, 2013).

Unanticipated Findings

The small, and in some cases insignificant, relationship between NLs' professional knowledge and their attitudes toward AAIs was unexpected. This may be explained by NLs' reliance on less scholarly sources of information such as their colleagues and social media. It was also unexpected that, despite the prevalence of evidence supporting the use of AAIs in the geriatric population, AAI use was more common in acute care hospitals than it was in long-term care facilities (Cherniack & Cherniack, 2014; Charry-Sanchez et al., 2018). This may be due, in part, to a smaller sample of NLs from long-term care facilities. The prevalence of AAIs in acute-care hospitals was also not expected given that some of the most commonly reported concerns or risks associated with AAIs are those related to infection and liability (Bert et al, 2016; Friedmann & Krause-Parello, 2018).

Implications for Positive Social Change

The results of this research have the potential to effect positive social change as the study is the first study to document the prevalence of AAIs in a wide, cross-section of healthcare organizations and patient populations (rather than examining individual programs in isolation). Further, these results, in combination, indicate that NLs rely on their colleagues for information about AAIs and that exposure to AAI programs significantly impact both their knowledge and their attitudes. The results also show that NLs may benefit from additional formal education on AAIs. Each of the study findings

may translate into strategies that have the potential to mitigate commonly encountered barriers to AAIs. For example, NLs with knowledge deficits may benefit from an evidence-based educational program. NLs with unfavorable attitudes may benefit from a site visit to an organization with an active AAI program, or from networking with colleagues (a preferred source of knowledge) who are experienced in AAI usage. Overcoming common knowledge and attitude related barriers has the potential to increase access to AAIs. By raising awareness of the prevalence of AAIs in healthcare settings and providing an evidence-base for strategies which may help overcome common barriers, this study has the potential to create positive social change by potentially increasing the availability of AAIs. Increasing access to AAIs may result in improved patient experience and patient outcomes by mitigating common reactions to or consequences of illness such as pain, anxiety, stress, and isolation (Charry-Sanchez et al., 2018; Kamioka et al., 2014; Lundqvist et al., 2017; Maujean et al., 2015; Nimer & Lundhal, 2007).

Areas of Future Research

Because the link between NLs' knowledge and their attitudes is weak, future research investigating the origin of NLs' attitudes may be beneficial. The tools used in this study had been validated by their original authors before use; however, there was an opportunity for improvement in quantifying NLs' actual operational knowledge of AAIs in the patient care setting. For example, the existing tools did not address concepts such as infection prevention or the process of initiating an AAI program or AAI patient interaction (Pinto et al., 2017; Schoenfeld-Tacher et al., 2017). Future research may

benefit from developing and testing a novel instrument designed specifically for the purposes of assessing the AAI knowledge of nurses, NLs, or other healthcare providers. Because so few of the NL respondents were involved in the decision to implement AAIs in their organization, future research aimed at understanding who and how AAI decisions are made at the organizational level may also be of benefit. Once a decision-making population is identified, additional work that assesses knowledge and attitudes among these individuals, or how knowledge and attitudes vary among decision makers of different disciplines, may also be of value. Collectively this additional information could help to further overcome AAI barriers and challenges and thus expand access to AAIs.

Research Lessons Learned

The primary lesson I learned in preparing and conducting this study was to have a definitive idea and measurement plan (such as a valid and reliable instrument), but otherwise remain flexible. I encountered several unexpected barriers in accessing my desired sample size, primarily related to the novel coronavirus pandemic. Because of the pandemic, I was unable to post on many social media sites (such as the pages of nursing professional organizations) because they implemented limits on visitor posts. The AONL, intended to be my primary recruitment venue, was delayed in posting the study invitation in their e-newsletter and on their research webpage to participate. As a result, the invitation appeared only once in the digital publication before the e-newsletter became almost exclusively dedicated to pandemic information. I did expect a fair number of people would not complete their survey after reading about online survey response and completion rates, therefore my completion rate (65.6%) was not surprising;

however, the small number of overall responses (n = 305) was still surprising (Meterko, Restuccia, Stolzmann, Mohr, Brennan, Glasgow, & Kaboli, 2015). To increase my sample size, I needed to request a change in procedures from the IRB to add the Walden University Participant Pool to my data collection methods. However, that the participant pool only added a small number of respondents (n = 8).

Finding an applicable tool was also a challenge. I was fortunate to find two instruments and secure permission to use them. However, as I began to analyze my data, I identified some additional data points I would have liked to collect and additional concepts I would have liked to have measured. I have a newfound appreciation for the development and validation of instruments and may explore this in the future, specifically for use in assessing healthcare providers' perceptions of AAIs. Similarly, although the results of my study are straightforward and fully answered my research questions, I was surprised to discover how much more there still is to learn about the concepts I studied. I look forward to pursuing them in the future.

Conclusion

The NLs in this study reported widespread use of AAIs in a broad range of healthcare organizations types and with variety of patient populations. NLs reported using AAIs with patients from every age group and across the acuity continuum. Like most other healthcare providers, NLs have knowledge about and favorable attitudes toward AAIs whether they had access to AAIs in their organization or not. Most NLs who did not have access to AAIs indicated they would use them in their practice if they were available. These findings are encouraging because NLs are often in position to

advocate for the adoption of performance improvement strategies such as AAIs into their units, departments, or organizations (Larson, 2017). Despite this position, most NLs in this survey were not involved in their organization's AAI decision-making. The presence of an AAI program in a NL's organization was associated with the NLs having significantly more AAI knowledge and significantly more favorable AAI attitudes. However, the relationship between knowledge and attitudes was weak and, in some cases, insignificant. Collectively, the results of this study suggest that two common barriers against AAI adoption, unfavorable attitudes and knowledge deficits, may be mitigated by exposure to an AAI program (such as through site visits or networking with colleagues who have a successful AAI program) or through educational interventions that focus on the evidence-based benefits of AAIs. Overcoming these barriers can lead to increased availability of AAI programs. In turn, increased availability of AAIs has the potential to produce positive social change by improving the outcomes and experience of both patients and healthcare providers. Many of these outcomes, such as improved management of pain, stress, anxiety, isolation, behavioral disorders, patient experience, patient engagement, and healthcare worker burn-out, are common areas of focus in modern American healthcare organizations.

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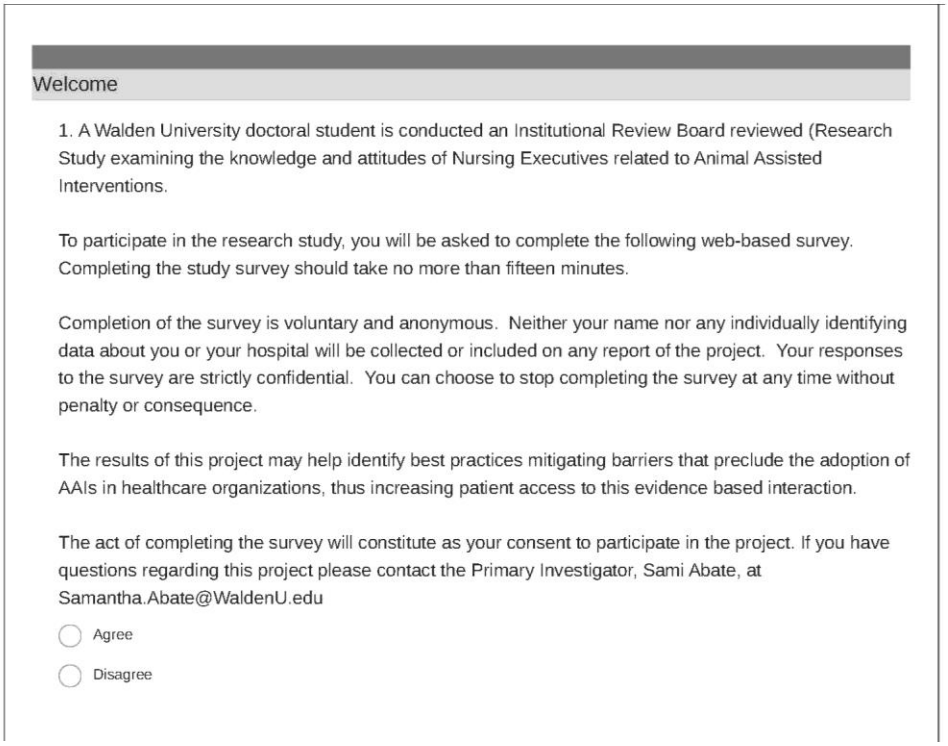
Appendix A: Survey Instrument



Welcome

1. A Walden University doctoral student is conducted an Institutional Review Board reviewed (Research Study examining the knowledge and attitudes of Nursing Executives related to Animal Assisted Interventions.

To participate in the research study, you will be asked to complete the following web-based survey. Completing the study survey should take no more than fifteen minutes.

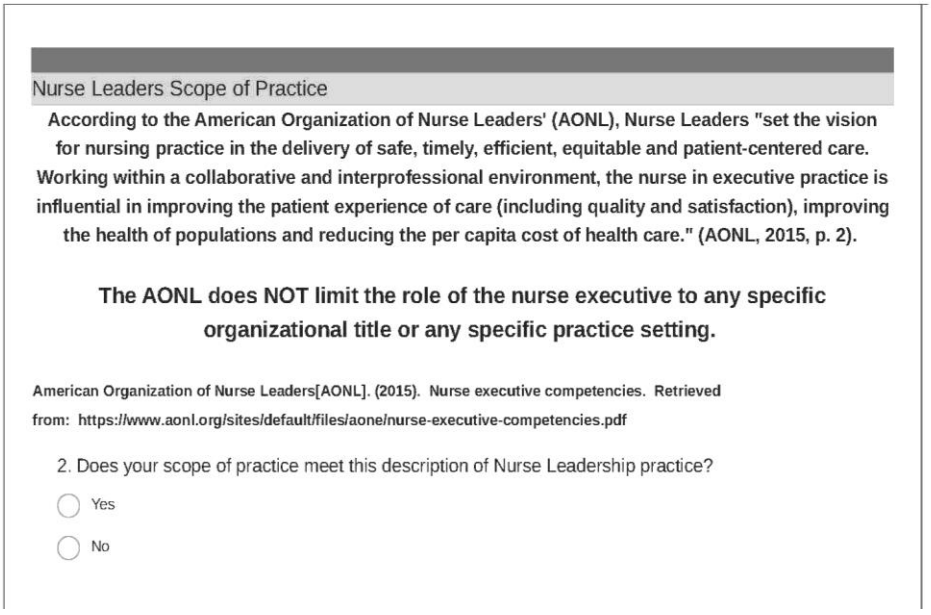
Completion of the survey is voluntary and anonymous. Neither your name nor any individually identifying data about you or your hospital will be collected or included on any report of the project. Your responses to the survey are strictly confidential. You can choose to stop completing the survey at any time without penalty or consequence.

The results of this project may help identify best practices mitigating barriers that preclude the adoption of AAIs in healthcare organizations, thus increasing patient access to this evidence based interaction.

The act of completing the survey will constitute as your consent to participate in the project. If you have questions regarding this project please contact the Primary Investigator, Sami Abate, at Samantha.Abate@WaldenU.edu

◯ Agree

◯ Disagree



Nurse Leaders Scope of Practice

According to the American Organization of Nurse Leaders' (AONL), Nurse Leaders "set the vision for nursing practice in the delivery of safe, timely, efficient, equitable and patient-centered care. Working within a collaborative and interprofessional environment, the nurse in executive practice is influential in improving the patient experience of care (including quality and satisfaction), improving the health of populations and reducing the per capita cost of health care." (AONL, 2015, p. 2).

The AONL does NOT limit the role of the nurse executive to any specific organizational title or any specific practice setting.

American Organization of Nurse Leaders[AONL]. (2015). Nurse executive competencies. Retrieved from: https://www.aonl.org/sites/default/files/aone/nurse-executive-competencies.pdf

2. Does your scope of practice meet this description of Nurse Leadership practice?

◯ Yes

◯ No

Organizational Demographic Information

This page will be used to collect information about your healthcare organization. No identifying characteristics will be individually included in any report of this study.

3. Please select one option that best describes your type of hospital.

- ◯ Acute Care Hospital
- ◯ Specialty Hospital (ex. Behavioral Health, Pediatrics, etc.)
- ◯ Long Term Care Facility
- ◯ Outpatient Center
- ◯ Other (please specify)

4. **If patients are admitted to your organization/facility** please enter your number of licensed beds.
Please skip this question if patients are NOT admitted to your facility.

5. Please select the option that best describes your organization's setting.

- ◯ Urban
- ◯ Rural
- ◯ Suburban

6. Please select your organization type.

- ◯ Academic Medical Center
- ◯ Community (non-academic) Medical Center
- ◯ Not Applicable *(i.e. outpatient center)*

7. Please select the option that best describes your organization.

- ◯ Non-government Not-for-Profit
- ◯ Investor Owned (For-Profit)
- ◯ State or Local Government Owned
- ◯ Federal Government Owned

8. Is your organization/facility part of a larger healthcare system or network?

- ◯ Yes
- ◯ No

9. Please select your US Census Bureau Region

- ◯ Northeast: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.
- ◯ Midwest: Ohio, Michigan, Indiana, Wisconsin, Illinois, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.
- ◯ South: Delaware, Maryland, Virginia, West Virginia, Kentucky, North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi, Arkansas, Louisiana, Texas, Oklahoma, and Washington DC.
- ◯ West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, California, Oregon, Washington, Alaska, and Hawaii.

10. Is your organization designated as an American Nurses' Credentialing Center Magnet organization?

- ◯ Yes
- ◯ No

11. Is your organization designated as an American Nurses' Credentialing Center Pathway to Excellence facility?

- ◯ Yes
- ◯ No

Nurse Leaders Demographic Information

This page will be used to collect information about you and your Nurse Leader role. No identifying characteristics will be individually included in any report of this study.

12. Please select your highest nursing degree.

- ◯ Associate Degree or Diploma Degree in Nursing
- ◯ Bachelor of Science in Nursing (BSN)
- ◯ Master of Science in Nursing (MSN)
- ◯ DNP
- ◯ PhD
- ◯ Other Doctoral Degree

13. Please select your highest over all degree.

- ◯ My nursing degree is my highest degree.
- ◯ Baccalaureate Degree
- ◯ Masters Degree
- ◯ Doctoral Degree

14. How many years have you been a nurse?

15. How many years have you practiced as a Nurse Leader?

16. Are you a pet owner (now or at any time during your tenure as a Nurse Leader)?

- ◯ Yes
- ◯ No

17. Please select the option that best describes your Nurse Executive role within your organization.

- ◯ Manager
- ◯ Director
- ◯ Vice President
- ◯ Chief Nursing Officer
- ◯ Other (please specify)

18. Please rate your level of decision making authority within your organization

0 - I make suggestions only.	5 - I make autonomous decisions concerning my department/area only.	10 - I make decisions for the organization autonomously.

19. Please assess your level of interprofessional decision making.

Novice	Advanced Beginner	Competent	Proficient	Expert
○	○	○	○	○

Animal Assisted Intervention Programs

20. Does your organization have an active AAI program (*AAI visits actively take place on a regular basis)*?

- ◯ Yes
- ◯ No

21. **If your organization DOES NOT have an active AAI program please answer the following question:**

If an AAI program was available, would you utilize AAIs in the areas under your leadership authority (for example, in your unit, department, organization, etc.) ?

- ◯ Yes, I would use AAIs if they were available
- ◯ No, I would not use AAIs if they were available
- ◯ Not Applicable (AAIs are already available in my organization)

22. Were you involved in your organization's decision to implement an AAI program?

- ◯ Yes
- ◯ No

23. In your practice as a nurse, have you worked with an AAI program in any capacity before?

- ◯ Yes
- ◯ No

24. How many years has your organization's AAI program been in place?

25. In your Nurse Leader role have you incorporated (or supported the incorporation of) AAIs into the care delivered in areas under your leadership?

- ◯ Yes
- ◯ No

26. Please specify the ways in which your organization's AAI Program is utilized*(check all options that apply)*.

- [ ] Adult Medical-Surgical
- [ ] Pediatric Medical-Surgical
- [ ] Adult Behavioral Health
- [ ] Pediatric Behavioral Health
- [ ] Adult Oncology
- [ ] Pediatric Oncology
- [ ] Adult Critical Care
- [ ] Pediatric Critical Care
- [ ] Geriatrics
- [ ] End of Life
- [ ] Emergency Department
- [ ] Maternal Child Health
- [ ] Outpatient Clinics
- [ ] Staff Focused Program
- [ ] Other (please specify)

Knowledge of Animal Assisted Interventions with Dogs.

Questions in this section of the survey have been used with permission.

Schoenfeld-Tacher, R., Hellyer, P., Cheung, L. & Kogan, L. (2017). Public perceptions of service dogs, emotional support dogs, and therapy dogs. *International Journal of Environmental Research and Public Health, 14*(642).

27. How comfortable are you in your ability to define the role/function of a service dog?

- ◯ Very Comfortable
- ◯ Somewhat Comfortable
- ◯ Not Very Comfortable
- ◯ Not at All Comfortable

28. How comfortable are you in defining the role/function of an Emotional Support Dog?

- ◯ Very Comfortable
- ◯ Somewhat Comfortable
- ◯ Not Very Comfortable
- ◯ Not at All Comfortable

29. How comfortable are you in defining the role/function of a Therapy Dog?

- ◯ Very Comfortable
- ◯ Somewhat Comfortable
- ◯ Not Very Comfortable
- ◯ Not at All Comfortable

Perceptions of Animal Assisted Interventions with Dogs

When answering the following questions please consider the following definitions of each type of assistance dog (Schoenfeld-Tacher et al., 2017):

Service Dog: A dog that is individually trained to do work or perform tasks for the benefit of an individual with a disability, including a physical, sensory, psychiatric, intellectual, or other mental disability.

Emotional Support Dog: A dog that provides companionship, relieves loneliness, and can help with depression, anxiety, and certain phobias, but does not have special training to perform tasks that assist people with disabilities.

Therapy Dog: A dog that provides people with therapeutic contact, usually in a clinical setting, to improve their physical, social, emotional, and/or cognitive functioning.

Questions in this section have been used with permission.

Schoenfeld-Tacher, R., Hellyer, P., Cheung, L. & Kogan, L. (2017). Public perceptions of service dogs, emotional support dogs, and therapy dogs. International *Journal of Environmental Research and Public Health, 14*(642).

30. I see nothing wrong with people having service dogs if they think they are useful.

Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
○	○	○	○	○

31. Is nothing wrong with people having emotional support dogs if they think they are useful

Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
○	○	○	○	○

32. I see nothing wrong with providers using therapy dogs if they think they are helpful.

Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
○	○	○	○	○

33. I am really not sure of the difference between service dogs and emotional support dogs and therapy dogs.

Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
○	○	○	○	○

34. I think only guide dogs for the blind should be given special privileges, but not other types of service animals or emotions support dogs.

Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
○	○	○	○	○

Professional Knowledge of Animal Assisted Interventions

Questions in this section are used with permission.

Pinto, A., De Santis, M., Moretti, C., Farina, L., & Ravarotto, L. (2017). Medical practitioners attitudes towards animal assisted interventions: An Italian survey. *Complementary Therapies in Medicine, 33*, 20-26.

35. Have you ever sought information on Animal Assisted Interventions?

- ◯ Yes
- ◯ No

36. Have you ever attended informative/formative meetings on Animal Assisted Interventions?

- ◯ Yes
- ◯ No

37. Do you know the difference between Animal Assisted Activities and Animal Assisted Therapy?

- ◯ Yes
- ◯ No

38. Do you know what Animal Assisted Education interventions are?

- ◯ Yes
- ◯ No

39. Which information sources do you mainly use to seek information about Animal Assisted Interventions?

- ☐ Radio/TV/Newspaper
- ☐ Specialized Medical Journals
- ☐ Institutional Web Sites
- ☐ Non-institutional Web Sites
- ☐ Social Media (blog, forum, etc.)
- ☐ Books
- ☐ Other (please specify)
- ☐ Meetings/Professional Conferences
- ☐ Training Activities
- ☐ Inservice Training Programs
- ☐ Colleagues
- ☐ Cultural or Voluntary Associations

Professional Opinions Towards the Benefits of Animal Assisted Interventions

Questions in this section are used with permission.

Pinto, A., De Santis, M., Moretti, C., Farina, L., & Ravarotto, L. (2017). Medical practitioners attitudes towards animal assisted interventions: An Italian survey. Complementary Therapies in Medicine, 33, 20-26.

40. What is your opinion towards Animal Assisted Interventions?

I am not favorable	I have some doubts/aversions	I am fully favorable towards AAI
◯	◯	◯

41. In general, referring to Animal Assisted Interventions, how do you describe yourself?

Skeptic and without interest in the topic.	Skeptic, but interested in the topic	Convinced, but not interested in the topic	Convinced and interested in the topic
◯	◯	◯	◯

42. In your opinion, could Animal Assisted Interventions be risky interventions for the patient?

No, I think they aren't	Yes a little, it depends on the animal involved in the intervention	Yes a little, it depends on the disorder that affects the patient	In part yes, it depends on the age of the patient	In part yes, it depends on the skills of the operators involved	Absolutely yes, I'm not enough informed on the issue to express an opinion
◯	◯	◯	◯	◯	◯

Professional Opinions towards Animal Assisted Interventions *(continued)*

Questions in this section are used with permission.

Pinot, A., De Santis, M., Moretti, C., Farina, L., & Ravarotto, L. (2017). Medical practitioners attitudes towards animal assisted interventions: An Italian survey. Complementary Therapies in Medicine, 33, 20-26.

Please indicate your level of agreement with each of the following statements regarding the potential benefits of Animal Assisted Interventions

(1=Strongly Disagree --> 10=Strongly Agree)

43. They help to battle isolation and loneliness.

0 10

44. They keep patients company.

0 10

45. They stimulate positive emotions.

0 10

46. They stimulate relationships.

0 10

47. The stimulate the release of pleasure endorphins and hormones.

0 10

48. They encourage recreation and distraction.

0 10

49. They enhance patients' self esteem.

0 10

Thank You

Thank you for participating in this project.

Appendix B: 75 Word Announcement for AONL Working for You

Paws for Thought: Nurse Leaders, please share your thoughts on Animal Assisted Interventions in healthcare.

Nurse Leaders (regardless of job title, education level, and practice setting) are invited to take part in a PhD dissertation study. Please use the following weblink to provide your perspectives on Animal Assisted Interventions in various healthcare settings.

https://www.surveymonkey.com/r/NurseLeaderAAIs

Appendix C: AONL Process Email

Abate, Samantha

From: Meadows, Mary [redacted]
Sent: Wednesday, August 28, 2019 4:55 PM
To: Abate, Samantha
Subject: [EXT] RE: AONL Membership Access

This email ***DID NOT*** originate from within Inspira Health. Please **STOP and THINK** before opening attachments, clicking on links, or providing any information.

Sami:
Thank you for the summary of our phone conversation. All of the bullet points reflect our conversation and the current process and guidelines for AONL Member access for research participation.
Sincerely
MT Meadows, DNP, MBA, CENP
Director, Professional Practice
American Organization for Nursing Leadership (AONL)
[redacted]

From: Abate, Samantha [redacted]
Sent: Tuesday, August 27, 2019 10:24 AM
To: Meadows, Mary [redacted]>
Cc: Morse, Virginia [redacted]
Subject: RE: AONL Membership Access

Thank you for your time this morning Dr. Meadows.
To summarize, the AONL process is as follows:

- Access to member is through the AONL Working for You publication (a weekly email newsletter sent on Tuesday to all members); email addresses of members are not provided
- The opportunity to participate in the study is offered as a concise (approximately 75 word) bullet/invitation in the RESEARCH section of the newsletter. Clicking on the title of this invitation takes the reader to a page of study opportunities with brief descriptions that include a link to the web-based survey instrument set up by the researcher
- IRB approval must be obtained before making an application to AONL for member participation
- Once IRB approval has been obtained I will complete the Membership Access Agreement and attach the requested documents to you for consideration/approval.

Thank you again for your help and support.

Sami Abate, MSHS, MSN, RN, CCRN
Director Research & Nursing Quality
Magnet/Pathways Program Director

Appendix D: Survey Permission

Re: Perceptions of Helping Dogs Article - Request to Use Instrument

RS Regina Schoenfeld [redacted]
Tue 6/4, 5:07 PM
Samantha Abate; Kogan,Lori [redacted]

You forwarded this message on 6/4/2019 5:35 PM

Hi Samantha,

Your study sounds great. Yes, feel free to use the published questions. Thanks for asking. I'd also love to see your Kogan and I are getting ready to do a similar survey among veterinarians and veterinary students.

Good luck with your dissertation!

All the best,

Regina Schoenfeld

On Tue, Jun 4, 2019 at 3:18 PM Samantha Abate [redacted] wrote:

> Good afternoon Dr. Schoenfeld. I am doctoral student who is assessing nursing leaders' knowledge of Animal Ass dissertation.
>
> I found your article very inspiring and insightful. It adequately captured the spirit of why I chose my phenomenor often encounter confusion relating to the roles of various helping dogs which in turn influence healthcare provide of my online survey, I was hoping to utilize part of your instrument - I was most interested in reproducing the intr respondents' ability to define each type of helping dog, and the subsequent definition used. If possible, i would a which asked about the ability to discern between types of helping dogs and perhaps what setting in which each t course, credit you and your team for the work.
>
> I am hopeful that my work will identify knowledge deficits and the relationship between knowledge and attitudes country with the ultimate goal that this information can be used to help increase access to beneficial animal assis appropriate.
>
> Thank you so much for your help.

--
Regina Schoenfeld, Ph.D.
Assoc. Professor of Veterinary Education Development
Molecular Biomedical Sciences Dept.
NCSU College of Veterinary Medicine

R: Use of Animal Assisted Intervention Survey in a Dissertation

PA Pinto Anna[redacted]>

Today, 7:17 AM

Samantha Abate

Reply all

Inbox

You forwarded this message on 6/21/2019 8:17 AM

Yes, you can use the questions with citations.
Anna

Da: Samantha Abate [mailto:samantha.abate@waldenu.edu]
Inviato: venerdì 21 giugno 2019 13:16
A: Pinto Anna <APinto@izsvenezie.it>
Oggetto: Re: Use of Animal Assisted Intervention Survey in a Dissertation

Thank you so much.
Would it be acceptable to use some of the survey questions shown in the attached article in my dissertation study (with a citation)?

Get Outlook for iOS

From: Pinto Anna <APinto@izsvenezie.it>
Sent: Friday, June 21, 2019 7:11:53 AM
To: Samantha Abate
Subject: R: Use of Animal Assisted Intervention Survey in a Dissertation

Dear Samantha,
thank you for your email. Unfortunately I can't give you the questionnaire, but I attach the published paper hoping it could be useful for your study.
Best regards,
Anna Pinto

Da: Samantha Abate [mailto:samantha.abate@waldenu.edu]
Inviato: mart[redacted]
A: Pinto Anna <APinto@izsvenezie.it>
Oggetto: Use of Animal Assisted Intervention Survey in a Dissertation

Good afternoon Dr. Pinto. I am a doctoral student working on my dissertation which focuses on nursing leaders knowledge of and attitudes towards Animal Assisted Interventions.

I found your study incredibly insightful and am hoping to use the same instrument in my study population - senior nursing leaders in Magnet recognized hospitals.

It is my hope that my work will allow me to identify nursing leaders knowledge deficits related to Animal Assisted Interventions which can, in turn, be addressed to help improve access to Animal Assisted Interventions in the hospital setting.

I was hoping to be able to use your survey as part of my doctoral dissertation research study, with appropriate permissions of course.

Thank you so much for your assistance and for your consideration.