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Dog Visitation in Long-term Care and Its Effects on Depression

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DOG VISITATION IN LONG-TERM CARE AND ITS EFFECTS ON DEPRESSION

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EASTERN KENTUCKY UNIVERSITY
COLLEGE OF HEALTH SCIENCES
DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY

This project, written by Leah Simpkins under direction of Dr. Colleen Schneck, Faculty Mentor, and approved by members of the project committee, has been presented and accepted in partial fulfillment of requirements for the degree of

DOCTOR OF OCCUPATIONAL THERAPY

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Certification

We hereby certify that this Capstone project, submitted by Leah Simpkins, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the project requirement for the Doctor of Occupational Therapy degree.

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Executive Summary

The capstone project examined the effect of certified therapy dog interaction with residents of a long-term care facility. The primary researcher utilized the assistance of a certified therapy dog and certified therapy handler for five visits to the long-term care facility for a timeframe of once a week for five consecutive weeks. The visits were for a fifteen minute dog visitation in the participant's room, which comprised the experimental group. The primary researcher monitored the participant's interaction with the dog, verbalizations, and smile counts during this time. Control group was observed in the courtyard for five consecutive weeks for no dog interaction, until the last final visit. During this time, the primary researcher monitored smile and verbalizations for the fifteen minute duration. The Geriatric Depression Scale (GDS) was used as the pre- and post-test measurement. The primary researcher also inquired about three additional items: medication changes, visitors to the participant, and the number of outings for the participant. Results on the GDS control group showed a non-significant difference between the pre-GDS scores (M=1.6, SD=0.548) and post-GDS scores (M=1.8, SD=1.789); t(4) =-.272, p=0.799. Further, the experimental group, non-significant difference between pre-GDS scores (M=2.2, SD=1.789) and the post-GDS (M=3.0, SD=0.707); t(4) =-.930, p=0.405). Smile analysis results showed the experimental group had a significantly higher mean smile count (18.1) after interactions with a therapy dog compared to the control group that did not receive animal or human interaction (2.8), t(4.094) = 3.955, p = 0.016. The study also found that the experimental group did have statistically higher mean verbalizations (23.5) after interactions with a therapy dog compared to the control group that did not have any animal or human interaction (3.2), t (4.078) = 2.819, p = 0.047. A significant difference was found between the average, non-dog meeting smile counts (M = 2.8, SD = 0.929) and the one dog-assisted visit (M

= 21.4, SD=7.300); t(4)=-6.393, p=0.003. There was a significant difference between the average, non-dog meeting verbalizations (M=3.2, SD=1.579) and the one dog-assisted visit (M=15.8, Sd=6.978); t(4)=-4.735, p=0.009.

In conclusion, this study found that the GDS scores were not altered by a certified therapy dog visiting for the duration of fifteen minutes. However, this study did find that significant results in both smiles and verbalizations increased with a certified therapy dog's interaction for a duration of fifteen minutes, once a week, for the course of a five week duration of study.

Acknowledgements

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Dedication

To my children, may you aspire to dream and may your dream become a reality. To Whitefang, best dog ever.

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DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY

CERTIFICATION OF AUTHORSHIP

Submitted to: Dr. Colleen Schneck
Student's Name: Leah Simpkins
Title of Submission: Dog Visitation in Long-Term Care and its Effects on Depression

Certification of Authorship: I hereby certify that I am the author of this document and that any assistance I received in its preparation is fully acknowledged and disclosed in the document. I have also cited all sources from which I obtained data, ideas, or words that are copied directly or paraphrased in the document. Sources are properly credited according to accepted standards for professional publications. I also certify that this paper was prepared by me for this purpose.

Student's Signature: Leah Simpkins

Date of Submission: 8-3-15

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

DOG VISITATION IN LONG-TERM CARE AND ITS EFFECTS ON DEPRESSION

CHAPTER I

INTRODUCTION

Nature of Project and Problem Identification

In the United States, depression in long-term care facilities is rising along with antidepressant usage and mortality (Hanlon, Handler, & Castle, 2010). This is concerning as "depression is the commonest psychiatric illness in old age" (Snowdon, 1986, p. 85), which directly relates to the long-term care patient. Further, "antidepressant prescribing [has] significantly increased from 21.9% in 1996 to 47.5% in 2006" (Hanlon, Handler, & Castle, 2010, p. 320). Certain non-drug therapies, such as animal visitation, have potential benefits to the long-term care population such as lowering rates of depression (Cipriani et al., 2013). For example, "research has shown that companion animals may help to minimize feelings of loneliness and may assist with changes and transitions related to aging" (Prosser, Townsend, & Staiger, 2008, p. 30). Pacheco-Ferreira (2012) further stated that "domestic companion animals provide valuable assistance to the physical and mental health of their owners" (p. 64). Animals may also have impact on the elderly population since "for some older people the relationship with their companion dog might be the most significant existing relationship" (McColgan & Schofield, 2007, p. 23). However, this research is extremely limited, current literature illustrates a general benefit of dog interaction. More research is needed within long-term care facilities to determine whether depression can be decreased by incorporating visitation of an animal, such as a dog, thereby potentially providing a mechanism to decrease or stop antidepressant medication therapy. And more research is needed regarding frequency and duration of dog interaction within long-term care facilities.

For example, Fick (1993) demonstrated that a 30 minute interaction with a dog significantly increased verbal interaction of long-term care patients, which indicates that even a thirty minute amount of time spent with a dog can provide benefit. More research needs to be completed regarding the increase in verbalizations and smile interactions within long-term care. A decrease in depression means a better quality of life for individuals residing within long-term care facilities. Another study demonstrated that a 30 minute interaction for the six week duration had no benefit to the patients regarding scores on the Beck Depression Inventory (BDI) (LeRoux & Kemp, 2009). It should also be noted that a ten minute interaction with a dog did not offer change on the Geriatric Depression Scale (GDS) during another study (Phelps, Miltenberger, Jens, & Wadeson, 2008). The positive benefit of dog interaction with patients can provide possible benefits because nursing home facilities are relying on medication to combat the depressive symptoms of the geriatric patient in long-term settings instead of using alternative methods (Hanlon, Handler, & Castle, 2010). Another study chose to use 15 minutes of dog interaction followed by 15 minutes of walking a dog during actual physiotherapy and showed benefit in regards to raising cortisol (chemical in the body emitted when happy) levels of the participants (Berry et al., 2012).

In relation to current literature, very few studies exist in relation to occupational therapy, animal visitation, and depression in nursing homes. One study, however, reviewed the effect of animal interaction on diagnosed mental health conditions and illustrated that the animal interaction was successful in decreasing scores on the Mini-Mental State Examination (MMSE), the GDS, and a self-perceived quality of life questionnaire after pet therapy (Moretti et al., 2011). A second study showed an increase in smile levels and interactions among humans during and following dog interaction (Berry et al., 2012). Using the GDS as a pre- and post- data

collection tool, and keeping a data collection sheet (see Appendix H) charting both verbalizations and smiles during the visits, the researcher explored whether having interaction with a dog for a 15 minute time duration would have a correlation with lower depression levels following a visit with a dog over the course of six weeks. For this research, a rural long-term care facility located in Kentucky was utilized. The facility is a 92 bed long-term care facility for primarily the geriatric population and medical diagnoses which require close monitoring (e.g., traumatic brain injury, cerebrovascular accident, and falls).

This study may be used to implement change through allowing more dog visitation to the residents within a long-term care facility if results are deemed appropriate and necessary to assist in decreasing overall depression in relation to the allowing of dogs to visit in the long-term care facility. At most long-term care facilities, animals are unwelcome visitors for a plethora of reasons in problem statement detailed below. Often times, residents will mention that they had to leave a family pet behind when coming into a long-term care facility. Residents commonly mention that they would enjoy having a dog included as a visitor to the facility or to be utilized in therapy sessions. Some residents informed the researcher that they actually had to euthanize their pet because they had to come into a nursing home facility and had no other option for them. Overall, the needs of the nursing home patient change almost daily due to depression and other life events (e.g., family visiting or not visiting).

If the results prove beneficial through this study, this would assist with advocating for the patients and occupational therapists by providing more opportunities to interact with dogs in a long-term care facility to assist with decreasing depression while increasing verbalizations and smiles. This potentially could assist with depression within the nursing home facilities. The

findings will add to the body of knowledge about dog and human interaction within a long-term care facility.

Problem Statement

The needs assessment revealed that the problem at the facility was that animals, dogs in particular, were not welcomed visitors to the long-term care facility where the research took place. In particular the needs assessment was a self-administered survey to the residents of the facility and a focus group with questions asked of residents regarding dogs visiting in the facility where the research occurred. The focus group consisted of 5 females and 5 males for a combined total of 10, which was completed in one hour and asked questions regarding pet likability, ownership, and thoughts on allowing pets into the facility. The self-administered survey was completed by 10 individuals (6 females and 4 males) and asked questions regarding pet ownership, dog likability, and overall opinion regarding the allowing of pet visitation into the facility. The policy at the time of study implementation would ask that animal owners not to bring their pets to the facility, and whenever they did visit the facility they were required to be kept outdoors away from others. Residents would mention how they remembered having pets earlier in their lives, and would like to visit with an animal in general or with their own cherished pet. Due to various concerns (e.g., other residents being afraid, allergies, cleanliness, or up-to-date shot records), animals were not welcomed at the facility. One reason was the perceived risk of illness when exposed to an animal, such as Methicillin-resistant Staphylococcus aureus (MRSA) (Coughlan, Olsen, Boxrud, & Bender, 2010). McColgan and Schofield (2007), however, state that "zoonoses, diseases transmitted from animals to humans are rare, and it is unlikely that infections such as MRSA are at any more risk of transmission purely because of the presence of an animal" (p. 23). Due to the extremely limited research on the utilization of

animal visits and facilities routinely frowning upon animal visits, additional research is needed to determine if animal visits may provide benefits to residents in long-term care facilities in relation to depression, mood, and quality of life. In a study by LeRoux and Kemp (2009), Beck Depression Inventory (BDI) scores for an animal assisted group were significantly lower following animal visitation. The proposed research may help determine whether animal visits assist in the depression and overall quality of life of long-term care residents, and, if benefits are proven, answer questions on how animals may be integrated into long-term care facilities.

Purpose of Project

The purpose of this research study is to determine if a relationship exists between animal visits, specifically dogs, and depression scores on the Geriatric Depression Scale (GDS) and data collection chart items (smile and verbalizations) for geriatric long-term care patients at a long-term care facility, at the time of the study, dogs were not permitted. At the beginning stage of this research, the impact of dog visits on depression and quality of life of geriatric participants is unknown due to the limited amount of existing research on this topic. This research study will use a quantitative design through the utilization of the GDS and the data collection sheets that capture data regarding medication changes, visitations to the participant in the facility, and outings for the participant. Findings will be shared with the long-term care facility administration and an action plan developed, as appropriate. Further research studies may be spawned from this research, such as the replication of this study.

Theoretical Framework

The primary theoretical framework that will be utilized throughout this project with reference to occupational therapy will be the Model of Human Occupation (MOHO) (Kielhofner, 2008). This model was chosen primarily due to the relationship between a patient, the

environment, and the fit between the two (Kielhofner, 2008). The MOHO model places the patient at the center of their treatment session with everything else surrounding being of importance, but not the primary focus. Regarding the projected study, MOHO explains the behaviors that are central and important to the person, which is needed to understanding the animal fit and also the human fit within the geriatric population at the proposed research site. Specifically, this refers to whether or not the resident of the long-term care facility deems dog visitation an integral part of their lifestyle. Also, with MOHO the individual is studied within their own context or environment, which is the case for the long-term care geriatric facility. Lastly, it is important to have a basic understanding of the patient's fit within their own context of the long-term care facility. In other words, what does the patient find of importance to them, what makes them who they are, and the attempts to understand how the participant perceives dogs in their own context.

Significance of Study

This study was based upon the very limited animal geriatric therapy research that was available at the time of the study. Further in regard to occupational therapy and the geriatric population, depression, in relation to dogs in long-term care facilities, limited research exists for this area of practice and evidence-based practice. The lack of research does not indicate that this is an unneeded or unwarranted area of research, but possibly an undiscovered area of research. The facility where the research is taking place will be impacted either to allow dogs to visit regularly or maintain the current status quo (restrictive animal visitation policy). If deemed beneficial, dogs could start to become regular faces in the long-term care facility if they do indeed reduce depression and uplift moods.

Definitions

The definitions used for this research project should be further explained to ensure understanding.

- **Depression** can be explained from the Merriam-Webster (2014) dictionary as being "a serious medical condition in which a person feels very sad, hopeless, and unimportant and often is unable to live in a normal way" (para. 2).
- **Mental health** can be defined by using the Center for Disease Control and Prevention (2013) definition as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (para. 2).
- **Model of Human Occupation** can be defined as a theoretical framework, which is comprised of the following elements: "occupation-focused, client-centered, holistic, evidence-based, and complementary to practice" (Kielhofner, 2008, p. 1). For the purposes of this study the Model of Human Occupation meant defining the subsystems beneath the theoretical base. **Habituation** is defined as being the patterns of behavior and routines the participant found of importance. **Volition** is defined as the anticipation and experience involved and the values and interest that the participant finds enjoyable. **Performance capacity** is defined as the environment, the increase in memory, attention span, and anticipation.
- **Smile** was defined for the purposes of this study as the lips of the participant turning more than half-way upward with teeth showing. Merrian-Webster (2015) defines a smile as the following, " to make a smile: to make the corners of your mouth turn up in an expression that shows happiness, amusement, pleasure, affection, etc." (para. 1).

CHAPTER II

LITERATURE REVIEW

Currently, limited research is available regarding the relationship between the geriatric nursing home population, depression, and dogs, particularly within the field of occupational therapy. In order to find research for these topics, both the national and international literature were reviewed. The following is a synopsis of the literature that is available, albeit limited for the proposed research project. Entailed below is a sub-category selection of the topics reviewed relating to the overall topic of dogs, depression, long-term care, and the geriatric population. Further review is available in Appendix A: Annotated Bibliography and Appendix B: Table of Evidence.

Life Satisfaction

To begin, four studies have specifically reviewed depression and life satisfaction in the nursing home geriatric population and all agreed that it is important to detect depression early in order to provide treatment or intervention (Snowdon, 1986; Smith, Kielhofner, & Watts, 1986; Duncan-Myers & Huebner, 2000; Prado-Jean et al., 2011). More specifically, Snowdon (1986) mentioned that using the Geriatric Depression Scale (GDS) "has been shown to be a reliable and valid depression screening scale for elderly populations" (p. 85). Another study chose to use the Nursing Home Short Depression Inventory (NH-SDI), a different tool for depression detection, which also proved beneficial to detection of early depression (Prado-Jean et al., 2011). Regardless of the tool used to measure depression, the consensus shows that the consideration of overall life satisfaction is important to consider when reviewing both quality of life and the consideration of depression (Duncan-Myers & Huebner, 2000). Further, the importance of empowerment was realized through the usage of occupational therapy strategies by allowing

choice and community involvement which may assist with improvement of quality of life (Duncan-Myers & Huebner, 2000). Smith et al. (1986) noted a positive relationship between interest in occupation and life satisfaction in the elderly population. Therefore, life satisfaction in the long-term care facility is certainly something to consider, which seems to go hand in hand with depression in this type of facility regarding the geriatric population. This relationship is because as Starkstein, Ingram, Garau, and Mizrahi (2005) mentioned, apathy and depression are present in residents of long-term care facilities quite often. Having positive life satisfaction can contribute to an overall positive overview of life and a more positive quality of life. As Duncan-Myers and Huebner (2000) mentioned, "occupational therapists could be leaders in promoting" a more encouraged level of choice within the long-term care facility (p. 507) regarding what the patient would like to do.

Productive and Positive Aging

The contrast to depression in the long-term care population is the topic of productive and positive aging. Few articles have been published regarding this vast contrast to depression in long-term care facilities. For this topic, four articles were reviewed with one pertaining to lifestyle redesign for the elderly population. D'Amico (2012) reviewed twelve articles in her research pertaining to the *Centennial Vision* of occupational therapy for the calendar year of 2011, with most being systematic reviews for both dementia and Alzheimer's diagnoses. Two articles, (Murphy, 2011; and Rudman, 2006) discussed activity, social inclusion, and focus on overall health while reviewing other author's articles printed for national publications. Rudman (2006) specifically mentioned the importance of "a dissociation of aging and disease, an emphasis on postponing old age, a stress on individual responsibility, and a focus on activity" (p. 189). This change in focus for the geriatric population "creates opportunities in health

promotion because these issues are becoming national priorities for health care" and the patient in the long-term care facility (Murphy, 2011, p. 197). Moreover, Jackson, Carlson, Mandel, Zemke, and Clark (1998) stated that "individuals attach significance to their occupations, from the seemingly most mundane chore to the once-in-a-life-time opportunity" (p. 328). Another article related active aging to the geriatric population stating that occupational therapists and occupational scientists should advocate for the patient through policy development: "Individual therapists and the profession at large [occupational therapy and occupational science] should support active ageing both in their day-to-day practice and through political activism" (Wilcock, 2007, p. 15). Aging successfully is based a lot upon independent decisions and lifestyle (Rudman, 2006). Results of all of the studies reviewed for productive and positive aging demonstrated that further research in this area is needed, especially within the realm of occupational therapy. This is important to mention prior to the discussion on depression and the long-term care population.

Depression in Long-Term Care Residents

Additional articles were reviewed regarding depression and both agreed that this is a major health issue for the select population. Lin, Wang, and Huang (2007) found that individuals who reside in a long-term care facility were more likely than those residing in the community to have depression or depressive symptoms. Similarly, Wagenaar et al. (2003) explained that "depression is under recognized and undertreated" and that "depression in nursing home residents is a common phenomenon" (p. 465). Another article agreed that "depression is common among nursing home residents with rates ranging from 12% to 20%" of patients and that "depression is associated with increased morbidity and mortality in nursing home patients" (Hanlon, Handler, & Castle, 2010, p. 321).

The treatment of choice in many long-term care facilities is medication. Hanlon et al. (2010) reviewed 12,556 United States nursing homes between 1996 and 2006 and found that "antidepressant prescribing significantly increased from 21.9% in 1996 to 47.5% in 2006" (p. 320). As Iden, Hjorleifsson, and Ruths (2011) further mentioned, treatment for depression in the long-term care population at nursing homes needs improvement. More specifically, "little evidence supports the efficacy of antidepressants for patients with mild or moderate depression and for those with depression and coexisting dementia" (Iden et al., 2011, p. 252). Another study proved that the removal of selective serotonin reuptake inhibitors (SSRIs) were successful for elderly patients in a nursing home to function without the medication for depression or anxiety (Lindstrom, Eekedahl, Carlsten, Martensson, & Molstad, 2007). Actually, SSRI removal was "judged successful in 70% of the patients" (Lindstrom et al., 2007, p. 5). Is something other than medication the answer to depression and the long-term care population?

Animal Interaction and Pet Therapy Intervention Overview

In regards to the topic of attempting to remove or alter medication regimes from the long-term care patient's list for the treatment of depression, animal interaction may be the key. The following is a discussion of pet therapy and animal interaction articles reviewed, specifically dogs. To start, as mentioned by Cipriani et al. (2013), dogs have proved to be beneficial to the long-term care population. Specifically, Cipriani et al. (2013) reviewed 19 articles pertaining to both dog-assisted therapy and long-term care patients in relation to quality of life. Results showed that outcomes for dog-assisted therapy were beneficial to raising quality of life perception of the long-term care patient (Ciprani et al., 2013). Fick (1993) demonstrated that a 30-minute interaction with a dog significantly increased verbal interaction among the elderly population in the long-term care facility. One study chose to review the effect of animal

interaction on diagnosed mental health conditions and illustrated that the animal interaction proved successful in decreasing scores on the Mini-Mental State Examination (MMSE), the Geriatric Depression Scale (GDS), and a self-perceived quality of life questionnaire after pet therapy (Moretti et al., 2011). Another study showed an increase in numbers of smile and interactions among humans during and following the dog interaction (Berry et al., 2012). Travers, Perkins, Rand, Bartlett, and Morton (2013) showed that participants who were placed into a dog-assisted group versus the human interaction group had better quality of life scores and better depression scores following the study.

Pet therapy has been a topic that has been around for several years in long-term care facilities. Zisselman, Rovner, Shmuely, and Ferrie (1996) discussed the effects on geriatric psychiatry inpatients in their study with findings including no significant difference noted between the pet therapy intervention group and the exercise control group. Yet, it should be noted that following the intervention of pet therapy in the geriatric psychiatry population, the women had improved irritable behavior (Zisselman, Rovner, Shmuely, & Ferrie, 1996). Conversely, LeRoux and Kemp (2009) discovered that the dog therapy group had significant differences between pre- and post-test scores on the Beck Anxiety Inventory (BAI) following interaction. Yet, pet therapy has had the share of cynics as well.

Animal Interaction Opposition

It should also be noted that animals are sometimes resisted in long-term care facilities for several reasons. As previously mentioned, there are perceptions that patients can be subjected to diseases caused by animals. Regardless, sometimes dogs are not the answer to depression, as one study did not reveal that dogs were beneficial to long-term care elderly patients in relation to depression, mood, or social interaction following a six week duration, visiting with a dog one

time a week for a ten minute time frame of dog interaction in a long-term care facility (Phelps, Miltenberger, Jens, & Wadeson, 2008). Due to the problem of extremely limited research on the utilization of animal visits as part of occupation-based practice and facilities routinely frowning upon animal visits, additional research is needed to determine if animal visits may provide benefits to residents in long-term care facilities in relation to depression, and quality of life.

Dog Interaction Acceptance

A study was completed in Japan over the duration of a year with 10 nursing home residents each visiting with 3-4 dogs twice a month 30 minutes each (Kawamura, Niiyama, & Niiyama, 2007). Results of this study demonstrated that after six months of visitation, mental functioning improved with the study participants; however, physical functioning declined, indicating that possibly six months duration no longer has an effect for the nursing home population (Kawamura, Niiyama, & Niiyama, 2007). Some religious affiliations believe that dogs bring solace to nursing home patients, as demonstrated by bringing dogs to visit (Lefevere, 2005). Although very little research exists in relation to the long-term care population and an animal's presence, the majority of the research that is currently available does illustrate benefit. In a study by LeRoux and Kemp (2009), Beck Depression Inventory (BDI) scores were significantly lower following animal visitation; the higher the score, the greater the probability of depression. It should also be mentioned here that cultural heritage is also important to the long-term care facility population when considering occupation-based activities and measurements of quality of life, social interaction, engagement, and whether animals are welcome to the individual at a long-term care facility (Hersch et al., 2012). Specifically, whenever considering studying the long-term care population in their environment, the researcher must consider cultural interaction (Hersch et al., 2012). In regard to the Model of Human Occupation

(MOHO), it is always important to consider the individual and their environment and how that the patient fits within, and in this particular case, how an animal fits as well (Kielhofner, 2008). The MOHO framework seeks to find understanding through client-centered practice, which is targeted through having participants who wanted to visit with a dog participate in the study. This particular occupation of animal visitation was one of the participants' prior occupations within their lives before the initial screening mechanism for the study.

In summation, life satisfaction among the geriatric population is important, especially within long-term care facilities. Staying productive and aging positively is important to consider within the long-term care population. Depression continues to be a major issue within the geriatric population residing within long-term care facilities. The literature shows that the GDS is a quick and relatively simple screening tool to assess for depression. Oftentimes medication is the means for coping with depression in the geriatric patient. Although some oppose, animal interaction, others find pet therapy intervention as an option for providing intervention for increasing quality of life and potentially lowering rates of depression.

CHAPTER III

METHODOLOGY

Experimental Research Design

To collect the necessary data, an experimental research design (i.e., collection of quantitative data) was utilized. This study captured data regarding participant depression, smile and verbalization counts, visitations, medication changes, and outings during the study duration (i.e., five consecutive weeks). Individuals within both groups (e.g., the experimental group and the control group) were assessed using the Geriatric Depression Scale (GDS) (which was read to the participants) at the beginning of the study and then again following the five week duration by the primary researcher. The goal of this capstone project was to study the effects of animal interaction on depression ratings among long-term care participants in addition to participant smile and verbalizations scores. As mentioned previously regarding the GDS, it is "the only assessment tool [that is] overwhelmingly endorsed as being important to the diagnosis of depression" (Wagenaar et. al., 2003, p. 468). Data collection sheets were used to measure both verbalizations and smiles during the control and experimental group. Data collection sheets were also used to list any changes noticed in the participants or life events (e.g., new medication, visitations, and outings of the resident) and analyze these items following the completion of the study.

Setting

A long-term care facility located in rural Kentucky was the site of this study. This facility can house up to 92 residents. The facility is organized by having a nursing director, facility director, and various department heads/managers. Over the last five years, the facility has undergone several renovations in relation to facilities (e.g., resident rooms), management,

and programming. One of these changes involved the elimination of animal visitation both indoors and outdoors at the long-term care facility. Some residents have questioned whether they should be allowed to visit with their pet and/or to visit with a dog on a regular basis brought in from the community. Following the needs assessment completed last year, the study was deemed needed by the stakeholders of the long-term care facility. Please see Appendix F for a copy of the site support letter.

Model of Human Occupation Framework

This particular study was grounded in the theoretical framework of the Model of Human Occupation (MOHO), as the resident (who is the participant in this study) is placed at the center of the treatment. More specifically, the participant's interests were considered first as whether the individual actually enjoyed being around animals, which was assessed through a screening tool. Then, throughout the study, personal causation and interests were monitored through the researcher's data collection sheets. Within this particular study, the participant is involved with both the animal and human fit of the MOHO framework and for the long-term care facility in general. This study attempted to understand the participant's values and interests through the data collection sheets, and also to consider the occupation of owning a pet and liking to be around dogs a necessity. According to the MOHO, considering the volitional aspect of the individual is of importance, or the "anticipation, choice, experience while doing" (Kielhofner, 2004, p. 149). This study attempted to view the participant's roles and habits within their own environment through viewing the physical, social environment where the long-term care resident typically resides and is accustomed to (their room and the courtyard area). The study was completed within the participant's own environment, within their room for the experimental group, and the courtyard for the control group. The individuals are comfortable within this

setting, as this is their residence. The MOHO model utilizes patient choice and patterns, which is important for the long-term care population (Kielhofner, 2008). Lastly, this model was selected in order to best encompass the patient, environment, and the overall fit (Kielhofner, 2008).

Dog Handler and Dog Used

For this study, a trained and certified therapy dog handler and a five year old West Highland Terrier were used. The dog handler and therapy dog represented the Kentucky chapter of the Love on a Leash organization. The same dog handler and therapy dog participated for the entire duration of the study; no other handlers or dogs were utilized. A copy of the dog handler and therapy dog licensures and certifications can be found in Appendices I and J. In order for a dog and a handler to be considered certified, several training sessions must be endured and passed by an organization. These series of tests and sessions include listening on command to the owner, maintaining composure in a variety of situations, and overall demeanor of the animal with the handler's direction. According to USA Therapy Dogs Incorporated (2015), a very few dog and handlers actually are able to complete the two required Canine Good Citizens and Advanced Canine Good Citizens certification tests and be deemed worthy of becoming a therapy dog, and 12 weeks of training courses.

Identification of Participants in Project

Approval to engage with the project participants was received from the Eastern Kentucky University (EKU) Institutional Review Board (IRB), which can be found in Appendix H. The study participants provided their own consent to participate in the study. Prior to selection of the participants, the facility social services director provided the primary researcher with a list of participants at the facility who are legally able to provide their own informed consent. To

determine eligible participants, two criteria were used to evaluate each potential participant. First, a potential participant needed a Brief Interview for Mental Status (BIMS) score of 8 or above, indicating only a moderate cognitive level of impairment (Saliba, Buchanan, Edelen, Streim, Ouslander, Berlowitz, & Chodosh, 2012). A score of 0-7 indicates severe cognitive impairment on the BIMS score, 8-12 moderate impairment, and 13-15 cognitively intact (Saliba et.al, 2012). Second, a potential participant had to be able to legally sign their own consent form (please see Appendix D for a copy of the informed consent form). In order to be eligible for participation in the study, a potential participant had to have passed both of the above criteria. After applying the criteria, it was determined that 53 potential participants were eligible to participate in the study.

Once potential participants were identified, they were subsequently screened through a three-question interview (see Appendix C for a copy of the screening tool). This screening tool was utilized to select participants to take part in the study. Specifically, the screening tool sought to determine whether participants wanted to participate in the study, whether they had ever had an aversive experience with a dog previously, and whether they enjoyed dogs in general. A total of 53 participants were screened via the tool on Sunday, January 11, 2015. A participant was required to obtain a three point score in order to be fully considered for participation in the study. A total of 32 participants obtained the necessary score of 3 and were placed in an alphabetical list. From this listing, a total of 10 participants were selected to fully participate in the study. Ten were selected due to the dog handler and certified therapy dog only being able to complete no more than 2 hours at a time of working, with 15 minutes spent with each participant, as not to fatigue the animal working. Also, the dog handler was only able to participate one day a week, as the individual resided in another town and needed to commute to the research facility by a 45

minute each way commute. Lastly, the ten participants were selected as this was only a pilot study. Participant selection for the experimental group (received interaction with a dog for fifteen minutes once a week over a five-week period) was completed through the use of a random number generator by which five participants were selected. The process was repeated to select participants for the control group (no dog interaction, but provided an opportunity to visit with the dog on the last visit day if desired). Overall, each selected participant met each inclusion criteria and no exclusion criteria, both of which are listed below.

- Inclusion Criteria
    - Age from 65-100 years
    - Established preference to being around dogs (determined through screening tool)
    - Currently a resident of participating long-term care facility
    - Legally competent to sign their own informed consent form
    - Race, religion, and gender are not factors in this study as all were accepted
- Exclusion Criteria
    - Dog-related allergies
    - Unwillingness to participate
    - Out of age bracket
    - Fear and/or dislike of dogs
    - Not legally competent to sign their own informed consent form

Type of Study

The research study was completed over the course of five weeks and was completed by the primary researcher. The project utilized an experimental research project design with a collection of quantitative data (Bouma, 2000). The experimental research design for this study

utilized the two common groups found in experiments: (1) control group, and (2) experimental group. To further explain the methodology, the control group included five randomly selected long-term care residents who did not have interaction with the animal, until the last visit. The control group was monitored for smile and verbalizations without interaction in the courtyard area without a dog present for the duration of 15 minutes. The courtyard was selected as the location, given its central location for the control group, as residents have verbalized they enjoy going to the courtyard. For this particular experiment, verbalizations were tallied only if they initiated the conversation and then the primary researcher would respond appropriately. A smile was only counted if the lips turned upward at least past the half-way portion of the mouth, with teeth showing as well. During the control group, the individual was positioned in the same location, the courtyard and the 15 minute timeframe began. Smile and verbalizations were counted from here. The experimental group also included five randomly selected long-term care residents, but these participants received interaction with a dog for fifteen minutes once a week over a five-week period. During the experimental group sessions, the dog was brought into the participant's room on a leash with the handler and the primary researcher. The animal was permitted to sit on the floor, by a wheelchair, in the participants lap or on their bed (whatever that the participant requested was permitted). As with the control group, both smile and verbalizations were counted. The smile once again was only counted if the lips turned upward at least past the half-way portion with teeth showing. And verbalizations were only counted if the participant initiated the conversation, and the researcher would respond appropriately to the statement or question.

Time Duration for Study

The time duration of 15-minutes over the duration of a five week time frame was selected for the study. This time duration was purposely selected due to previous research showing a 30-minute time interaction offering success (Fick, 1993). While another study did not show statistically different results during a 30-minute timeframe (LeRoux & Kemp, 2009), another study did not show results that were statistically significant following a 10 minute duration spent with dog visitation once a week (Phelps, Miltenberger, Jens, & Wadeson, 2008). Therefore, a 15-minute duration was selected to determine whether this timeframe will achieve positive results. As in real life, if a therapy dog or a house pet were to visit with residents of a long-term care facility, the time duration spent visiting would be limited. This time would be limited based on time constraints of the therapy visiting dog and handler. Or, simply because so many individuals may wish to visit with the animal during the visiting time of 1-2 hours at the long-term care facility. Again, this time was selected for this study in order to accommodate the research facility's request, the certified therapy dog and handler as well. Further, the purpose of this study was to research whether (or not) depression, smile, and verbal interaction are impacted through a short time duration with a therapy dog. The duration of time was also selected based on previous research studies of being a five week period, to limit subject drop-out related to the aging process, and to ensure full participation amongst participants (Berry et al., 2012; Fick, 1993; Moretti et al., 2011).

This study researched whether only 15-minutes of in-room dog interaction with a certified therapy dog and certified therapy handler can benefit nursing home residents. The 15-minute duration of time was selected purposely due to several factors. The facility requested that only 15-minutes of time be spent with each participant in order to see whether this duration of

time would show any benefit. As in real life if a dog came by the facility to visit, only a short amount of time could be dedicated to each resident. Further, the certified therapy handler recommended that a 15-minute duration with the five experimental group participants be utilized in order to not overwork the therapy dog during one visit. The certified therapy dog and handler had to drive 45-minutes each way to each appointment, so this was also to take into account the handler and animal's safety and to not fatigue the dog or handler. And lastly, the researcher wished to discover whether a 15-minute duration would show the same benefits as did the 30-minute amount of time in previously conducted studies.

The initial thought was to have the time and day each week the same. However, during the study, it was deemed necessary to alter this concept due to winter weather conditions and because the facility had prior obligations that interfered with the research study, in order to accommodate the dog handler and certified therapy dog, along with the research facility. For example, the planned first visit was cancelled due to extreme winter weather conditions. The actual first visit occurred on Saturday, January 31, 2015, which was further delayed due to an impromptu resident Bingo game. The second visit was the following week on Saturday, February 7, 2015, at 1:00 PM, which interfered with the resident's lunch meal that was served later than normally expected. The third visit was on Sunday, February 15, 2015 at 4:00 PM, which accommodated the participants and the dog handler and dog participating in the study, except that families were visiting with the residents. The fourth visit occurred on Sunday, February 22, at 1:00 PM, which all study participants were available without conflict. The fifth and final visit was on Sunday, March 1, 2015 at 1:00 PM in which all participants were available without any conflict. It seems as though the Sunday 1:00 PM visitation schedule worked the best for all involved with the study.

The time duration was chosen purposely to allow for full participation throughout the research using the same participants. Furthermore, as previously mentioned, previous research has shown benefit after 30-minutes of interaction, but not after 10 or 90-minutes; therefore, for this study 15-minutes was selected as the time duration to be used to see whether this amount of time was proven to be beneficial (LeRoux & Kemp, 2009; Fick, 1993; Moretti et al., 2011; Phelps, Miltenberger, Jens, & Wadeson, 2008). Due to unexpected subject drop-out with the aging population, it was necessary to keep the study to a short duration of five weeks (e.g., hospitalization or death), and to accommodate the certified therapy dog and handler participating in the study as well. Also, since the study wished to examine whether a short duration of dog visitation can have impact on this population, the time duration has been purposely kept to a maximum time frame of fifteen minutes. Other considerations were not extending the study for longer than five weeks due to the possibility of unexpected participant drop out related to the aging process in the long-term care setting. This helped to ensure that the study participants completed the prescribed duration.

It was always important to consider the Model of Human Occupation (MOHO) during this portion of the study and to monitor the participant within their environment and the interaction with the dog during the visitation (Kielhofner, 2008). As the MOHO projects, it was ideal to study the fit between the environment, the person, and, in this case, the animal within the natural context. This study placed the participant in their own room, or in the courtyard of their facility and the primary researcher studied the fit between and the response with the dog or the human interaction through the verbalization and smile counting within each group.

Nursing staff monitored participants and informed the primary researcher of any concerns throughout the duration of the study. The control group participants were also provided an

opportunity to have animal interaction following the completion of the study to ensure full equality of the participants regarding dog visitation. Lastly, the researcher utilized common methods to reduce subjectivity and to ensure trustworthiness, which included keeping a data collection sheet on each participant throughout the research study regarding the events of the week for each participant and to keep monitor of the items that were being discussed during each visit (Lysack, Luborsky, & Dillaway, 2006).

The same dog and dog handler were used for the duration of the study. Time was kept using a stopwatch during the dog visitation sessions as to ensure accuracy. To further ensure equality and fairness, the control group had an opportunity to interact with the dog after the last visit with the experimental group, during which verbalization and smiles were tallied for that single visit. However, the control group only had this opportunity at the last visit to spend time with the certified, trained therapy dog following the study's completion. The control group was monitored for both smile and verbalization count during the last visit with the dog and independently looking over the courtyard area (same location for each participant) for a fifteen minute duration. During this time, the participants in the control group were placed looking outside at the courtyard area and the primary researcher sat next to them and tallied smile and verbalization counts.

Data Collection Methods

Prior to the start of the study, the social services director provided the primary researcher with a list of patients who are considered legally competent to sign their own informed consent form and who scored an 8 or higher on the Brief Interview of Mental Status (BIMS) rating scale. Then, a screening questionnaire (which was read to them by the primary researcher) was used to identify potential study participants. Further, two specific research instruments were used within

the study to collect necessary data. Specifically, the Geriatric Depression Scale (GDS) was used to measure the participant's depression levels, and data collection sheets were used for the measurement of smile and verbalizations during the study. Lastly, the data collection sheets were kept by the researcher to document any changes of life events during the research (e.g., change of medication, outings, and visitations).

The participants were randomly placed into either the experimental or control group by using a random number generator. Of the 10 participants in the study, two had a previous diagnosis of depression and were taking prescribed medication. These two participants were split between the control and experimental groups (one in each group). The GDS data assisted with determining if the characteristics of the study participants (e.g., if they were or were not depressed to start are the reasons for the study's results or non-results) made a difference with the results, along with the data collection tool for smiling and verbalizations. If purposive sampling was used (e.g., only selection of depressed participants), then the validity and reliability of the study would have been diminished. Of course, using a screening tool for the selection of participants identified that participants actually enjoyed a dogs company and did not have any known allergy to, fear of, or aversion to dogs, or an adverse experience with a dog (e.g., biting or death of family pet in the past). In order to be considered for participation in the study, the participants had to achieve a three point rating on the screening tool in order to be selected for this study.

The GDS (please see Appendix E for a copy of the GDS) was chosen as the measurement tool in order to measure how participants view themselves in relation to depression. Provided that the GDS is only a screening tool (yet was used as an outcome measure for the duration of this particular study), it was able to be given quickly and frequently given the five week duration

of the study. Therefore, the primary reasoning for the selection of the GDS was the time that it takes to administer, which is a very quick assessment tool. Regarding the second tool (the data collection sheets), the participants were monitored for smiling and verbalizations.

Data Analysis

All quantitative data obtained during the study was recorded in the Statistical Package for the Social Sciences (SPSS) software program. Utilization of SPSS enabled organization of data, which greatly assisted data analysis efforts. As for specific statistical measures, descriptive statistics were utilized (e.g., measures of central tendencies). In addition, more advanced statistical measures (e.g., t-tests) were also utilized.

Outcome Measures

The data was managed using the Statistical Package for the Social Sciences (SPSS) software. The SPSS software allowed for analysis with descriptive statistics (e.g., means) and non-parametric statistics (for ordinal or nominal scale variables). The results were shared with the facility and then shared. In regard to the evidence-based practice, given that currently there is limited research within the field of occupational therapy for dog visitation, depression, and long-term care facilities.

CHAPTER IV

RESULTS

The project was evaluated based on the Geriatric Depression Scale (GDS) scores of the participants in the study. As Snowdon (1986) mentioned, using the GDS "has been shown to be a reliable and valid depression screening scale for elderly populations" (p. 85). As mentioned previously regarding the GDS, it is "the only assessment tool [that is] overwhelmingly endorsed as being important to the diagnosis of depression" (Wagenaar et. al., 2003, p. 468). According to Moretti et.al. (2011), the GDS as a means for outcome measure was a reliable tool for this research study, as results showed that the GDS scores decreased by 50%. The GDS was the outcome tool used for this particular study.

The primary purpose of this research was to study whether interaction with a dog changes scores on the Geriatric Depression Scale (GDS) and to monitor changes with both smile and verbalization counts for both the control and experimental group at a long-term care facility. Throughout the course of the study, there was no participant dropout, thus keeping the study duration to five weeks was beneficial. Further, the same dog and dog handler were used throughout the study. The study was completed during five consecutive weeks, although the visitation days and times were different. It should also be mentioned that only two participants (one in the experimental group and one in the control group) have a diagnosis of depression and were being provided medication for such as well. The remainder of this chapter will detail the results of this study. Please see Appendix K for a table of each participant.

Individual Participant Results

The following is a detailed individual account of the participants in this study. The experimental group included participants 1-5, and the control group included participants 6-10.

Again, there was no subject dropout for this study, and no alternates were needed. The same primary researcher, certified therapy dog and handler were used throughout the entire study duration. Below is a depiction of the typical day for a weekend, which is detailed below.

A typical day for a weekend at the research long-term care facility includes less than one third of the patients receiving visitors. The residents of the facility are typically kept inside of their private or semi-private room and kept to themselves. Activities on the weekend include church, a Bingo game, movies, and individualized activities the residents themselves put together. Most residents eat breakfast in bed or in their room. Lunch is served for those who wish to attend in the large dining room; however, two thirds of the population seems to eat in their rooms and watch television (same process for dinner). Some residents use their wheelchairs or walkers and sit on the front porch or look out at the courtyard. Five supervised smoking periods occur each day of the week where a staff member escorts the smoking residents outdoors. For the most part, the only interaction the residents seemed to achieve was with staff members or the other residents for receiving needs or care (e.g. filling a drink pitcher, receiving assistance to the bathroom, or transferring assistance from one location to another).

Experimental group. The experimental group received a visit from the dog handler, therapy dog, and the primary researcher for the 15 minute duration, once a week, for five consecutive weeks. The therapy dog, primary researcher, and the dog handler would come to the individual participant's room, ask if it was fine to visit, and then enter the room. The time would begin at that point. Verbalizations were only counted if the participant initiated the conversation. Smiles were only counted if the participant smiled during the visits, and this was a complete smile, an incomplete or half-smile was not counted. To further define a smile, for the purposes of this study, a smile was tallied if the lips were turned upward with teeth showing. In order to

specifically define what constitutes a smile or a half-smile, several inconsistencies are present. Software exists for the exact measurement of a smile; however, due to the facilities request to not have photographs of the participants, this was not an option. For this particular study, a smile was only counted if a participant's mouth corners were turned upward (with teeth showing), the smile was tabulated. The GDS was taken during the first and last visit. The dog was placed on the floor next to the individual participant, unless they asked if the dog could be placed on another surface (e.g., chair, bed, and wheelchair). After 10 minutes had passed, the primary researcher would then inquire about three items: 1) Medication changes that week, 2) Outings from the facility; and 3) Visitors into the facility that week. These questions were asked of the participant to attempt to understand the amount of interaction each week that a typical nursing home long-term care facility individual receives and to further understand the reasoning for depression within these facilities.

Participant 1. This participant scored a 2 on the pre-GDS and a 3 on the post-GDS. The smiles were totaled at 120, and the verbalizations were totaled at 187 overall. This individual was a female, aged 66 years. She had no outings, only one visitor during the study, and no medicine changes. She would pet the dog non-stop and hold onto the dog tightly while the animal was seated in her lap. This individual would be extremely excited (smiling erratically and waving hands, hugging us) to see us and would always ask whether we were returning again to visit. She stopped a card game in order to visit with the dog as well as left a Bingo game in order to visit.

Participant 2. This participant scored a 4 on the pre-GDS and a 2 on the post-GDS. Smile count totaled a 71; and the verbalizations were totaled at 80 overall. This individual was a male, aged 68 years. He had three outings (one to a store, and two doctor's appointments), one

visitor (sister), and one medicine change during the study. This participant wanted to always get ready and put on a clean outfit and be clean shaven prior to our visit, as he would ask us to stop back by last, in order for him to get himself ready. He actually put on a suit and tie during one visit. His roommate would always want us to visit as well. Individuals from the hallway would meander into his room to visit with him and the dog while the dog was visiting. He would also ask us to stop back by later so that he could tidy up his room before we came by as well. Conversation regarded the University of Kentucky basketball team and games going on, the wintery weather, and previous dogs owned and stories about owning a dog. He also wanted to feed the dog cookies. The dog was asked to be placed in an armchair next to him and he would talk and pet the dog non-stop during the session. This individual would always thank us and ask when we would be coming back by to visit and he would mark it on his calendar, along with the scheduled time.

Participant 3. This participant scored a 4 on the pre-GDS and a 4 on the post-GDS. Smile count totaled a 37; and the verbalizations were totaled at 33 overall. This individual was a 79 year old male. He had a diagnosis of depression and was receiving medication for this. This participant had two outings in five weeks (to visit spouse who is in another nursing home), and two visits from his daughter during the five weeks. One medication was changed. This participant was rather quiet during the study; however, he would speak to the dog. The roommate wanted to pet and speak to the dog as well. The dog sat on the floor next to his wheelchair and he would lean forward to pet him. At one point he leaned forward and actually picked-up the dog during the study's duration. Conversation involved the dog's breed. He also mentioned previous dogs he and his spouse owned, and that they had to "get rid of" the dog after they both came into nursing facilities. He also talked about how his daughter has a hairless dog

as well as Valentine's Day and what he was planning to do for his spouse regarding the upcoming holiday.

Participant 4. This participant scored a 1 on the pre-GDS and a 3 on the post-GDS. Smile count totaled a 78; and the verbalizations were totaled at 64 overall. This participant was an 82 year old female. She had no outings, one medication change, and one visitor (sister) during the five week duration. Her roommate wanted to participate as well in the study and came over to pet the dog. Conversation involved the cuteness of the dog, breed of the dog, and injuries that contributed to her admission into the facility. She also inquired about where the dog handler and the dog went for the Love on a Leash program. Discussion was opened about her previous dog and that she had to find a new home for the dog once she was admitted into this facility. She also talked about a dog show that she enjoyed on television. She wanted the dog to sit on her bed and asked if she was allowed to pet the dog. After she asked whether she was allowed to pet the dog, she intermittently petted the dog. She also thanked us for coming.

Participant 5. This participant scored a 0 on the pre-GDS and a 3 on the post-GDS. Smile count totaled a 146; and the verbalizations were totaled at 281 overall. This participant was 83 year old female. She had no outings, four visitors (friend and daughter), and no medication changes during the five week duration. Conversation involved previous dogs, age of dog, and breed of dog. Discussion evolved to include her sister's and daughter's dogs. She also mentioned her previous dog that she had to find a new home for prior to admission into a long-term care facility. University of Kentucky basketball was discussed. She also mentioned how that she felt better and happier after us visiting. She expressed thanks for the visits and even cried after each visit was completed. This participant wanted to have the dog sit on her bed and kissed the dog. She had non-stop petting during the visits.

Control group. The control group received no dog interaction until the final visit with the dog, and then they were allowed to spend 15 minutes with the dog and dog handler, along with the primary researcher. The control group was taken to the same place, the courtyard area and the primary researcher sat next to them for a 15 minute duration. During this timeframe, the primary researcher monitored for both smile and verbalization counts. Again, the verbalizations were only calculated if the participant initiated the conversation and smiles were only counted if it was a complete smile, (lips were turned-up at least half-way with teeth showing), an incomplete or "half-smile" was not tabulated. For this last visit, verbalizations and smile counting took place as well. Otherwise, no animal interaction took place with the control group. For the last visit, the dog, primary researcher, and the dog handler would come to the individual participant's room, ask if it was fine to visit, and then enter the room. The time would begin at that point. Verbalizations were only counted if the participant initiated the conversation. Smiles were only counted if the participant smiled during the visits. The GDS was taken on the first and last visit. The dog was placed on the floor next to the individual participant, unless they asked if the dog could be placed on another surface (e.g. chair, bed, and wheelchair). After 10 minutes had passed, the primary researcher would then inquire about three items: 1) Medication changes that for five weeks, 2) Outings from the facility for the past five weeks; and 3) Visitors into the facility during those five weeks.

Participant 6. This participant scored a 1 on the pre-GDS and a 2 on the post-GDS. Smile count totaled a 25; and the verbalizations were totaled at 22 overall for one visit with the dog. The no-dog verbal total for 4 visits was 14 for verbal and 14 for smile counts. This participant is an 84 year old female. This participant had no visitors, no medication changes, and no outings during the five week duration. This individual discussed previous dogs owned and

dogs visiting in the facility. She expressed thanks for the visit. This participant petted the dog non-stop and was extremely friendly.

Participant 7. This participant scored a 2 on the pre-GDS and a 3 on the post-GDS. Smile count totaled a 10; and the verbalizations were totaled at 5 overall for the one visit with the dog. Smile counts totaled 5 for the 4 visits in the courtyard with the primary researcher sitting next to them, and 3 for verbalizations during this time. This participant was a 71 year old male. Discussion involved previous dogs owned and breed of animal. The participant had no medication changes, no outings, and no visitors during the five week duration. This participant expressed thanks for the visit and for allowing him to participate in the study.

Participant 8. This participant scored a 2 on the pre-GDS and a 4 on the post-GDS. Smile count totaled a 19; and the verbalizations were totaled at 15 overall for the visit with the dog. The 4 visits with the primary researcher in the courtyard totaled 13 for the smile count and 14 for the verbalization count. This participant was a 77 year old female with a diagnosis of depression and was on medication for this diagnosis. Conversation involved dog shows on television, the dog's outfit, University of Kentucky basketball games, the breed of the dog, age of the dog, wintery weather, and boredom. This participant asked for the dog to sit on her bed and petted the dog non-stop. This participant had one visitor (son), no outings, and no medication changes during the five week study duration.

Participant 9. This participant scored a 2 on the pre-GDS and a 0 on the post-GDS. Smile count totaled a 29; and the verbalizations were totaled at 22 overall for the one visit with the dog. The smile count totaled 14 for four visits looking at the courtyard, and 18 for the verbalizations for the courtyard. This participant was an 89 year old female. She had no visitors, no medication changes, and no outings during the five week study duration. She discussed a

previously owned dog that she and her spouse owned prior to coming into the long-term care facility. She was very friendly with the dog and intermittently petted the animal. She also discussed her ailments and bowel movements. Her roommate wanted to pet the dog as well. Lastly, she expressed thanks for visiting with her.

Participant 10. This participant scored a 1 on the pre-GDS and a 0 on the post-GDS. Smile count totaled a 24; and the verbalizations were totaled at 15 overall, for the dog interaction. The courtyard 4 visit totaled 11 for the smile counts and 13 for the verbalization count. This participant was a 97 year old female. She discussed dogs in general, the breed of the dog, and that she enjoyed having dogs come by to visit her. The dog interacted very friendly and calmly around her. The participant enjoyed intermittent petting of the dog. This participant tried to kiss the dog. The participant had no visitors, no outings, and no medication changes during the five week duration. This participant expressed thanks for the visit and inquired when another visit would take place.

Summative results. Overall, for both the experimental and the control group combined, participant discussions involved dogs (e.g. breeds, tricks, age, type, dog outfits), including previous pets or current pets that either the participant or family member owned or currently owns when the dog was present for the five visits and for the one visit for the control group. Bowel movements were also a topic that was brought up by the participants quite often including medication or type of treatment options that a participant receives. University of Kentucky basketball was also a topic of discussion and the games that were occurring. The upcoming holiday season as well as Valentine's Day was another topic of discussion. Activities that were going on were often discussed with the dog, the dog handler, and the primary researcher. Weather was a common topic of conversation, primarily the record snowfall that occurred during

the study's duration. In particular for the control group when the dog was not present, the primary topic of interest was the birds and the weather outside in the courtyard. Other topics of interest involved discussion about the participants' children or asking the primary researcher about activities. Smiling occurred rarely when the control group was admiring the courtyard of the long-term care facility. Lastly, within both groups, verbalization that should be mentioned was that every one of the participants expressed thanks for the visits with the dog, and several inquired about when or if visits would occur in the future.

It should be noted that the study used the same dog and dog handler throughout the study's duration. The dog was allowed to sit in the participants' lap or sit next to them in a chair or wheelchair. The individuals were permitted to pet, talk to, and smile at the dog. Four of the participants noted that they had to find other locations for their pets prior to coming into the long-term care nursing facility. Several roommates during the study wanted to pet the dog or participate in the study. Also, while walking in the hallways from room to room, the dog, dog handler, and primary researcher were stopped by other residents of the long-term care facility wanting to visit with the dog. Moreover, several family members and employees of the facility stopped as well to ask about the dog and wanted to pet or visit with the animal.

Table 1: Experimental and Control Group Inquiries

Group	Outings	Medication Changes	Visitors
Control	0	0	1
Experimental	5	3	9

Table 1 depicts the particular outings, medication changes, and visitors for the five week duration for both the control and experimental group. This information was asked at the end of each visit by the primary researcher. The data was for the entire five week duration and totaled for the five participants in each group (control and experimental). Overall, most of the visitors

were family members in which there were multiple visits from the same individual. The outings were only to visit a spouse in another nursing home or to medical visits.

Geriatric Depression Scale (GDS) Analysis

In addition to individual participant analysis, statistical analysis was utilized to analyze pre- and post-GDS scores. Specifically, t-tests were performed to determine if changes in mean GDS scores were statistically different. The analysis focused on both individual group means (paired sample t-test) as well as differences between the groups (independent samples t-test). The pre- and post-GDS score means are presented in Table 2 below.

Table 2: Group Pre- and Post-GDS Means

Group	Pre-GDS	Post-GDS
Control	1.6	1.8
Experimental	2.2	3.0

As for the specific tests, a paired samples t-test was performed on both groups to compare GDS scores at the beginning (pre-GDS) and the end (post-GDS) of the study. For the control group, there was not a significant difference between the pre-GDS scores (M=1.6, SD=0.548) and the post-GDS scores (M=1.8, SD=1.789); $t(4) = -.272$, $p = 0.799$. This suggests an expected result that no interaction results in stagnate GDS scores. As for the experimental group, there was also no significant difference between the pre-GDS scores (M=2.2, SD=1.789) and the post-GDS scores (M=3.0, SD=0.707); $t(4) = -.930$, $p = 0.405$). Although the mean GDS score did increase for the experimental group, these results suggest that interaction with a therapy dog had no effect on participant depression levels. Lastly, an independent samples t-test was conducted to compare post-GDS scores between the control group and experimental group. The study found that the experimental group did not have statistically significantly higher mean post-GDS scores (3.00) after interactions with a therapy dog compared to the control group that did not

receive any animal or human interaction (1.80), t(5.22) = 1.395, p = 0.219. Again, although the mean GDS score did increase for the experimental group, these results suggest that interaction with a therapy dog had no effect on participant depression levels. The small sample size may have affected the scores.

Smile and Verbalization Analysis

An independent samples t-test was conducted to compare average smile counts and verbalizations between the control group and experimental group. The study found that the experimental group did have statistically significantly higher mean smile counts (18.1) after interactions with a therapy dog compared to the control group that did not receive any animal or human interaction (2.8), t(4.094) = 3.955, p = 0.016. These results suggest that interaction with a therapy dog did have an effect on participant smile counts. The study also found that the experimental group did have statistically significantly higher mean verbalizations (23.5) after interactions with a therapy dog compared to the control group that did not receive any animal or human interaction (3.2), t(4.078) = 2.819, p = 0.047. These results suggest that interaction with a therapy dog did have an effect on participant verbalizations.

The control group was offered an opportunity to visit with the dog on one occasion at the end of the study, during which smile and verbalizations were counted. A paired-samples t-test was conducted to compare average smile counts and verbalizations from the previous sessions against the total smiles and verbalizations during the one dog-assisted visit. There was a significant difference between the average, non-dog meeting smile counts (M=2.8, SD=0.929) and the one dog-assisted visit (M=21.4, SD=7.300); t(4) = -6.393, p = 0.003. These results suggest that dog interaction does increase smile counts. There was also a significant difference between the average, non-dog meeting verbalizations (M=3.2, SD=1.579) and the one dog-

assisted visit (M=15.8, SD=6.978); t(4) = -4.735, p = 0.009. These results suggest that dog interaction does increase verbalizations. See Table 3 for smile and verbalization means for both the control and experimental groups.

Table 3: Group Smiles and Verbalizations Means

Group	Smiles	Verbalizations
Control	2.8	3.2
Experimental	18.1	23.5

Summary

In summation, the pre- and post-Geriatric Depression Scale (GDS) data did not show significant results for either the experimental or control group within this study for depression. Meaning that depression scores on the GDS did not decrease and neither did the scores increase. The data suggests an expected result that no interaction results in stagnate GDS scores. The study found that the experimental group did have statistically significantly higher mean smile counts and verbalizations after interactions with a therapy dog, compared to the control group that did not receive any animal interaction. The control group did have statistically significant verbalization and smile counts following the one visit with the therapy dog. The study found these results through the observation of the participants within their individual room for the experimental group and the courtyard for the control group, which is keeping in context with the Model of Human Occupation (MOHO) by keeping the person within their own environment during the study. Lastly, the experimental group's data showed that the weekly smile and verbalization counts peaked during weeks two and three, lending to the suggestion of habituation. The participants potentially became habituated to the visitation of the therapy dog after two visits and were no longer worried or anxious about the therapy dog's arrival, meaning they became accustomed to having the visit once a week from the therapy dog.

CHAPTER V

DISCUSSION

Specifically, the study illustrated that dogs in long-term care facilities appear to show benefit to the geriatric population, in relation to smiles and verbalizations. The data suggests that although Geriatric Depression Scale (GDS) scores did not significantly lower within the experimental group, the experimental group overall showed promise regarding having dog interactions within a long-term care facility through increases in smile and verbalization calculation. The following is a discussion regarding implications for future research and practice as well as possible explanations for the results.

Interpretation of Major Findings

Although the study produced non-significant results in regards to pre- and post-test Geriatric Depression Scale (GDS) scores for both groups, there were statistically significant results in regards to comparative smile and verbalization counts within and between the two groups. In short, a therapy dog's interaction for five visits over the course of a five week period for fifteen minute durations made a difference in regard to smile and verbalization counts for a long-term care facility. This difference was marked in the statistically significant results for both the smile and verbalization counts for the experimental group as compared to the control group. The GDS did not show statistically significant results for either the control or for the experimental group during the five week duration. This would lend to the understanding that when a therapy dog is present, long-term care residents enjoy the company of the animal and seemingly talk more and smile more. As Cipriani et.al. (2013) reviewed that outcomes and quality of life are impacted by dog-assisted therapy services. This evidence would suggest that having a therapy dog present at times within the long-term care facility would be beneficial for

the residents in regard to the potentially raising verbalization and smile counts. Also, social interaction is impacted with a therapy dog present (Fick, 1993; Berry et.al., 2012). This would potentially show benefit for the residents of the facility to have dog interaction more frequently through visitation or through a scheduled program from a certified dog and certified therapy handler program weekly or monthly.

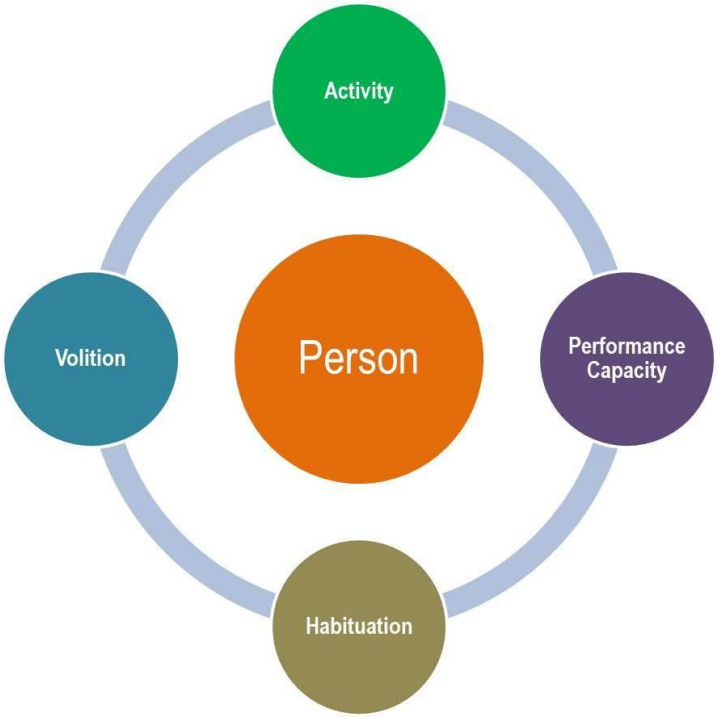
The participants of this study were viewed within the context of their own regular living environment at the long-term care facility, which again encompasses the belief system of the Model of Human Occupation (MOHO) (Kielhofner, 2008) that individuals should be a part of their own context or environment. Further, the MOHO relies heavily on the belief that the visitation with a therapy dog, should be occupation-based, and client-centered. Throughout this study, the individuals demonstrated the three major concepts of MOHO: Volition, habituation, and performance capacity. Volition was noticed through the individual valuing the visitation of the time spent with the therapy dog, demonstrated by smiling, laughing, and overall demeanor. The participant had increased socialization during the dog visitation and discussed interests and values during the time spent with the primary researcher and the therapy dog. The primary researcher also noticed that the personal causation was effected when the participant was visiting with the therapy dog. The occupational activity of choice was to visit with the therapy dog, which some of the participants demonstrated the anticipation of the visitation (e.g. mark on their calendar, and become upset if the therapy dog and handler cancelled). The habituation was again the writing down on a calendar the visitation of the therapy dog. The participants established a routine for when the visits were planned and dressed-up (e.g. one participant donned a suit and tie) before our visitation. The behavior would become a pattern (e.g. the participant would sit in the same location or position) awaiting our arrival. The participant would also discuss previous

dog events or topics quite frequently during the conversation. Performance capacity was observed in the environment the participant was in and how they sat, where they sat, and who was present. The participants would position themselves or ask the dog handler to position the dog in a place (e.g. bed) where they could reach or pet the dog. The participant had increased verbalization and smile counts when the therapy dog was present for the experimental group and for the final visit with the control group. The participants demonstrated increased memory for the visitation of the therapy dog and established a routine for getting ready for the visit. Overall, when the therapy dog was coming, the participants demonstrated increased verbalizations, smile counts, and were overall happier and more social. This could be interpreted by not being depressed. This could be further explained through the MOHO by the participant being paired more completely with their environment and a valued occupation, visiting with a dog, they enjoy, and they demonstrated increased verbalizations and smiles. The participant's performance is altered by a task that is client-centered, and purposeful to them, visiting with a dog in this particular study.

Figure 1 depicts the person being at the center of their environment, dog visitation, and occupation centered activity. The activity is selected by the individual that is of purpose and intent to them. Participants in the study enjoyed being around dogs and had never had adverse effects to being around a dog previously, per the screening tool. The performance capacity was altered by the environment that the participant was a part of, in this case the long-term care facility where they resided. The volition was impacted by their anticipation of the visitation with the therapy dog, through the understanding of what would occur during the visitation, and the mental preparation for the visitation. Habituation was also at the circle around the participant through the behaviors associated with the preparation for the visitation with the therapy dog, the

writing down of the visit to occur, and the routines established prior to the visit. The person remained at the center of the visitation with the therapy dog, with everything on the outside seemingly revolving around them, as the figure demonstrates.

Figure 1: Adapted Model of Human Occupation Diagram



Implications for Practice

Most facilities within the long-term care community do not have access to a therapy dog, much less on a regular basis. Therapy dogs are beneficial to long-term care residents in many ways, especially if the individual is fond of animals and would like the companionship or friendship of a dog. Depression and the elderly seemingly go hand-in-hand, with even higher levels within long-term care facilities. The individuals who are placed into a long-term care facility often have limited visitations from the outside. In this given study, the experimental group received a total of nine visitors over the five week timeframe; the control group received one visitor in the same timeframe. Similar results were indicated for outings in which the

experimental groups had five (three to another nursing home and two for doctor appointments) while the control group had none. This confirms the perception that individuals who reside in a long-term care facilities are primarily in solitude with those around them, the staff, and rely upon each other for comfort and solace. A therapy dog provided the individuals in the experimental group (and once for the control group) a personal event to look forward to, to smile at, and to talk to, which does not happen every day. For the facility that the research took place, following resident council meetings and at the request of the residents, dogs are now welcomed visitors (on a leash, with certification of shots provided) to the facility. In addition, the social services department is now bringing in their own dogs for the residents to visit weekly. Lastly, a sister facility of the research facility has actually adopted a resident dog to reside in the long-term care facility following the results of this study.

The facility can even adopt a resident therapy dog for the residents to see frequently or even reside in the facility with the residents of the facility. As illustrated within this study, a therapy dog has the ability to provide interaction to those who have lost a pet or have had to give up or give away their cherished pet prior to coming into the facility. A facility could even begin by allowing a leashed animal to visit a resident of a long-term care facility.

Implications for Future Research

If this study were to be replicated, a larger sample size should be included. This would help to increase data reliability and validity and enable more generalizability of the results to the long-term care population. Other possible methodology adjustments would be to complete a comparative analysis of humans and dogs visitation; to have more than one dog throughout the study; to compare group therapy interaction to single therapy interaction; and to use different types of animals (e.g. aviary, cat). Monitoring of participant cortisol levels could also be

completed, which is a measure of happiness by swabbing the saliva from the interior of the cheek. In regards to the Geriatric Depression Scale (GDS), this scale is still the most reliable and valid tool to use, but the use of larger sample sizes may help to achieve statistically significant results.

Limitations of the Study

As this was a pilot study, this study had a small sample size and only used one facility. If the study is going to be replicated, then it should have a larger sample size and should be completed in multiple facilities. Further, the study was completed during a particularly snowy winter in Kentucky. For example, two record snowfalls occurred during the study duration, which could have played a role in the results and the depression levels of the participants. It may be wise to replicate the study during a different season, or possible two different seasons to allow for comparable results. It was determined to use the individual patient rooms for the experimental group to limit dog exposure to potential control group individuals throughout the study. The courtyard was chosen for the control group to select a uniform location outside of their normal room to provide stimulus to the participant, and to limit potential other variables (e.g. television, other staff).

CHAPTER VI

CONCLUSION

The results indicated that the pre- and post-Geriatric Depression Scale (GDS) scores did not differ significantly both within and among groups demonstrating no change in depression scores. However, significant results were noted between the two groups in relation to verbalization and smile scores. These results can definitely contribute to a role in policy implementation for long-term care facilities within the state of Kentucky and the residents of these facilities. The results illustrate a need for further replication with a larger sample size and longer study duration as well as studies using different methodologies. Seemingly, the residents of the long-term care facility enjoyed the dog visitations and had more smile and verbalizations counted when the animal was present. The residents requested during a resident council meeting to have more visitations with dogs in the facility on a more regular basis. The residents valued the experience overall, as they are requesting more dog interaction following the studies' completion. Exposure to dogs may assist in the improvement of quality of life for individuals who are institutionalized within a long-term care facility. Through the considering of long-term care residents' normal habits, environment, and roles, at times it is needed to include that of a dog. As the individual may have completed the occupation of dog owner throughout their life and this could potentially be lacking in the long-term care environment. It is always important to consider the individual's particular interests and values, a core of the Model of Human Occupation (MOHO) framework (Kielhofner, 2004). As Kielhofner (2008) pointed out, "MOHO is inherently a client-centered model" (p. 3). Through the allowing of a long-term care resident's choice by remaining client-centered, they are allowed to have a dog visit them (or even their own dog) while being in an institution. This can impact how much they verbalize and smile

while in the long-term care facility. In regard to occupational therapists, as a clinician the patient should always come first and their needs considered within all areas of practice. In conclusion, dogs can and do have a place in long-term care facilities if the residents so choose, but more data is needed within the realm of occupational therapy to firmly establish and support their use.

APPENDIX A

ANNOTATED BIBLIOGRAPHY

Berry, A., Borgi, M., Terranova, L., Chiarotti, F., Alleva, E., & Cirulli, F. (2012). Developing effective animal-assisted intervention programs involving visiting dogs for institutionalized geriatric patients: A pilot study. *Psychogeriatrics, 12,* 143-150.

The purpose of this particular study was to investigate the relationship between dog-assisted intervention and quality of life in the geriatric population. There were 19 participants (6 men and 13 women) with a mean age of 85 year from a Rome, Italy nursing home and consisted of two parts: Group and physical therapy. The first part was held twice a week for five months (February to June) at the same time each week in the morning. The second part was held with two dogs, two handlers, and two physiotherapists for 30 minutes in therapy sessions (only four participants were deemed mobile enough to complete this portion) of actually walking the dogs. Assessments were observed for behavior (mood) and physiologic (saliva was monitored for cortisol levels) during and following the dog interaction. Results showed that there was an increase in smile levels and increase in interactions among both dogs and humans during and following the dog interaction and an increase in cortisol levels following the dog interaction.

This study posed several limitations which were the small sample size, limited ability to generalize, and not enough participants in the mobility portion of the study due to compromised health status. This study also led to suggest that future studies should monitor heart rate prior to and following a dog intervention for a decrease due to animal presence. In conclusion, this study will assist in further developing my capstone project in relation to dog intervention and depression in the long-term care geriatric facility.

Cipriani, J., Cooper, M., DiGiovanni, N. M., Litchkofski, A., Nichols, A. L., & Ramsey, A. (2013). Dog-assisted therapy for residents of long-term care facilities: An evidence-based review with implications for occupational therapy. *Physical & Occupational Therapy in Geriatrics, 31*(3), 214-240.

This study was an evidence-based practice literature review of occupational therapy research related to dog-assisted therapy in long-term care facilities. Twelve studies were reviewed ranging in date from 1966 to 2007 and were analyzed for their effectiveness related to quality of life. The articles were analyzed using the McMaster's Critical Review Form-Quantitative Studies. Results showed that there is a significant lacking of research available related to dog-assisted therapy and occupational therapy.

Implications are that more research is needed in relation to occupational therapy in long-term care and dog-assisted therapy. This is an area of practice that is obviously unnoticed and needs addressing, which is what my capstone project will directly impact. In conclusion, the research compared from this particular study translates into my personal research topic of dog intervention versus human intervention in a long-term care facility.

D'Amico, M. (2012). *Centennial Vision*—Update on productive aging in the American Journal of Occupational Therapy 2011. *American Journal of Occupational Therapy, 66*(4), 61-72.

The premise of this article was to complete a review of twelve productive aging *American Journal of Occupational Therapy* published articles for the year 2011. The purpose was to bring to light the evidence regarding productive aging. Several implications for practice were found, one being that if activities are adapted to the patient their quality of life improves. The second implication was that occupational therapy's involvement improves participation and overall life satisfaction. This review proved that the evidence is lacking for productive aging and that few studies and research are available. More research and evidence is needed to target one of the goals for evidence-based practice in order to reach the AOTA (2007) *Centennial Vision* statement to be an "evidence-based profession" (p. 613). This article will assist in the policy development model in that the proof is present that activities a patient enjoys doing increases life satisfaction, which could easily translate into the long-term care population.

Fick, K. M. (1993). The influence of an animal on social interactions of nursing home residents in a group setting. *The American Journal of Occupational Therapy, 47*(6), 529-534.

This article explored the relationship between 36 male patients residing in a veteran's nursing home. The patients were placed under one of two conditions: Dog Present or Dog Absent. Patients attended four general focus groups weekly led by a social worker and were observed during the 30 minute group by the researchers. Point sampling was the technique used to observe the behavior that was present during the group interaction. Seven various point sampling behaviors were noticed: Non-attentive behavior, attentive listening, non-attentive listening, verbal interaction with another person, nonverbal interaction with another person, verbal interaction with the animal, and nonverbal interaction with the animal. Results showed that verbal interactions increased significantly with the presence of the dog.

The information gleaned from this study will translate well into my proposed capstone project of exploring the relationship between a dog present and depression in a long-term care facility. This study allows room for occupational therapy to be included in client-centered practice in a geriatric facility and to make a difference in depression within the proposed research facility. In conclusion, the presence of a dog stimulated a positive environment and increased the patient's goal of social interaction within a group.

Hersch, G., Hutchinson, S., Davidson, H., Wilson, C., Maharaj, T., & Watson, K. B. (2012). Effect of an occupation-based cultural heritage intervention in long-term geriatric care: A two-group control study. *The American Journal of Occupational Therapy*, *66*(2), 224-232.

This study included 29 subjects from 10 different long-term care facilities and used a quasi-experimental design, which contained both pre- and post-tests. The subjects were compared using a cultural intervention group to an activity group. Structured occupation-based social group activities were administered by occupational therapy assistants over eight sessions (two per week for four weeks). Results showed that occupation-based social group interaction improved quality of life, which could easily transfer into a long-term care facility.

This particular study and its implications could translate into having a dog present in a facility could assist in overall mood/depression of patients. Being culturally sensitive is a topic of interest whenever considering client-centered and occupation-based practice tasks in any facet or avenue of practice. In conclusion, this is always a topic that should be considered whenever working with any population, especially during a research study.

Jackson, J., Carlson, M., Mandel, D., Zemke, F., & Clark, F. (1998). Occupation in lifestyle redesign: The well elderly study occupational therapy program. *The American Journal of Occupational Therapy, 52*(5), 326-336.

This study was completed using 361 participants (male and female) aged 60 and over, who resided in subsidized apartments for independent living senior adults. The participants were randomly placed into one of three groups over the course of the nine month duration. The groups were preventive occupational therapy, nonprofessionally led social activities, and lastly untreated control group. The occupational therapy group received 2 hours of group-led intervention and one hour of one-to-one therapist interaction a month. The nonprofessionally led activity group engaged in watching movies, playing games, dancing, and attending community outings. Lastly, the control group received no interaction. Results from the study showed that preventive occupational therapy is beneficial to the older adult population and is able of reducing health risk related to the older adult population. Study limitations were that the benefits of the program are contingent upon the occupational therapists and social activities leaders direction.

LeRoux, M. C., & Kemp, R. (2009). Effect of a companion dog on depression and anxiety levels of elderly residents in a long-term care facility. *Psychogeriatrics, 9,* 23-26.

The purpose of this study was to review the relationship between a dog and the relationship between depression and anxiety levels in a long-term care facility. The participants for the study totaled 16 (8 men and 8 women), all over the age of 65 years. The purposive sample included informed consent and no dog allergy. The participants were assigned to either a control group or to an animal assisted group. The procedure was to use the BAI and the BDI pre and post visitation of the dog. The animal assisted group received dog interaction for 30 minutes once a week for the duration of 6 weeks. The control group never received interaction with the dog. Results showed that the no differences were found between the animal and control group scores on the pre-test BDI and the BAI. However, significant differences were found between the pre and post BDI scores for the animal assisted group. Limitations of this study included a small sample size that was purposive. Further research is indicated regarding long-term care residents and animal assisted therapy intervention.

McColgan, G., & Schofield, I. (2007). The importance of companion animal relationships in the lives of older people. *Nursing Older People, 19*(1), 21-23.

This study reviewed the relationship between companion animals (dogs) and the adult population. Participants included 6 (3 men and 3 women) age 22-70 years old, who resided with dogs. Semi-structured interview questions were used and were visual observations between the human and the dog. One case study was reviewed in further detail for this study. Results showed that the relationship between an older adult and their companion animal may be the most significant relationship they have remaining. Limitations of this study included a small sample size, age range from 22 which is not considered an older adult population, and limited research available on the topic.

Moretti, F., DeRonchi, D., Bernabei, V., Marchetti, L., Ferrari, B., Forlani, C., Negretti, F., Sacchetti, C., & Atti, A. R. (2011). Pet therapy in elderly patients with mental illness. *Psychogeriatrics, 11*, 125-129.

The purpose of this study was to examine the relationship between pet therapy and cognitive function, mood, and quality of life of geriatric patients. The participants were all over age 65 years, were institutionalized for at least two months, and had mental illness (per medical records) of Alzheimer's disease, dementia, mood disorder, or psychotic disorder. Ten participants (nine women and one man) were placed in the pet therapy group; and eleven (all women) were placed in the control group. The intervention consisted of pet group petting, walking, talking to, and playing with the dogs once a week for six weeks for 90 minutes. The control group was only allowed to view the dogs, but not interact with them. Participants were provided with the Mini-Mental State Examination (MMSE) and the Geriatric Depression Scale (GDS) and a self-perceived quality of life questionnaire after pet therapy intervention. Results showed that the pet and control group improved on the GDS and MMSE following pet therapy intervention. The pet group GDS symptoms decreased by 50% and the mean MMSE increased by 4.5.

This study showed that the participants reported an increase in quality of life following the intervention. Limitations included a small sample size, only a short-term evaluation was completed, and data did not collect information on behavior disturbances. The results of this study will assist in the completion of this capstone project by showing that the GDS and the MMSE are good tools to use for measuring effectiveness of intervention, along with a self-perceived quality of life questionnaire.

Murphy, S. L. (2011). *Centennial Vision*—update on geriatric research in productive aging. *The American Journal of Occupational Therapy*, *65*(2), 197-206.

The purpose of this study was to review the articles that were published in the *American Journal of Occupational Therapy* (AJOT) for the years 2009-2010 on productive aging. Twelve studies were reviewed from AJOT on productive aging. Topics within these articles ranged from driving, falls, functional difficulties, and pain management. Results from the review showed that more research is needed within occupational therapy and productive aging. More evidence is certainly needed in occupational therapy and productive aging.

Phelps, K. A., Miltenberger, R. G., Jens, T., & Wadeson, H. (2008). An inventigation of the effects of dog visits on depression, mood, and social interaction in elderly individuals living in a nursing home. *Behavioral Interventions, 23*, 181-200.

The purpose of this study was to review how that weekly visitation from a dog would relate to mood, depression, and interaction among residents of a long-term care facility. Participants included five residents (age 65 or older) with no diagnosis of dementia from a long-term care facility, who received animal interaction for the duration of six weeks. The other criterion for inclusion was that the participants must score at least a 9 or higher on the GDS and a 24 or higher on the MMSE. Lastly, only participants who liked dogs were included in the study. The visits lasted for no longer than 10 minutes and occurred either in a patient's room or in the lounge area of the long-term care facility. Results indicated that no change was present following the dog's visit regarding mood, depression, or interaction socially. To note, one case regarding mood and social interaction was altered following the dog's visitation. The participants verbalized that they did indeed enjoy the dog visitation. Study limitations included a small sample size, and the majority of the participants in the study began with low GDS scores.

Prosser, L., Townsend, M., & Staiger, P. (2008). Older people's relationships with companion animals: A pilot study. *Nursing Older People, 20*(3), 29-32.

This study reviewed the geriatric population within their long-term care facility regarding companion animals (dogs) for building social interaction relationships. The 18 participants (2 male), were all over age 65 years in this study. For one and a half hour duration, in a group format, once a week for six weeks, animals visited from the local animal hospital. The GDS was administered prior to the six week intervention, then again following the six week intervention. Results from the study showed that the GDS did not suggest any significant differences between the pre and post GDS scores following the program. However, the participants in the study were more verbal and interacted more socially while the animals were present, and were more responsive. Limitations to the study included the small sample size.

Rudman, D. L. (2006). Reflections on: Positive aging and its implications for occupational possibilities in later life. *Revue Canadienne D'Ergotherapie, 73*(3), 188-192.

This article focused on reviewing literature surrounding aging in relation to occupational therapy. The author focused on how that culture and social aspects are influencing or raising concerns about how that aging is viewed. Positive aging allowing for occupational possibilities was mentioned and also how that occupational therapists that write in scholarly journals or while researching can assist with the image of the aging adult. Change can occur when an individual views things in a different light, such as an occupational perspective viewpoint. More research on productive aging and occupation is certainly needed in order to assist in the fulfillment of the *Centennial Vision* to be an "evidence-based profession with a globally connected and diverse workforce" (AOTA, 2007, p. 613).

Smith, N. R., Kielhofner, G., & Watts, J. H. (1986). The relationships between volition, activity pattern, and life satisfaction in the elderly. *The American Journal of Occupational Therapy*, *40*(4), 278-283.

This study reviewed the life satisfaction of sixty elderly adults (30 from a senior living center, 30 from a nursing home) with an age range of 65 to 99 years. The subjects were administered three questionnaires: (1) Demographic Information Questionnaire; (2) Attitude Index; and (3) Occupational Questionnaire. Each subject was asked to correlate activity to life satisfaction related to interest, personal value, and personal causation. A positive correlation was found between the degree of interest, value, and personal causation in occupation and life satisfaction. An implication for further research as related to occupation is needed. For example, this article was published over 25 years ago and still the profession is trying to re-establish itself through occupation and a correlation between life satisfaction and quality of life. In relation to the policy model, this study further exemplifies that occupation increases an individual's quality of life and life satisfaction. Further, the Centennial Vision wishes to work towards "preventing and overcoming obstacles to participation in the activities" (AOTA, 2007, p. 613).

Travers, C., Perkins, J., Rand, J., Bartlett, H., & Morton, J. (2013). An evaluation of dog-assisted therapy for residents of aged care facilities with dementia. *Anthrozoos, 26*(2), 213-225.

This study examined whether human interaction or dog interaction was more beneficial to aged care residents in Australia. The participants in this study were 55 mild to moderate dementia residents who resided in three various aged care facilities. The study had a dog group who received therapy in facility A three times a week for 40-50 minutes (over 11 weeks) and in facilities B and C only two times a week for 40-50 minutes. The human interaction group completed the same aforementioned time schedule only with a human present instead of a dog. Participants were administered a Modified Mini-Mental State Exam (MSE-3MS) and a questionnaire regarding quality of life, mood, and psychosocial functioning before and after the visits. Results showed that participants who were in the dog-assisted group had improved quality of life scores and had better depression scores following the intervention.

This particular study had limitations including a gastroenteritis outbreak during the last week of the study in facility C, which led to decreased participation. This study can translate into my proposed capstone project in that I too would like to study the relationship between human versus dog interaction. It is important to note that when considering a study for the geriatric long-term care population, the study should be brief in order to allow for full inclusion of participants.

Wilcock, A. A. (2007). Active aging: Dream or reality? *New Zealand Journal of Occupational Therapy, 54*(1), 15-20.

This article was meant as a challenge to New Zealand occupational therapists to educate, inform, and practice supporting active aging for a healthier lifestyle. This supports the LHI of increasing adults' physical activity and muscle strength in the long-term care facility. This article mentioned active aging several times and how that occupational therapy can assist. Questions were posed regarding how occupational therapists ask about age and how a therapist should ask how old a person truly feels instead of how old they are. Modern occupational therapy usually emphasizes disability or poor health, instead of thinking of what the older adults can do to prevent or reduce the signs of aging. The proposed formula to think of positive aging was revealed: D+B3 = SH (doing + being, becoming, and belonging = survival and health). Lastly, a call for action was presented for occupational therapists to look at legislation and policy in order to enact change for the older adult population.

Zisselman, M. H., Rovner, B. W., Shmuely, Y., & Ferrie, P. (1996). A pet therapy intervention with geriatric psychiatry inpatients. *The American Journal of Occupational Therapy, 50*(1), 47-51.

The purpose of this study was to review the impact of pet therapy on geriatric psychiatry patients. Participants for the study were from the Wills Eye Hospital Geriatric Psychiatry Unit (58 total; 20 males and 38 females) with a mean age of 76.4 years. Patients were assessed using the Multidimensional Observation Scale for Elderly Subjects (MOSES) before and after the study. Participants were divided into two groups: *Dog Group* played and fed the animals while *Exercise Group* exercised for the same time duration. Both groups received intervention over five consecutive days for one hour total. Results showed no significant difference between the MOSES scores before or after the treatment; however, the participants who received the pet therapy intervention were less irritable after the treatment. The limitations were the small sample size, the short time span of only five days, and the difficulty involved with ongoing interventions on a Geriatric Psychiatry Unit. This study can assist in developing and deciding what to include in this research study.

APPENDIX B

TABLE OF EVIDENCE

Author/Year	Study Objectives	Level/Design/Subjects	Intervention and Outcome Measures	Results	Study Limitations
Berry, A., Borgi, M., Terranova, L., Chiarotti, F., Alleva, E., & Cirulli, F. (2012).	The purpose was to examine the interaction between dogs and humans in relation to increasing quality of life in the geriatric population.	Level II. Two groups. Participants consisted of 19 total 6 men and 13 women ranging in age from 70-96 years.	Two groups (dog group and therapy interaction dog group). Dog-assisted intervention occurred two times a week for five months at the same time of morning (10:30) were monitored for interaction and cortisol increase. Therapy consisted of only four participants who ambulated with the dogs were monitored for interaction and cortisol increase.	Results showed an increase in cortisol levels and smiles following interaction with the dogs.	Small sample size. Limited ability to generalize to larger sample size. Limited sample participating in the therapy portion of the study due to health related mobility issues.
Cipriani, J., Cooper, M., DiGiovanni, N. M., Litchkofski, A., Nichols, A. L., & Ramsey, A. (2013).	To complete an evidence-based practice literature review of 12 studies related to dog-assisted therapy and occupational therapy.	Level I (systematic review) of 12 studies. Participants ranged from 4 to 95 participants. Age ranged from 50 to 105 years. In 16 of the 19 studies, females outnumbered males.	Twelve studies were analyzed for impact on outcomes and quality of life in relation to dog-assisted therapy.	Levels of evidence found 3 randomized control trials, 11 cohort studies, 4 before and after, and 1 single case design. Outcomes were examined using the McMaster's Critical Review Form.	Unable to locate full-text of several studies. Two studies were passive forms of dog stimuli (video and robot dog).

Author/Year	Study Objectives	Level/Design/Subjects	Intervention and Outcome Measures	Results	Study Limitations
D'Amico, M., (2012).	To complete a review of 12 articles published in the American Journal of Occupational Therapy in relation to productive aging.	Level I (systematic review) of 12 articles from 2011. Participants ranged from 6 of the articles pertaining to Alzheimer's disease and dementias to fall prevention in the community.	Twelve articles published in AJOT were reviewed from 2011 for meeting the *Centennial Vision* goal of productive aging through practice.	Two studies focused on professional issues. Three studies focused on client-centered issues. More research is needed for support of evidence-based practice within the realm of productive aging in AJOT.	Limited nature of publications for 2011 in regard to productive aging.
Fick, K. M. (1993).	To prove the benefits of dog interaction on social behavior on long-term care residents.	Level II. Two groups (dog present and dog absent). Thirty-six male participants.	Four weekly groups were observed for interaction either with a dog present or absent. Participants were rated on how many interactions they showed within a 15 minute at the beginning and 15 minutes at the end (lasting 10 minutes each).	Social interaction was improved when a dog was present.	Only males participated. Attendance varied during the 4 sessions. Participants had to leave the group on 3 occasions and data could not be counted.
Hersch, G., Hutchinson, S., Davidson, H., Wilson, C., Maharaj, T., & Watson, K. B. (2012).	To study the effects of occupation-based cultural heritage intervention within a long-term care facility.	Level II. Two groups (cultural intervention and typical activity group) with pre-and post-tests. Twenty-nine participants from seven long-term care facilities.	Quality of life scores were compared between the two groups.	Results showed that occupation-based social group interaction improved quality of life.	Challenges with recruitment and age related limitations (frailty, death, and hospitalizations). Length of stay in the long-term care facility was a limitation. Change in group facilitators.

Author/Year	Study Objectives	Level/Design/Subjects	Intervention and Outcome Measures	Results	Study Limitations
Jackson, J., Carlson, M., Mandel, D., Zemke, F., & Clark, F., (1998).	To study the possibility of a preventative occupational therapy treatment program for senior adults living in independent living apartments.	Level I. This study was completed using 361 participants (male and female) aged 60 and over, who resided in subsidized apartments for independent living senior adults. The participants were randomly placed into one of three groups over the course of the nine month duration.	The groups were preventive occupational therapy, nonprofessionally led social activities, and lastly untreated control group. The occupational therapy group received 2 hours of group-led intervention and one hour of one-to-one therapist interaction a month. The nonprofessionally led activity group engaged in watching movies, playing games, dancing, and attending community outings. Lastly, the control group received no interaction.	Results showed that occupational therapy preventative intervention is successful and beneficial to the older adult population at assisting to ward off health issues related to aging.	The benefits of the program are based on the occupational therapist and social activities leader's treatment ability and the cooperation of the participants.
LeRoux, M. C., & Kemp, R., (2009).	To compare animal assisted therapy group to a control group at a long-term care facility in relation to depression and anxiety scores.	Level III. Participants totaled 16 (8 women and 8 men) randomly assigned to a control or animal assisted group. All were over age 65 years and were residents of a long-term care facility.	Animal assisted group received dog intervention for 30 minutes, once a week, for a 6 week duration. Control group did not receive interaction with the animal. Both groups received BDI and BAI pre and post test scores.	No significant differences between the animal assisted group scores on the BDI and BAI pre test. However, significant differences were found between the animal assisted group's pre and post BDI scores.	Small sample size. Purposive sample. Limited research available.

Author/Year	Study Objectives	Level/Design/Subjects	Intervention and Outcome Measures	Results	Study Limitations
McColgan, G., & Schofield, I., (2007).	To review the effect of companion animals (dogs) on the older adult population in their home environment.	Level IV. 6 participants (3 male, 3 female) age 22-70 years old, who reside with a companion animal (dog).	Semi-structured interview questions were used and one case study studied in further detail.	Results showed that in the older adult population, a companion animal relationship may be the most significant relationship an individual has remaining.	Small sample size. Only one case study was reviewed in further detail. Limited research available. Age range was 22-70, with the lower end of the age not being in the older adult population range.
Moretti, F., DeRonchi, D., Bernabei, V., Marchetti, L., Ferrari, B., Forlani, C., Negretti, F., Sacchetti, C., & Atti, A. R. (2011).	This study aimed to prove that pet therapy was effective in increasing quality of life in the elderly who had a diagnosed mental illness.	Level II. Two groups with pre- and post-test. The participants were all over age 65 years and were institutionalized for at least two months. They all had mental illness (per medical records) of Alzheimer's disease, dementia, mood disorder, or psychotic disorder. Ten participants (9 women and 1 man) were placed in the pet therapy group; and 11 (all women) were placed in the control group.	The intervention consisted of (6 weeks 90 minutes once a week) of the pet group petting, walking, talking to, and playing with the dogs; whereas, the control group was only allowed to view the dogs but not interact with them. Participants were provided with the Mini-Mental State Examination (MMSE) and the Geriatric Depression Scale (GDS) and a self-perceived quality of life questionnaire before and after a pet therapy intervention.	Results showed that both groups improved on the GDS and MMSE. GDS symptoms decreased by 50% and mean MMSE increased by 4.5. Both groups reported an improvement of their perceived quality of life.	Limitations included a small sample size, only a short-term evaluation was completed, and data did not collect information on behavior disturbances.

Author/Year	Study Objectives	Level/Design/Subjects	Intervention and Outcome Measures	Results	Study Limitations
Murphy, S. L., (2011).	This was a systematic review of articles published in AJOT from 2009-2010 relating to productive aging.	Level I. 12 articles were reviewed from AJOT from 2009-2010 regarding productive aging.	Articles were categorized based on topic reviewed. Topics were ranging from driving, falls, functional difficulties, and pain management.	Results demonstrated that more research is needed in order to have supportive evidence for practice.	Small sample size for review. Limited research available published within occupational therapy in AJOT.
Phelps, K. A., Miltenberger, R. G., Jens, T., & Wadeson, H., (2008).	The purpose of this study was to review the relationship between long-term care residents and depression, mood, and societal interaction following a dog visitation.	Level III. Participants in this study included 5 long-term care residents (2 male, 3 female) all over age 65 years. All participants must score at least a 9 on the GDS and a 24 on the MMSE for inclusion. And all participants must like dogs in order to participate.	Intervention consisted of 10 minutes (or less) of dog visitation once a week for the duration of 6 weeks either in the lounge or the patient's room. The GDS was taken prior to and after the visitation, along with observation regarding societal interaction and self-reported mood.	Results indicated that no change was present following the dog's visit regarding mood, depression, or interaction socially, with the exception of one person for an increase in mood and for societal interaction.	Small sample size. The participants all had a low GDS score prior to the research study.
Prosser, L., Townsend, M., & Staiger, P., (2008).	To discover if a relationship exists between companion animal visitation in a long-term care facility and social interaction among participants.	Level III. 18 participants (2 male), age 65 years and over, residents of a residential care facility.	Treatment included a pre and post-test of the GDS. Animals visited from the local animal hospital in a group format for a one and a half hour duration, once a week, for the course of six weeks. Participants were studied regarding the GDS and for responsiveness while the animals were present.	Results showed no change significantly in the GDS pre and post test scores. However, it was noted that the participants were more responsive during the animal interaction group than otherwise.	Small sample size. Purposive sample.

Author/Year	Study Objectives	Level/Design/Subjects	Intervention and Outcome Measures	Results	Study Limitations
Rudman, D. L., (2006).	Review of literature regarding positive aging from an occupational perspective.	Level V. The paper reviewed topics of aging in a positive light from a Western societal perspective.	Comparison was used regarding topics of aging positively. Topics selected for review included: Discourse on aging, occupational limitation, and inequities.	Results showed that occupational therapists can assist the aging population with reshaping how that the emphasis is shown to the aging population through literature, policy, and awareness.	Limitation including the need for further research and scholarship in this area of practice. More education is needed regarding practice and policy among occupational therapists. Small sample.
Smith, N. R., Kielhofner, G., & Watts, J. H., (1986).	The purpose of this study was to explore life satisfaction of the subjects in relation to occupation within the elderly geriatric population.	Level II. This study reviewed the life satisfaction of sixty elderly adults (30 from a senior living center, 30 from a nursing home) with an age range of 65 to 99 years.	The subjects were administered three questionnaires: (1) Demographic Information Questionnaire; (2) Attitude Index; and (3) Occupational Questionnaire.	A positive correlation was found between the degree of interest, value, and personal causation in occupation and life satisfaction.	More research is needed within this topic area. Small sample size. Purpose sampling was used.

Author/Year	Study Objectives	Level/Design/Subjects	Intervention and Outcome Measures	Results	Study Limitations
Travers, C., Perkins, J., Rand, J., Bartlett, H., & Morton, J., (2013).	The purpose of this study was to examine the relationship between depression and dogs versus human interaction.	Level I (randomized control trial). The participants in this study totaled 55 (67 initially but did not complete the study) (mild to moderate dementia residents) who resided in three various aged care facilities.	The study had a dog group who received therapy in facility A three times a week for 40-50 minutes (over 11 weeks); and facility B and C only two times a week also for 40-50 minutes. The human interaction group completed the same aforementioned time schedule only with a human present instead of a dog. Participants were administered a Modified Mini-Mental State Exam (MSE-3MS) and a questionnaire regarding quality of life, mood, and psychosocial functioning before and after the visits.	Results showed that participants who were in the dog-assisted group had improved quality of life scores and had better depression scores following the intervention.	Study limitations included a gastroenteritis outbreak during the last week of the study in facility C, which led to decreased participation.

Author/Year	Study Objectives	Level/Design/Subjects	Intervention and Outcome Measures	Results	Study Limitations
Wilcock, A. A., (2007).	The primary purpose of this study was to review a case study on ageing and to challenge occupational therapists and occupational scientists to support active aging in the geriatric population in New Zealand.	Level V (case study).	A formula was introduced: Doing, being, becoming, and belonging are equal to survival and health or d+b(3)= sh.	Policy was promoted in relation to active aging versus ageism. And a challenge issued in relation to therapists to support aging actively.	Only one case study was reviewed. Society does not always support active aging individuals. Sample size was very small.
Zisselman, M. H., Rovner, B. W., Shmuely, Y., & Ferrie, P. (1996).	The purpose of this study was to review the impact of pet therapy on geriatric psychiatry patients.	Level II (pre-and post-tests two group design). Participants for the study were from the Wills Eye Hospital Geriatric Psychiatry Unit (58 total; 20 male; 38 female) with a mean age of 76.4 years.	Patients were assessed using the Multidimensional Observation Scale for Elderly Subjects (MOSES) before and after the study. Participants were divided into two groups: Dog group played and fed the animals and exercise group exercised for the same time duration. Both groups received intervention over five consecutive days for one hour total.	Results showed no significant difference between the MOSES scores before or after the treatment. However, the participants who received the pet therapy intervention were less irritable after the treatment.	Limitations were the small sample size, the short time span of only five days, and the difficulty involved with ongoing interventions on a Geriatric Psychiatry Unit.

APPENDIX C

SCREENING TOOL

1. Did you ever have a pet growing up or as an adult? (1 point for yes answer).
2. Do you remember having an adverse reaction or interaction with a dog at any time in your life? (1 point for no answer).
3. Did you value the time spent with a dog? (1 point for yes answer).

APPENDIX D

INFORMED CONSENT FORM

Consent to Participate in a Research Study

Dogs in Long-term Care and its Effects on Depression

Why am I being asked to participate in this research and who is doing the study?

You are being invited to take part in a research study conducted by Leah Simpkins, doctoral student from Eastern Kentucky University, about dogs in long-term care in relation to depression. You are being invited to participate in this research study because you are a resident of a long-term care facility, are within the age bracket of 65-100 years, like dogs, and have no allergy to dogs. If you take part in this study, you will be one of 10 individuals participating.

What is the purpose of the study?

The purpose of this study is to discover if small amount of time spent interacting with a friendly leashed certified, trained therapy dog reduces depression levels within the long-term care facility residents and, if so, whether dogs should become regular visitors to long-term care facilities for the benefit of the residents.

Where is the study going to take place and how long will it last?

The research procedures will take place within your room at the long-term care facility. You will be asked to participate for 15 minutes once a week for six weeks. The total amount of time will be roughly 1.5 hours or 90 minutes over the course of six weeks.

What will I be asked to do?

You will be randomly assigned to either the dog interaction group or the non-animal control group. The subjects in the dog interaction group should expect a visit from a leashed dog once a week for the 15 minutes over the course of six weeks. The non-animal control group will receive visits from a therapist once a week for the 15 minutes over the course of six weeks. All participants will be administered a short survey questionnaire of 15 questions twice during the research (at the beginning of the study and at the completion of the study).

Are there reasons why I should not take part in this study?

If you (a) have an aversion to animals, dogs in particular; (b) have an allergy to dogs; (c) are not able to legally provide your own informed consent; and/or (d) do not wish to participate overall in general.

What are the possible risks and discomforts?

No physical harm will be inflicted by the dog, as it will be leashed and controlled at all times by a a trained certified therapy dog with handler. No mental harm should occur during or following the study, however, individuals who are participating in the study will be monitored more closely by nursing staff at the facility for possible effects (e.g., depression signs). You may, however, experience a previously unknown risk or side effect.

Will I benefit from taking part in this study?

There is no guarantee that you will get any benefit from taking part in this study.

Do I have to take part in this study?

Your participation in the study is completely voluntary. You will not lose any benefits or rights you would normally have if you choose not to volunteer. If you decide to take part in the study, you will continue to have the right to decide at any time that you no longer want to participate. You will not be treated differently if you decide to stop taking part in the study.

What will it cost me to participate?

There are no costs associated with taking part in this study.

Will I receive any payment or rewards for taking part in the study?

You will not receive any payment or reward for taking part in this study.

Who will see the information I give?

Only the primary researcher, Leah Simpkins, and Eastern Kentucky University faculty members who are on the research committee will see the information you provide. When results are written, the results will be written in aggregate so no individual can be identified.

What happens if I get hurt or sick during the study?

If you believe you are hurt or if you get sick because of something that is done during the study, you should call Leah Simpkins at (859)-582-6549 immediately. It is important for you to understand that Eastern Kentucky University and Leah Simpkins will not pay for the cost of any care or treatment that might be necessary; any costs will be your responsibility.

What if I have questions?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Leah Simpkins at (859)-582-6549. If you have any questions about your

rights as a research volunteer, contact the staff in the Division of Sponsored Programs at Eastern Kentucky University at 859-622-3636.

I have thoroughly read this document, understand its contents, have been given an opportunity to have my questions answered, and agree to participate in this research project.

_____ _____

Signature of person agreeing to take part in the study Date

_____

Printed name of person taking part in the study

_____

Name of person providing information to subject

APPENDIX E

GDS

Geriatric Depression Scale (Short Form) Self-Rated Version

Participant #: _____ Date: _____

Instructions: Choose the best answer for how you felt over the past week.

No.	Question	Answer	Score
1.	Are you basically satisfied with your life?	YES / NO	
2.	Have you dropped many of your activities and interests?	YES / NO	
3.	Do you feel that your life is empty?	YES / NO	
4.	Do you often get bored?	YES / NO	
5.	Are you in good spirits most of the time?	YES / NO	
6.	Are you afraid that something bad is going to happen to you?	YES / NO	
7.	Do you feel happy most of the time?	YES / NO	
8.	Do you often feel helpless?	YES / NO	
9.	Do you prefer to stay at home, rather than going out and doing new things?	YES / NO	
10.	Do you feel you have more problems with memory than most people?	YES / NO	
11.	Do you think it is wonderful to be alive?	YES / NO	
12.	Do you feel pretty worthless the way you are now?	YES / NO	
13.	Do you feel full of energy?	YES / NO	
14.	Do you feel that your situation is hopeless?	YES / NO	
15.	Do you think that most people are better off than you are?	YES / NO	
		TOTAL	

(Sheikh and Yesavage, 1986).

Scoring:

Answers indicating depression are in bold and italicized; score one point for each one selected. A score of 0 to 5 is normal. A score greater than 5 suggests depression.

APPENDIX F

EVIDENCE OF SITE SUPPORT FOR OFF-CAMPUS RESEARCH

Kenwood Healthcare and Rehabilitation
130 Meadowlark Drive
Richmond, Kentucky 40475
(859)-623-9472

Letter of Support for Off-Campus Research

August 1, 2014

Institutional Review Board:

As an authorized representative of Kenwood Healthcare and Rehabilitation, I grant approval for Leah Simpkins (Doctorate of Occupational Therapy candidate at Eastern Kentucky University) to conduct research involving human subjects at my organization. I understand that the purpose of this research is to evaluate the potential use of animals in therapeutic mechanisms for the geriatric population in a long-term care facility.

I grant permission for this project to involve residents of Kenwood Healthcare and Rehabilitation upon their signed consent to participate and/or Power of Attorney (if needed) as I have determined these individuals to be appropriate subjects for this research. I understand that they will be asked to complete short visitations with a dog once a week over the course of the six week duration, complete the Geriatric Depression Scale, and will be asked about their current life events.

To support this research, I agree to allow the researcher to bring a dog into the facility for the research on a leash with up-to-date shot records and allow the participants to complete the study. I agree to not bias the study in any way during the research and to allow results to be published upon completion.

Sincerely,

Glenn Cox

Glenn Cox, Facility Administrator
Kenwood Healthcare and Rehabilitation

APPENDIX G

DATA COLLECTION TOOL

Experimental Dog Interaction Group:

Patient Name	Smile Count (SC) Total	Verbalization Count (VC) Total	SC Week #1	SC Week #2	SC Week #3	SC Week #4	SC Week #5	SC Week #6	VC Week #1	VC Week #2	VC Week #3	VC Week #4	VC Week #5	VC Week #6
Participant #1														
Participant #2														
Participant #3														
Participant #4														
Participant #5														

Control Group:

Patient Name	Smile Count (SC) Total	Verbalization Count (VC) Total	SC Week #1	SC Week #2	SC Week #3	SC Week #4	SC Week #5	SC Week #6	VC Week #1	VC Week #2	VC Week #3	VC Week #4	VC Week #5	VC Week #6
Participant #1														
Participant #2														
Participant #3														
Participant #4														
Participant #5														

APPENDIX H

IRB APPROVAL

Graduate Education and Research
Division of Sponsored Programs
Institutional Review Board

Jones 414, Coates CPO 20
521 Lancaster Avenue
Richmond, Kentucky 40475-3102
(859) 622-3636; Fax (859) 622-6610
http://www.sponsoredprograms.eku.edu

EASTERN KENTUCKY UNIVERSITY
Serving Kentuckians Since 1906

NOTICE OF IRB APPROVAL
Protocol Number: 15-102
Institutional Review Board IRB00002836, DHHS FWA00003332

Review Type: ☒Full ☐Expedited

Approval Type: ☒New ☐Extension of Time ☐Revision ☐Continuing Review

Principal Investigator: **Leah Shea Cornelison Simpkins** Faculty Advisor: **Dr. Colleen Schneck**

Project Title: **Dog Visitation in Long-Term Care and Its Effects on Depression**

Approval Date: **12/15/14** Expiration Date: **9/29/15**

Approved by: **Dr. Ida Slusher, IRB Chair**

This document confirms that the Institutional Review Board (IRB) has approved the above referenced research project as outlined in the application submitted for IRB review with an immediate effective date.

Principal Investigator Responsibilities: It is the responsibility of the principal investigator to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects, follow the approved protocol, use only the approved forms, keep appropriate research records, and comply with applicable University policies and state and federal regulations.

Consent Forms: All subjects must receive a copy of the consent form as approved with the EKU IRB approval stamp. Copies of the signed consent forms must be kept on file unless a waiver has been granted by the IRB.

Adverse Events: Any adverse or unexpected events that occur in conjunction with this study must be reported to the IRB within ten calendar days of the occurrence.

Research Records: Accurate and detailed research records must be maintained for a minimum of three years following the completion of the research and are subject to audit.

Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a description of those changes must be submitted for IRB review and approval prior to implementation. Some changes may be approved by expedited review while others may require full IRB review. Changes include, but are not limited to, those involving study personnel, consent forms, subjects, and procedures.

Annual IRB Continuing Review: This approval is valid through the expiration date noted above and is subject to continuing IRB review on an annual basis for as long as the study is active. It is the responsibility of the principal investigator to submit the annual continuing review request and receive approval prior to the

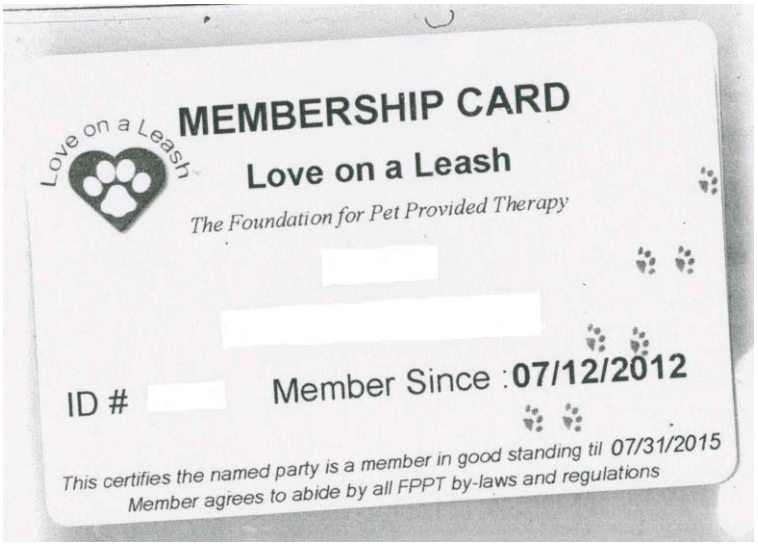
anniversary date of the approval. Continuing reviews may be used to continue a project for up to three years from the original approval date, after which time a new application must be filed for IRB review and approval.

Final Report: Within 30 days from the expiration of the project, a final report must be filed with the IRB. A copy of the research results or an abstract from a resulting publication or presentation must be attached. If copies of significant new findings are provided to the research subjects, a copy must be also be provided to the IRB with the final report.

Other Provisions of Approval, if applicable: None
Please contact Sponsored Programs at 859-622-3636 or send email to tiffany.hamblin@eku.edu or lisa.royalty@eku.edu with questions about this approval or reporting requirements.

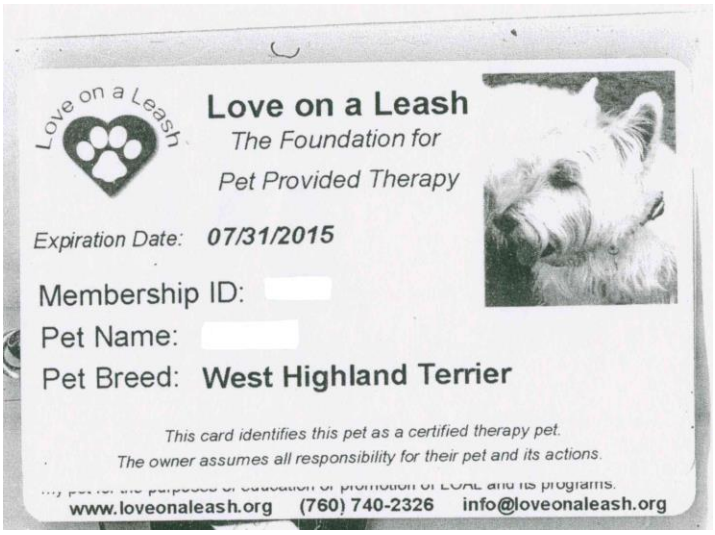
APPENDIX I

CERTIFICATION FOR THERAPY HANDLER



APPENDIX J

CERTIFICATION FOR THERAPY DOG



APPENDIX K

TABLES OF PARTICIPANTS

Participant #1 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#1	Experimental	Female	66	2	3	120	187

Conversation Topics During Dog Visits

Previous dogs as pets. Tricks dog can perform. Stories about growing up with animals as pets. Breed of dog. Weather discussion. Does dog like snow? Bowel movements, daily events of activities within facility. Asked to come back again soon? Said thanks for visiting.

Dog Interactions

Non-stop petting. Held onto dog tightly. Hugged animal. Dog calmed and laid next to participant. Sat in lap.

Observations

No outings. One visitor during five weeks (roommate's daughter). No medical changes. Extremely excited to visit with us. Used terms of endearment for the dog: sweetie, baby, sweet puppy, fancy pants, I love you. Removed herself from a Bingo activity to visit with dog.

Participant #2 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#2	Experimental	Male	68	4	2	71	80

Conversation Topics During Dog Visits

UK Basketball game. Weather being terrible and snowy. Age of dog and breed. Will we return later date? Can we visit again? What does the dog eat, can he have a cookie treat? Previous dog stories.

Dog Interactions

Calm, relaxed. Sat in chair next to him. Constant petting of dog.

Observations

Three outings total (one to a store and two doctor appointments). One visitor (sister) in five weeks. One medicine change in 5 weeks (medicine added for dizziness). Asked us to come back so that he could put on a better outfit and shave. Wanted to pick-up room before visiting with us. Removed himself from activity to visit with dog. Roommate wanted to interact with dog. Individuals from hallway would come into his room to visit with dog.

Participant #3 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#3	Experimental	Male	79	4	4	37	33

Conversation Topics During Dog Visits

Cuteness of dog. Breed of dog. How old is dog. Wife had a dog at home before she became ill and in a nursing home. Weather. Valentine's Day. Daughter has a hairless dog. Age of dog. Does the dog handler have any other animals? Asked if we would return later for another visit. Thanked us for stopping by.

Dog Interactions

Constant petting. Sat on floor next to wheelchair. Picked dog up into lap.

Observations

Depressive diagnosis. Two outings to visit wife in nursing home in five weeks. Two visits from daughter in five weeks. One medication change (cough syrup). Roommate wanted to pet dog.

Participant #4 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#4	Experimental	Female	82	1	3	78	64

Conversation Topics During Dog Visits

Cuteness of dog. Injuries that caused her admission. Breed of dogs. Previous dogs owned. Locations where the dog handler and therapy dog go. Name of dog. Friendly dog. When is the dog's birthday? Weight and age of dog. Weather/snowfall. Dog named "Peppi" she had owned. Dog show on TV.

Dog Interactions

Intermittent petting. Wanted dog to sit on her bed. Asked if she could pet him first.

Observations

No outings. One visitor (sister) in five weeks. One medicine change (blood thinner). Roommate wanted to participate.

Participant #5 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#5	Experimental	Female	83	0	3	146	218

Conversation Topics During Dog Visits

Previous dogs. Age of dog. Breed of dog. Sister's dogs and daughter's dogs. Grooming of dog. Previous dog "Cookie." Dogs' outfit. UK Wildcats. How she felt better after our visits. Thanked us for coming by and cried.

Dog Interactions

Dog sat on her bed. Non-stop petting. Relaxed on her and started licking her.

Observations

No outings in five weeks. Four visitors in five weeks (friend and daughter). No medicine changes. Roommate wanted to visit with dog. Staff came to visit with dog while we were visiting.

Participant #6 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#6	Control	Female	84	1	2	D=25 (1 visit) ND=14 (4 visits)	D=22 (1 visit) ND=12 (4 visits)

Conversation Topics During Dog Visits

Dogs visiting. Previous dogs owned. Thanked us for stopping by.

Dog Interactions

Friendly. Petted non-stop

Observations

No visitors. No medicine changes. No outings.

Participant #7 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#7	Control	Male	71	2	3	D=10 (1 visit) ND=5 (4 visits)	D=5 (1 visit) ND=3 (4 visits)

Conversation Topics During Dog Visits

Dogs owned. Breed of animal. Thanked us.

Dog Interactions

Intermittent petting.

Observations

No visitors. No outings. No medication changes.

Participant #8 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#8	Control	Female	77	2	4	D=19 (1 visit) ND=13 (4 visits)	D=15 (1 visit) ND=14 (4 visits)

Conversation Topics During Dog Visits

Dog show on TV. Weather. Dog's outfit and leash. Breed of dog. Age of dog. Nothing to do here sometimes.

Dog Interactions

Sat on her bed. Non-stop petting. Wagging of tail.

Observations

Depressive disorder. One visitor (son) the previous week. No outings. No medication changes.

Participant #9 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#9	Control	Female	89	2	0	D=29 (1 visit) ND=14 (4 visits)	D=22 (1 visit) ND=18 (4 visits)

Conversation Topics During Dog Visits

Dog she and spouse owned at home. Ailments and bowel movements. Thanked us for coming in.

Dog Interactions

Friendly. Intermittent petting.

Observations

No outings. No visitors. No medicine changes. Stopped in hallway to visit with dog. People came into room where dog was to visit with him.

Participant #10 Detailed Record

Participant	Group	Sex	Age	Pre-GDS	Post-GDS	Smile Total	Verbal Total
#10	Control	Female	97	1	0	D=24 (1 visit) ND=11 (4 visits)	D=15 (1 visit) ND=13 (4 visits)

Conversation Topics During Dog Visits

Dogs in general. Breed of dog. Liked dogs to come by. Thanked us.

Dog Interactions

Friendly, calm. Intermittent petting. Tried to kiss dog.

Observations

No visitors. No outings. No medication changes.

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