The Older Adult: Considerations and Learning to Age in Place

by

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Abstract

The process of aging independently in a current home can also be described as aging in place. Research has found that common concerns and limitations exist with many older adults as they make decisions on either modifying their current environment and/or support system or moving to a more accessible environment. Some older adults feel justified to search for alternate methods of independence while others are able to age in place successfully as desired. However, the importance of physical activity, as a factor for aging in place has been overlooked in the literature. The purpose of this study was to increase understanding of older adults' learning, lifestyles, and effects on aging independently. Specifically, this study investigated older adult transfer of learning with the importance of physical activity and avoiding sedentary behavior with respect to aging in place. A mixed methods approach examined 10 older adults aged 65-88, that were contemplating aging in place in a mid-sized city in the Southeastern United States. Semi-structured interviews determined participants' perception of aging in place and physical activity impact on independence with aging. Accelerometers assessed levels of physical activity and sedentary behavior over 14 days. Themes arose from the interviews relating to physical activity. The positive outcomes of regular physical activity participation and aging in place were found to be interdependent. Interestingly, most participants were aware of the importance of physical activity, but did not specify physical activity as being a primary contributor for continued independence with aging. Accelerometer data revealed that participants spent on average, 96.7% of the day in sedentary behavior. The participants had equally undervalued perceptions of physical activity and abilities to age in place.

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Table of Contents

List of Tables

List of Figures

List of Abbreviations

ADA	Americans with Disabilities Act
ADLs	Activities of Daily Living
APTA	American Public Transit Association
CDC	Centers for Disease Control
CHF	Congestive Heart Failure
CVA	Cerebral Vascular Accident
ESRD	End-Stage Renal Disease
IADLs	Instrumental Activities of Daily Living
IDEA	Individuals with Disabilities Education Act
OT	Occupational Therapist
PA	Physical Activity
PWD	Persons With a Disability
PWOD	Persons Without a Disability
UTI	Urinary Tract Infection

Chapter 1

Introduction

There is a need to increase understanding of the contexts and variables for how and why older adults decide to age in place, the validation and use of accelerometers for older adults and what research has already demonstrated with effects of older adult learning, physical activity and aging in place. This study will comprise specific perspectives regarding aging in place and accelerometer use. Regarding aging in place, the following contexts will be examined: the individual person, adult education, effects of physical and cognitive impairments, personality, environment, access to and understanding of technology, access to self-care, culture and background, learning style and theories of motivation, stress, co-morbidities, family impact, resources of finances, equipment and people. An understanding of physical activity (PA) levels and its health effects will be explained. Regarding accelerometer use, methods of PA measurement will be examined from past research to understand if accelerometers would be an appropriate choice for the study. Also, further understanding of exclusions from the use of accelerometers are explained. The use of interviews and qualitative research mixed with quantitative data from instruments like accelerometers will be compared. Synthesizing this research will expand to future studies, of which I intend to broaden the scientific and social understandings of independent aging, older adult education and physical activity.

Statement of the Problem

In America, people are becoming more aware of the challenges to age in place since older adults are more vocal regarding needs and media helps to capture the concerns. Since aging in place is an increasingly popular term, it deserves greater attention. Research has garnered data and information on many contexts of aging and independence (Lawton, 1993, 1970); however,

little research has documented how physical activity impacts an older adult's ability to age in place. Additionally, research understanding how an older adult learner follows through with self-care independence education is fascinating and understudied. Will the information be received and does the older adult have a transfer of learning to enable aging in place? This question underscores the purpose of my study to increase understanding of older adults' learning, lifestyles, and effects on aging independently.

Ideally, research regarding this topic would involve a longitudinal study, however current resources limit study design and methods. Still, much can be learned from mixed methods research involving interviews and accelerometer use to measure physical activity. Interviews would be designed to understand older adult perspectives on aging in place through personal accounts of health, needs, desires and concerns. I wanted to answer the following research questions: 1) How and why do older adults decide to continue living in their current home or move to age independently? 2) How could a sedentary lifestyle and participation in physical activity affect the ability to age independently?

Aging in place has become a popular phrase in the last decade used to describe how individuals attempt to stay in their homes as they age versus transitioning to a facility or medical setting. Older adults, as with any other human, desire a secure and consistent environment that would promote the highest degree of independence and safety. Before the existence of nursing homes and assisted living facilities, adults had no other option than to age in place (Vasunilashorn & Steinman, 2012). Aging in place was a multi-cultural norm. Often, multiple generations of a family would find themselves living in the same household. Although this could potentially cause social or financial problems, cohabitation typically worked well. Family members would often find a mutual benefit (Lawton, 1973).

Purpose of the Study

The purpose of this study was to increase understanding of older adults' learning, lifestyles, and effects on aging independently.

Research Questions

The following research questions were used in the study:

1) How and why do older adults decide to continue living in their current home or move to age independently?
2) How could a sedentary lifestyle and participation in physical activity affect the ability to age independently?

Where do you want to grow older? In your own home? What kind of resources do you want set up ahead of time? Will you be physically, financially or mentally able to stay in your home? If you're not there yet, what about mom or dad? We must all consider life changes to maintain independence as we age. The process of aging independently in a current home can also be described as aging in place (Oswald et. al., 2010). Older adults are eventually faced with a choice, to continue aging in their current home setting or move to a more handicap accessible environment to maintain self-care independence. Depending upon financial resources, some older adults may consider moving to an assisted living facility. Aging in place is an interesting phenomenon that has gained more attention, however, Vasunilashorn and Steinman (2012) report that some people may have learned how to age in place all along. Thankfully, learning to age independently is a summative process for many adults. Yet, for others, adult education for aging in place considerations may be a repetitive need.

Research Questions Reasoning

I interviewed older adults in this study to directly learn from the source, increasing capability to answer the research question: How and why do older adults decide to continue living in their current home or move to age independently? I used an Actigraph accelerometer for assessment of physical activity and sedentary behavior for an increased capability to answer the research question: How could a sedentary lifestyle and participation in physical activity affect the ability to age independently? Interview transcripts provided nominal data while accelerometry provided data at the ratio level of measurement using a dependent variable of daily physical activity (steps taken) and an independent variable of time wearing the accelerometer. Confounding variables are numerous including and not limited to age, depression, fatigue, cognitive impairments such as memory deficits, and late effects of a CVA such as hemiplegia or visual impairments. These variables, interestingly, were also participant reported limiting factors of both physical activity and aging in place. The most significant mediating variable is the participants' motivation for aging in place and with regards specific to accelerometry, their motivation for physical activity. The most significant moderator variable is the ability for functional mobility. Evidence for this moderator was notable from the table including the use of assistive devices for walking, such as a cane or rolling walker. The accelerometer data were analyzed with statistical software to provide practical information with the percentage of daily physical activity for the 10 participants. This data was interpreted with the coexisting interviews to determine transfer of learning.

Specifically, I was interested in how older adults learned and applied the necessity of daily physical activity to maintain living in their current home environment, and, therefore age in place. I was the sole Occupational Therapist for each of the 10 participants for weeks preceding

the data collection. During this time, I educated the older adults on personal health awareness including contexts of environmental safety, home and external resource accessibility, health technology, medication management, physical capability necessities, nutrition, functional mobility, and durable medical equipment. Accelerometers provided a way to measure the participants' understanding of health education in one of the contexts, specifically physical activity. Reasons for choosing mixed methods, data collection procedures, assumptions, limitations, and interpretations of data are discussed below.

Table 1.

Research Question Matrix

Domain	***Question***	***Instrument to address question***	***Analysis***
Aging in place knowledge	**1.** How and why do older adults decide to continue living in their current home or move to age independently?	Semi-structured interview	Contextual and thematic organization of responses. Field saturation then triangulation of thick and rich data from transcripts and accelerometer results.
Physical Activity	**2**. How could a sedentary lifestyle and participation in physical activity affect the ability to age independently?	Acti-graph Accelerometer	Acti-graph software generating descriptive statistics including percentages of the day sedentary, daily step count, and average daily minutes sedentary.

Significance of the Study

However, more recent research found that the chase of the American dream may cause many elder's adult children to find themselves either too busy to provide the care needed or feel they have no choice (Pynoos et. al., 2009). They found that some cases, however, required around the clock medical supervision. Some older adults may feel a sense of neglect and/or abandonment and are therefore justified to search on their own for alternate methods of independence. Other older adults require placement from the caregiver or power of attorney, in a medical facility, due to inability to make reliable independent decisions. More specifically, in the same study, results indicated that an older adult's lack of insight into his or her own cognitive or physical deficits from either pride with denial or cognitive decline with possible dementia required caregiver intervention (Pynoos et. al., 2009). Lastly, and arguably more successfully, some older adults can "age in place" as desired (Lawton & Brody, 1969; Oswald et al., 2010). It is my goal, including implications for future research, to ask questions about why these older adults who intend to age in place, decide to do so, what they understood are necessities to reach their goal and how they plan to achieve aging in place.

Lawton (1990) found that common concerns and limitations exist with many older adults as they make decisions on either modifying their current environment and/or support system or moving to a facility or more accessible home. I agree, in my experience with the older adult population, I have found the following older adult concerns of the decision making process to aging in place: financial limitations, pre-existing health conditions and co-morbidities, lack of medical equipment, lack of family or caregiver support, depression, loneliness, feelings of isolation and abandonment, lack of consistent or affordable transportation, medication

management, fear of falling, stigmas and insecurities and an overall lack of knowledge of available resources and processes.

Although I am an Adult Education doctoral student at Auburn, I am also an Occupational Therapist by profession. My working passion is being an active part of the healing process for injured or ill individuals ranging from patients with side effects of stroke, Parkinson's disease or elective hip and knee replacements. I work primarily with middle age to older adults, with ages ranging from fifty to ninety in the home health setting. I encounter older adults daily that are faced with important decisions regarding their future living situations.

From previous patient interviews, I was interested to hear more, how stigmas and even personal pride can influence health decisions. For example, I thought of two types of durable medical equipment, a rolling walker readily seen by the public and a shower chair used more privately. In my experiences with older adults in home healthcare, I have witnessed a patient accepting the use of the shower chair and simultaneously associating a negative stigma with the walker despite the equipment's realized benefits. Using DME can be a large contributor to reaching and maintaining and individuals' goal to age in place. Use of the recommended equipment is an example of transfer of learning for the older adult. Also, without the use of a rolling walker, the older adult may have greater fear of falling resulting in a sedentary lifestyle. If the older adult chose to use the rolling walker, he or she may be more active, recover faster and regain independence. This consistency with compliance, readiness, motivation and desire for learning substantiate the reality of aging in place. My desire to learn about the aging process and the impact of physical activity led me to this literature review.

Assumptions

I assumed a couple key perspectives that bypassed my attempts to bracket myself from the interview and data analysis process (Eisner, 1998). I assumed that most responses would indicate a desire to stay at home versus moving to a facility. I also assumed financial reasons would be the largest driving force in making a decision either way. These ingrained perspectives arose from years of previous work with the population from which the sample was chosen. Working with a poverty-stricken population, certain qualities surmount themselves above either the safest choice or even the most reasonable choice to age independently. Also, a participant's habits and routines are noticeably hard to overcome in making what an outsider may consider a rational choice. What someone has done for 60 to 70 years is who they are as a person. Adaptability may sound reasonable, however, without proper and effective motive or desire, change is not acknowledged as a possibility. With this being said, I found it difficult to keep my perceptions from leading to my conclusions. Even though a good qualitative researcher must be a connoisseur (Eisner, 1998), I must understand that everyone else is not like me. My views and perspectives must hinge on data consensus as I allow myself to be the research instrument with interviews and accelerometers with physical activity measurement.

Limitations

Limitations of the study also exist. Since the sample is from home healthcare population, all individuals have a health condition warranting nursing and/or therapy services in the home. To qualify for home healthcare, participants are required to be homebound. This means that all participants will either not be able to drive or be limited to only needed driving to the local grocery, pharmacy and place of worship. Therefore, limited variance in accessibility out of the home will likely be found in the population interviewed. However, great variability will likely exist in health status and functional abilities. Since these individuals are not considered "well

elderly" they likely will give answers to questions that may differ from older adults with better health.

Definition of Terms

1. Activities of daily living (ADLs) – A description of personal self-care tasks including, but not limited to dressing, bathing, toileting, feeding, and grooming.
2. Aging in Place – The process of aging independently in a current home. A phrase used to describe how individuals attempt to stay in their homes as they age versus transitioning to a facility or medical setting.
3. Baby Boomers – A term used to describe individuals who were born between 1946 and 1965 after World War II when birthrate in the United States spiked.
4. Instrumental Activities of Daily Living – A description of daily tasks not limited to cooking, cleaning, organizing, shopping, and money management.
5. Mixed Methods – Utilization of both quantitative and qualitative analyses in the same study. Method of conducting research, when necessary, to increase validity.
6. Occupational Therapist – A health care clinician that evaluates, provides treatment, and plans for appropriate discharge of a patient who has need improving all, but not limited to: self-care independence, physical function, cognitive function, social interaction, home safety, functional mobility, use of adaptive equipment and/or assistive devices, emotional intelligence, coping strategies, pain management, prosthetic/orthotic use, community integration, home management, work skill performance, and time management.
7. Physical activity – all bodily movements that cause increases in physical exertion beyond that which occurs during normal activities of daily living.

Organization of the Study

This study is organized into five chapters. The first chapter introduces the purpose of the study, research questions, statement of the problem, significance of the study, purpose of literature review, research questions reasoning, assumptions, limitations, definition of terms and the organization of the study. The second chapter includes an extensive review of literature including topics surrounding aging in place, considerations of ability and disability, disability identity, educational considerations, general older adult considerations, physical activity, quantitative measures of physical activity, and qualitative inquiry. The third chapter describes the methods and includes background context, method choice, sampling, data collection procedures, assumptions and limitations. The fourth chapter presents the data and findings including accelerometer results and interview responses. The fifth and final chapter presents the author's conclusions, the study's implications and the author's recommendations for future research.

Chapter 2

Review of Literature

Introduction

This literature review will summarize previous research first with specific contexts regarding decision-making skills, aging in place, independence in the home, disability considerations, effect of culture and economic policy, and then educational considerations with older adult learning. The discussion will then move to understand the importance of physical activity and its relation to enabling independent living. Accelerometer use will be investigated. Finally, a discussion of how interviews with qualitative research and accelerometers with quantitative research can blend with a mixed-method approach to give plausible insight into the decision-making process of aging in place.

Purpose of the Study

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Research Questions

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1) How and why do older adults decide to continue living in their current home or move to age independently?

2) How could a sedentary lifestyle and participation in physical activity affect the ability to age independently?

Decision-Making Skills

How do people make decisions that affect their current quality of life and their future? This is an interesting question. I am sure a marketer or salesperson for any consumer product would greatly desire an answer to such a question. Health care providers, such as myself, are also interested in how and why people make decisions. Decision-making skills affect health, compliance, readiness, availability, wellness, socialization and relationships to name a few. However, an individual must have a general idea of the desired outcome for the realization of any goals to get there. Motivation and desire are huge players in how and why decisions are made (Wiener, 1992). Additionally, individual learning styles differ among older adults, requiring prior relationships with possible participants for a research study. Therefore, understanding of the older adult in their environment is found to be of great importance.

No two humans are the same. Humans can differ in their health condition, quality of life (QoL), ability to make decisions, and influence from external sources. Past experiences directly affect future decisions. The needs of an individual impact choices. Choices domino into future choices and outcomes. Even though desires and wants often influence choices, a person's basic needs are often the driving force in final decisions. This basic need for clothing, food and shelter is the same across any socio-economic status or culture. The extent to which an individual satisfies the desires and wants beyond the needs is what demonstrates visible differences and often disparities. Cultural preferences, health concerns or illness, and familial strife also impact choices. This being said, we all age, and sometimes with disabilities. With age, changes will occur requiring choices to be made. Deciding on these choices often takes deliberation, especially when quality of life is at stake when a health status changes or functional ability decreases. Maintaining independence as one ages requires much forethought, however, many

changes are unforeseen. This delicate dynamic of aging, varying levels of older adult physical activity, and self-care independence desires indicate the need for further research.

Aging in Place

Aging in place research has seen astronomical growth over the past decade. The baby boomer generation is largely to thank for this phenomenon and the buzz phrase "aging in place." According to Vasunilashorn, "Topics related to the environment and services were the most commonly examined during 2000–2010 (35% and 31%, resp.), with a substantial increase in manuscripts about technology and health/functioning. This underscores the increase in diversity of topics that surround the concept of aging-in-place literature in gerontological research" (2012).

Quality of Life

How a person perceives his or herself, concerning psychological health, physical health, spirituality, environment, level of independence and social relationships is crucial to health outcomes. The World Health Organization (1993) set forth the aforementioned 6 dimensions that describe quality of life (QoL). Each of these dimensions directly relates to the concerns multiple studies suggest older adults have with desires to age in place (Lawton, 1973; Oswald, 2010; Vasunilashorn & Steinman, 2012). Quality of life is labeled as the overall "goodness" of life. Health-related quality of life (HRQoL) is thought to be more tailored to exercise psychology concerns since, the "goodness of those dimensions of life that can be affected by health and health interventions [include]...physical function, emotional well-being, and ability to fulfill family and other social roles" (Lox et. al., 2010, pg. 401). Health, therefore, cannot be limited in definition to merely physical health or even "the absence of disability and disease" according to Lox. As people age, QoL can vary like a rollercoaster, dependent upon situational and

experienced contexts. Sometimes, individuals can feel a magnetic pull from economic changes to quality of life. Interestingly, as a nation ages and changes, so may QoL.

Aging America

As the worldwide population ages, innovations continue to surprise. In America, in particular, the generation known as the baby boomers are getting to the age where they must start making decisions to age in place or plan to move due to health concerns or a plethora of other variables. Baby boomers were born between 1946 - 1964 and the oldest are currently in their 60s. It is estimated by 2030, more than 20% of the American population will be older than 65 (History, 2010).

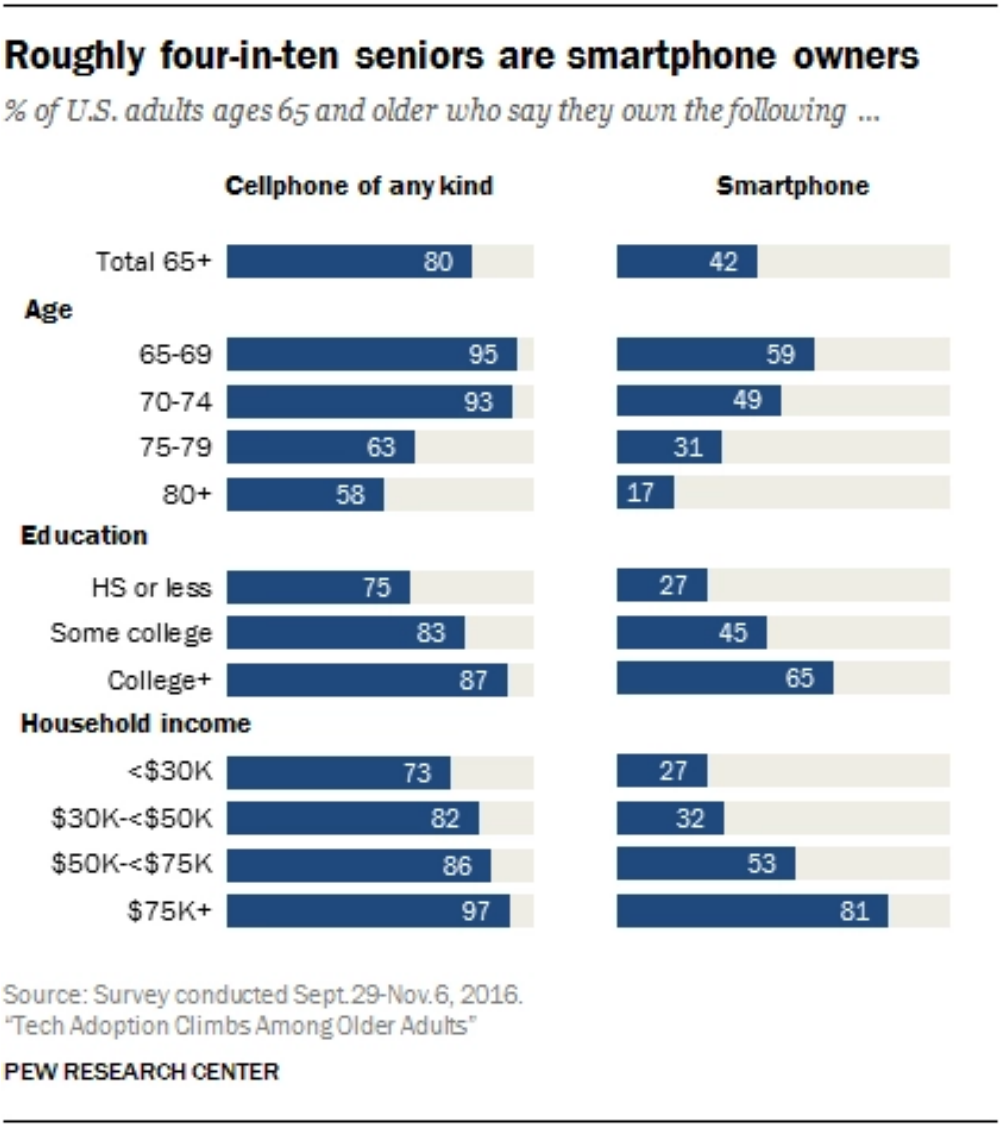
Most immediately, these baby boomers are currently making decisions for their parents on how to safely age independently by choice or if needs require moving mom and/or dad to a facility. Soon enough, these parental decisions will also benefit in making their own decisions within the next couple of decades. This aided decision-making process is either enlightening or reassuring to the younger generation of baby boomers. The self-aware baby boomer generation is known for a heightened sense of personal need and place in culture. Some have made financial planning choices leading to comfortable aging, and some, if finances are less available, are just as resourceful to enable a relatively successful aging process. The baby boomers are also more technologically savvy than the prior generation. The post-war consumer economy liked the boomer generation and they liked the economy. It was a win-win, especially for their children. There are subsets of the boomers, less accepting of technological advancements, however the majority appear quite enthused by any assist from technology. In 2020, it is not uncommon to see a 60-year old middle-class adult fiddling with an iPhone or incessantly checking email.

Technology

Technology, for example, is one of many avenues that involve decisions as people age. Technology can affect quality of life as will be discussed more later. Based on an individual's perspective, technology can be for better or for worse. Thus, an individual's goals and desires lead to a decision. Choosing to use technology can affect many contexts of life as people age, baby boomers, or any generation alike. The baby boomer generation has seen first-hand, how the computer has evolved, what impact it can have on the economy, both from a macro and micro perspective. Baby boomers have also seen how medical advancements with technology have saved millions of lives and helped prevent many other diseases or health issues from causing debility. Technology has also helped increase knowledge, resource availability, efficiency, and awareness with the rise of the internet and its many applications. The baby boomers have seen all this technology come to light; therefore, one would assume that embracing technology is a no-brainer. However, even as the common cell phone developed over the past decade, it is reasonable for a middle-aged to older adult to procrastinate or even resist getting the new technology. Was this due to a sense of self-reliance, thoughts that such a phone would be extravagant, or lack of funding? The answer is very different for each individual.

Figure 1.

Senior Smartphone Owners



Note. Permission for figure granted by Pew Research.

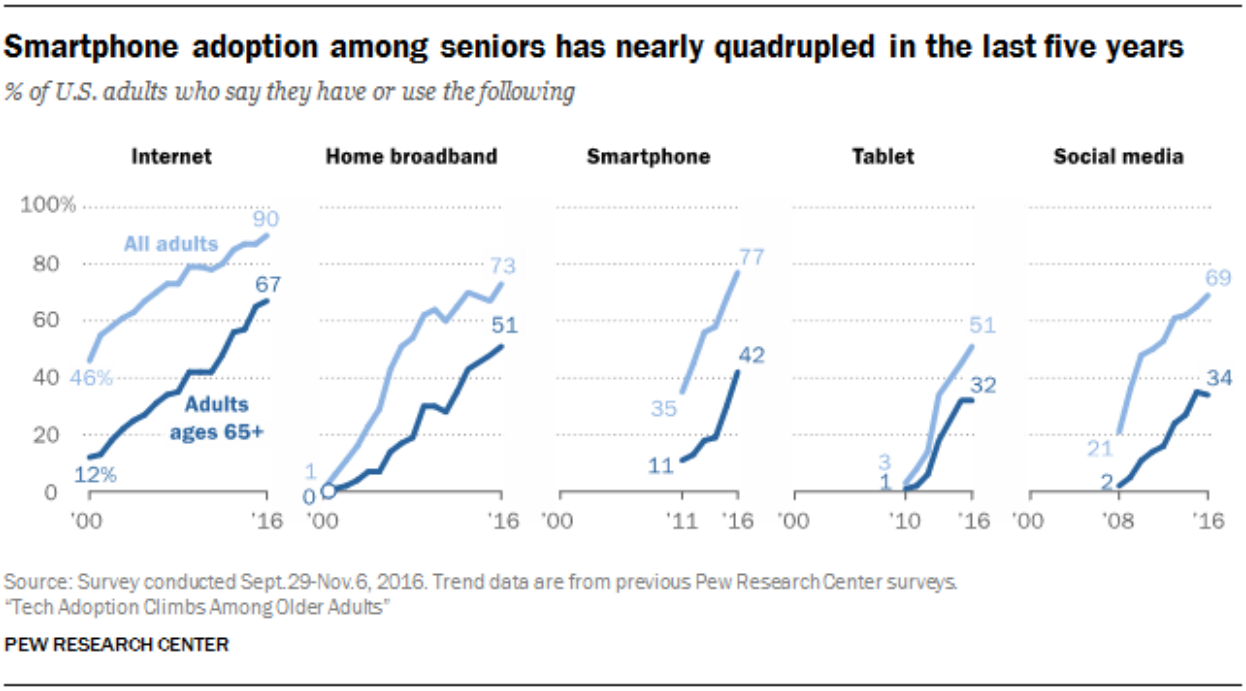
Technology is only as good as the desire to use it. Figure 1 above illustrates the likelihood of smartphone ownership decreases with age (Anderson & Perrin, 2017). Owning the smartphone may be the first barrier. Learning how to use the smartphone, willingness to learn and physical limitations such as vision, dexterity and attitude towards technology as a whole are some of the barriers older adults may have to smartphone or technology adoption.

As described below, there are multiple perspectives on how technology can be viewed as either helpful or invasive. Aging in place, especially for older adults, often requires changes, which can be seen as harmful or helpful. Whether environmental modifications are required or technological advancements applied, changes are only welcome if desired. Technology typically means advancement which could translate to a better condition. An individual's viewpoint of technology, baby boomer or even generation X, has everything to do with the technology's capability of change. As baby boomers age and as decisions are made on aging in place, technology can be at the forefront and even position itself as the fulcrum of a decision's sway.

In a study by Demeris (2004), 15 older adults participated in three focus group sessions. The participants learned areas where advanced technologies would benefit older adult residents including emergency help, prevention and detection of falls, monitoring of physiological parameters and similar contexts. Despite the participants expressing concerns about the user-friendliness of the devices, lack of human response and the need for training tailored to older learners, all participants had an overall positive attitude towards devices and sensors. The participants were also willing to have the devices and sensors installed in their homes to enhance their lives. Pew research describes in figure 2 below the willingness to adopt various technologies (Anderson & Perrin, 2017).

Figure 2.

Technology Adoption



Note. Permission for figure granted by Pew Research.

Other research has been completed evaluating various smart home elements and appliances. These elements range from practices of universal design with using door handles versus knobs to more advanced technologies such as voice-activated lights or security systems. (Jiang, 2004)

When it comes to the home, technology is just now blossoming. In the past decade, alarm systems have become much more intuitive, thermostats have become automated, and lights can even be controlled from a remote. The cell phone, as mentioned before, seems to be a common denominator. In the past few years, cell phones have become opportunistic platforms for seemingly completely controlling a home. Now, homeowners can be a thousand miles away and still set their home thermostat to 70 degrees or even see live video footage from a security camera. Your cell phone can control the locks of your door, the lights of your home, or if you

choose, enable you to make a phone call. Based on his research, Oswald states, "Given age-related health restrictions, the importance of the environment for life satisfaction may increase in later life" (2010).

There is still much progress to be made, however, with Moeller (2013) reporting that it is unclear what types of applications for smart devices such as Ipads will continue to develop. Behavioral research is currently studying if people are healthier and more independent to remain living in their homes. This decision, of course, is hinged on the health status and co-morbidities that may limit aging in place. As far as technological innovations, Moeller quotes aging in place guru, Laurie Orlov, who states, "four conditions have to be met: 1) Technologies must be intuitive and well-supported, 2) Device vendors must be capable of integration and extension, 3) Costs to consumers must be affordable, 4) Products must be available on widely adopted platforms" (2015). Orlov said, "Too many user interfaces are one-off designs, unlike any others, even within a single device like an iPad ... So, consumers may gravitate towards applications that work with ones they already use, including Facebook or Skype" (2015). Moeller also speaks about how Orlov also described four aging-in-place technology categories that have emerged: 1) Communications and engagement, 2) Home safety and security, 3) Home health and wellness, 4) Learning and social contribution (2013).

Older adults are becoming increasingly versed in new technologies for communication. Either from younger family members educating older parents or grandparents or from social awareness, older adults know more now than even 2-3 years ago. Commonalities such as email, blogs, video calls, smartphones, tablets and computers are growing in use prevalence with older adults. As people become more comfortable with technology, their embracing only increases confidence with the technology and translates into confidence with aging independently.

Telehealth and Telemedicine are huge growth areas in the medical and allied health professions. The benefits for older adults choosing to age in place are overwhelming. However, if older adults are either unwilling to learn how to utilize the services or are unable to use them, problems of adherence or neglect may occur. According to Orlov (2015), some areas of impact in home health and wellness include Telehealth, Mobile Health, medication and disease management tools and technologies and fitness products. Exciting to many consumers, products are now becoming mainstream, which lowers prices and increases availability. Cook, in a 2012 study, hypothesized "that many people with disabilities can lead independent lives in their own homes with the aid of at-home automated assistance and health monitoring. [The team] investigated techniques for using agent-based smart home technologies to provide this at-home health monitoring and assistance."

Common products for fitness include applications for smartphones such as My Fitness Pal or wearable technology such as Fitbit that can track movements and give the user-health statistics that are easy to interpret. Accelerometers, devices that measure multi-plane velocity, are increasing in popularity giving users real-time information on distance traveled and at what rate. By simply inputting data such as height, weight, and age, the user can also access information such as calories burned and keep track of personal health trends. More on accelerometer use will be discussed later in this paper.

Home security is a large growing area of technology in the home. Historically, people consider home security to only deal with home invasion. As the number of older adults increase and more decisions are made to age in place based on health concerns, home safety and security are increasing considerations. Sensors, internet-based cameras and various means of

communication can help prevent falls or detect them and provide increased availability of emergency response (Moeller, 2013).

Technology is a huge contributor to the success of the modern-day older adult's choice to age in place. Aging in place is a broad topic and even broader phrase. It is used to encompass the child with congenital impairments or disability requiring home modifications to age with the desired level of independence. The phrase "aging in place" also covers the older adult making decisions to stay in a home of 50 years prior or moving to an assisted living facility. The prior example may be out of necessity. However, the later involves many choices - assuming all mental capacities are in order.

Technology is often thought synonymous with innovation. Yet, innovation is only as useful as the desire to be used. Even with a life or death situation, mentioned before with the CHF patient, technology's use is a choice. Benefits can be laid out on the table, plans can be drawn, but it is the individual sitting in the driver's seat. Aging in place is a good goal, dependent upon a pivotal variable – desire or motivation. Measuring desire is difficult. And understanding desire is even more challenging. This researcher intends to study learning, desire, motivation and goal setting among older adults for future research.

Social Contribution, Learning and Motivation

According to the World Health Organization's (1993) dimensions for quality of life (QoL), environment, psychological health and social relationships compose half of the dimensions. Therefore, the importance of social access cannot be understated concerning QoL. Home communication technology can increase opportunities to actively visit with friends and family through video conferencing. Older adults can also take advantage of online learning and education either through community programs or even distance education and earning advanced

degrees. Orlov (2015) states that technology can also give an opportunity "to participate in volunteer activities and earn income from home."

> According to Lawton, "Some research has also documented environmental transactions made with the intent of choosing, creating, or shaping environments that increase need fulfillment. These two directions of the transactions between the older person and the environment have been characterized as environmental docility and environmental pro-activity" (1990).

It is interesting to note the common notion that when someone wants to accomplish something, they usually do. This sentiment is true in goal-directed behavior as well as processes of change.

As an example, to exercise in particular, the Trans-theoretical Model (TTM) describes processes of change to include: pre-contemplation, contemplation, preparation, action and maintenance (Marshall & Biddle, 2001). Wadsworth (2007) challenged original views of TTM, demonstrating an overall positive linear progression through the stages of change with a study of 699 college students. This was a significant finding, since an individual was previously thought to rely on the cognitive and behavioral process of each stage within the TTM model. Wadsworth's findings may indicate that greater long-term adoption of regular exercise may be related to frequency and intensity. Thus, as individuals understand the required demands of reaching a goal, they are more likely to progress consistently toward that goal.

Family, Culture, Background and Socialization

Resources such as technology can either be completely blocked from influence or embraced with each choice as an individual ages. Some cultures believe in searching for help and others are more resistant to outside assistance (Clark, Carlson, Zemke, & Gelya, 1996). Homes are a sacred place for some cultures and open access for others. For example, an older adult with

congestive heart failure (CHF) and multiple recent hospitalizations might require home health care to come into the home. This home health care company may set up the CHF patient with Telehealth including a scale, pulse oximeter, blood pressure and heart rate monitors. All these daily measured statistics would be transmitted through the phone line or in some cases wirelessly. This person's acceptance of technology would be less of extravagance and more of health need. In this case, the individual's adherence with the use of the Telehealth technology would also benefit the greater economy. According to Cook (2004), health-monitoring in general improves long term outcomes and can prevent disease re-occurrence. This leads to better self-awareness and insight into deficits, thus increased safety. Such technology can prevent re-hospitalizations with the monitoring of health stats and professional healthcare staff coming into the home for education and/or rehabilitation needs. Despite obvious benefits, the CHF patient must desire to use the technology. Simply being available or even pushed by clinical experts speaking face to face does not imply that the technology would be utilized.

The prior example can be contrasted with a culture that might be less accepting of technology or even professional help. A culture can be internally focused and unwilling to accept outside help, whether the help is human-based or technology-based. Traditions, cultural beliefs and values all weigh heavily on acceptance of technology, especially in the home. In some cultures, the home is the most sacred place. An invasive technology enabling outsiders to access personal information can be seen as bad even when the intent is good. Being creative in reaching such populations is a secondary benefit of technology.

Many blogs have developed over the years with resources for older adults and their caregivers as time draws near for decisions on how to age in place. Blogs also help to cross-cultural barriers and educate or involve individuals that otherwise would not have access to

information. Aging transitions can be guided by blogs. Older adults can choose to age in place, transition to an assisted living facility, move in with family, or if health conditions warrant the necessity for nursing home or medical facility placement, options are available. Technology is helpful if accepted, whether disabilities are present or not. However, as adults age, the probability of disability increases and therefore must be considered.

Personal Abilities and Disabilities

According to Finlayson (2004), in a study involving MS patient's concerns about their health, she discovered that the main concern was "fear of the future," and more interestingly "regardless of age, sex, current level of impairment and disability, or their current social and living arrangements, all participants expressed some degree of concern about what the future would hold for them." Whatever life domain, as described by WHO (1993), that a person has value, determines health related quality of life (Lox, Ginis & Petruzello, 2010). A study measuring quality of life found that personal value of functional physical level directly impacts level of satisfaction with physical functioning (Rejeski, Brawley & Shumaker, 1996).

Considerations of Ability and Disability

Wolfensberger (1972) stated, "Normalcy is often confused with humanity." According to Smart (2001, p. 4), being normal depends on who is viewing the object or person considered. Furthermore, normalcy is defined by: 1) the characteristic(s) to be judged, 2) the environment in which the characteristic(s) appears, and 3) the individual(s) who are making the judgment. Smart goes on to say, "the determination of normalcy and abnormalcy may tell us more about the people making the determination than about the people being judged." Therefore, we have to ask, does the presence of disability mean someone is abnormal? Davis (1997) states that

abnormal can be good or bad such as having an abnormally high I.Q. Disability, then, is in the "eye of the beholder" (Smart, 2001).

How do you react when a "disabled" person enters the room? Is this how you refer to such a person, or do you say, "the man with a certain disability?" How does the person with the disability perceive him or herself? Is his or her perception different when they are around people without disability, people of the same disability and even people with different types of disabilities? These are all some questions that one may ask when attempting to understand disability identity. In seeking to understand how a person associates himself with a given disability, it is important for one to understand the relationship to the disability. According to Smart (2001), she states, "a perfect world is not a world without disabilities, but rather a world in which accommodations for people with disabilities (PWDs) are provided and artificial barriers are removed" (p. xiii).

Are the disabled really any different than any other person since everyone has uniqueness? Our society circles around media of differences. Culture is both defined and segmented by differences. Smart states that people without disabilities (PWODs) pay for prejudice by "forfeiting the creativity and diversity of ideas that PWDs could provide" (2001, p. xiv). Differences simply enable uniqueness, the same as society values individuality and even exceptionality. If these statements are true, what is disability? How is it labeled? Why is someone in a wheelchair or someone with a learning disability seen differently or even less than someone of a different ethnic group, socio-economic status or gender? To answer such questions from a theory standpoint or even philosophical underpinning, one must reflect on Freud's stages or Aristotle's early writings to appreciate the context of the individual. Disability identity is a

personally, environmentally, politically, socially, community and culturally driven perception. It is complex, to say the least.

Disability Identity

The next few sections of this review of literature will help define disability and disability identity, then discuss the development of disability identity, and its socio-cultural relationship. The specific topic of disability will include discussion on social representations of disability, subjective experiences of difference, socio-political origins of stigmatization and legislative initiatives for change in attitudes/behaviors to people with disabilities. On the topic of disability identity, identity development, theories, models, factors, and processes that influence identity are discussed, including acquired versus congenital disabilities. Lastly, disability and disability identity influence my own career and research are discussed.

Disability Social Representations

On the basis of disability definition, Smart (2001) states four general categories arise: clinical, legal, cultural and personal. Although she later states that the most valuable definition of disability is the individual's. Smart continues with explaining how three components make up the most received disability definition: 1) the presence of a physical, intellectual, cognitive, or psychiatric condition; 2) this condition impairs functioning; and 3) the individual is subject to prejudice, discrimination and reduced opportunity because of the condition. There are four categories of disability according to Smart (2001) based on symptoms: physical, intellectual, cognitive and psychiatric. She expands with examples of physical disabilities such as mobility impairments, neurological impairments, traumatic brain injuries and other health disorders. Interestingly, LaPlante (1996) says that arthritis is the most common disability in the United States at that time.

Labeling Disability

Labeling the disabled is the primary social representation that both stigmatizes and empowers the disabled. The label of cognitively disabled has a much different meaning than cognitively impaired. The same goes for physical disabled versus impaired. To throw a third term in the mix, the use of deficits is often interchangeable with impairments (Smart, 2001). Depending on the context and assumptions of the labeler, the term disability can imply disadvantage, handicap or limitations. One of the participants in Gabel's 2001 study refused to label herself disabled and instead adopted the description impaired. On the contrary, such a label as disabled, can also imply advantage - simply dependent on the setting (Smart, 2001). Smart explains that disabilities can be classified on basis of severity or degree, such as the labels of mild, moderate and severe. An example of this phenomenon is the deaf community that will be discussed in greater detail further in this paper. A loss of hearing of 25-40 decibels in the better ear is considered mild while 40-60 decibel loss is considered moderate and also gains the label "hard of hearing" (2001, p. 45). To accept the label as deaf or hearing-impaired enables access to a community of similar individuals, assistive technology and resources not intended for the general public. This is not in the least, meant to minimize the impaired hearing of the deaf, however the statement does imply that if the auditory deficit exists, and the person is not ashamed of his/her impairment, then the embracing of the disability allows for greater independence possibilities than without embracing. Berkowitz (1987) explained how such resources can be gained in advocacy groups like the National Federation for the Blind or similar organization for the deaf.

For individuals that may otherwise be capable of "normal" independent living, the accumulation of the disability social identity can allow for resource acquisition that otherwise

would not be accessible. There are many individuals with a disability that are unaware of resources that exist to assist the disabled. Multiple disability scholars agree that the lack of accommodations, the unwillingness to access them, or the ignorance of their existence could define a disability greater than the underlying biological condition (Higgins, 1992; Liachowitz, 1988; Scott, 1969). The significant barrier is often self-imposed. Interestingly, pride may stand in the way of some truly disabled individuals from accurate social representation (Livneh & Antonak, 1997). The unwillingness of acceptance for disability limits so many deserving people due to prior image, social norms, family and peer idealisms, jaded perspectives and depression (Zea, Belgrave, & Townsend, 1996).

Normal can be irrelevant

Disabled versus non-disabled individuals also have their inconsistent social representations. This is where the idea of normal comes into play. What is normal and who standardized it? Two disabled are not the same and neither are two non-disabled. Especially inconsiderate is the comparison of disabled to non-disabled on the dim meaning of normalcy (Epp, 2001). Of course, we can all have similarities, however to classify one as normal and the other abnormal is incongruous. The reason normalcy has its bearing on social representation underscores the reason people label (Higgins, 1992). Is being non-disabled normal and disabled the variant? If this is the vantage point, social representation has a diminishing value on the disabled (Smart, 2001). However, if no one group is normal and we are all unique; then, the popular jock with physical prowess is just as normal as the high school boy with Spina Bifida.

Similar to the notions of normal and abnormal, are the stances of majority versus minority or even accepted versus unaccepted. The words stigmatization, deficiency, second-rate, excluded are all quite negative. The social representations of one group, disabled, in comparison

to another group, non-disabled, take on traditions, culture and persuasiveness of the identifying group (Epp, 2001). For example, a group of southerners with high value for football playing boys, with little exposure to physical disability may have less understanding of a physically disabled youth with impaired ability to run drills or properly execute a three-point stance. However, if one of their own has a car wreck, has partial paralysis from a spinal cord injury and can longer physically perform as once prior, then disability empathy is assumed and acceptance is increased. In the football example above, notice the use of the phrase, "they have less understanding" and not use the word compassion. Once again, the stigmatization that compassion conveys, of one lesser than another, therefore warranting compassion in the first place - is shunned by both the giver and receiver of compassion. For the giver, relinquishing responsibility to grace compassion relieves undesired and presumed awkwardness. For the receiver, to accept compassion means acceptance of a lesser stature - or so it seems at the time (Johnstone, 2004). Hence the historical segregation of the disabled and non-disabled. The social representation is that of the saying, "Ignore the problem long enough, and it will go away" (Gabel & Peters, 2004). How superficial and how ignorant. Yet as injustices have always plagued civilization, negative or positive stereotypes of disability are based on individual perspectives (Johnstone, 2004). These injustices also exist within disability groups (Smart, 2001).

The invisible hierarchy

A prejudice interweaving the disability community all spawning from personal pride such as the cognitively disabled reference themselves against the physically disabled to justify their stance in the invisible hierarchy. Acquiring a disability is a limitation from a previous norm creating angst in accepting the reality (Smart, 2001). Smart goes on to say that the individuals

with physical disabilities actually are discriminated against less than those with intellectual, cognitive and psychiatric. She explains how, surprisingly, the later three categories were not even regarded as disabilities until the twentieth century thus delaying the governmental funding. Since society has a hierarchy of disability, it would be easier to correlate an inter-disability hierarchy as well. Dejong and Lifchez (1983) then extrapolate that since physical disabilities have been defined longer as disabilities than the other mentioned categories, they have gained greater portion of resources and stronger advocacy groups. Additionally, physical disabilities are often seen as more objective in nature, even requiring less clinical judgment, while Szasz (1961) indicates that psychiatric disabilities may require moral judgments.

Subjective Experiences of difference

To explain individual perspectives, subjective experience of difference must be understood. It is impossible to objectify life (Liachowitz, 1988). The discussion could easily tangent into epistemological views on positivist and realists versus the naturalist and constructivist. The important take away is that an individual's life experiences are unique. They cannot be replicated and therefore are personal (Smart, 2001).

From reviewing the literature, two scenarios of subjective experiences of difference with disability can be differentiated. First, if the disability label is self-endorsed, it is more likely to be embraced. However, if an individual is described as disabled, then restrictions may be increased. These restrictions may be self-imposed or externally pressured (Dunn & Burcaw, 2013). Regardless of external or internal fabrication, perspectives are reality. Therefore, two individuals with the same disability can have completely different experiences (Smart, 2001). Smart continues to explain how, despite physiological differences between cognitive and physical disabilities, contexts for individual experiences can include, but are not limited to, family and

peer relationships, employment, education, access to all environments and within environments. Some of these contexts appear obvious, however someone with a disability may actually struggle more with the hidden barriers of daily life versus the obstacles that are more publicly aware (Smart, 2001).

Subjective experiences of difference can also apply to the non-disabled viewpoint of the disabled. The life experiences of one-person guide thought processes and perspectives of others (Liachowitz, 1988). A conscious thought to avoid judgment and allow for appreciation is necessary to dodge the pitfalls of self-righteous, coarse, assuming, prejudice or even hateful attitudes (Johnstone, 2004). Epp (2001) describes how along with the negative side, there is also an overly positive side such as patronizing or excessive compassion and emotion. Both scenarios can play out from caregiver relationships to meeting a stranger in the grocery store. Sometimes an intended act of kindness may be received in a negative manner (Moscovici, 2001). This, however, is unfair to the supposed good Samaritan. A true understanding of disability and subjective experiences is difficult, however, without the familiarity, stigmatization can easily occur (Liachowitz, 1988).

Sociopolitical origins of stigmatization

According to Moscovici (2001), origins of stigmatization stem from human nature. Humans have opinions and judgments. Humans are unreliable and develop traditions, stigmas, hierarchies, and political battles. Human society often stands on the platform of perceived normalcy (Higgins, 1992). Interesting that human society has little difference than other animal kingdoms, where anything abnormal is quickly subjugated and identified as ill-fit (Moscovici, 2001).

Media influence

Consider children's books of black sheep or the ugly duckling. Humans are indoctrinated with the idea of normal and abnormal (Davis, 1997). The exposure to subjective acceptable societal standards at an early age can have significant effect on development of personal identity (Higgins, 1992). Stigmas from society can cause delayed awkward situations with individuals due to suppressed personal identity development. Williams (1992) supports the idea that societal stigmas force people to hide their impairments resulting in embarrassment later. Sadly, reinforcement of perceived societal norms is pushed further in media. Thomson found that "taboos are often reinforced by unfavorable representations of people with disabilities in the media" (2001). Johnstone agrees that media can take away critical times for "self-discovery of identity" (2004).

Media and societies understanding of itself are heavily connected. For the vast majority of the public, information is garnered from mass media (Smart, 2001). Television, reading material from fiction to the morning news, internet blogs and magazines all can have a significant impact on how an individual views him or herself and others. Similar to the effect of peer groups on an adolescent, media input creates equally skewed output (Davis, 1997). Overtime, media can even cause cultural and in some instances, political movements (Smart, 2001). Of course, these movement promptings are not necessarily negative. Many have great positive outcomes for PWD and PWOD. According to Smart (2001), creating disability awareness is possibly the most significant impact on socio-political culture. From public service announcements to featuring disabled athletes or veterans in commercials and even sitcoms on major networks has gained in popularity over recent years. This affect has caused greater acceptance of those with both congenital and acquired disabilities (Smart, 2001).

Political and Cultural Movements

The Independent Living movements of the 1970's and 1980's introduced the idea of the person-first identity. Lifchez & Winslow stated the purpose of the movement was a people-centered ideal, breaking up the disconnection between ability and disability with the topic of identity (1979). The People First movement has similar viewpoints as the Independent Living Movement, saying the person comes before the disability as the primary identity. They are an organization of self-advocates, mostly with cognitive impairments (Epp, 2001). Fleisher and Zames (2001) discuss narrative accounts of persons with acquired disabilities who were politically active prior to disability and "assert themselves as important as disabled, not important despite their disability." These same people who became disabled, later participated in "disability-related politics. " The authors later emphasize that as individuals fight for civil rights, they must claim to be legitimate. Stacey stated how these individuals that Fleisher and Zames identified, can significantly help the disabled community by claiming their place in society (1992).

Individuals such as Christopher Reeve can cause cultural shifts as well. Think of the impact this one man has had on disability. Superman is not confined to a wheelchair. His voice actually became more powerful because of his disability than his prior acting career. His sip and puff wheelchair electrified the use of assistive technology and elevated disability to ability. He more than claimed his place in society, he now has a foundation that continues to support the spinal cord injury community and all forms of paralysis alike. Not only has his actions raised awareness on disability and resources, but encouraged community building among the disabled (Fleischer and Zames, 2001) Advocates like Mr. Reeve demonstrate the power of media as well. Oddly, as media was prior described in this paper to have skewed perceptions which lead to

skewed public perceptions, great opposition occurred when disability rights laws were passed. At the time of the Rehabilitation Act of 1973, Bell and Burgdorf (1983) state how even President Richard Nixon, the National Federation of Independent Business, the U.S. Chamber of Commerce, the New York Times, and the Wall Street Journal fought against the societal change.

Fleischer and Zames (2005) discuss how section 504 of the Rehabilitation Act of 1973 "provided civil rights protection for people with disabilities in programs and activities that receive federal financial assistance" (p. 1). The Rehabilitation Act proceeded the Individuals with Disabilities Education Act (IDEA) later in 1975. Finally, the 1990 Americans with Disabilities Act (ADA) "extended protection to the private sector" (Fleischer and Zames, 2005, p. 1). Considering legislative Initiatives for change in attitudes and behaviors to people with disabilities, the Americans with Disabilities Act (ADA) in 1990 has spawned the most significant environmental changes. In review of The Rehabilitation Act of 1973, Larson (1986) argued in reference of several court cases, that the act allowed for greater delineation of the legal representations of what constitutes a handicap. Fleischer and Zames (2005) succinctly describe the impact of such movements. Because the disability rights movement approaches disability in a new, unfamiliar way, people may be threatened as their perception of disability tends to be through the "impairment model," rather than the "civil rights model." The former, this traditional perception, underlies the Social Security disability system in the United States with which most adults come to associate the term "disability" (Fleischer and Zames, 2005). This view purports that because impairment causes disability, which prevents effective functioning in the world, unless one is cured, one cannot expect equality. Therefore, as the disability rights movement, which struggles for social equality of people with disabilities, redefines "disability," the movement also challenges basic social assumptions about the nature of disability.

When these acts were taking place, the public opinion of need for accommodation of the disabled was completely oblivious. Fleischer and Zames point out that the American Public Transit Association (APTA) attorneys argued that "reasonable accommodation, providing accessibility in public transit, was not feasible... and that accessible transit serves few people with disabilities" (2005, p. 3). Essex-Sorlie (1994) discussed how the acts mentioned above are federal statutes that guarantee individuals with disabilities substantial protections. More specifically, the ADA is known to prohibit discrimination and ensure equal opportunity for persons with disabilities in employment, State and local government services, public accommodations, commercial facilities, and transportation. There are immense implications just from these two acts alone, not to mention the dozens of supreme court cases that have had a significant impact on disability awareness, identity, and resources. One court case to highlight in particular, is Olmstead v. L.C., where a ruling requires states to eliminate unnecessary segregation of persons with disabilities and to ensure that persons with disabilities receive services in the most integrated setting appropriate to their needs.

Fleischer and Zames (2005) found that the Supreme Court has also ensured a higher importance of state's rights over federal law. For example, in University of Alabama v. Garrett (2001), the Supreme Court "found that there is insufficient evidence of disability discrimination to justify applying the equal protection clause of the Fourteenth Amendment... [where] such discrimination was not so flagrant as to abrogate sovereign immunity" (p. 8). Fleisher and Zames quote Chai Feldblum, a drafter of the ADA, with the Court's decisions, "These decisions create the absurd result of a person being disabled enough to be fired from a job, but not disabled enough to challenge the firing," from an action alert regarding Supreme Court decision involving 3 related employment cases in 1999 (2005, p. 8). If the interpretations of the ADA in the

Supreme Court result in confounding and confusing verdicts, the public uncertainty regarding how to identify disability and relate to it are likewise confounded.

The obvious nature of such acts and court cases provide for further developing an individual's and community's disability identity. Interestingly, since 1975 when the Individuals with Disabilities Education Act (IDEA) was passed, it is yet to be fully funded. Howard (1994) states how both public and lawmakers alike, are concerned with how children with disabilities may receive money from the government unfairly that may belong to non-disabled children. Reading this, it can be apparent how in so many years, the socio-political stigmatization has yet to relent. To understand the delay in socio-political acceptance and, more importantly, advancement of disability rights in children and adults alike, Fleischer and Zames (2005) state: More than one hundred years after the 1863 Emancipation Proclamation, the 1964 Civil Rights Act legally protected African Americans from the effects of the racially related fiction that had rendered them second-class citizens. It should not take over one hundred years for people with disabilities to be afforded the rights of first-class citizenship promised in the 1990 Americans with Disabilities Act (p. 10).

Stussman (1996) found that if the public viewpoint was more on increasing diversity in the classroom and benefiting all children than just those with disabilities, then IDEA has done its job. Levine (2003) asserts that labels must be removed and a general understanding and appreciation of differences with children should be advocated. The findings and thoughts of Strussman encourage the awareness for disability identity development.

Disability Identity Development

To understand disability identity development, identity itself must first be explored. The term identity refers to what makes a person an individual or what makes the person belong to a

group (Smart, 2001). This dual meaning reflects that someone can have an individual identity and what Dunn and Burcaw (2013) refer to as communal attachment. These authors reviewed disability narrative literature and identified six main themes regarding disability identity: communal attachment, affirmation of disability, self-worth, pride, discrimination and personal meaning. The narratives they reviewed are significant since they are first-hand accounts of personal disability identity development. For example, one narrative followed the story of a man after a spinal cord injury and his development of self-worth. This gentleman was able to overcome barriers to increase value in his own functional abilities (Cole, 2004). Communal attachment was found to be one of the most significant aspects of disability identity. Disabled individuals seek out common features with other disabled and form a disability culture. The need for identifying with others who have similar impairments is significant in building community and more importantly, disability identity.

Johnstone (2004), on the other hand, produced six different categories to describe disability identity: socially ascribed, disempowering, overcompensating, identities that shift focus away from disabilities, empowerment, complex, and common identity. Individual choice in disability identity development is limited by societal stigmas and labels according to Riddell, Baron and Wilson (2001). Johnstone later asked if the disability is in the foreground or background of the person. This concept could be conceptualized as considering if the identity is externally given or internally driven. Smart (2001) discusses this concept with the Stage Theory, describing the processes that an individual changes as the disability is accepted into his or her identity.

As disability identity is developed, there is not always a perfect sequence of events that magically produce the desired identity outcome. The overcompensating, referred to above, can

occur due to prove him or herself, or as Cook puts it, to live in "survivor" mode (2001). Johnstone agrees, saying this survivor mentality enables the individual with disability to "overcome obstacles" (2004). Since disability identity is multi-layered with personal identity composed of items like gender, socio-economic status and occupation, it becomes convoluted to isolate the disability aspect (Smart 2001). The question must be raised as to whether the disability is recognized in the conscious versus unconscious identity. Is the individual aware of his or her disability? More specifically, is the individual aware of his or her self-imposed limitations to resources, society or even immediate peer group support. Riddel (2001) states that disability is just one of many factors that sum to create this unconscious identity. To understand how individuals interpret their own disability and then form identity, a review of theories and models that guide the identity development into consciousness are explored.

Disability identity ascribed or implied?

As mentioned before, how people with disabilities are described, such as the disabled man or man with disability has much to do with those identities. In the formation of a disability identity, external push can have one or more effects on identity. Being told that this is who you are because of what has happened to you or what your abilities are imposes a label that is hard to remove (Strussman 1996). A great example of a disability culture or community resisting societal imposed definitions of normalcy, is the deaf community. Burch (2001) explains how they "organized and created linguistic and social bonds known as Deaf Culture [...which] asserts that people who cannot hear and use sign language are a linguistic minority, not a disabled population." The deaf community rejected the term disability and instead formed the "Deaf Culture." It is interesting that this culture is so widely accepted and therefore is often not even considered in the same sentence as the word disability. What theories and models could cause us

to think this way? To assume that just because something exists or does not, that this is how it should be? What processes enable our acceptance and even more so, normalizing of disability? Theories, models, factors and processes that influence disability identity inherently affect how we age in relation to our environment, relationships and personal independence. Consideration of an older adult, for example, with disabilities limiting her access to independence, may increase awareness of her identity. If she identifies as disabled, what resources would be available to her if she otherwise refused to acknowledge and advocate?

Smart (2001) illustrates models of disability from different perspectives. She summarizes all three major models of disability as either a dichotomy or continuum. To explain, disability presence or absence explains dichotomy and a scale from disability to no disability with a mild disability in the middle describes the continuum. Smart posits a timeline of models that have occurred with the history of American disability legislation. The medical model came first with the example of the Social Security Administration in 1935. She states, "the medical model theorized that the individual is responsible for solving his or her disability 'problem' and, if it could not be 'solved,' then government should provide financial benefit [or] income maintenance" (p. 43). The functional model was the second with disability models and the environmental model quickly followed with the platform of the ADA.

When examining theoretical approaches to disability and identity, Epp states that the frame of reference must be established as either medical or socio-cultural (2001). This basic platform difference distinguishes the perspectives of how disability exists and how the individual is both perceived and perceives. The physical or medical frame establishes that disability results from impairment. The social constructs describe how disability is a relationship between the impaired individual and the discriminating society. Shakespeare (1994) postulated that disability

is even a social construct and is created by and for social realms. He discussed the social implications of identity with a disability and how disability, in particular, is quite different than other contexts such as gender and race that one can be discriminated against. This thought is interesting since it includes the isolation likely to occur even between the disabled and their own family. While someone who is discriminated on the basis of gender would have shoulders to lean on from other family of the same gender who may have gone through the same issues, the disabled may have no family with the same impairments or concerns (Livneh & Antonak, 1997). This isolation works both ways from the parent to the child and vice versa. The parent, being less likely to relate to the child, then unknowingly can increase the stigma on the child. Even as an adult with a disability the familial isolation can continue despite reproduction. If the siblings are non-disabled, limitations exist on congruency. This familial example illustrates the significance of the social model and the complexity of disability identity.

Disability theory has come under much scrutiny over the past decade with one of the contenders being resistance theory. Gabel and Peters discuss the implications that resistance plays in development of disability identity versus traditional models such as the social model (2004). Morris discusses how social implications can parallel with resistance theory given that disability identity is often a projected experience according to the 1991 study:

> "Most of the people we have dealings with, including our most intimate relationships, are not like us. It is therefore very difficult for us to recognize and challenge the values and judgments that are applied to us and our lives. Our ideas about disability and about ourselves are generally formed by those who are not disabled" (Morris, 1991, p. 37).

On a more abstract note, Markova published an excellent article in 2008 that eloquently stated how Einstein and Newton's theories of relativity are directly related to disability identity. Even though Einstein was a physicist, his ideas on how forces inter-dependent of each other emphasizes the subjective experiences of difference. Markova references Moscovici and his theories on social representation and the majority/minority innovation. Moscovici (2001) later explained that social representation is a theoretical concept and not an empirical one. Even so, the concept of social representation is applicable to both disabled and non-disabled populations. What makes someone unique? Is it the disability itself or the person? Does the person come before the disability? If the person is central to the disability identity, what drives the outcome for the identity?

Acquired versus congenital disability identity

The variables that differentiates PWD and PWOD are the same (Smart, 2001). Personality, possibly influenced by some of the aforementioned contexts, often has a direct impact on subjective experiences of difference. With this thought of personality, the argument of nature versus nurture could surface. Rightfully so, since nature providing for the congenital disability can elicit quite different experiences from the acquired disability. (Smart, 2001). One might question, did the acquired disability result from life experiences leading up to the point of the disability, or nurture? Just as a personal testimony is not simply a past tense story, but ongoing, the idea of experiential impact on difference is also in present imperative tense. To understand the difference, the reader must ask, would it be easier to be born blind or to lose sight at age 32? Or for the cognitive example, would it have been better to been born with difficulty focusing attention and emotional instability or suffer a traumatic life event and result in similar

impairments? At the most basic level, differences with disability experiences can be linked to the manifestation of the disability. In other words, was the disability acquired or congenital?

Examples of acquired disability could include: the combat disabled with post-traumatic stress disorder and/or amputated limb, the disabled employee due to worker's compensation injury, the disabled father from motor vehicle accident with resulting spinal cord injury or the individual with declining health applying for disability status due to congestive heart failure or chronic obstructive pulmonary disease. To understand the method of acquiring a disability, think of a man who was a self-employed carpenter one day and a quadriplegic the next. To illustrate this example, let's say the 52-year-old man was playing with his grandson in the driveway at his home and fell backwards over a toy, landing on his neck, resulting in a spinal cord injury. His life is forever changed. This change is drastically different than a congenital disability someone has always known.

Examples of congenital disability could include: the child born with down syndrome, cystic fibrosis or spinal bifida. This child never has the option to experience life without a disability. However, for this person, life is normal. Normal continues until a reference point is understood to gauge what may be considered abnormal. Life is difficult compared to the non-disabled, however for this individual with congenital disability, they may see barriers as routine daily tasks or limitations as a creative way of getting things done. This subjective mind-frame, one where reality is created by the individual, can defy logic or realism that the non-disabled may hold. Where the body can be weak, the mind can be strong. This is to say, is the person living life making lemonade from the lemon or was there even a lemon in the first place?

Viewing the world as a glass half empty can get old really quick. For the disabled, viewing their capabilities as half empty can be a defeatist attitude. Depression is a reality for

many living with disability (Smart, 2001). The solution is not as simple as wiping away that frown or pretending everything is okay. Life is hard with a disability. It is a challenge, but not one that can be overcome. Education may be the bridge.

Educational Considerations

Home Healthcare

In the home health setting, patients are often at a vulnerable state. From a therapy perspective, a patient's needs can be basic such as relearning self-care, how to get out of bed, go to the toilet or groom themselves after a stroke. Patient needs can also be more complex with a wound vac, tracheotomy or muscle neuromuscular re-education. Patients require skilled clinicians that are life-long learners and dynamic. To apply for a home health clinical position, candidates are required to have significant experience to enable greater success with the autonomy the home health setting allows. Being alone in a home with a patient requires critical thinking and accuracy with interventions and documentation.

Connecting Educator to Learner

Any person can be an encourager, regardless of being an adult education practitioner or a healthcare provider. Taking the time to care about someone else, focusing on their specific and unique needs and giving them opportunities to reach their desired capabilities are a few of the steps we can take to advocate for those with fewer means to make changes independently. According to Yi-Yin (2011, p. 3), "It is often expressed that associating with and learning from younger generations made [the older learners] feel younger and gave them a sense of well-being." I agree. When I am fortunate to have opportunity to interact with older adults in their home environment, I can readily see them brighten and engage when asked about their

experiences. Relationship building is not as hard as some propose. Be genuine, be yourself, be caring and a good listener.

Occupational Therapists as Adult Educators

Every day I have the privilege of going into older adult's homes and learning all manners of life from their wealth of experience. I am an Occupational Therapist (OT) and work in the home healthcare industry. As an OT, I am an Adult Education Practitioner. I intentionally chose a part of town to serve individuals that do not have ready access to funds, literature or other common resources for learning. This service area enables me to access to those more disadvantaged older adults. My OT scope of practice includes opportunities to: educate patients and caregivers of contexts to consider change, train with use of adapted environments or equipment, instruct on home exercise programs to improve strength or activity tolerance, educate on home safety, fall prevention, ergonomics and body mechanics, methods to improve quality of life, precautions for maintaining or improving physical, mental, emotional and/or spiritual health, and collaborate with an interdisciplinary team for encouraging the older adult to age in their desired location with grace and without unnecessary hospitalizations.

Aging in Place is continuing to live in an existing environment or making modifications to allow for lifestyle changes, daily sequence of activities, physical or cognitive limitations or financial constraints. Thinking of life as a narrative, Bruner (1986) says that people, in general, want to seek out completion of a sensical story over a life span. As people enter into middle to late adulthood, increasing considerations are made for choice of environment and social standards. Sadly, however, some people are not able to choose their environment to age due to illness, disability or finances. Even so, some of these individuals may have access to Occupational Therapy or other disciplines of service to guide in safe aging.

Eliade (1959) eloquently states, “often, home is the spatial fulcrum of our life, a place of centering that may become the core of our being.” Older adults may desire to age in place due to what (Tilson, 1990) refers to as residential inertia and reluctance to move. However, (Balint, 1955) describes a human need for familiarity, security, and a sense of continuity. To foster these human needs, I educate older adults on an awareness of needs, opportunities to meet those needs and formulate a plan to accomplish their unique goals. Anywhere in this process the older adult can choose to accept or reject the education, opportunities and/or plan. I have to consider if the older adult is truly motivated to change, if its needed, or maintain their current quality of life. The older adult I come in contact with is usually discharging from an acute or inpatient rehabilitation hospital stay or is referred by a physician for necessity of skilled home health therapy services. Keeping this context in mind, I may ask questions to the older adult such as, “What do you see as short term and long-term goals for you to regain your independence? Or, I may lead them to “Describe quality of life differences you notice between your life now and before the hospitalization.” Some older adults can answer these questions immediately; however, others may require either further assessment or building of a rapport for increased communication. Some older adults are non-verbal due to cognitive deficits and some have dementia. Some referrals are of patients that never wanted the services to begin with and were taken to their annual check-up by an out-of-town son or daughter that notices their parent is weaker than they were last year. To accurately assess the learner, I have to accurately assess their overlapping contexts.

In the Home setting, Occupational Therapists build a rapport with patients to encourage a trusting relationship allowing the OT to make recommendations and the patient to value these recommendations as true needs. The OT builds a scaffold, or support structure around the patient

at initial evaluation to enable a learner-friendly atmosphere. Caregivers are involved and social support systems are built to enhance the transfer of learning once the OT departs. This scaffold is slowly deconstructed throughout the plan of care to encourage increased independent thinking and task initiative. Thus, an OT performs in a modified and repeated version of what Vygostsky (1978) referred to as learning from a professional or a peer with advanced knowledge. However, the term "scaffolding" was associated with Vygostsky's work by Dr. Jerome Bruner (1976). Thinking of a patient's current knowledge of independent performance capabilities as their inner most circle, the OT functions within the "zone of proximal development (ZPD)" to enable skills that the patient is able to accomplish alongside the OT or with the OT's guidance and encouragement. As the patient improves "self-efficacy" (Bandura, 1977) for independence with activities of daily living (ADLs) and functional mobility to increase quality of life, the OT deconstructs the scaffolding, or supports, and allows the patient to expand his or her confidence with broadened abilities.

As an Occupational Therapist, I was taught to have a balanced focus on a person's disability and ability. This balance serves to avoid an overly negative or positive perspective and allow for realistic goals and strategies. To understand my own perceptions on disability, I must reflect back on the example of the 52-year-old acquired quadriplegic, given earlier in this paper. I saw him for months working on life basics, starting from the beginning of learning to move body parts with partial function, roll in the bed to each side with assist for caregiver ability to clean his bottom. There is no way he could have seen this coming. He simply tripped over his grandson's toy. I cannot imagine the emotions and shock that continuously spins through his mind daily as he sees himself laying in the hospital bed with a Foley catheter due to incontinence and all muscles atrophied to significant body mass loss. Although I have the sensitivity to his

new disability and an awareness of his newly developing identity, I simply cannot put myself in his shoes. The same holds true for any PWOD to have the inability for comparison to a PWD. However, if we consider everyone opportunistic to disability, the next identity may be sooner than we think. Simply having a disability, however, does not imply lack of independence.

Occupational Therapy serves as a bridge between a person's dependency and independence. OTs educate others with skills for the job of living (AOTA, 2014). Roberts (2008), in reference to the occupational therapy field, defines a skill as a performance component acquired through training and practice. He states, "Skills contribute people to function as part of the community in which they belong." Mitchell and Gunaratne (2007) further clarify, "Occupational therapists assist the clients to create individualized goals through life skills training. These goals include achieving skills such as banking/budgeting, shopping, meal preparation and planning, coping with stress, community access, assertiveness, and self-advocating. As life skills educators, occupational therapists use a client-centered approach to assess occupational performance areas and associated environmental factors." These goals are some of the components to an individualized patient specific plan of care.

With the OT plan of care set in place, theorists such as Bandura or Vygostsky, can rest assure their efforts have another practical connection to serving others. Education is the art of expanding one's perspectives, beliefs and understandings. Education in the healthcare industry must be dynamic and evolving to encompass the unique needs of patients in every setting. With a work environment such as homecare, OTs function in autonomous roles with face to face patient care visits. In years 2015-2016, the largest age representation for home health services was between 75-84 years old according to a CDC report in 2019. This age group requires unique considerations for patient education, especially with regard to aging in place.

Older Adult Considerations

Personal Health Risks and Opportunities

The older adult has many advantages and disadvantages. The wealth of knowledge from life experiences and the opportunities to accumulate resources are advantageous; however, even with the well-intentioned adult, life can get in the way. We all are aging and this we cannot change. Creams and salves can feel good for the aging body, but our body does not reverse aging, no matter how great the marketing of the product. Gould (2002) states, "Degenerative changes associated with aging may predispose an individual to certain pathologies, and pathologic changes can hasten aging." She goes on to describe how hormonal, reproductive, cardiovascular, musculoskeletal, respiratory, neurological, gastrointestinal, and urinary system changes with the normal aging process. Some or all of these systems are affected by age in all individuals, however, depending on the proactive care, genetics and environmental influences, some people experience greater changes than others. On the same note, an individual can take great care of their physical, mental, emotional and spiritual health and still have accidental life occurrences such as a motor vehicle accident or trauma involuntarily induced by another. Cancer, infections and medication errors are other factors to consider according to Gould.

The Home Environment

"The environment influences human behavior and provides the context within which all roles are performed" (Law et al., 1996). Law refers to dimensions of physical, social, cultural, organizational, and institutional being "transactive." To assess the environment, a "client-centered approach" is necessary to determine "what the client wants or is expected to be able to do" (Trombly, 1995, p. 236). Sometimes the most obvious place to start is with the influences of environmental accessibility. Occupational Therapists, for example, consider the person-

environment (P/E) fit to determine "congruence." Trombly suggests that universal design and barrier-free design are preferred, however in a personally owned home, individuals often cannot afford the extent of remodeling necessary to allow for the safest aging in place. Best case scenario, an older adult does not require any remodeling to a home and is still functionally independent and mobile. However, many older adults require some type of environmental change, even if modifying furniture placement is extreme.

In public spaces, however, laws assist older adults with aging in place. The Americans with Disabilities Act (ADA) (1990), is a civil rights law designed to increase the integration and successful community living of people with disabilities in American society. Additionally, the American National Standards Institute (ANSI) (1998) developed building standards for people with disabilities to ensure "barrier-free" design. Being patient centered may require use of standardized assessments to justify needs for home modifications or assist with patient perspectives. Trombley outlined four primary measures that address environmental factors in relation to clients' needs and ability: The Assessment Tool (Canada Mortgage and Housing Corporation, 1989), the Home Modification Workbook (Adaptive Home Environments Center 1988), the Source Book (Kelly & Snell, 1989) and EASE3 (Lifease, 1999).

My ADA experience and knowledge is related to individuals' levels of personal independence and safety. I look through the Occupational Therapy lens and see the person with their abilities versus disabilities. I consider the reasonable accommodations provided by the ADA in the background while maximizing the opportunity for independence and safety for the individual. For example, if I go to a home for a patient that recently had a significant stroke, I have my OT glasses on before I enter the home. I look at possible needs of the exterior environment such as a wheelchair ramp. ADA has specifications on the proper build of a

wheelchair ramp. After meeting the patient and discerning their present and near future needs, I can educate the patient and/or caregiver on community resources to obtain the wheelchair ramp and if their cognition allows, educate on build specs for the ramp as well. The evaluation and treatments would then continue with other discussions on physical and mental capacities and needs. I assess the person's capacity for learning and formulate a plan to maximize safety.

Considerations of Stress with Learning

For any human being, stress causes systemic reactions, sometimes with positive and sometimes with negative outcomes. Hans Selye (1946) first documented the fight or flight response to stressors. Decades of research have since developed how these stressors affect the body. Older adults may have even greater consequences of stress. Gould (2002, p. 184) summarizes this stress research stating, "The stress response is considered to include three stages – alarm, resistance, and exhaustion – involving the activities of the hypothalamus, pituitary, sympathetic nervous system, and adrenal glands." Depending on the level of stress, the coping responses of the individual and the pre-existing illnesses, stress can cause "minor problems such as headache…a more serious problem such as a seizure or cancer…or development of peptic ulcer or acute renal failure" (Gould, 2002).

Accepting stress in our lives concedes to the notion of "that's just the way it is" and gives a sense of baseline comfort knowing that we're normal. In the fast-paced world today, sarcastically said, who is normal if you're not turning gray early and do not have high cholesterol? Ignoring the potential to live with reduced or little stress is dangerous, especially for older adults. Whether young or old, one might ask, "Is it impossible to have stress in our lives?" Even if we separated ourselves from what we connect to stress and hypothetically lived alone in

the woods with all the necessary resources for survival ready, would we not find it stressful if it didn't rain for the crops to grow?

This scenario brings light to the need for Jesus Christ. As our creator, He knows our needs and supplies them in His perfect timing. Older Adults have much experience with understanding provision in times of need, however age also sometimes clouds executive functioning of the brain with processes such as reasoning, judgement and planning. Considering co-morbidities such as a Cerebrovascular Accident or Seizures, for example, cognition can be forever altered as well as the ability to cope with stressors. Therefore, the ability to learn new information and readily retrieve it on command is limited. Additionally, the ability to use prior experiences and planning in context of current stressful decisions is diminished.

Older adults may note that the rate in which health changes occur increase with age. We stress when we perceive that the timing is incorrect by our expectations. Scripture tells us to cast our burdens upon Him and to even yoke up with Him (imagery as if two oxen are tied together). Scripture also says that His yoke is light. That sounds refreshing. Ironically, many believing older adults know these Truths, however still find it easier to stress. That's the battle of the flesh. Over time, our understanding of what we consider a stress threshold in our life becomes a solid line in the sand we dare not approach. The benchmark for what is considered stressful is skewed depending on outcomes from prior stressful situations, similar to some of the principles of transformative learning by Mezirow (1991). If the situational outcome was positive and exceeded our expectations, then we may consider that the stress threshold can be raised. However, if the prior experience was negative and the outcome failed the expectation, our threshold may be lowered and future events may become more stressful than before. Stress can starts compounding and we lose sight of where we started a decision journey.

Assuming that stress, even measured as small as 0.001 level, will always exist in our lives, would avoiding the triggers always be the most-healthy directive? James chapter 1 teaches that we count trials as joy. This growth, through these triggers, is what produces steadfastness. I do not necessarily encourage purposeful running towards stressful situations but we must consider allowing the stressful season to possibly benefit by in-direct adult "learning."

Adult Learning Theory

In my experience, especially with homecare, and even more so, in application to aging in place, adults see the need to learn new information when the need presents itself. This scenario can be referred to as transformative learning. Mezirow (1991) connects with the reverse scaffolding efforts established by Vygostky with his suggestions to foster transformative learning. The first two suggestions state enough to get the idea of how an OT or any other educator can foster transformative learning:

> "1. Assist the learner to define his/her learning needs, both in terms of immediate awareness and in terms of understanding the cultural and psychological, assumptions influencing his/her perceptions of needs. 2. Assist the learner to assume increasing responsibility for the defining of learning objectives, planning his/her own learning program, and evaluating progress."

Mezirow (1991) clearly points out that adults, "rather than merely adapting to changing circumstances by more diligently applying old ways of knowing, discover a need to acquire new perspectives in order to gain a more complete understanding of changing events and a higher degree of control in their lives." In other words, as life happens, adults either adapt or not. As physical impairments or activity limitations occur, adults must consider how those contexts change their daily sequence or even quality of life. Mezirow sums up his theory with the idea

that, “The formative learning of childhood becomes transformative learning in adulthood.” Mezirow defined experiences as having meaning perspectives, or contexts in how adults perceive the extent of change that has occurred or that will occur. These perspectives are often based on past experiences and can limit understanding to the breadth and depth of possible needed adaptations or changes in relation to aging in place. Interesting how adults can even be unconsciously assigning meaning perspectives to events and experiences as Dewey (1933) described. I am curious how unconsciously adults can limit possibilities for life change due to fear or stress from past experiences and meaning perspectives.

Mezirow (1978) suggests that “transformation in meaning perspective can happen only through perspective taking, assimilating the perspectives of others.” This perspective transformation is possibly a key ingredient to aging in place. Not only does the acceptance and conceptualization of a new perspective give opportunity for healthy aging, the new mindset gives reasoning for listening to others, healthcare professionals, family or peers, to enable the positive quality of life the older adult seeks. The educational need for others contrasts the theories of Knowles (1985) and Brockett and Hiemstra (1991) who all suggest self-direction in adult learning. Knowles first referred to adult education as androgogy. He believed that in addition to the learner being self-directed, past experiences of an adult increase knowledge. However, self-directed learning requires that the learner be at a stage in life ready to learn. Lastly, Brockett and Hiemstra (1991) in addition to Knowles and many other later theorists require that adult learning is problem-centered and internally-motivated.

Physical Activity

Daily physical activity (PA) can be a dream or a reality. How does this statement make you feel? Mad, relieved, uncertain? This statement would seem one-sided dependent upon where

the reader comes from in background, occupation and socio-economic status. It is important to note that physical activity, in and of itself, differs from exercise.

> Physical activity is defined as "all bodily movements that cause increases in physical exertion beyond that which occurs during normal activities of daily living." While exercise, however, is referenced as "a form of leisure physical activity (as opposed to occupational or household physical activity) that is undertaken to achieve a particular objective (e.g. improved appearance, improved cardiovascular fitness, reduced stress, fun) (Lox et. al., 2010, p. 4).

Exercise, even though a subset of physical activity, is important throughout life. The American College of Sports Medicine (2009) encourages exercise to continue even with the frail elderly with prescription guidelines.

One must consider what qualifies and quantifies physical activity. Is it movement? Is it movement beyond some standard norm as described above? Can someone sit still and be physically active? These are very debatable questions (Dumith, 2011). A day laborer may be physically active for 8-10 hours per day, on his or her feet, performing possibly repetitive tasks, requiring some level of exertion considered moderate to most people. When this individual gets home, going to a formal gym setting may not be a priority due to a day's worth work already. However, an office worker, sedentary at a computer for 8 hours may yearn for physical activity greater than reaching for the keyboard. How about the older adult? What constitutes physical activity for them? Regardless of age, physical activity can be described as body movement of any kind. Of course, moderate exertion is recommended for an increased benefit (Dumith, 2011). Is PA dependent upon the context? Is it dependent upon an individual's abilities or functional capacity? Research and literature can follow down many rabbit holes from these questions and

questions of others, especially in recent years, where obesity has taken the front stage and consumers are more aware of physical activity benefits. So, can we assume that physical activity is a fad? Did it arise in the 1970s and 80s with the fitness craze and resurface now with a health craze? Or has physical activity been important all along, just dependent upon and individual's priorities?

A simple equation explains the last question well. Expectancy multiplied by value equals motivation. Of course, these variables can be shifted as in any mathematical equation with the same premise holding, that anything multiplied by zero equals zero. It stems out of the Expectancy-Value Theory originally penned from Tolman in 1932 and Lewin in 1938 stating that the level of importance an individual gives to an activity directly relates to its value (Weiner, 1992; Wigfield & Eccles, 1992). Rose and Sherman (2007) later described expectances as future beliefs.

Quantitative Measures of Physical Activity

Based on the sample size, the methodology and measurement instruments may vary when measuring physical activity (Hensley, 1993). Questionnaires are the most inexpensive and fastest to obtain PA data, however most often require participants to recall a specific week of PA. Vision and memory issues can be problematic in older adults and this may confound the use of self-administered questionnaires. Using questionnaires provides the greatest access to large sample sizes, however the researcher must consider the cognitive level and how big is too big to readily assess the entire sample. If the sample includes, older adults, for example, Ueno suggests that interviews are the preferred method due to inconsistent cognition or misunderstandings from the questions (Ueno et. al., 2012). Questionnaires also take into account the duration, intensity, frequency, and types of PA. Multiple studies suggest these questionnaires are also inclusive of

the domains of household activities, leisure, sports/exercise and/or occupation (Santos, 2005; Rabacow, 2006). According to Melansson and Freedson, validity may be decreased in PA measurement in contrast to using accelerometers (1996). The same results were confirmed later by Farias in 2011. Pedometers count steps and accelerometers sense changes in acceleration. Depending on what the study intends to measure, and to what degree of specificity, either two devices are found to be reliable data sources (Ueno et. al., 2012). However, one must consider the pros and cons of each device. Pedometers are inexpensive but only measure steps (Ewald, 2008). Important especially for older adults, pedometers cannot measure sedentary behavior since the data is only obtained mechanically by steps. Also, since older adults typically ambulate at slower speeds than a younger population, the use of pedometers can provide inaccurate data for distances walked (Ainsworth, 1994; Hensley, 1993). Accelerometers are historically more expensive, but measure up to three axes of movement and include frequency, intensity and duration.

Accelerometer Use

From multiple studies, accelerometers measuring in three axes were found to have greater accuracy than those measuring only one axis (Murphy 2009; Rowland, 2004; Trost, 2005). Ueno discovered that single-axis accelerometers were most popular, however in the majority of PA measurement studies, but the reasoning was "not justified." She postulated that choosing uni-axial models may be due to cost (Ueno et. al., 2012). More importantly, she comprised that a 3 to 7-day average was measured by most PA studies. Garatachea (2010) found that 5 days is considered adequate for reflecting the average of a normal physical activity level. During these 5 days, the same study by Garatachea, and earlier by Harris and Copeland (separately in 2009), noted that the accelerometer would only be removed during sleeping or during a time when

possible submersion in water could take place, such as swimming or bathing. However, it must be noted that Copeland's study was with active, healthy older adults. I am curious if unhealthy, sedentary older adults would require different methods. Regardless, it should be noted that the exact nature of accelerometer measurement would account for the sedentary activity, being time sleeping or sitting on the couch awake. Thoughts lead to what might be excluded from the use of accelerometer measurement data.

Exclusions

Since the accelerometer is worn typically on a belt or attached to hip level clothing, would the height of the hip level in relation to the user's overall height skew the data? This is an area that needs further research as well, including the use of accelerometers in individuals in wheelchairs (Bergman, 2008; Harris, 2009). Sallis stated that "many activities such as cycling, swimming, and lifting weights, which do not involve vertical movement, are not well measured by this device (2009). Since wheelchair use would be similar to cycling, I question if participants wheelchair-bound could be included in an accelerometer-based study.

Qualitative Inquiry

Human behavior is different from physical objects. Meaning and purpose drive human behavior and require investigation of the qualities for human activities (Denzin & Lincoln, 1994). In research, it is common to have a question in mind; thus, the reason for research - to find the answer. If a researcher were to search for an answer to a question, he or she would likely desire to find people that can answer the question. If a normal distribution is sought after and the sample of participants is randomly chosen, the likelihood of finding answers to the original question may diminish. Yes, potential biases may be decreased and outliers removed. However, qualitative research is very interested in the outliers (Bernard & Ryan, 2010). What makes them

abnormal? What qualities do they possess that the 95% confidence majority do not? If I wanted to know the answer to a question about Civil War history, I would likely seek out experts at the history department at a university, not randomly sample the pool of professors from all schools within a university system? Likewise, when researchers sought to understand aging and quality of life (QoL), they found greater value in subjective perceptions versus objective measures (Neill et al., 1985). Is the researcher's rating of someone's QoL more important than the person's rating? The majority of studies seeking to understand how exercise impacts HRQoL use a subjective approach and found "subjective measures a better and more meaningful predictor of health-related outcomes (Lox et. al., 2010). Keep in mind that just because a measure is subjective, it is not automatically qualitative. If the measure counts, it is objective, so therefore most survey questions when the researcher is categorizing responses to tally, the survey instrument is objective in nature (Berg & Lune, 2011).

I have to check my reasoning at times when providing a questionnaire or interviewing. Am I asking questions or seeking data that would justify goals meeting my perceptions or are the questions justly gauging the participant's true state? One may argue that it is the qualities of a person that enable adaptability, acceptance to change and motivation to persist. In my experience working with older adults, I can quantify a person's balance using a standardized assessment tool. I can even record the distance walked. However, if the person's attitude is one of disdain or the context is that a death in the family occurred that morning, a data-sheet stating zero feet walked that day may miss the hidden story. Why would a story be so important? Context, context, context. If I simply have a hypothetical excel spreadsheet stating that 81% of people older than 62 choose to stay in their homes versus moving to a nursing home after a stroke, I am still missing something. What is it about that 81% that led them to that decision to stay at home?

I would be curious to know what their functional abilities were, how they thought their disabilities or impairments impact their self-care, safety, or even socialization. What kind of strokes did they have and how long were their hospital stays? What kind of health care interventions did they receive and to what extent? All these thoughts and questions would be part of a unique story that can only be captured through interviews.

Interviews

Human beings are hard-wired to tell stories. Stories are how history is recorded and usually, the victor writes history as far as war history goes. If someone's story is their truth, then it matters to me. I can have a constructivist epistemology and still appreciate the value of an individual's positivism. What is a fact to that person on however they got to where they are, better answers the question of how something happened with greater depth than simply what happened in objective nature. Qualitative work is naturalistic, that is, to describe something thickly in context (Brinkmann & Kvale, 2015). To understand the lived experiences of someone gives light to why decisions are made. Why did the 60-year-old female living alone with end-stage Multiple Sclerosis choose to stay in her home versus move to assisted living? The literature says to ask her (Eisner, 1998; Berg, 2011). I once had an excellent professor tell me, "If you want to know what people do, observe them, but if you want to know how people make sense of what they do, interview them" (C.E. Andrzejewski, personal communication, February 4, 2015).

Combining accelerometers and interviews in one study meets the needs of this older adult researcher. Reis stated, “since no single device has all measurement capabilities wrapped into a nice neat package, using a mixed-methods approach with "motion sensors and questionnaires can provide more reliable and accurate data" (2000). According to Ueno and colleagues (2012), "The use of accelerometer along with PA questionnaire may yield more reliable and accurate

measurements of PA level." More specifically, the 2012 study on methods for assessing physical activity did suggest that older adults may respond even better to interview questions face to face versus self-administered questionnaires. I found these results both comforting and astounding, either simply because these two methods were exactly what I had in mind for future research of aging in place perspectives in regards to PA or because the methodology seems so simple. Of all the rigorous data-driven technology in existence, the simple interview, along with an accelerometer, wins out.

Final considerations for this study

It is highly likely that older adults have a greater amount of experiences than a younger person due the probability with summation of years. However, simply because age can be a virtue and a deep well of wisdom, does not implicitly mean that the older adult is wise or will be intentionally accepting of change. Furthermore, accepting change does not imply that he or she would take measures to age gracefully. Graceful can have subjective interpretations, however the word's intent is to describe the older adult's learning capacity matching aging quality. This paper outlined some of the many contexts to consider with the older learner desiring to age in place, however to exhaust all possible contexts would be textbook equivalent. Learning, no matter the stage of life, must be purposeful to maximize potential for learning transfer. For the older adult, learning outcomes are measured by reaching of personal goals for learning. These goals must be congruent to the desired quality of life for the older adult whether aging in place or somewhere else.

Chapter 3

Methods

Purpose of the Study

The purpose of this study was to increase understanding of older adults' learning, lifestyles, and effects on aging independently.

Research Questions

The following research questions were used in the study:

1) How and why do older adults decide to continue living in their current home or move to age independently?

2) How could a sedentary lifestyle and participation in physical activity affect the ability to age independently?

Background

The purpose of my study was to increase understanding of older adults' learning, lifestyles, and effects on aging independently. I interviewed older adults in this study to directly learn from the source, increasing capability to answer the research question: How and why do older adults decide to continue living in their current home or move to age independently? I used an Actigraph accelerometer for assessment of physical activity and sedentary behavior for an increased capability to answer the research question: How could a sedentary lifestyle and participation in physical activity affect the ability to age independently? Interview transcripts provided nominal data while accelerometry provided data at the ratio level of measurement using a dependent variable of daily physical activity (steps taken) and an independent variable of time wearing the accelerometer. Confounding variables are numerous including and not limited to age, depression, fatigue, cognitive impairments such as memory deficits, and late effects of a

CVA such as hemiplegia or visual impairments. These variables, interestingly, were also participant reported limiting factors of both physical activity and aging in place. The most significant mediating variable is the participants' motivation for aging in place and with regards specific to accelerometry, their motivation for physical activity. The most significant moderator variable is the ability for functional mobility. Evidence for this moderator was notable from the table including the use of assistive devices for walking, such as a cane or rolling walker. The accelerometer data was analyzed with statistical software to provide practical information with the percentage of daily physical activity for the 10 participants. This data was interpreted with the coexisting interviews to determine transfer of learning.

Specifically, I was interested in how older adults learned and applied the necessity of daily physical activity to maintain living in their current home environment, and, therefore age in place. I was the sole Occupational Therapist for each of the 10 participants for weeks preceding the data collection. During this time, I educated the older adults on personal health awareness including contexts of environmental safety, home and external resource accessibility, health technology, medication management, physical capability necessities, nutrition, functional mobility, and durable medical equipment. Accelerometers provided a way to measure the participants' understanding of health education in one of the contexts. Reasons for choosing mixed methods, data collection procedures, assumptions, limitations, and interpretations of data are discussed below.

Method Selection

I had a general understanding of contextual issues surrounding the decision-making process, but found it more important to understand these individual's stories and the progression that will or has led them to the decision of when, why, what, who and how to age in place

successfully (Creswell, 2012). The concept of instrumental utility is valid in my methods construct, in that I must research things that are useful and have meaning (Eisner, 1998).

In my research methods, I sought to provide qualitative validity, which is an interesting twist on words. Berg and Lune (2011), suggest a reflective researcher mindset. This would especially be important since I was the instrument in an interview while the accelerometer is the instrument in assessing sedentary levels. I must be transparent, according to Brinkmann and Kvale (2015), being upfront with my intentions and methods. I must provide for disconfirming evidence, acknowledging what does not fit with the rest of the data. For example, outliers are always very interesting to me. When possible, I should provide for triangulation of the data and/or theories. I can perform member checking and even stay in the field for extended time to ensure saturation. This exposure to my participants and time committed allows for thick description and deeper understanding. Lastly, I should review and audit myself along the way and collaborate with peers through debriefing and review (Bernard and Ryan, 2010).

Considering mixed methods, I like to assume the positive perspective, taking the strengths of qualitative and quantitative and combining them for even greater outcomes and understanding. In some cases, mixing quantitative and qualitative methods may be like oil and water, however with health studies, I believe they are very complimentary. The quantitative portion(s) of a study can provide some meat and specificity to the qualitative flavor. However, it is the qualitative beginnings in a health study that provide it with the direction and intensity. I see this battle between qualitative and quantitative methods as the difference between seeking to understand and to be understood. Since I am the instrument in qualitative data, my mind seeks to understand the subject matter. However, since I am a human, I am not valid, nor am I a reliable measure. I ask questions of "why," just the same as my four-year-old son seeks to understand the

world around him. It is only human and natural to ask why. We are taught to count and to organize only after we develop an inquisitiveness that sparks creativity. As humans develop, we add layers and context to our previously superficial understandings. Interestingly, I am learning that humans, even in old age, do not stop this onion peel mentality. As easy as it may be to simply ask for the numbers, we are always left asking why.

As I prepare a mixed methods design, I must not negate my natural inclination to ask why. However, I ignorantly yearned to satisfy my supposed logical and sequential desires to "prove something." I have since learned that I am not proving anything. I am simply learning with the research and providing evidence for a certain direction of thought. I originally took advice from Van Maanen, (2011), when the notion is suggested to write to learn, not to demonstrate what I have learned. I could theoretically do this "proving" completely through grounded theory qualitative work as Bernard and Ryan (2010) suggest, however, I find it just as scholarly to take the approach of mixed methods. I choose this mixed methods approach to provide greater validity and credibility. According to Howell, et al., "Construct validity seeks agreement between a theoretical concept and a specific measuring device or procedure. For example, a researcher inventing a new IQ test might spend a great deal of time attempting to define intelligence in order to reach an acceptable level of construct validity" (2014, p. 4). I find this an interesting statement, since mixed methodology can accomplish the same outcome of credibility by seeking to provide construct validity.

One of the key concepts within validity arguments against qualitative usefulness is construct validity, which looks at the strength of the outcome based on theory relatedness to the variables. Carmines and Zeller help to clarify the methods to measure construct validity with three steps: "First, the theoretical relationships must be specified. Second, the empirical

relationships between the measures of the concepts must be examined. Third, the empirical evidence must be interpreted in terms of how it clarifies the construct validity of the particular measure being tested" (1991, p. 23).

Using these methods for examining construct validity to look at my study, I would first have to define the variables and the participants' contexts. I have explained how the understanding of the aging process can relate to levels of physical activity. I have described how measuring physical activity is a worthwhile endeavor to understand its impact on both health and independence levels regardless of disability. I have explained the purpose of interviewing participants before measuring levels of sedentary activity to understand context in relation to disease progression or, in contrast, health improvements. Brinkmann and Kvale suggest a variety of methods specific to interviewing. They delineate a semi-structured design to enable the researcher to stay on track while allowing moderate flexibility of the participant to give rich and thick descriptions (2015). Since construct validity focuses on the strength of the outcome, the results of the accelerometer data compared with the trustworthiness of the interview data would allow for either strong or weak construct validity and credibility. The mixed methods approach, therefore, has much to contribute to health studies. It meets the insatiable desires of the consumer mentality while providing a strong multi-faceted approach that details the how, what, who, why and when of the matter.

When approaching my study with a mixed methods design, I had to consider if my research design takes into account all the main contributing factors. These include factors that lead to aging independently and factors that may cause sedentary activity levels. This immediately seems overwhelming and unreasonable since with case studies, each individual is unique and has a lifetime of experiences and even hereditary influence that may contribute to the

study design. At first thought, having this subject matter may decrease content validity since the domain is so large including the theories on aging, physical activity and independence changes in later life. However, my specific sample has some interesting common characteristics. After all, the more specific the sample and question, the more engaged the reader and the greater the buy-in. Interestingly, every participant used some level of an assistive mobility device such as a cane, walker or rollator. Even though the study includes validated measures such as accelerometer use for the given population, the overall design may also have limited external validity since the sample includes only a home health population with recent hospitalizations. Given these limitations, I have to appreciate the nature of mixed methods design.

Qualitative work is not generalizable from the researcher's point of view. It is up to the reader to interpret generalizations; it is transferable where the reader can relate. Since my audience includes older adults, caregivers, family members, researchers, educators and healthcare providers, the potential for transferability is significant. I chose this research design weighing the pros and cons of positivist (quantitative) and naturalist (qualitative) options. Mixed methods was the most appropriate decision to allow for greater internal validity and credibility. Many assessment batteries exist to measure the aging process; however, it is novel to interview older adults and quantify their ability to age in place in the same study. This mixed method simply provides the context for the data and access to a thicker description of what aging in place means, how the participants are accomplishing it, and the differences in their perception and their actual physical activity levels.

The similar answers to similar questions on the interview among different participants in combination with correlating results of sedentary activity compared with a moderate perceived need for physical activity demonstrated greater possible internal validity and overall credibility.

Yet it is important to note that qualitative research is done in the real world and not in a laboratory. Many distractions and multiple possibilities for tangential thought could occur. It is even possible with a relationship between the interviewer and participant, that coercion could occur. Researchers know these possibilities and therefore make their inherent judgments regarding other research. As Van Maanen concisely recommends, I must consider my audience (2011). Having a mixed methods design gives greater appreciation to methodology for both the positivist and naturalist.

I wanted to ask older adults who desire independence, why they would choose to stay at home versus transition to a facility? I was interested in what personal and environmental qualities and resources they feel are needed to successfully "age in place?" Originally, I thought of only questions that engage the phenomenological approach, asking: What have you experienced in terms of aging in place or what contexts or situations have typically influenced your lived experiences of aging in place? I considered choosing the phenomenological method to understand what older individuals have in common as they experience the phenomenon of aging in place. However, after reflecting on interviews I have done as part of my normal Occupational Therapy workday, the framework of phenomenology was not as well suited as instrumental case studies. Each case presented unique qualities differentiating reasoning for aging in place as compared to others even in similar situations. For example, I interviewed two women around the age of 70, both having a left hemispheric stroke in the past year and both having similar deficits and functional impairments, each woman had different support systems with family and resources.

From my day to day working with older adults, I desired to learn what they experienced and how they made their decisions when life presented challenges requiring choices to age in

place or move. This epistemological stance from an Occupational Therapist perspective is helpful to understanding the aging process. Despite my understanding of the medical reasons a person would choose to stay or move, I chose to remain neutral in my interviewing and data analysis enough to focus solely on the participant's experiences (Eisner 1998). The mixed methods approach with interviews and accelerometer data aides in my goals to make sense of the data, and not necessarily try to prove something. This study hoped to have greater practical than statistical significance. The use of case studies as instrumental relates to my intent of producing a future assessment to understand individual and unique perspectives on capabilities for independent aging.

I also desired to assess the older adults' transfer of learning. After developing a rapport with the participants as their treating Occupational Therapists, they were more willing to accept recommendations and education regarding the aging in place process. Each of these participants indicated a desire to stay in their homes during the initial Occupational Therapy evaluation process for home healthcare. The participants also indicated goals for improving self-care independence with activities of daily living (ADLs) and for the higher functioning participants, they indicated desires to improve safety and independence with instrumental activities of daily living (IADLs). Examples of ADL goals were improvements with dressing, bathing, toileting, grooming and/or feeding independence. Examples of IADL goals were improvements with light meal preparation, laundry and/or vacuuming. Additionally, these participants desired increased activity tolerance, or endurance, to sustain energy for completing their ADLs and IADLs. The necessity for daily physical activity was acknowledged by the participants as one key role in long-term successful aging in place. The use of interviews to understand the participant's plans

for aging in place along with accelerometers to measure their transfer of learning was important to increase study validity.

Sampling

Approximately 10-20 older adults aged 50-85, in a mid-sized city in Georgia and surrounding communities were recruited for the study. The non-random purposive sample was taken from a home healthcare population that I have daily access. The sample was purposive since the participants were required to be ambulatory, meet the criteria of age range and capability to answer the questions regarding aging in place. Participants who were able and willing to participate in an interview, wore an accelerometer and were contemplating aging in place were enrolled in the study. These older adults all met the age range qualification and had a significant enough variance of diagnoses and functional conditions to substantiate evidence of common themes despite different contexts. Individuals considered for the study were scrutinized as appropriate for the study with identified characteristics either preparing to or recently having made the decision to age in place. This decision point to stay in a current home or move, typically surrounded a recent significant event of health decline. The participants had health conditions ranging from orthopedic in nature (hip fracture, knee/hip replacement, rotator cuff tear), neurological (stroke, TBI or SCI) or dementia related.

Data Collection Procedures

A mixed methods approach was used to determine how physical activity and sedentary behavior factors into a decision to age in place, i.e. remain in the home vs. an assisted living facility. I first identified my research question with appropriate boundaries. Then the cases were defined and the convenience sample taken of older adults in Columbus, GA and surrounding communities. The identified participants were handed and read a consent form (larger print font

for reading ease) prior to the interview. Consenting participants were given a further explanation of the study, specific purposes, terminology and information use. Those who consented and verbalized understanding, participated in a 7-15-minute interview (see interview script in the Appendix). The interview process was completed with an awareness of personal thoughts, experience and feelings towards the topic and participants. The interviews were designed to be flexible in nature, including the list of questions in the appendix. Participant responses were documented with a voice recorder identified with a randomly assigned subject number and the data analyzed for developing and conceptualizing common themes. I combined this data in a format where I could read and understand the lived experiences in comparison. This yielded an improved capability of answering the research question: How and why do older adults decide to continue living in their current home, make modifications or move in order to age independently? Those participants interviewed also wore an Actigraph accelerometer for assessment of physical activity and sedentary behavior. The devices were non-invasive and worn as a belt over the right-side hip/waist. The data was recorded over a 14-day continuous period and then collected and analyzed for sedentary behavior and daily physical activity measures. Use of the accelerometer yielded an increased capability to answer the research question: How could a sedentary lifestyle and participation in physical activity affect the ability to age independently?

Assumptions

I assumed a couple key perspectives that bypassed my attempts to bracket myself from the interview and data analysis process (Eisner, 1998). I assumed that most responses would indicate a desire to stay at home versus moving to a facility. I also assumed financial reasons would be the largest driving force in making a decision either way. These ingrained perspectives arose from years of previous work with the population from which the sample was chosen.

Working with a poverty-stricken population, certain qualities surmount themselves above either the safest choice or even the most reasonable choice to age independently. Also, a participant's habits and routines are noticeably hard to overcome in making what an outsider may consider a rational choice. What someone has done for 60 to 70 years is who they are as a person. Adaptability may sound reasonable, however, without proper and effective motive or desire, change is not acknowledged as a possibility. With this being said, I found it difficult to keep my perceptions from leading to my conclusions. Even though a good qualitative researcher must be a connoisseur (Eisner, 1998), I must understand that everyone else is not like me. My views and perspectives must hinge on data consensus as I allow myself to be the research instrument with interviews and accelerometers with physical activity measurement.

Limitations

Limitations of the study also exist. Since the sample is from home healthcare population, all individuals have a health condition warranting nursing and/or therapy services in the home. To qualify for home healthcare, participants are required to be homebound. This means that all participants will either not be able to drive or be limited to only needed driving to the local grocery, pharmacy and place of worship. Therefore, limited variance in accessibility out of the home will likely be found in the population interviewed. However, great variability will likely exist in health status and functional abilities. Since these individuals are not considered "well elderly" they likely will give answers to questions that may differ from older adults with better health.

Summary

This chapter re-stated the purpose of the study and the research questions, and presented the background, method selection, sampling, data collection procedures, assumptions and

limitations. The interview script, informed consent and data collection procedures were pre-approved by the university's Institutional Review Board (IRB).

Chapter 4

Results

Purpose of the Study

The purpose of this study was to increase understanding of older adults' learning, lifestyles, and effects on aging independently.

Research Questions

The following research questions were used in the study:

1) How and why do older adults decide to continue living in their current home or move to age independently?

2) How could a sedentary lifestyle and participation in physical activity affect the ability to age independently?

Findings

Ten adults aged 65 and older completed all aspects of the study as illustrated below in Table 2. All participants were found to be approaching or have recently started a significant life-event requiring a decision to determine how they plan to age in place. The participants were deciding if they would stay in their own home, make modifications or move in order to maintain or improve independence with self-care. All participants were receiving home healthcare services at the time of the research study.

Two of the participants were referred for home healthcare from their primary care physician; however, the remaining eight participants were discharged from the hospital within 2 weeks of the interview. As seen in Table 2 below, all participants required either a cane, quad cane, rolling walker or rollator device for functional mobility. This device was recommended from the therapist and prescribed by the physician. Out of the 10 participants, only two were males. Caregivers, either in manner of family or friend, were resourceful in reminding patients as

needed to daily wear the accelerometer since four of the participants, as seen in Table 2 below, had cognitive deficits related to recent Cerebral Vascular Accidents (CVA), two had diagnosed Dementia and one participant had diagnosed Depression.

Table 2.

Participant Demographics

Participant Number	Age (Yrs)	Sex	Height (Ft., In.)	Weight (lbs)	Primary Diagnosis(es)	Race	Assistive Device
1	75	M	5'10"	162	Cerebrovascular Accident	African American	Rolling Walker
2	82	F	5'7"	180	Vertigo	African American	Cane
3	66	F	5'3"	130	Right Total Hip Arthroplasty	African American	Rolling Walker
4	73	F	5'5"	186	Pneumonia	African American	Cane
5	62	F	5'3"	141	Cerebrovascular Accident Congestive Heart Failure Atrial-Fibrillation	Caucasian	Quad Cane
6	88	F	5'3"	226	Pacemaker Urinary Tract Infection	Hispanic	Rollator
7	83	F	5'3"	169	Deep Vein Thrombosis Cerebrovascular Accident	African American	Cane
8	82	M	6'1"	188	Cerebrovascular Accident (4)	Caucasian	Rolling Walker
9	65	F	5'6"	252	End Stage Renal Disorder Depression	African American	Rolling Walker
10	66	F	5'4"	177	Cerebrovascular Accident	African American	Cane

Accelerometer Results

Accelerometer data revealed that all participants were sedentary the majority of the day. In fact, the 10 participants spent an average of 96.7% of the day sedentary, ranging from 87.3% (participant 2) to 99.7% (participants 1 and 8; see Table 3). Most participants wore the device for the whole day, averaging 1392 minutes sedentary out of 1440.Average daily steps ranged between 40 and 1558 per participant. Participants with lower daily steps had a greater severity of

recent diagnosis/ reason for hospitalization, such as CVA, and a lower perception of importance for physical activity. The type of assistive mobility device used generally indicated the number of steps taken daily with the less dependent the device (e.g. cane versus rolling walker), the more daily steps taken. For instance, participant 2 (1558 average daily steps) used a single point straight cane and participant 8 (40 average daily steps) used a two-wheel rolling walker. Participant 8 had an initial, significantly altering CVA and then 3 additional CVAs. Each of these CVAs required additional hospitalizations. The specifics of mobility impairments were also related to the diagnosis. For example, if the CVA caused ataxia, or incoordination of extremities with voluntary movement, the participant had greater difficulty with walking. Age was a less significant indicator of physical activity than diagnosis. Additionally, anecdotally, if the participant had a crowded or cluttered home environment with access limited from room to room or even within a room, mobility was decreased.

Table 3.

Accelerometer Results

Participant Number	Average Daily Steps	Average % of Day Sedentary	Average Daily Minutes Sedentary
1	197	99.69%	1435.48
2	1558	87.32%	1257.46
3	270	97.66%	1406.27
4	1172	91.67%	1320.11
5	202	98.28%	1415.30
6	140	99.04%	1426.14
7	399	96.46%	1388.99
8	40	99.69%	1435.48
9	400	98.16%	1413.46
10	125	98.95%	1424.85
Total Averages:	450	96.69%	1392.35

Interview Responses

Common themes were emergent from the interviews in combination with accelerometer data. The major themes were fatigue and its role in physical activity self-limitations, loneliness and social isolation's impact on lacking extrinsic motivation, low competence and self-efficacy with uncertainties for future health and a general lack of knowledge for physical activity and aging independently.

Socialization, in combination with physical activity was affected by the home environment as well due to what the participant considered necessity for daily activities. For example, participant 10 desired home environment consisted of a working triangle from bed to bedside commode to kitchen, therefore excluding required functional mobility to a bathroom down a hallway or living room for socialization or entertainment such as the case with participant number 2.

Fatigue was a significant reported limitation of mobility and physical activity. It is well documented through literature that increased physical activity decreases fatigue, however the individual's perceived ability to overcome that barrier of fatigue is what diminishes his or her self-efficacy (Bandura, 1997; Lox et. al., 2010; Sallis & Owen, 1999). Participants 1 and 8 are good examples of fatigue limitations on daily physical activity. Both participants were recovering from a recent CVA and were reportedly abnormally tired compared to their prior level of functioning before the CVA. They were issued manual wheelchairs in addition to the rolling walkers and chose to utilize the wheelchairs especially for longer distances in the home. In particular, participant 8 reports his desire to use the wheelchair from his bedroom on one end of a 3-bedroom ranch style home to the living room. This sequence was consistent daily for his morning routine arousing from a night's sleep, to return to bed for nap time in the afternoon and

sleep the next night. Both participants reported having a therapist that encouraged increased time walking with the rolling walker with caregiver assistance versus reliance upon the wheelchair. The progression of the intervention was evident throughout the 2 weeks of accelerometer data with increasing amounts of daily steps. Participants had a difficult time verbalizing their relation of physical activity to aging independently. They also had a poor understanding of realistic measures to age in place. The lack of knowledge could often be overlooked, however with this targeted sample, preparation for aging in place is noted as one of the key indicators for success in aging independently. Secondly, the participants who reported the most perceived success at aging in place also reported prior levels of physical activity higher than peers in the same stage of life. Interestingly, these same participants had the highest percentages of physical activity of the sample within this study. This sentiment can be drawn from the following example from participant 2:

> "Okay, for the past year my husband was alive and he became ill on the 23rd of January, I was in, I would consider myself in good shape. I went about doing things myself and for him or whatever, but his sickness prolonged through June when he passed. On June 12th today one year ago and since then I've had to carry the load of everything by myself and I just… made up in my mind that whatever came my way I would just deal with it and keep on living."

Participant 2 was quite exemplary in many quotes. She reported that her paperwork from the hospital said that she had dementia however that she was never formally diagnosed. Her understanding of physical activity is further expressed below when asked, "Do you think being up and physically active has anything to do with being independent?"

Participant 2 responded, "Oh, definitely so, well because if I can, I can't stay in the house all day. I have to get out even if to just walk around the yard, look at and till up the flowers, because I've always been an outdoor person. And what I think I know it will help me. I'm physically active. You know, my major was physical education and minor in social science...and I played basketball in high school and college, and when I was working, teaching, I would leave work sometime and come home and go to the lake and walk, that's two miles. Go up to the health spa because I was a member there too. Worked out on the machines and go back in pool swimming. [More recently], I mess around a little while, get out and shampoo my hair, then lay on the bed, read the paper and then go to sleep."

Interesting, participant 1, who had the highest percent of daily sedentary activity had similar proactive responses to the importance of physical activity. Even though he did not demonstrate a high daily step count, he still reported his positive understanding of physical activity.

Participant 1 stated, "Being physically active is super for me. Like my doctor told me, he says "if it wasn't for the exercise that you have been doing…" I used to do exercise every day or every other day some type of exercise. And if it were anything that I could tell anybody it'll be, if you do exercise every day or every other day or two or three times a week… it's one of the best helps I believe for living. As long as you do exercise it does a lot to your body and I truly believe it'll make you live longer. I really truly believe that it'll make you live longer."

For participant 3, when asked, "what advice would you give your child to prepare them to be able to age and stay in their home," she responded, "I would tell them to eat good and stay

active for exercise. Eat the right foods and stay away from the fast food places." Despite participants 1-3 having insightful responses to the importance of physical activity and even their indication of prior physical activity participation, the remaining participants had less certain responses to physical activity or aging in place readiness.

Two questions elicited similar levels of depth, however decidedly contrasting in response. When asked, "tell me your perspective on the importance of physical activity for maintaining independence," participant 8, responded, "...you don't have control over it...your body." Likewise, when asked, "what resources are needed to successfully age independently," he responded, "...well I will just do what I can do." The general sentiment from the interviews regarding plans for aging in place, was to take curve balls as they come. Anyone can plan, but not for everything (Clarke et. al, 1996; Cook, 2006; Finlayson, 2004). This uncertainty for their future was a common theme of incompetence. Knowledge levels of the participant's individual disease process and what physical activity is allowed limited short-term physical activity participation. Lack of knowledge of what necessitates aging independently limited the long-term outcomes of aging in place.

Chapter 5

Conclusions, Implications and Recommendations for Future Research

Introduction

This study aimed to increase understanding of older adults' learning, lifestyles and effects on aging independently. An overwhelming sedentary lifestyle was common among the participants. This lifestyle included common reported qualities of isolation and loneliness. This study also sought to increase knowledge of the decision process for how older adults choose to age independently. This study also aimed to equate levels of physical activity as a contributor for ability to age in place. As presented in the literature review, a vast array of variables exist that contribute to an adult's successful and safe ability to age in place. Physical activity, as recorded by an accelerometer, was chosen as a prominent and measurable variable of aging in place considerations for this study. The interviews and accelerometer data were used as evidence, or lack of evidence for transfer of learning. Since the older adults were all home health patients receiving occupational therapy services, they received education regarding home safety, recommendations to maintain or improve self-care independence and an appropriate home exercise program. Specific conclusions, implications and recommendations for future research are discussed below.

Purpose of the Study

The purpose of this study was to increase understanding of older adults' learning, lifestyles, and effects on aging independently.

Research Questions

The following research questions were used in the study:

1) How and why do older adults decide to continue living in their current home or move to age independently?

2) How could a sedentary lifestyle and participation in physical activity affect the ability to age independently?

Conclusions

The participants had low levels of motivation for physical activity with 96.7% averaged time of day sedentary. Spending 96.7% of the waking hours sedentary is a significant portion of the day. From the interviews, the participants agree that spending this much time sedentary limits their social participation, independence with self-care and energy levels. Additionally, they concur that a sedentary lifestyle, especially above 90% of the day, increase fall risk with long-term effects of muscle atrophy and weakness. Interestingly, this increased fall risk perception further limited physical activity due to fear of falling. Motivation was affected by unrealistic expectations and low value for physical activity despite reported understanding of benefits. These participants self-reported doubts about their long-term goals of aging in place and uncertainties simply for tomorrow. These themes of reservation regarding their future governed the participants' consistent physical activity participation and overall outlook on their ability to age in place.

From the interviews, emergent theories developed to understand how older adults make the decision to continue living in their current home, make modifications or move in order to age independently. The theory is context dependent; if the older adult is within a home that has supportive resources, he or she will likely will have a greater chance of maintaining

independence. Likewise, if the older adult does not have access to resources, and no significant life planning has occurred, then aging in place is limited. This emergent theory is consistent with the findings of the 2004 Multiple Sclerosis study by Finlayson. Finlayson (2004) found consensus that for participants who are currently attempting to age in place with no ready resources, are not likely to seek out resources nor have the knowledge of what assistance to seek.

Similarly, for this study, a pre-existing sedentary lifestyle prior to a life changing event or illness requiring decisions to age in place increases the chance of continued sedentary behaviors and therefore slower recovery. The sedentary physical activity levels of older adults in this study demonstrated limited ability to age independently. Depression, fatigue, cognitive impairments such as memory deficits, and late effects of a CVA such as hemiplegia or even visual impairments were reported limiting factors of both physical activity and aging in place. Seemingly, the positive outcomes of regular physical activity participation and aging in place are interdependent. Most participants were aware of the importance of physical activity, however did not specify physical activity being a primary contributor for continued independence with aging. Table 3 illustrates how this perception was further evidenced by the significant sedentary behavior noted from accelerometer data.

Expectancy-Value Theory postulates that motivation and behavior are a function of expectations for specific outcomes and the value associated with those outcomes (Janis & Mann, 1977). The theory posits the equation: Expectations (E) x Value (V) = Motivation (M). This is an interesting perspective, since mathematics teaches that anything multiplied by zero equals zero. Additionally, attainment value has to do with the goals that the individual places (Wigfield & Eccles, 1992). If the goals are realistic, they are more likely to be attained. The interviews in this study had a common theme of unrealistic goals and expectations regarding participation in

physical activity and even aging in place. When participant 8 states that he knows that getting out of the recliner chair is important daily and that he wants to walk without any assistive device, however relies on the wheelchair due to fatigue, immediate goals may be unrealistic. He also states that walking to the bathroom once per day is enough physical activity to get him back to prior level of functioning. These unrealistic expectations existed after weeks of occupational therapy education and ADL training. Without realization of proper expectations and setting realistic goals, he can expect negligible outcomes. Also, without understanding personal expectations and perceived outcome possibilities, he found it quite difficult to make a plan. Without a plan for long-term recovery utilizing physical activity short term goals, value is limited. Therefore, if value is low, even if expectations are unrealistically high, motivation will be negatively affected.

Conversely, if no value is held towards daily physical activity, then the individual can have great expectations to no avail. Value can be based off competence and competence, self-efficacy, which can be the single most contributable factor to the long-term adherence to an exercise program (Lox et. al., 2010). Bandura (1997) defined self-efficacy as the perceived ability to complete a task, reach a goal and even overcome barriers to complete the task or reach the goal. From the interviews, those participants who did set a goal, reported problems adhering to the goals, which may reduce their confidence at completing a task and reduce physical activity. However, as individuals understand the required demands of reaching a goal, they are more likely to progress consistently toward that goal. In other words, as older adults have true expectations of requirements for successful aging in place, realistic levels of participation in physical activity can improve the intended outcome of aging independently.

Implications

Knowledge deficits for the older adult's true ability to age in place are revealed from this study. A low transfer of learning indicates a possible need to change the approach of the Occupational Therapist. If weeks of education were provided to the participants, what were the primary contributors to the lack of learning transfer? The Occupational Therapist, or healthcare provider with the older adult population, may need to consider different principles of adult learning and match the older adult with a particular approach based on cognitive, social, environmental and physical contexts. The educator for the older adult population may need to consider variables that affect learning to include, but not limited to: comprehension, prior medical history, environmental distractions, attention span, physical distractions such as pain or urinary urgency, psychiatric complications, and caregiver presence.

Additionally, further review of current assessments for independent living used readily in the Occupational Therapy settings and literature is necessary. Since Occupational Therapists are educated on how individuals age, the common concerns, adaptability and understanding of the activities of daily living (ADLs) and how the psychosocial and environmental contexts combine to influence individual's independence, this profession may be best poised for further research of aging in place.

Recommendations for Future Research

Many recommendations for future research arise after considering the case studies. In future research, interviews at assisted living and nursing home settings would be ideal for greater understanding of how settings may impact decisions and how people may answer the questions retrospectively. Interviews of caregivers would also garner an equally important perspective since often times, caregivers are the individuals making the decisions for future care. Use of

quantitative data from grounded surveys compared to data from accelerometers would be useful to understand how specific perceptions versus actual physical activity may impact individual's ability to age in place. Using surveys, instead of interviews, would allow for a larger sample size. Further research could also compare and contrast data from pre and post decision to relocate or make an environmental change.

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Appendix 1.

Semi-structured Interview Script

List of possible interview questions below:

• Tell me your story of how your health conditions have changed your ability to function.

(This initial question will always be asked first.)

• For what reasons would you choose to stay at home versus transition to a facility?

• What resources are needed to successfully age independently?

• Tell me about some challenges you've had so far with aging in place.

• Tell me about your greatest fear of moving out of your home and why?

• What contexts or situations have typically influenced your lived experiences of aging in place?

• Tell about when you knew it was time for a change, to move or to make modifications.

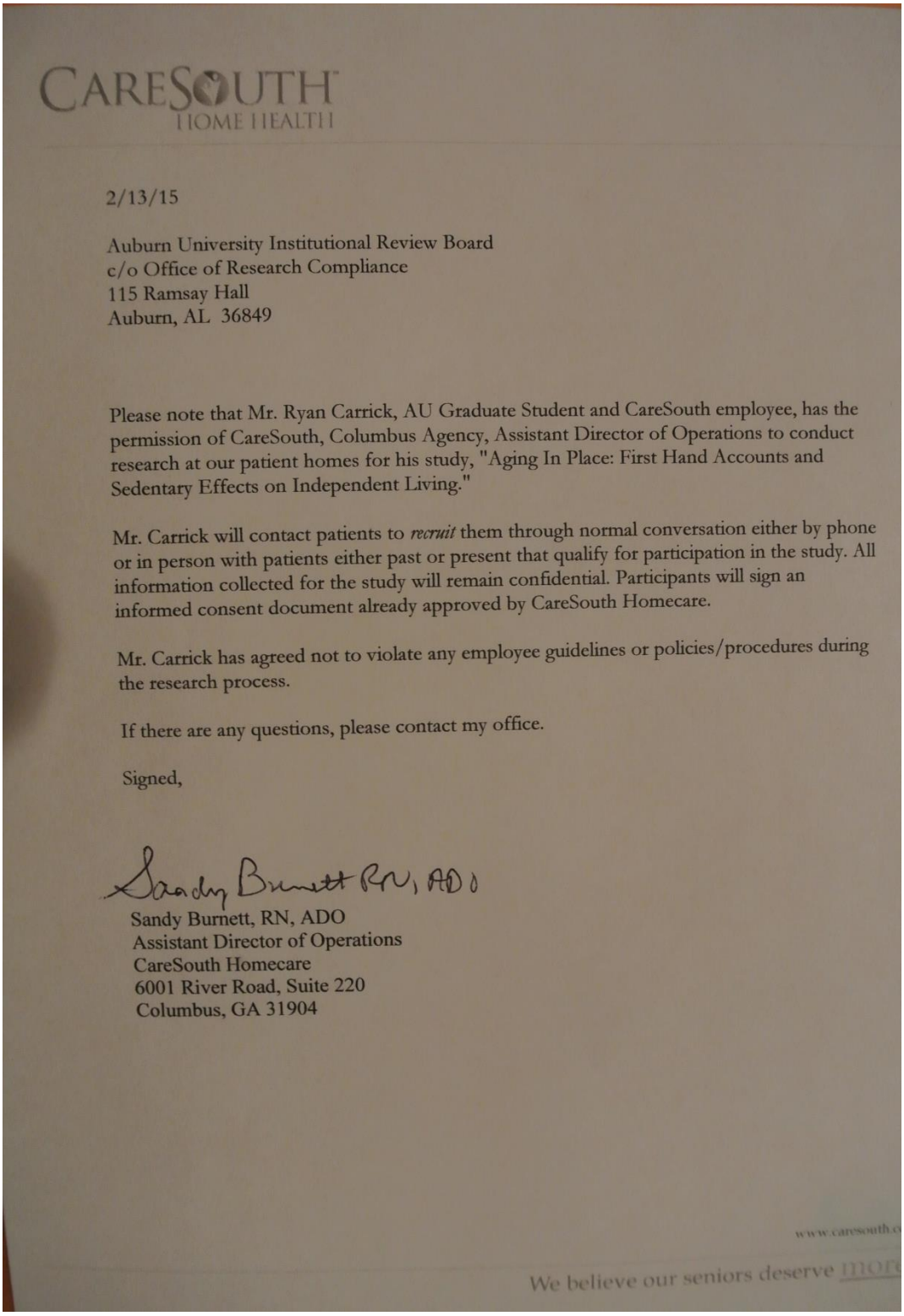
• What advice would you give your child on how to prepare for continued independence with aging?

• Tell me your perspective on the importance of physical activity for maintaining independence.

The participant's responses will direct the next interview's possible and adaptable questions. Questions will be modified slightly in tense and form dependent on participant's health condition and readiness for transition. Readiness will be assessed by the participant's reference to his/her current condition during the initial narrative question of "Tell me your story of how your health conditions have changed your ability to function" and the interviewer's skilled observation and understanding of contexts. As common themes and statements arise, the interviews flows with directional changes of the participants to maximize findings.

Appendix 2.

CareSouth Approval Letter



CARESOUTH
HOME HEALTH

2/13/15

Auburn University Institutional Review Board
c/o Office of Research Compliance
115 Ramsay Hall
Auburn, AL 36849

Please note that Mr. Ryan Carrick, AU Graduate Student and CareSouth employee, has the permission of CareSouth, Columbus Agency, Assistant Director of Operations to conduct research at our patient homes for his study, "Aging In Place: First Hand Accounts and Sedentary Effects on Independent Living."

Mr. Carrick will contact patients to *recruit* them through normal conversation either by phone or in person with patients either past or present that qualify for participation in the study. All information collected for the study will remain confidential. Participants will sign an informed consent document already approved by CareSouth Homecare.

Mr. Carrick has agreed not to violate any employee guidelines or policies/procedures during the research process.

If there are any questions, please contact my office.

Signed,

Sandy Burnett RN, ADO

Sandy Burnett, RN, ADO
Assistant Director of Operations
CareSouth Homecare
6001 River Road, Suite 220
Columbus, GA 31904

www.caresouth.c

We believe our seniors deserve mor

Appendix 3.

Informed Consent

The Auburn University Institutional Review Board has approved this document for use from 4/21/15 to 4/20/16 Protocol # 15-168 EP 1504

AUBURN UNIVERSITY

INFORMED CONSENT for a Research Study entitled: "Aging In Place: First-hand Accounts of How Sedentary Behavior Effects Independent Living"

You are invited to participate in a research study to gain a greater understanding how physical activity and sedentary behavior affect your ability to age in place. The study is being conducted by Ryan Carrick, MHS, OTR/L and Danielle Wadsworth, PhD in the Auburn University Department of Education, School of Kinesiology. You were selected as a possible participant because you are an adult over age 50 and are deciding or recently have decided how you plan to age independently.

What will be involved if you participate? If you decide to participate in this research study, you will be asked to participate in a 15-30 minute interview and wear an accelerometer device on a canvas belt around your waist. Your interview will be recorded with an audio recorder. You will be identified on the recording by a randomly assigned number. The interview will be transcribed without identifying information. After the transcription is reviewed for errors, the audio file will be destroyed (approximately 3 to 6 months after your interview). Your total time commitment will be approximately 8 days as you continue your normal daily activities.

Are there any risks or discomforts? There are no anticipated risks associated with participating in this study. You will continue your normal daily activities, only wearing the accelerometer device on your hip. This device is about two inches square in size.

Are there any benefits to yourself or others? If you participate in this study, you can expect to help yourself verbalize your own decision-making process and help others who plan to make similar decisions in the future. You will also be given a copy of your physical activity data.

Participant's initials_____

301 Wire Rd., Auburn, AL 36849-5323; Telephone: 334-844-4483; Fax: 334-844-1467
www.auburn.edu

Will you receive compensation for participating? There will be no compensation for this study.

Are there any costs? If you decide to participate, there are no costs with participating in this study.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Education or the School of Kinesiology or future services with CareSouth.
Your privacy will be protected. Any information obtained in connection with this study will remain confidential. Information obtained through your participation may be used to fulfill an educational requirement, published in a professional journal, presented at a professional meeting and used for future studies and dissertation.
If you have questions about this study, please ask them now or contact Danielle Wadsworth, PhD at wadswdd@auburn.edu or Ryan Carrick, MHS, OTR/L at rzc0020@auburn.edu. A copy of this document will be given to you to keep.
If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Participant's signature	Date	Investigator obtaining consent	Date
Printed Name		Printed Name	

The Auburn University Institutional Review Board has approved this document for use from 4/21/15 to 4/20/16 Protocol # 15-168 EP 1504