5-2023

Mental Confidence in Alzheimer's DIsease

Harrison Adams
Abilene Christian University, hla17a@acu.edu

ABSTRACT

A simple symptom like forgetfulness can lead to a gradual, subtle decline in the individual's sense of identity. In dementia, self-efficacy is the foundation that allow individual to prolong their capacity of independence and identity. Alzheimer's disease (AD) is the most prominent form of dementia with tens of millions in the world currently living with Alzheimer's disease. AD is most often associated with impaired memory, confusion, language impairment, and unpredictable, agitated, aggressive, and paranoid behavior. While there are many studies examining the quality of life in individuals with AD, there are fewer investigating the psychological effects of AD on the individual's self-efficacy. The present study attempts to highlight this connection. It was predicted that as cognitive impairments scores increase (maintaining cognitive and functional abilities), quality of life and mental health confidence scores will also increase Participants ($N = 25$) completed a cognitive battery (e.g., WMS-IV & MoCA) and two self-efficacy measures (QoL-AD & MHCS). The present study discusses the implications of the findings, limitations, and future directions of research.

Mental Confidence in Alzheimer's Disease

A Thesis

Presented to

The Faculty of the Department of Psychology

Abilene Christian University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science in Clinical Psychology

By

Harrison Adams

May 2023

This thesis, directed and approved by the committee for the thesis candidate Harrison Adams, has been accepted by the Office of Graduate Programs of Abilene Christian University in partial fulfillment of the requirements for the degree

Master of Science in Psychology

Assistant Provost for Residential Graduate Programs

Date

9 May 2023

Thesis Committee

Dr. Scott Perkins, Chair

Dr. Cherisse Flanagan

John H. Casada M.D. Ph.D.

Dr. John Casada

ACKNOWLEDGMENTS

There are not enough words in two dictionaries to express my deepest appreciation to every person who has contributed, both in great and small parts, to the person I am today.

To the ACU Graduate Psychology Program, which has given me tremendous opportunities as a student and researcher.

To Dr. Scott Perkins for his patience, calm and invaluable wisdom, as well as his profound belief in my abilities as an academic and individual.

To Dr. Flanagan for her superlative insight, kindness, and unwavering support of an overlooked field of study and individual.

To Dr. John Casada for his unparalleled knowledge, practical suggestions, and for his guidance in the labyrinth that is neuroanatomy.

And to the faculty of Windcrest Alzheimer Memory Care Center for their patience and diligent encouragement in this study.

TABLE OF CONTENTS

LIST OF TABLES

TABLE OF FIGURES

CHAPTER I

INTRODUCTION

Alzheimer's disease (AD) is a neurodegenerative disease caused by abnormal protein deposits in the brain. These protein deposits are made up of amyloid-β and tau, and they lead to the formation of plaques and tangles in the cortex; this, in turn, leads to impaired memory, confusion, language impairment, and unpredictable, agitated, aggressive, and paranoid behavior. Alzheimer's disease is a debilitating and fatal condition. Approximately 6.9 million Americans are currently living with Alzheimer's disease with tens of millions more around the world (Alzheimer's Association, 2022). The likelihood of being diagnosed with Alzheimer's disease has increased to nearly 50% over the past few decades (Hodes, 2004). The cost of Alzheimer's disease on the American economy in the year 2021 was estimated to be more than $321 billion and is projected to increase to $1 trillion in 2050 (Alzheimer's Association, 2022). Additionally, as life expectancy in the United States increases and the median age of the American population increases over the next few decades, the number of individuals diagnosed with Alzheimer's disease is projected to increase to more than 13 million by 2050.

The risk of dementia exponentially increases with advancing age. The risk of being diagnosed with AD is 2% every year starting at 65 years old. This means that two out of every hundred people will develop dementia every year, with this increasing to 5% at 70 years old (Harvard Health, 2019). The population of Americans 65 years or older is projected to grow from 58 million in 2021 to 88 million by 2050. The baby-boom

generation (Americans born between 1946 and 1964) has already begun to reach age 65 and beyond, the age range of greatest risk of developing AD. The oldest members of the baby boom generation turned 75 in 2021. Those who are at retirement age (middle 60s) can expect to live for another two decades, a good portion of a life. Those decades can be and often are described as immensely satisfying and have been referred to as "the golden years." However, those decades are all too often marred by fear of developing Alzheimer's disease. AD is currently incurable and extremely costly in terms of palliative care. Individuals in their golden years fear the loss of mental acuity and the helplessness associated with advanced AD, and rightfully so. Furthermore, the tragedy of AD affecting a patient takes an enormous toll, both physical and emotional, on their healthier family members and friends.

The ability to remain joyful and "golden" during the retirement years (age 65 and above) is near impossible with the diagnosis of Alzheimer's. The symptoms of impaired memory and limited cognitive processing can have an impact on the well-being of the individual. A person living with AD transitions from the hallmark of the disease—gradual cognitive decline—to having significant difficulty carrying out daily life activities. This manifests initially with memory symptoms and mild cognitive impairment (MCI) that is sufficient to impair functioning. MCI presents with symptoms including but not limited to forgetfulness, difficulty coming up with words or names, losing a train of thought, trouble following a conversation, and difficulty making decisions, finishing tasks, or following instructions. MCI can then be followed by a more progressive cognitive decline affecting executive functioning, reducing the individual's ability to carry out daily living activities. This progression is commonly referred to as *dementia*.

Dementia is used as an umbrella term to describe a range of symptoms associated with cognitive impairment. This can include cognitive, behavioral and psychological symptoms largely due to biological changes in the brain. Dementia is a collection of symptoms related to cognitive decline. While there are multiple, varying forms of dementia that are experienced differently (Vascular, Lewy Body, Frontotemporal, etc.), Alzheimer's disease is the most common. However, mixed dementia is increasing in prevalence.

CHAPTER II

LITERATURE REVIEW

Stages of Alzheimer's Disease

Dementia in AD steadily worsens, typically over a decade, and progresses slowly. This progression occurs in three stages: early, middle, and late; however, each person may experience dementia symptoms or progress through the stages at a different pace.

The first stage of AD can present difficulties in coming up with the right words or names, performing tasks in social or work settings, losing or misplacing objects, and experiencing increased trouble with planning or organizing. In the early stage of Alzheimer's, a person may function independently (Lyketsos & Olin, 2002). They may still be able to drive, work, and be part of social activities. However, despite this, the person may still feel as if they are having memory lapses, such as forgetting familiar words or the location of everyday objects. Symptoms may not be widely apparent during this first stage, but some family and close friends may notice some subtle changes and a trained professional could use certain diagnostic tools to highlight the subtle identified symptoms.

The middle stage of Alzheimer's is typically the longest, lasting many years and sometimes decades. As the disease progresses, the person with Alzheimer's requires a greater level of care. During the middle stage of Alzheimer's, the person is typically moved to an assisted living center as the dementia symptoms are more pronounced. The person may confuse words, get frustrated or angry, and act in unexpected ways, such as

refusing to bathe (Alzheimer's Association, 2022). Damage to cortical cells can also make it difficult for the person to express thoughts and perform routine tasks without assistance. The person may still be able to participate in limited daily activities with assistance, but it is important to find out what the person can still do with some autonomy or find ways to simplify tasks.

In later stages, AD leads to a vegetative state in which the person is bedridden and dependent on others for all basic living activities. In addition to the effect of progressive symptoms on the patient, AD can have a progressive impact on families and caregivers. This impact is both emotional—with family/caregivers experiencing depression, guilt, anger, and physical stress possibly leading to caregiver frailty—and economic, with costs often totaling tens of thousands of dollars per year or more (Lyketsos & Olin, 2002). Attempts to prolong independence and regularly engage in life behaviors may be more significantly limited in the later stages. The patient's awareness of this decline can be long and exhausting, which can have a significant effect on the patient's quality of life and self-efficacy.

Origins of Alzheimer's Disease

The origin of Alzheimer's disease began in Germany in 1906, at the 37th meeting of the Society of Southwest German Psychiatrists. Alois Alzheimer presented the autopsy results of a fifty-one-year-old German woman, Auguste Deter, suspected to be the first individual to be diagnosed with Alzheimer's disease (Goedert & Spillantini, 2006; Roberson & Mucke, 2006). Alzheimer described the clinical and neuropathological characteristics of the disease as progressive memory loss, focal symptoms, and what was described at that time as delusions and hallucinations. Further autopsy of Auguste's brain

tissue presented the two common abnormalities (neuritic plaques and neurofibrillary tangles) used to identify the disease today. Neuritic plaques are formed by the accumulation of dense deposits of amyloid proteins. The most prominent and famous amyloid protein responsible for neuritic plaques is amyloid-β. The extracellular, nonvascular accumulation of the two amyloid-β amino acids (amyloid-β 40 and amyloid-β 42) results from the abnormal processing of amyloid precursor proteins by the β- and γ-secretases (DeTure & Dickson, 2019). With the over-production of the amyloid proteins in addition to the absence of proper clearance with α-secretase enzymes, there is an imbalance of amyloid protein deposits in the brain. These small protein deposits fold into sheet-like structures (plaques) that suffocate neuroglia leading to cell death and disruption of membrane integrity. The presence of neuritic plaques in the brain negatively affects the integrity of neuronal processes and is the leading cause of neuronal loss in individuals with AD.

The second defining neuropathological characteristic of AD is neurofibrillary tangles. These neurofibrillary tangles are composed of tau proteins, which are present in normal brain tissues, but in AD thick bundles of neurofibrillary tangles are formed around cells choking them and causing neuronal loss. The number and location of the tangles provide evidence of the severity of the disease and the clinical course the disease will follow (Mendez, 2017). Tau deposits are also found to be the leading cause of cognitive impairment in numerous other neurodegenerative diseases such as supranuclear palsy, corticobasal degeneration, Pick's disease, and Parkinson's disease (Goedert & Spillantini, 2006). In fact, there is more evidence that the tau protein tangles are more strongly related to cognitive impairment than the amyloid protein deposits (DeTure &

Dickson, 2019). However, it is clear that both the presence of amyloid protein deposits and tau filaments are needed for the markers of neuronal death and cognitive decline in AD.

Since the first case in 1906, Alzheimer's Disease is now the most common neurodegenerative disease with more than 40 million cases and is the leading cause of dementia across the world (Rasmussen & Langerman, 2019). There are multiple current studies investigating the pathophysiology of AD with hopes to block the over-production of plaques and tangles. There are few studies investigating the psychological effects of AD on the individual. Past research has detailed the nature and clinical course of AD on brain tissue, but we must further understand the clinical course AD will take on the person's identity, shaking cognitive efficacy. It is a course of cortical degeneration and, equally troublesome, a course of losing your identity. Despite more than a century of research, AD can still affect millions of people around the world by being a constant presence in their daily lives limiting their physical and mental abilities.

Cognitive and Functional Impairments

The first and foremost limitation is the most evident and may be the most pertinent. The progressive loss of cognitive capacity, including memory, language, behavioral changes, visuospatial disturbances, and certain executive skills needed to perform daily life tasks render the individual with declining resources and functioning (Choi & Twamley, 2013; Dai & He, 2014; Palop & Mucke, 2009). Some studies have shown that individuals, either through education or lifelong mentally demanding professions or lifestyles, have a reduced risk of developing dementia and may benefit more from cognitive therapies (Stern, 2006). However, most individuals begin to

experience symptoms of dementia as early as 60 years old. Starting cognitive decline at such a fulfilling time, providing retirement, can limit any gratification from experiencing "the golden years." The significant impairments in episodic memory make it difficult to take in new information and learn new or more adaptive cognitive skills (Morris & Price, 2001). Cognitive deficits in Alzheimer's disease can affect a wide range of the individual's interpersonal identity and multiple aspects of their health.

Firstly, the mental health of the individual is affected. Alzheimer's can share comorbidity with several other mental illness symptoms. Across recent studies, the most frequent with AD were depression, aggression, anxiety, apathy, paranoia, and sleep disorder (Zhao et al., 2016). The later stages of Alzheimer's disease share more occurrences of some personality changes including aggression, disinhibition, irritability, and delusions. There can also be a decline in intellectual functioning with new difficulties in abstract thinking, attention/concentration, finding the correct words for expressions, reading, and writing skills. The culmination of new functional limitations and decreased adaptability leaves the individual unreceptive to traditional therapeutic techniques (Granello & Fleming, 2008). These changes are not sudden but occur gradually over time. As the disease progresses these symptoms accelerate and become more serious. Despite multiple efforts, detection and future treatments for other mental illness symptoms can be unnoticeable and/or tricky to address given the prominent-progressive dementia symptoms (Reid et al., 2017). The small lapses in memory can bring on frustration, depression, and feelings of anxiety.

Secondly, their emotional health is affected, especially during the first presence of symptoms. For the individual with Alzheimer's, the first sign of symptoms can be

frightening as the realization that something is happening to their memory that they may not quite understand. They are forgetting the names of people they see often, forget where they have placed things, and have difficulties understanding or recognizing numbers. Early dementia symptoms lead to the decline of a person's ability to remember, reason, learn and imagine. Eventually, this symptom of forgetfulness leads to the names of family members being forgotten as well as parts of their past. At some point, the individual feels unfamiliar in a familiar place leading to more confusion and frustration. This can present with mood swings, social withdrawal, feelings of distrust, uncooperativeness, and inappropriate behaviors (Auclair et al., 2009). Additionally, individuals living with Alzheimer's disease can lose common communication skills making it more difficult to communicate their feelings. They have to adapt and use more non-verbal body language and facial expressions to attempt to communicate their feelings and needs (McLellan et al., 2008). It can feel disorienting as they try to comprehend and interpret the new perceived world around them.

Thirdly, while the more notable symptoms of Alzheimer's greatly affect the individual's mental and emotional health, their physical health is also at risk and without intervention can cause serious damage. Having limited cognitive abilities such as memory and communication skills, as well as poor emotional regulation with shared symptoms of depression and anxiety can make more tasks difficult. The individual may find simple physical activities such as dressing themselves getting more taxing by the day. More common in the later stages, the declining cognitive capacity begins to significantly limit physical functioning. This limited physical functioning could change their balance, motor skills, ability to control their bowel and/or bladder, and

breathing/swallowing, leading to dysphagia. Further physical limitations can cause mobility issues leading to more frequent falls and increasing the possibility of fractures and bruising. This can then lead to more bedrest, increasing the risk of bedsores and reducing their already limited physical activity. This can then reduce their immune system, leading to an increased risk of flues, pneumonia, and other infections. Additionally, they could have poor nutrition as their diet/appetite may be inconsistent, and chronic dehydration is more common in the later stages (Nagae et al., 2020).

The simple symptom of forgetfulness can lead to a progression of more intense symptoms affecting the individual's key facets of life. However, studies have shown that early intervention of some therapeutic techniques (e.g., Cognitive Behavioral Therapy (CBT), Speech-language Therapy (ST)) can provide evidence of resilience training (Tonga et al., 2021; Tripathi & Tiwari, 2009). Additionally, early engagement in physical exercise has been observed to decrease the risk of dementia. While not as beneficial, engagement in physical activity later in life can still mitigate the risk for cognitive impairment (Erickson et al., 2012). The newly limited functioning can make daily activities become more difficult while the important aspects that encompass an individual's quality of life are altered.

Quality of Life in Alzheimer's Disease

As cognitive abilities become more limited, people with Alzheimer's disease are unable to participate in many of the activities that may at one time have given them a sense of purpose or pleasure. Some behaviors and social skills may also decrease, which will further interpersonal conflict with the individual causing them to become more isolated and avoidant socially (Logsdon et al., 1999). With decreasing abilities and

appetite for social engagement, most people with Alzheimer's disease may seclude themselves. They may become in fear of embarrassment, feeling confused, and disoriented in once familiar settings, and simple misunderstandings lead to them feeling a sense of burdensome. Being that people are social creatures by design, this significant decrease in social activity would greatly impact their emotional/mental state. *Quality of life* (QoL) is defined as an individual's perception of their position in life in the context of their physical, emotional, and mental health in comparison to their goals, expectations, and standards (Burks et al., 2021). Having discussed the toll Alzheimer's has on the individual's physical, emotional, and mental health, it would be safe to assume the major effect progressive dementia has on quality of life.

This definition for QoL has been used as a measure in long-term healthcare settings to assess patients' quality of treatment/recovery. However, as Alzheimer's does not currently have a recovery track, QoL can be considered a subjective measurement that can assess the progress dementia has taken on the individual. Though it is a crucial metric for care, it may be difficult to accurately assess or make predictions about QoL for individuals with Alzheimer's. Mild and moderately cognitively impaired individuals could reliably report their QoL, while severely cognitively impaired individuals may not (Logsdon et al., 1999). It is also important to consider the caregiver's perception of the cognitively impaired individual's QoL, as their communication skills may have been limited due to progressive dementia. Using a QoL measurement can be an effective way of assessing a person's newly limited functioning. With a continuous assessment in a longitudinal study, it could be possible to identify the point at which the individual's cognitive impairment would begin to impact the reliability of the measurement.

In terminal diseases like Alzheimer's having limited disease-modifying therapy, the success of treatment is often measured by maintaining—or if possible, improving—the QoL of the individual (Lord et al., 2020). Maintaining their limited physical activity with appropriate exercises. Maintaining their emotional state with regular positive social interactions. Maintaining their mental health by practicing good mental hygiene: regular sleep schedule, reducing unnecessary stress, and mindfulness/gratitude exercise. While maintaining efforts may prolong certain functional limitations, it may not predict accurately the reported QoL. As a decrease in cognitive functioning occurs it may be beneficial to use the family members or caretakers of the individual to assess their QoL. While proxy-rated QoL is common practice in many research settings it still does not answer the individual's perceived abilities (Cuevas et al., 2020). This definition of QoL could reliably be used as an indicator of areas where healthcare improvement is needed or as a rationale for further medical interventions, but measurements in QoL have provided little research to accurately depict the self-efficacy of people with dementia.

Mental Confidence

An individual's self-efficacy is their belief in their ability to successfully carry out the appropriate behaviors during uncertain and stressful situations. Confidence in one's ability is not only crucial to physical health but to emotional and mental health as well. Self-efficacy can be a key contributor to a wide range of emotions an individual experiences throughout their daily life. A high level of self-efficacy is necessary to overcome challenges and failures. For individuals living with AD, who often find simple daily tasks insurmountable, such a level of assurance in one's abilities and perseverance through adversity may seem significantly less attainable (Choi & Twamley, 2013). The

individual's short-term memory and learning are fragile. They may need multiple-step instructions for simple tasks, in addition to having difficulty following multiple-step instructions. They could feel insecure when failing to do something they know they understand but failing at the details. These limitations are sure to affect the individual's quality of life, despite the previously mentioned maintaining factors.

Previous research has shown self-efficacy related to clinical problems such as phobias, addiction, depression, social skills, and stress in a variety of contexts (Pajares, 1997). However, while self-efficacy beliefs have been mainly used in these contexts pertaining to recovery, there has been little research on the relationship between an individual's self-efficacy and a progressive cognitive impairment like Alzheimer's as it pertains to maintaining, or improving, quality of life. While there has been some research regarding self-efficacy in physical exercise with Parkinson's disease patients (Stevens et al., 2020), there have been problems related to the assessment of self-efficacy in research. Bandura (1997), who is referred to as the founder of this definition of self-efficacy in clinical research, has cautioned researchers attempting to utilize an all-purpose self-efficacy measure to predict recovery or capability. "Self-efficacy beliefs should be measured in terms of particularized judgments of capability that may vary across realms of activity, different levels of task demands within a given activity domain, and under different situational circumstances" (Bandura, 2006, p. 309). In order to accurately measure self-efficacy, the scale would need to be designed to measure the relevant domain of functioning. An individual's efficacy beliefs should be measured as they corresponds to the criteria being assessed and the domain of functioning being analyzed

(Pajares, 1997). For example, using a self-efficacy measure to further assess domains of functioning related to an individual's quality of life with progressive dementia.

Self-efficacy can be a nuanced measurement of assessing an individual with Alzheimer's QoL. Heightened confidence in one's ability to perform, or at least engage in, pleasurable activities improves motivation and engagement in social behaviors, possibly influencing QoL (Tan et al., 2021). Measures of self-efficacy could assess aspects of an individual's life not measured accurately in QoL measurements. For example, a willingness to engage in physical and social activities, as well as their perceived ability to have the capacity to participate. Similar to the aspects of avoidance and isolation in QoL, however, in studies of self-efficacy avoidant behaviors are precipitated by the fear of failing which then may become a self-fulfilling prophecy (Stevens et al., 2020). The fear of failing reduces physical and social activity leading to deconditioning, which would in turn lower their ability to return to a more confident state. In addition to limited communication skills, having reduced self-efficacy could affect their receptiveness to quality of life improvement efforts. A self-efficacy measure could highlight aspects of comfortability with the individual's decrease in functioning or their perceived awareness of it. To better understand and assess the self-efficacy of individuals living with AD, a scale is needed.

Carpinello et al.'s Mental Health Confidence Scale (MHCS) was based on theories of self-efficacy and qualitative research on self-help groups. The scale is a 16-item self-report scale and was designed to assess the self-efficacy of a person living with a terminal mental disorder (i.e., how confident they are in their ability to deal with things that can influence their lives) (Carpinello et al., 2000). The items are scored on a Likert-

scale from 1 (being very nonconfident) to 6 (being very confident). The MHCS is broken down into three factors (optimism, coping, and advocacy). The optimism section is to understand the confidence an individual has in their ability to set goals and pursue hopefulness for the future. Some example items are "How confident are you right now that you can: feel hopeful about the future?" and "How confident are you right now that you can: make friends?". The coping section is to further understand the confidence an individual has in their ability to manage symptoms and present emotions. Some example items include "How confident are you right now that you can: stay out of the hospital?" and "How confident are you right now that you can: deal with losing someone close to you?". Finally, the advocacy section is to shed light on the confidence an individual has in their ability to speak up for themselves and champion their needs and rights. An example item is "How confident are you right now that you can: say no to a person abusing you?" (Carpinello et al., 2000).

Anosognosia

Another important understanding of the effects of dementia on an individual is the presence of anosognosia. Anosognosia is described as an individual's lack of awareness or self-consciousness of their cognitive or functional deficits due to a mental illness. There is literature that describes two causes of anosognosia. Firstly, it has been referred to as the individual's denial of the presence or severity of cognitive and functional impairments, despite discernable evidence (Choi & Twamley, 2013). Secondly, it is the impairments in memory that help perpetuate this lack of awareness by impeding an individual from recalling their realization about having memory difficulties (Ecklund-Johnson & Torres, 2005). Although there have been multiple studies attempting to

explain anosognosia, they have been within a theoretical framework and remain conjecture (Choi & Twamley, 2013). Interestingly, empirical studies have shown inaccuracies in self-reported knowledge of impairments but not in those the individual reported about others with similar impairments. Meaning individuals with Alzheimer's appeared to maintain the ability to accurately report on someone else's memory deficits but not their own (Hardy et al., 2006; Reisberg et al., 1985). Whether anosognosia is solely an impairment in the cognitive processes of perception or a defense mechanism, the presence is a common symptom of dementia. Similar to other symptoms of dementia, anosognosia may be progressive. Changing, adapting as cognitive and functional deficits become more severe further altering perception.

The Present Study

The present study proposes to assess the relationship between cognitive impairments with quality of life and mental health confidence in Alzheimer's disease. The study seeks to highlight the connection between the earlier stages of dementia and its effect on the individual confidence in their self-efficacy. The Mental Health Confidence Scale (MHCS) was developed by Carpinello et al. (2000) to assess the self-efficacy of an individual in three facets: optimism, coping, and advocacy. A group of participants will be recruited from the Windcrest Alzheimer's Care Center in Abilene, TX. The data were obtained through a cognitive battery and self-report measures. The data collection were conducted through in-person (one-on-one) interview sessions to administer the cognitive battery and questionnaires. The results of the study are important, as the knowledge of what affects self-efficacy can allow for more in-depth treatment and rapport building strategies.

It was hypothesized that there is a positive correlation between an individual's progression through AD and their mental health confidence, meaning that, as cognitive ability scores increase (maintaining cognitive and functional abilities), quality of life and mental health confidence scores will be similarly elevated. The study seeks to highlight the connection between progression of dementia and its effect on the individual's confidence in their self-efficacy.

CHAPTER III

METHODOLOGY

Participants

Participants were asked to complete a cognitive battery to determine their mild cognitive impairment (MCI) which was compared to their self-efficacy questionnaires. The participants were recruited from the Windcrest Alzheimer's Care Center in Abilene, TX, a local assisted living facility specializing in dementia. The data were obtained through self-report measures and conducted through in-person interviews to administer the cognitive battery and self-efficacy questionnaires. The use of this site was in hope that the participants would represent a variety of dementia experiences while maintaining primarily Alzheimer's type. The participants were selected by referral by the administrator on their predictive ability to perform adequately during the assessment.

Inclusion criteria for participants involved: 1) diagnosis of dementia in Alzheimer's disease or vascular dementia according to ICD-10 criteria, and 2) adequate speaking and writing skills to complete the assessment interview. Exclusion criteria were 1) diagnosis of dementia in other diseases, schizophrenia, or organic hallucinosis, 2) acute delirium, 3) diagnosis of aphasia or severe impairments in language abilities according to clinic staff members, 4) severe hearing disorders that are not compensated by a hearing aid, and 5) severe behavioral symptoms that prevented the completion of the assessment interview. All criteria were approved by the Abilene Christian University International Review Board (IRB). See Appendix A for IRB approval letter.

Impairment Measures

Participants were asked to complete the screening process material to measure cognitive and memory impairment. This screening process included the Montreal Cognitive Assessment (MoCA) and the Wechsler Memory Scale, Fourth Edition (WMS-IV).

Cognitive Impairment

Cognitive impairment was assessed using the Montreal Cognitive Assessment (MoCA). The MoCA is a one-page 30-point administered test. The items measure various domains of cognitive functioning (e.g., working memory, visuospatial, language). The short-term memory recall task involves two learning trials of five nouns and delayed recall after approximately five minutes. Visuospatial abilities are assessed using a clock-drawing task and a three-dimensional cube copy. Multiple aspects of executive functions are assessed using an alternation task adapted from the Trail Making B task, a phonemic fluency task, and a two-item verbal abstraction task. Attention, concentration, and working memory are evaluated using a sustained attention task (target detection using tapping), a serial subtraction task, and digits forward and backward. Language is assessed using a three-item confrontation naming task with low-familiarity animals (lion, camel, and rhino), repetition of two syntactically complex sentences, and the fluency task. Orientation to time and place is also evaluated.

Memory Impairment

Memory impairment was assessed using the Wechsler Memory Scale, Fourth Edition (WMS-IV). The WMS-IV is the most widely used scale to assess adult memory. The WMS-IV measures various domains of memory functioning (e.g., auditory memory,

visual memory, visual working memory, immediate memory, and delayed memory). The current study will be using the older adult (65-90 age range) version, given the population of interest. This version excluded the Design and Spatial Addition subtests. Additionally, the optional cognitive exam (Brief Cognitive Status Exam) was not used in this study. The WMS-IV consists of four subtests (three have additional sections to measure delayed memory) to assess short-term, long-term, and working memory.

Self-Efficacy Measures

Following the cognitive battery, the participants were asked to complete the self-report self-efficacy questionnaires. In an attempt to measure the nuances of self-efficacy, the participants completed both the Mental Health Confidence Scale (MHCS) and the Quality of Life-Alzheimer's Disease questionnaire (QoL-AD).

Mental Health Confidence

Mental Health Confidence was assessed using the Mental Health Confidence Scale (MHCS). The MHCS uses descriptors commonly used in research and the literature to identify mental confidence. The self-report scale consists of 16 items and results on the MHCS give scores on three subscales (Optimism, Coping, and Advocacy) as well as an overall composite score for Mental Health Confidence (MHC). The items are asked on a six-point Likert scale that ranges from "very nonconfident" to "very confident" (Carpinello et al., 2000).

Quality of Life

Quality of life was assessed using the Quality of Life-Alzheimer's Disease questionnaire (QoL-AD) (Stypa et al., 2020). The QoL-AD questionnaire consists of 13 items that measure various domains of QoL (e.g., physical health, energy, friends, mood)

as well as the patient's self as a whole. The items are answered on a four-point scale (1 = poor, 2 = fair, 3 = good, 4 = excellent) by considering the patient's current QoL. Total scores range between 13 and 52 points, with higher scores reflecting better QoL (Tarawneh & Holtzman, 2012).

Procedure

The assessment was conducted in a one-on-one clinical interview session. Each session was given a coded number to ensure the anonymity of the participant. Each participant, and a member of their family, signed an informed consent form to ensure that all participation is voluntary. No compensation was given to participants.

The participants in this study provided better assessment of the different experiences and difficulties that people with Alzheimer's and other forms of dementia experience at different stages. Additionally, having the participants complete a cognitive battery allowed for better comparison of the MCIs with mental confidence and quality of life, thus providing some evidence of the progressive stages of dementia.

Plan of Data Analysis

The independent variables, cognitive impairment scores (WMS-IV & MoCA), and the dependent variables (QoL & MHCS) were analyzed using several different tests. Correlations, means, and other descriptive analyses were conducted on the variables of interest. Cognitive impairment, mental health confidence, and quality of life were analyzed using a Pearson's Correlation. This analysis would either provide support for the hypothesis regarding cognitive impairment reducing mental health confidence and quality of life, or would fail to do so. Additionally, the variables of interest between the two groups were analyzed using a MANOVA to obtain the lambda statistic. These

analyses will be followed up with individual one-way ANOVA analyzes to identify the origin of any specific points of significance.

CHAPTER IV

RESULTS

Although the initial plan for participant recruitment involved two local Alzheimer's Care facilities, an unexpected change in the director position at the second facility led to reversal of their participation. Thus, the sample size is smaller than anticipated. Additionally, there was a significant floor effect, as the participants were dementia patients, meaning that they scored in the lower percentile of the cognitive tests. As a result, it became more difficult to detect small trends in the data when comparing MCI scores and the responses to the quality of life and confidence questionnaires.

Descriptive information for participants is found in Table 1. Participants were residents at the Windcrest Alzheimer's Care Center in Abilene, TX. Participants reside in four separated units defined by stages of dementia according to their status at the assisted living center (see Appendix C and D for unit admission criteria and facility permission form). The sample consisted of 25 residents, seventeen from Unit 1 and eight from Unit 2. The overall sample consisted of 23 females and 2 males. All participants were white.

Table 1

*Sample Demographics Characteristics (*N = *25)*

	Frequency	Percent
Gender		
Male	2	9.1
Female	23	90.9
Race		
White	25	100
Unit Placement		
Unit 1	17	68
Unit 2	8	32

Descriptive statistics for all scales measuring memory impairment and other cognitive impairment, as well as measures of quality of life and mental health confidence can be found in Table 2. Additionally, a frequency chart showing the range and means of scores on the target variables can be found in Table 3. This table shows the floor effect as in the subtest of the WMS-IV there were multiple zero scores recorded, skewing the distribution of scores and making it more difficult to differentiate among the many individuals at that low level.

Table 2

Descriptive Statistics of WMS-IV, MoCA, QoL-AD, and MHCS

	Mean	*SD*
Auditory Memory Index (AMI_WMS)	53.12	16.19
Visual Memory Index (VMI_WMS)	38.12	20.61
Immediate Memory Index (IMI_WMS)	63.16	19.84
Delayed Memory Index (DMI_WMS)	10.20	18.53
Montreal Cognitive Assessment (MoCA)	9.44	5.49
Quality of Life–Alzheimer's (QoL-AD)	34.96	7.55
Mental Health Confidence Scale (MHCS)	63.68	10.56

Table 3

Descriptive Statistics of WMS-IV and MoCA Comparing the Range of Variance and Percentile Compared to the Global Index

	Minimum	Maximum	Mean	<0.01th percentile	<5th percentile	<10th percentile
AMI	0.0	75.0	53.12	60%	40%	0%
VMI	0.0	58.0	38.12	80%	20%	0%
IMI	0.0	87.0	63.16	32%	32%	24%
DMI	0.0	43.0	10.20	100%	0%	0%
MoCA	0.0	21.0	9.44	80%	20%	0%

A correlation matrix comparing the WMS-IV subscales (Auditory Memory, Visual Memory, Immediate Memory, and Delayed Memory) and the two self-report questionnaires (QoL-AD and MHCS) is represented in Table 4. The predicted direction was that there would be a positive correlation between the WMS-IV subscales and the two self-report questionnaires, suggesting that with less limited cognitive functioning the participant's quality of life and mental health confidence would be more positive. However, when analyzing the subscales of the WMS-IV and the two self-report measures, it was surprising to observe that both self-report questionnaires were a mixture of negatively and positively correlated with the WMS-IV subscales, and some were statistically significant. The correlation between Visual Working Memory (VMI_WMS) and mental health confidence (MHCS) was observed to be negatively, moderately strong, and statistically significant. The limited significant correlation could be affected by the floor effect mentioned earlier as the subscales' raw scores were within two to three points of each other, and a few zero scores were recorded.

Table 4

*Correlation Matrix of WMS-IV with QoL-AD and MHCS (*N *= 25)*

	AMI_WMS	VMI_WMS	IMI_WMS	DMI_WMS	QoL-AD
AMI_WMS	-				
VMI_WMS	.201	-			
IMI_WMS	.816**	.572**	-		
DMI_WMS	.574**	.244	.510**	-	
QoL-AD	.141	-.130	-.038	.050	-
MHCS	-.078	-.432*	-.318	-.165	.536**

*$p < .05$. **$p < .01$

The correlation matrix comparing the MoCA and the two self-report questionnaires is represented in Table 5. The first hypothesis was that MoCA scores would be positively correlated to the two self-report questionnaires. More intact cognitive functions may increase quality of life and self-efficacy. The present study tested this hypothesis by calculating the Pearson's product moment correlation between the variables of interest. Interestingly, the hypothesis was somewhat supported. While quality of life and mental health confidence were observed to have a positively moderately strong correlation that was statistically significant, the correlation observed between QoL and MHCS indicated only relatively moderate support. The correlation observed between MoCA and quality of life was negative slightly strong, but it was not statistically significant. This would imply that there is little relationship between the participants' MoCA and quality of life. Now it gets interesting. The correlation observed between MoCA and mental health confidence did not support the initial hypothesis. The observed relation between the two variables was surprisingly a negative, moderately strong, correlation that was statically significant. Rather than the hypothesized positive relations between QoL and MHCS with MoCA, these results alternatively suggest that these

relationships are in fact reversed: namely that as MoCA scores decrease, participants' MHCS scores are observed to increase.

Table 5

*Correlation Matrix of MoCA with QoL-AD and MHCS (*N = *25)*

	MoCA	QoL-AD
MoCA	-	
QoL-AD	.047	-
MHCS	-.503*	.536**

*$p < .05$. **$p < .01$

While the combined cognitive impairment score (MoCA and WMS-4 scales) was not found to have a statically significant relationship with either the self-report questionnaires (QoL, MHCS), two of these scales individually were significantly related to MoCA scores. When comparing the results between Table 4 and Table 5, it is interesting to note the significant correlation between VMI_WMS and MoCA with mental health confidence. The absence of significance in the results could be due to the lack of power in the sample. The entire correlation of all target variables is represented in Table 6.

Table 6

*Correlation Matrix of the Study Variables (*N = *25)*

	1.	2.	3.	4.	5.	6.
1. AMI_WMS	-					
2. VMI_WMS	.201	-				
3. DMI_WMS	.816**	.572**	-			
4. IMI_WMS	.574**	.244	.510**	-		
5. MoCA	.436**	.636**	.699**	.309	-	
6. QoL-AD	.141	-.130	-.038	.050	.047	-
7. MHCS	-.078	-.432*	-.318	-.165	-.503*	.536**

*$p < .05$. **$p < .01$

The MANOVA analysis provided some evidence of the difference in score between Unit 1 participants and Unit 2 Participants (λ=.29). The univariate ANOVAs comparing unit placement means of target variables are represented in Table 7. There was a significant difference between the means between Unit 1 and Unit 2 in three tests. Firstly, Unit 1 had significantly higher VMI scores compared to Unit 2. Secondly, Unit 1 had significantly higher IMI scores compared to Unit 2. Thirdly, Unit 1 had significantly higher MoCA scores compared to Unit 2. Lastly, Unit 1 had significantly lower MHCS scores compared to Unit 2.

Table 7

MANOVA and Univariate ANOVAs Comparing Unit Placement Means of Standardized Scores of Target Variables

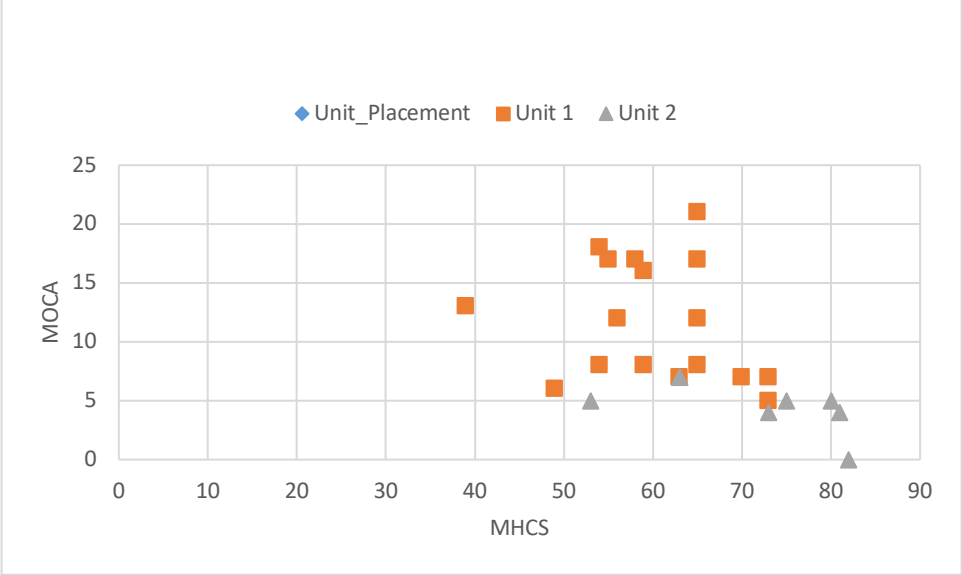
	Unit 1	Unit 2	
	Mean	Mean	*p*-value
AMI_WMS	.294	-.046	.327
VMI_WMS	.528	-1.122	.000
IMI_WMS	.354	-.443	.012
DMI_WMS	.132	-.281	.347
MoCA	.413	-.878	.001
QoL-AD	-.261	.387	.136
MHCS	-.337	.717	.011

Lambda = .29, $p < .01$

Finally, a scatter plot is displayed to represent the placement and skewness of both units MoCA and MHCS scores, Figure A. Unit 2 participants had lower MoCA scores with respectably higher MHCS scores. This graph shows the variability in mental confidence and MoCA scores.

Figure 1

Scatter Plot Comparing MOCA Scores with MHCS Scores Between Unit Placement



CHAPTER V

DISCUSSION

Results Discussion

Previous research in this field has provided evidence on the prevalence of other mental health issues (i.e., depression, anxiety, etc.) in Alzheimer's disease and dementia. However, relatively little research has been conducted regarding the self-efficacy of individuals with dementia. Prior work examined this hypothesis in the context of the patient's confidence through the perspective of the caretaker. Those studies suggested that self-efficacy for symptom management was predictive of symptoms of burden and depression in caregivers (Gallagher et al., 2011). The present study examined this hypothesis but in the context of analyzing self-efficacy through the perspective of the individual with dementia. The present study focused on this context for two reasons. First, while the caregivers' self-efficacy may change due to factors of work stress, the dementia patients' self-efficacy may change unbeknownst to them as their dementia progresses, meaning that while the caregiver could account or somewhat accurately record their change (either negative or positive) in self-efficacy based on their environmental factors, people with dementia may not share that ability. Second, it may be especially difficult to assess diagnostic depression in dementia given other contributing factors such as family relationship, physical health, and independence. Previous research has had conflicting results on the prevalence of depression in dementia patients. Some studies have found dementia patients with symptoms of depression but not meeting the

diagnostic criteria, while other studies have found dementia patients meeting the diagnostic criteria for depression but did not find dementia to be the cause of depression (Dafsari & Jessen, 2020; Wilhelm et al., 2019). Although newly limited and progressively decreasing cognitive ability did not alleviate depressive symptoms. A goal of this study was to more clearly understand these conflicting results and address gaps in the literature. The present study proposes that by viewing the dementia patient's ability of self-efficacy directly we may be able to detect the change in self-efficacy over the progression of dementia.

Overall, the initial hypothesis was not supported, but a revised proposal can be formed based on observed data. Is the negative correlation between MoCA and mental health confidence an indication of anosognosia? *Anosognosia* was defined as a lack of self-awareness of impaired cognitive functioning (Bastin, 2020). No change in views on quality of life was observed, possible due to those items pertained to aspects of physical health and social relationship. The dementia patients with more limited cognitive performance perceived themselves to be more confident compared to those with higher cognitive performance. A previous study asserted that dementia patients might be better at monitoring the abilities of others despite their difficulties in evaluating their own cognitive deficits (Tagai et al., 2020). To some extent dementia patients may be able to accurately comprehend others' cognitive impairments or behavioral patterns; however, it may still be difficult to perceive their own impairments and behavioral changes. Furthermore, the correlation between mental health confidence (self-efficacy) and quality of life was also positive, moderately strong, and statistically significant. This finding provides initial evidence that there is a connection between self-efficacy and quality of

life. Moreover, they provide additional evidence for the relationship between quality of life and cognitive impairments. By this study, cognitive impairment does not have a statistically significant effect on the dementia patient's quality of life. While the patient's dementia may be progressing, depending on the stability of their environment/living situations, the patient's perception of their quality of life may not change.

The present study may only provide a partial look into the relationship between progressive dementia and mental health confidence. However, the present study could be used to adapt the Cognitive Awareness Model (CAM; Bertrand et al., 2016) to assess the dementia patient's self-efficacy rather than the current model's connection of metacognition to quality of life. *Metacognition* is defined as the knowledge and reflective capacities concerning one's own cognitive functioning (Flavell, 1979). Other studies of the CAM have shown evidence that patients with dementia who present impairments in metacognition may be able to recognize similar difficulties in others when in a third-person perspective but not in themselves (Bertrand et al., 2016; Tagai et al., 2020). As the present study suggests, switching focus to the relationship of metacognition and self-efficacy to better view anosognosia. Even if adhering to the CAM relationship between metacognition and quality of life, by adapting this model and focusing on the relationship between the decline in metacognitive abilities and self-efficacy, it may still be relevant to improve the quality of life of people with dementia as self-efficacy and quality of life were positively correlated.

In general, scores on the MoCA and the MHCS showed evidence for an increase in self-efficacy with lower cognitive performance, although more research is needed.

Future research could (a) explore other measures of cognitive impairment related to self-efficacy, as well as (b) explicitly measure the level of anosognosia by comparing the perspective of the patient and the patient's caretaking/family. More generally, the present study provides support for a growing body of literature that has shown that patients' awareness of deficits is important to the development and repair of self-efficacy. The present study expanded on this body of literature by attempting to measure perceptions of deficits with mental health confidence. Furthermore, the present study supports prior theorizing by Bastin et al. (2021) that identifies the multidimensionality of anosognosia and the certain difficulties of attempting to measure which aspects of the patient's impaired metacognition are moderating the relationship. Future studies should include a longitudinal data collection method, regularly tracking the self-awareness as well as the cognitive functioning of the patients in order to explore the hypothesis that anosognosia emerges when a particular critical neurocognitive mechanism, allowing awareness of memory functioning, fails thus pinpointing that moment.

Limitations of the Current Study

There were a few limitations to the present study. First, the study used a sample of dementia patients living full-time in assisted living centers. The quality of life experience of assisted living patients may be different for those living with family or still living independently. Some evidence suggests that a dementia patient's quality of life may be higher whilst staying in assisted living centers compared to those in nursing homes or living independently (Shega et al., 2008; Zimmerman et al., 2005). Generalizing the findings from the current study to dementia patients residing in nursing homes or

independent living is not recommended. Future research should examine the quality of life and mental health confidence in these populations.

Second, the current studies used cross-sectional, correlational designs. Thus, causal conclusions should not be made. The data collected in the current study may only represent a thin slice of the relationship between cognitive impairment and mental health confidence. Given behavior, performance, and mood may change day to day with some people with dementia (Islam et al., 2019), the results are still believed to be valid. However, a longitudinal or experimental research model is necessary to further explicate the nature of these relationships.

Third, the present study adapted an existing measure of mental health confidence (Capinello et al., 2000) to measure self-efficacy. The original development of the scale was designed for people within a broad range of mental disorders; however, this scale has not been used effectively on people with dementia before the current study. The strategy focused on assessing this specific demographic by adjusting the focus of the direction of the scale. The original scale focuses on self-efficacy being a key component of recovery from a mental disorder, which is somewhat broader in focus and not applicable to dementia patients. The present study focused on assessing self-efficacy as another domain of quality of life in progressive dementia. Presumably, using this nuanced assessment ought to predict domain-relevant behaviors more strongly than more general measures of quality of life, but this prediction has not been thoroughly examined, and it is important to see if the findings in our study continue to replicate across a variety of samples.

Fourth, the present study explored the links between cognitive impairment and self-efficacy in one type of cognitive impairment (i.e., dementia-Alzheimer's type). It is important to explore whether these findings will extend to other forms of dementia as well as cognitive impairments not related to dementia (e.g., frontal cognitive disorder, Parkinson's disease, etc.). Some research has found that self-efficacy in Parkinson's disease may be viewed as more of an improvement to physical exercise (Stevens et al. 2020), then leading to improved quality of life. Future research should investigate the relationship between cognitive impairments and self-efficacy in other disorders.

Lastly, as mentioned previously, sample size was smaller than anticipated due to the withdrawal of the second planned facility at a date too late to provide recruitment of an alternative site. As a result of the decreased statistical power of the remaining single-setting sample was too small ($N = 25$) to deliver a reasonable test of group differences and it became significantly more likely that small data trends would be overlooked when comparing the sample means on variables of interest. Thus, the likelihood of a Type 2 error seems to have been unreasonably elevated.

Implications of the Present Study

Considerations of the present study findings should serve to move future research into assessing more nuanced measures of quality of life in people with dementia. The literature has provided multiple studies viewing QoL in dementia but more generalized. The measures used to assess QoL typically look at the individual overall mood, living situation, energy etc. By using a nuanced measure like self-efficacy, that can target sub-domains in QoL (e.g., optimism, coping, advocacy) it is proposed that future studies could examine smaller trends in functional deficits and its relation to the individual's

self-efficacy. While this study has shown a glimpse of anosognosia, it would be interesting that future research could examine the individual's comfortability with their new deficits and the relation to their QoL and self-efficacy. While dementia is currently irreversible, most researchers view the individual's QoL as a measure of how well the patient is doing with their condition. With the lack of pharmacological intervention available for those with dementia, a different way to view treatment is improving and maintaining the individual's QoL.

Direction for future research should include expanding the current study into a longitudinal design. By examining the course of dementia over a longer period of time while taking interval measures of QoL and self-efficacy, it could better follow the transition of deficits and its relationship with these measures. A longitudinal study could help further define the moment of anosognosia. If possible, to more accurately pinpoint the moment of anosognosia, further research may be able to examine the degree and direction of this effect over time. Does anosognosia dissipate with further corticobasal degeneration? The longitudinal design may also better account for mood swings and behavioral changes in the individuals. This would allow for a fuller picture of the progressive effects cognitive and functional limitations can have on the individual's QoL and self-efficacy.

As mentioned in the limitations, future research could examine self-efficacy in other cognitive impairments (non-dementia related), such as traumatic brain injury (TBI) or intellectual disabilities (ID). If possible, examining the person's self-efficacy before and after an event that would cause cognitive impairments (e.g., TBI, stroke) could provide a larger picture of the effect of cognitive skills and self-efficacy. Additionally,

further examining these relationships could relate to continuing the idea of maintaining or improving QoL that are reversible in comparison to those that are terminal. Finally, it would be interesting if future research in other cognitive impairments (non-dementia related) found patterns of anosognosia similar to those with dementia.

The results of this study would be of particular interest to those that study areas of neuropsychology and clinical psychology, specifically those with an interest in psychogeriatric. Additionally, areas involving long-term care and those monitoring the well-being of this population in assisted living or hospice care centers could use this study to build treatment or rapport strategies. The results of this study provide some evidence that people with Alzheimer's report significantly lower mental confidence as their cognitive abilities are *less* impaired. Future research could take this and examine techniques to improve the quality of life and mental confidence of those with Alzheimer's.

Conclusion

Cognitive and functional deficits play a central role in the lives of tens of millions of people. The scarcity of information on the complex functioning of self-efficacy in those with dementia should be expanded with future research. By offering some preliminary insights into how some cognitive impairments affect an individual's self-efficacy, with the presence of anosognosia, this study takes a smaller step in uncovering the shroud of mystery surrounding dementia.

The present study encourages researchers to continue to explore the role of self-efficacy in regard to different types of cognitive impairment. It may be especially difficult to accurately consider some self-report measures when assessing different types

of cognitive impairment, especially for individuals who have high levels of mood/performance swings. However, the present study encourages researchers to also explore collected data from the caretakers (e.g., nurses, family, etc.) assessing the patient's self-efficacy. This could provide a comparative self-efficacy measure. While improved self-efficacy may not be an effective form of recovery from dementia, with future research, it may be helpful as a protective ability to prolong independence and better cope with deficits and the other unfortunate outcomes of dementia, when such inevitably occurs.

REFERENCES

Alzheimer's Association (2022). Alzheimer's disease facts and figures. *Alzheimer's Disease and Dementia*. Retrieved April 15, 2022, from https://www.alz.org/alzheimers-dementia/facts-figures

Auclair, U., Epstein, C., & Mittelman, M. (2009). TCouples counseling in Alzheimer's disease: Additional clinical findings from a novel intervention study. *Clinical Gerontologist*, *32*(2), 130–146.

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Freeman.

Bandura, A. (2006). Guide for constructing self-efficacy scales. *Self-Efficacy Beliefs of Adolescents*, *5*(1), 307-337.

Bastin, C., Giacomelli, F., Miévis, F., Lemaire, C., Guillaume, B., & Salmon, E. (2021).Anosognosia in mild cognitive impairment: Lack of awareness of memory difficulties characterizes prodromal Alzheimer's disease. *Frontiers in Psychiatry*, *12*, 631518.

Bertrand, E., Landeira-Fernandez, J., & Mograbi, D. C. (2016). Metacognition and perspective-taking in Alzheimer's disease: A mini-review. *Frontiers in Psychology*, *7*, 1812.

Burks, H. B., des Bordes, J. K., Chadha, R., Holmes, H. M., & Rianon, N. J. (2021). Quality of life assessment in older adults with dementia: A systematic review. *Dementia and Geriatric Cognitive Disorders*, *50*(2), 103-110.

Carpinello, S. E., Knight, E. L., Markowitz, F. E., & Pease, E. A. (2000). The development of the Mental Health Confidence Scale: A measure of self-efficacy in individuals diagnosed with mental disorders. *Psychiatric Rehabilitation Journal*, *23*(3), 236.

Choi, J., & Twamley, E. W. (2013). Cognitive rehabilitation therapies for Alzheimer's disease: A review of methods to improve treatment engagement and self-efficacy. *Neuropsychology Review*, *23*(1), 48–62.

Cuevas, P. E. G., Davidson, P. M., Mejilla, J. L., & Rodney, T. W. (2020). Reminiscence therapy for older adults with Alzheimer's disease: A literature review. *International Journal of Mental Health Nursing*, *29*(3), 364-371.

Dafsari, F. S., Jessen, F. (2020). Depression—an underrecognized target for prevention of dementia in Alzheimer's disease. *Transl Psychiatry*. *10*, 160.

Dai, Z., & He, Y. (2014). Disrupted structural and functional brain connectomes in mild cognitive impairment and Alzheimer's disease. *Neuroscience Bulletin*, *30*, 217-232.

DeTure, M. A., & Dickson, D. W. (2019). The neuropathological diagnosis of Alzheimer's disease. *Molecular Neurodegeneration*, *14*(1).

Ecklund-Johnson, E., & Torres, I. (2005). Unawareness of deficits in Alzheimer's disease and other dementias: operational definitions and empirical findings. *Neuropsychology Review*, *15*, 147-166.

Erickson, K. I., Weinstein, A. M., & Lopez, O. L. (2012). Physical activity, brain plasticity, and Alzheimer's disease. *Archives of Medical Research*, *43*(8), 615-621.

Gallagher, D., Mhaolain, A. N., Crosby, L., Ryan, D., Lacey, L., Coen, R. F., Walsh, C., Coakley, D., Walsh, J. B., Cunningham, C., & Lawlor, B. A. (2011) Self-efficacy for managing dementia may protect against burden and depression in Alzheimer's caregivers, *Aging & Mental Health*, *15*(6), 663-670.

Goedert, M., & Spillantini, M. G. (2006). A century of Alzheimer's disease. *American Association for the Advancement of Science*, *314*(5800), 777–781.

Granello, P. F., & Fleming, M. S. (2008). Providing counseling for individuals with Alzheimer's disease and their caregivers. *Adultspan Journal*, *7*(1), 13–25.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American Psychologist*, *34*(10), 906.

Hardy, R. M., Oyebode, J. R., & Clare, L. (2006). Measuring awareness in people with mild to moderate Alzheimer's disease: Development of the Memory Awareness Rating Scale–adjusted. *Neuropsychological Rehabilitation*, *16*(2), 178-193.

Harvard Health. (2019). *Alzheimer's in the family*. Retrieved from https://www.health.harvard.edu/mind-and-mood/alzheimers-in-the-family

Hodes, R. J. (2004). [Testimony]. Retrieved March 25, 2022, from U.S. Department of Health and Human Services Website: http://www.hhs.gov/asl/testify/t040323.html

Islam, M., Mazumder, M., Schwabe-Wharf, D., Stephan, Y., Sutin, A. R., & Terracciano, A. (2019). Personality changes with dementia from the informant perspective: New data and meta-analysis. *Journal of the American Medical Directors Association*, *20*(2), 131-137.

Logsdon, R. G., Gibbons, L. E., McCurry, S. M., & Teri, L. (1999). Quality of life in Alzheimer's disease: Patient and caregiver reports. *Journal of Mental Health and Aging*, *5*, 21-32.

Lord, K., Beresford-Dent, J., Rapaport, P., Burton, A., Leverton, M., Walters, K., & Cooper, C. (2020). Developing the New Interventions for independence in Dementia Study (NIDUS) theoretical model for supporting people to live well with dementia at home for longer: a systematic review of theoretical models and Randomised Controlled Trial evidence. *Social Psychiatry and Psychiatric Epidemiology*, *55*, 1-14.

Lyketsos, C. G., & Olin, J. (2002). Depression in Alzheimer's disease: Overview and treatment. *Biological Psychiatry*, *52*(3), 243–252.

McLellan, T., Johnston, L., Dalrymple-Alford, J., & Porter, R. (2008). The recognition of facial expressions of emotion in Alzheimer's disease: A review of findings. *Acta Neuropsychiatric*, *20*(5), 236-250.

Mendez, M. F. (2017). Early-onset Alzheimer's disease. *Neurologic Clinics*, *35*(2), 263–281.

Morris, J. C., & Price, J. L. (2001). Pathologic correlates of nondemented aging, mild cognitive impairment, and early-stage Alzheimer's disease. *Journal of Molecular Neuroscience*, *17*(2), 101–118.

Nagae, M., Umegaki, H., Onishi, J., Huang, C. H., Yamada, Y., Watanabe, K., & Kuzuya, M. (2020). Chronic dehydration in nursing home residents. *Nutrients*, *12*(11), 3562.

Pajares, F. (1997). Current directions in self-efficacy research. *Advances in Motivation and Achievement*, *10*(149), 1-49.

Palop, J. J., & Mucke, L. (2009). Epilepsy and cognitive impairments in Alzheimer's disease. *Archives of Neurology*, *66*(4), 435-440.

Rasmussen, J., & Langerman, H. (2019). Alzheimer's Disease – Why we need early diagnosis. *Degenerative Neurological and Neuromuscular Disease*, *9*, 123–130.

Reid, L. D., Avens, F. E., & Walf, A. A. (2017). Cognitive behavioral therapy (CBT) for preventing Alzheimer's disease. *Behavioural Brain Research*, *334*, 163–177.

Reisberg, B., Gordon, B., McCarthy, M., & Ferris, S. H. (1985). Clinical symptoms accompanying progressive cognitive decline and Alzheimer's disease: Relationship to "denial" and ability to give informed consent. *Alzheimer's Dementia: Dilemmas in Clinical Research*, 19-39.

Roberson, E. D., & Mucke, L. (2006). 100 Years and counting: Prospects for defeating Alzheimer's disease. *American Association for the Advancement of Science*, *314*(5800).

Shega, J. W., Hougham, G. W., Stocking, C. B., Cox-Hayley, D., & Sachs, G. A. (2008). Patients dying with dementia: Experience at the end of life and impact of hospice care. *Journal of Pain and Symptom Management*, *35*(5), 499-507.

Stern, Y. (2006). Cognitive reserve and Alzheimer disease. *Alzheimer Disease & Associated Disorders*, *20*, S69-S74.

Stevens, A., Stanton, R., & Rebar, A. L. (2020). Helping people with Parkinson disease build exercise self-efficacy. *Physical Therapy*, *100*(2), 205-208.

Stypa, V., Haussermann, P., Fleiner, T., & Neumann, S. (2020). Validity and reliability of the German quality of life–Alzheimer's disease (QoL-AD) self-report scale. *Journal of Alzheimer's Disease*, *77*(2), 581–590.

Tagai, K., Nagata, T., Shinagawa, S., & Shigeta, M. (2020). Anosognosia in patients with Alzheimer's disease: Current perspectives. *Psychogeriatrics*, *20*(3), 345-352.

Tan, F. C. J. H., Oka, P., Dambha-Miller, H., & Tan, N. C. (2021). The association between self-efficacy and self-care in essential hypertension: A systematic review. *BMC Family Practice*, *22*, 1-12.

Tarawneh, R., & Holtzman, D. M. (2012). The clinical problem of symptomatic Alzheimer's disease and mild cognitive impairment. *Cold Spring Harbor Perspectives in Medicine*, *2*(5).

Tonga, J. B., Benth, J. Š., Arnevik, E. A., Werheid, K., Korsnes, M. S., & Ulstein, I. D. (2021). Managing depressive symptoms in people with mild cognitive impairment and mild dementia with a multicomponent psychotherapy intervention: A randomized controlled trial. *International Psychogeriatrics*, *33*(3), 217-231.

Tripathi, R. K., & Tiwari, S. C. (2009). Psychotherapeutic approaches in the management of elderlies with dementia an overview. *Delhi Psychiatry J*, *12*(1), 31-41.

Wilhelm, S., Phillips, K. A., Greenberg, J. L., O'Keefe, S. M., Hoeppner, S. S., Keshaviah, A., & Schoenfeld, D. A. (2019). Efficacy and posttreatment effects of therapist-delivered cognitive behavioral therapy vs supportive psychotherapy for adults with body dysmorphic disorder: A randomized clinical trial. *JAMA Psychiatry*, *76*(4), 363-373.

Zhao, Q. F., Tan, L., Wang, H. F., Jiang, T., Tan, M. S., Tan, L., & Yu, J. T. (2016). The prevalence of neuropsychiatric symptoms in Alzheimer's disease: Systematic review and meta-analysis. *Journal of Affective Disorders*, *190*, 264-271.

Zimmerman, S., Sloane, P. D., Williams, C. S., Reed, P. S., Preisser, J. S., Eckert, J. K., & Dobbs, D. (2005). Dementia care and quality of life in assisted living and nursing homes. *The Gerontologist*, *45*(suppl_1), 133-146.

APPENDIX A

IRB Approval Letter

Date: March 16, 2023

PI: Harrison Adams

Department: 2090-Psychology, 20900-Psychology-Chair

Re: Initial - IRB-2023-12

Mental Confidence in Dementia

The Abilene Christian University Institutional Review Board has rendered the decision below for Mental Confidence in Dementia. The approval is effective starting March 2, 2023.

Admin Check-in Date:

Expiration Date:

Decision: Approved

Category: 7. Research on individual or group characteristics or behavior (including, but not limited to, research on: perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Research Notes:

Additional Approvals/Instructions:

Upon completion of this study, please submit the Inactivation Form within 30 days of study completion. If you wish to make any changes to this study, including but not limited to changes in study personnel, number of participants recruited, changes to the consent form or process, and/or changes in overall methodology, please complete the Modification Form. If any problems develop with the study, including any unanticipated events that may change the risk profile of your study or if there were any unapproved changes in your protocol, please inform the Office of Research and Sponsored Programs and the IRB promptly using the Incident Report Form. All approval letters and study documents are located within the Study Details in Cayuse IRB.

The following are all responsibilities of the Primary Investigator (PI). Violation of these responsibilities may result in suspension or termination of research by the Institutional Review Board. If the Primary Investigator is a student and fails to fulfill any of these responsibilities, the Faculty Advisor then becomes responsible for completing or upholding any and all of the following:

- If there are any changes in the research (including but not limited to change in location, members of the research team, research procedures, number of participants, target population of participants, compensation, or risk), these changes must be approved by the IRB prior to implementation.
- Report any protocol deviations or unanticipated problems to the IRB promptly according to IRB policy.
- Should the research continue past the expiration date, submit a Continuing Review Form approximately 30 days before the expiration date.

- When the research is completed, inform the Office of Research and Sponsored Programs. If your study is Expedited or Full Board, submit an Inactivation Form.
- According to ACU policy, research data must be stored on ACU campus (or electronically) for 3 years from inactivation of the study, in a manner that is secure but accessible should the IRB request access.
- It is the Investigator's responsibility to maintain a general environment of safety for all research participants and all members of the research team. All risks to physical, mental, and emotional well-being as well as any risks to confidentiality should be minimized.

For additional information on the policies and procedures above, please visit the IRB website http://www.acu.edu/community/offices/academic/orsp… or email orsp@acu.edu with your questions.

Sincerely,

Abilene Christian University Institutional Review Board

APPENDIX B

Informed Consent

Abilene Christian University Institutional Review Board Informed Consent Form

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose, benefits, and risks of the study and how it will be conducted.

Title of Study: Mental Confidence in Dementia

Student Investigator: Harrison Adams, B.S., Abilene Christian University (ACU) Department of Psychology

Supervising Investigator: Scott Perkins, Ph.D.

You are invited to take part in a research study. This form provides important information about the study, including risks and benefits to you, as a potential participant. Please read this information carefully and ask any questions that you may have regarding the procedures, your involvement, and any risks or benefits you may experience. You may also wish to discuss your participation with other people, such as family members or doctors. Please let the researcher know if you are participating in any other research studies.

Also, please note that your participation is entirely voluntary. You may decline to participate or withdraw from the study at any time or for any reason without penalty or loss of benefits to which you are otherwise entitled.

Please contact the Principal Investigator if you have any questions or concerns regarding this study, or if you wish to withdraw from this study at a later time. Contact information for the Principal Investigator is provided at the end of this form.

Purpose of the Study: The purpose of this study is to examine the relationship among a number of cognitive abilities, including memory, problem-solving, and information transfer with quality of life. Information obtained in this study will help researchers and clinicians better understand the effect cognitive performance has on a person's quality of life. This study has been specifically designed to examine these effects among people with dementia, as these individuals have not been heavily utilized previously in research focusing on these issues.

Study Procedures: You will be asked to complete a series of tests and questionnaires pertaining to your ability to solve problems, complete daily tasks, and think independently. The study will take approximately an hour of your time. Some sample items included in the questionnaires are "How confident are you right now that you can: feel hopeful about the future", "How confident are you right now that you can: make friends", and "How confident are you right now that you can: deal with losing someone close to you.

After agreeing to participate in this study, all participants will complete an initial cognitive assessment battery that includes oral and handwritten portions. This is expected

to require 45 minutes to complete. Secondly, you will be asked to complete a series of questionnaires regarding your quality of life for 15 minutes.

No experimental procedures are being utilized in this study. You may withdraw your participation at any point during the study. Researchers deserve the right to terminate your participation if they believe it is no longer in your best interest to continue in the study or if you fail to generally follow the instructions provided. Your participation may also end if the study is terminated early for any reason. In the event of termination, you will be contacted by the primary investigator and provided specific information regarding the status of the study and your participation.

Foreseeable Risks: One possible risk is a breach of confidentiality. If a breach of confidentiality were to occur, you will be notified within 24hrs of the breach by the primary investigator. Personal information such as Name, Address, Telephone number, Fax number, Email, Social security number, Medical record number, Health plan number, Finger prints, Identifiable photos, or Any other elements that could be used to re-identify someone will not be collected. It is also possible you may experience a mild degree of frustration, as completing cognitive assessment procedures can be frustrating, primarily since these tests are designed to assess a person's maximum ability to remember, process information, and apply knowledge. Thus, it is unlikely that participants will correctly answer all testing items.

No physical, social, legal, or economic risks are anticipated as a result of your participation in this study. In designing this study, the principal investigators have taken steps to minimize the risks associated with your participation. However, if you experience any problems you may contact the principal investigators, Harrison Adams hla17a@acu.edu (email) or Scott Perkins at perkinss@acu.edu (email).

If you do experience feelings of discomfort, you may contact the supervising investigator, who can refer you to services for counseling. Additionally, you may contact an information and referral service through NAMI (National Alliance on Mental Illness): 800-950-6264 (tel); www.nami.org (website). Additionally, you may also choose to stop participation at any point throughout the survey.

Potential Benefits: This study is not expected to be of any direct benefit to you but may contribute to the growing body of knowledge surrounding the Alzheimer's Disease experience. Your contribution to this body of knowledge could lead to an increased understanding about how positive and negative Alzheimer's Disease impacts the person's mental health confidence, which would help researchers or practitioners to better care for their patients.

Compensation: No compensation will be awarded for participation in this study.

Confidentiality: Your participation and the information collected for this study will be confidential. The confidentiality of your individual data will be maintained in any

publications or presentations regarding this study. Only aggregated data from the questionnaires will be presented publicly or reported in subsequent publications. All research materials will be kept secure by utilizing a password protected USB to store data. Only the investigators will have access to these materials. Confidentiality will be maintained to the degree possible given the technology and practices used by the investigators and participating staff members.

Questions about the Study: If you have any questions about the study, you may contact Harrison Adams hla17a@acu.edu (email) or Scott Perkins at perkinss@acu.edu (email).

Review for the Protection of Participants: If you have concerns about this study, believe you may have been injured because of this study, or have general questions about your rights as a research participant, you may contact ACU's Executive Director of Research, Qi Hang, at qxh22a@acu.edu.

Research Participants' Rights:

You have read or have had read to you all of the above and you confirm all of the following:

- You understand the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits.
- You understand why the study is being conducted and how it will be performed.

- You understand your rights as a research participant, and you voluntarily consent to participate in this study

Please sign this form if you voluntarily agree to participate in this study. Sign only after you have read all of the information provided and your questions have been answered to your satisfaction. You should receive a copy of this signed consent form. You do not waive any legal rights by signing this form

X_____ _____

Signature Date

APPENDIX C

Windcrest Admission Criteria

Pre-admission Criteria for all stages:

1. Medical diagnosis of Alzheimer's disease or related disorder
2. Physicians' Approval
3. Absence of sever personality disorder. A psychiatric evaluation may be required
4. Family consent and agreement to the operating polices and philosophy of SCU
5. Needs of the resident must be within of the following three groups:

A. Requires assistance to functioning a familiar surroundings and can respond to instruction
B. Requires assistance to function and can not respond to direction alone
C. Requires assistance to function and can not communicate verbally in a reasonable fashion

Admission Criteria for Living in Unit 1

1. Meets pre-admission criteria
2. Continent of bowel and bladder, may require verbal prompts for toileting
3. Ambulatory, may use walker
4. May need supervision for bathing, dressing, grooming, etc.
5. Must be independent for eating ability
6. Psychosocial needs more evident than medical needs
7. Must be able to follow cues

8. May not presently exhibit or have a history of disruptive behavior problems

Admission Criteria for Living in Unit 2

1. Meets pre-admission criteria
2. Minimal incontinence allowed, but must be manageable
3. Independent with locomotion, whether with wheelchair or ambulation
4. May require moderate to maximum assistance with certain phases of activities of daily living, to be determined by assessment team
5. May not presently exhibit or have a history of disruptive behavior
6. Psychosocial needs more evident that medical needs

APPENDIX D

Off-Site Agreement Form

ABILENE CHRISTIAN UNIVERSITY

Hello,

I am doing my graduate thesis entitled "Mental Confidence in Dementia". The purpose of the thesis is to examine the relationship among a number of cognitive abilities, including memory, problem-solving, and information transfer with quality of life. I am hoping that doing this could help clinicians in the future better understand the effect cognitive performance has on a person's quality of life.

Thank you for your interest in helping with my graduate thesis, please contact me at hla17a@acu.edu if you have any more questions.

Sincerely,

Harrison Adams
Graduate Student

Signature of Signatory Official of Participating Institution:

Amanda Williams Date: 2/20/2023

Print Full Name: Amanda Williams Institutional Title: Rn Dons

APPENDIX E

Montreal Cognitive Assessment (MoCA)

Version 8.1

Administration and Scoring Instructions

The Montreal Cognitive Assessment (MoCA) was designed as a rapid screening instrument for mild cognitive dysfunction. It assesses different cognitive domains: attention and concentration, executive functions, memory, language, visuoconstructional skills, conceptual thinking, calculations, and orientation. The MoCA may be administered by anyone who understands and follows the instructions, however, only a health professional with expertise in the cognitive field may interpret the results. Time to administer the MoCA is approximately 10 minutes. The total possible score is 30 points; a score of 26 or above is considered normal.

All instructions may be repeated once.

1. Alternating Trail Making:

Administration: The examiner instructs the subject: *"Please draw a line going from a number to a letter in ascending order. Begin here* [point to (1)] *and draw a line from 1 then to A then to 2 and so on. End here* [point to (E)]."

Scoring: One point is allocated if the subject successfully draws the following pattern: 1- A- 2- B- 3- C- 4- D- 5- E, without drawing any lines that cross. Any error that is not immediately self-corrected (meaning corrected before moving on

to the Cube task) earns a score of 0. A point is not allocated if the subject draws a line to connect the end (E) to the beginning (1).

2. Visuoconstructional Skills (Cube):

Administration: The examiner gives the following instructions, pointing to the cube: "*Copy this drawing as accurately as you can."*

Scoring: One point is allocated for a correctly executed drawing.

• Drawing must be three-dimensional.

• All lines are drawn.

• All lines meet with little or no space.

• No line is added.

• Lines are relatively parallel and their length is similar (rectangular prisms are accepted).

• The cube's orientation in space must be preserved.

A point is not assigned if any of the above criteria is not met.

3. Visuoconstructional Skills (Clock):

Administration: The examiner must ensure that the subject does not look at his/her watch while performing the task and that no clocks are in sight. The examiner indicates the appropriate space and gives the following instructions: *"Draw a clock. Put in all the numbers and set the time to 10 past 11."*

Scoring: One point is allocated for each of the following three criteria:

• Contour (1 pt.): the clock contour must be drawn (either a circle or a square). Only minor distortions are acceptable (e.g., slight imperfection on closing the

circle). If the numbers are arranged in a circular manner but the contour is not drawn the contour is scored as incorrect.

• Numbers (1 pt.): all clock numbers must be present with no additional numbers. Numbers must be in the correct order, upright and placed in the approximate quadrants on the clock face. Roman numerals are acceptable. The numbers must be arranged in a circular manner (even if the contour is a square). All numbers must either be placed inside or outside the clock contour. If the subject places some numbers inside the clock contour and some outside the clock contour, (s)he does not receive a point for Numbers. • Hands (1 pt.): there must be two hands jointly indicating the correct time. The hour hand must be clearly shorter than the minute hand. Hands must be centered within the clock face with their junction close to the clock center.

4. Naming:

Administration: Beginning on the left, the examiner points to each figure and says: *"Tell me the name of this animal."*

Scoring: One point is given for each of the following responses: (1) lion (2) rhinoceros or rhino (3) camel or dromedary.

5. Memory:

Administration: The examiner reads a list of five words at a rate of one per second, giving the following instructions*: "This is a memory test. I am going to read a list of words that you will have to remember now and later on. Listen carefully. When I am through, tell me as many words as you can remember. It doesn't matter in what order you say them."* The examiner marks a check in the

allocated space for each word the subject produces on this first trial. The examiner may not correct the subject if (s)he recalls a deformed word or a word that sounds like the target word. When the subject indicates that (s)he has finished (has recalled all words), or can recall no more words, the examiner reads the list a second time with the following instructions: *"I am going to read the same list for a second time. Try to remember and tell me as many words as you can, including words you said the first time."* The examiner puts a check in the allocated space for each word the subject recalls on the second trial. At the end of the second trial, the examiner informs the subject that (s)he will be asked to recall these words again by saying: *"I will ask you to recall those words again at the end of the test."*

Scoring: No points are given for Trials One and Two.

6. Attention:

Forward Digit Span: Administration: The examiner gives the following instructions: "*I am going to say some numbers and when I am through, repeat them to me exactly as I said them.*" The examiner reads the five number sequence at a rate of one digit per second.

Backward Digit Span: Administration: The examiner gives the following instructions: "*Now I am going to say some more numbers, but when I am through you must repeat them to me in the backward order.*" The examiner reads the three number sequence at a rate of one digit per second. If the subject repeats the sequence in the forward order, the examiner may not ask the subject to repeat the sequence in backward order at this point.

Scoring: One point is allocated for each sequence correctly repeated (N.B.: the correct response for the backward trial is 2-4-7).

Vigilance: Administration: The examiner reads the list of letters at a rate of one per second, after giving the following instructions: "*I am going to read a sequence of letters. Every time I say the letter A, tap your hand once. If I say a different letter, do not tap your hand.*"

Scoring: One point is allocated if there is zero to one error (an error is a tap on a wrong letter or a failure to tap on letter A).

Serial 7s: Administration: The examiner gives the following instructions: *"Now, I will ask you to count by subtracting 7 from 100, and then, keep subtracting 7 from your answer until I tell you to stop."* The subject must perform a mental calculation, therefore, (s)he may not use his/her fingers nor a pencil and paper to execute the task. The examiner may not repeat the subject's answers. If the subject asks what her/his last given answer was or what number (s)he must subtract from his/her answer, the examiner responds by repeating the instructions if not already done so.

Scoring: This item is scored out of 3 points. Give no (0) points for no correct subtractions, 1 point for one correct subtraction, 2 points for two or three correct subtractions, and 3 points if the subject successfully makes four or five correct subtractions. Each subtraction is evaluated independently; that is, if the subject responds with an incorrect number but continues to correctly subtract 7 from it, each correct subtraction is counted. For example, a subject may respond "92 – 85

– 78 – 71 – 64" where the "92" is incorrect, but all subsequent numbers are subtracted correctly. This is one error and the task would be given a score of 3.

7. Sentence repetition:

Administration: The examiner gives the following instructions: *"I am going to read you a sentence. Repeat it after me, exactly as I say it* [pause]: ***I only know that John is the one to help today."*** Following the response, say: *"Now I am going to read you another sentence. Repeat it after me, exactly as I say it* [pause]: ***The cat always hid under the couch when dogs were in the room."***

Scoring: One point is allocated for each sentence correctly repeated. Repetitions must be exact. Be alert for omissions (e.g., omitting "only"), substitutions/additions (e.g., substituting "only" for "always"), grammar errors/altering plurals (e.g. "hides" for "hid"), etc.

8. Verbal fluency:

Administration: The examiner gives the following instructions: *"Now, I want you to tell me as many words as you can think of that begin with the letter F. I will tell you to stop after one minute. Proper nouns, numbers, and different forms of a verb are not permitted. Are you ready?* [Pause] [Time for 60 sec.] *Stop."* If the subject names two consecutive words that begin with another letter of the alphabet, the examiner repeats the target letter if the instructions have not yet been repeated.

Scoring: One point is allocated if the subject generates 11 words or more in 60 seconds. The examiner records the subject's responses in the margins or on the back of the test sheet.

9. Abstraction:

Administration: The examiner asks the subject to explain what each pair of words has in common, starting with the example: *"I will give you two words and I would like you to tell me to what category they belong to* [pause]: *an orange and a banana.*" If the subject responds correctly the examiner replies: *''Yes, both items are part of the category Fruits.''* If the subject answers in a concrete manner, the examiner gives one additional prompt: *"Tell me another category* to *which these items belong to."* If the subject does not give the appropriate response *(fruits)*, the examiner says: *"Yes, and they also both belong to the category Fruits."* No additional instructions or clarifications are given. After the practice trial, the examiner says: *"Now, a train and a bicycle."* Following the response, the examiner administers the second trial by saying: *"Now, a ruler and a watch."* A prompt (one for the entire abstraction section) may be given if none was used during the example.

Scoring: Only the last two pairs are scored. One point is given for each pair correctly answered. The following responses are acceptable:

- train-bicycle = means of transportation, means of traveling, you take trips in both - ruler-watch = measuring instruments, used to measure

The following responses are **not** acceptable:

- train-bicycle = they have wheels

- ruler-watch = they have numbers

10. Delayed recall:

Administration: The examiner gives the following instructions: *"I read some words to you earlier, which I asked you to remember. Tell me as many of those words as you can remember."* The examiner makes a check mark (√) for each of the words correctly recalled spontaneously without any cues, in the allocated space.

Scoring: **One point is allocated for each word recalled freely without any cues.**

Memory index score (MIS):

Administration: Following the delayed free recall trial, the examiner provides a category (semantic) cue for each word the subject was unable to recall. Example: ''*I will give you some hints to see if it helps you remember the words, the first word was a body part*.'' If the subject is unable to recall the word with the category cue, the examiner provides him/her with a multiple choice cue. Example: *"Which of the following words do you think it was, NOSE, FACE, or HAND?"* All non-recalled words are prompted in this manner. The examiner identifies the word the subject was able to recall with the help of a cue (category or multiple-choice) by placing a check mark (✓) in the appropriate space. The cues for each word are presented below:

Target Word	**Category Cue**	**Multiple Choice**
FACE	Body part	Nose, face, hand
VELVET	Type of fabric	Denim, velvet, cotton
CHURCH	Type of building	Church, school, hospital
DAISY	Type of flower	Rose, daisy, tulip

RED	Color	Red, blue, green

Scoring: To determine the MIS (which is a sub-score), the examiner attributes points according to the type of recall (see table below). The use of cues provides clinical information on the nature of the memory deficits. For memory deficits due to the retrieval failures, performance can be improved with a cue. For memory deficits to encoding failures, performance does not improve with a cue.

MIS Scoring				**Total**
Number of words recalled spontaneously	…	Multiplied by	3	…
Number of words recalled with a category cue	…	Multiplied by	2	…
Number of words recalled with a multiple choice cue	…	Multiplied by	1	…
	Total MIS			**___/15**

11. Orientation

Administration: The examiner gives the following instructions: "*Tell me today's date.*" If the subject does not give a complete answer, the examiner prompts accordingly by saying: *"Tell me the [year, month, exact date, and day of the week]."* Then the examiner says: *"Now, tell me the name of this place, and which city it is in."*

Scoring: One point is allocated for each item correctly answered. The date and place (name of hospital, clinic, office) must be exact. No points are allocated if the subject makes an error of one day for the day and date.

TOTAL SCORE: Sum all subscores listed on the right-hand side. Add one point for subjects who have 12 years or fewer of formal education, for a possible maximum of 30 points. A final total score of 26 and above is considered normal.

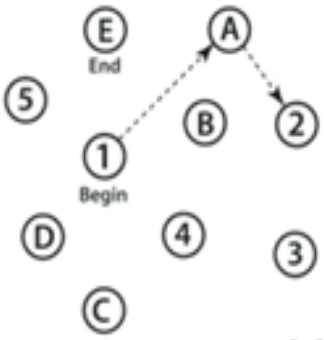
Please refer to the MoCA website at www.mocatest.org for more information on the MoCA.

MONTREAL COGNITIVE ASSESSMENT (MOCA®)

Version 8.1 English

Name:
Education: Date of birth:
Sex: DATE:

VISUOSPATIAL / EXECUTIVE



[ ]

Copy cube

[ ]

Draw CLOCK (Ten past eleven)
(3 points)

[ ] Contour [ ] Numbers [ ] Hands

POINTS __/5

NAMING

[ ]

[ ]

[ ]

__/3

MEMORY

Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1ST TRIAL					
2ND TRIAL					

NO POINTS

ATTENTION

Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order. [ ] 2 1 8 5 4

Subject has to repeat them in the backward order. [ ] 7 4 2

__/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B

__/1

Serial 7 subtraction starting at 100. [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65

4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct: **1 pt**, 0 correct: **0**

__/3

LANGUAGE

Repeat: I only know that John is the one to help today. [ ]

The cat always hid under the couch when dogs were in the room. [ ]

__/2

Fluency: Name maximum number of words in one minute that begin with the letter F. [ ] _____ (N ≥ 11 words)

__/1

ABSTRACTION

Similarity between e.g. banana - orange = fruit [ ] train - bicycle [ ] watch - ruler

__/2

DELAYED RECALL

Memory Index Score (MIS)

(MIS)	Has to recall words WITH NO CUE	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCUED recall only
X3		[ ]	[ ]	[ ]	[ ]	[ ]	
X2	Category cue						MIS = ____/15
X1	Multiple choice cue						

__/5

ORIENTATION

[ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City

__/6

www.mocatest.org

Administered by: _____

Training and Certification are required to ensure accuracy

MIS: /15
(Normal ≥ 26/30)
Add 1 point if ≤ 12 yr edu

TOTAL __/30

APPENDIX F

Quality of Life in Alzheimer's Disease (QoL-AD)

Instructions for Interviewers

The QOL-AD is administered in interview format to individuals with dementia, following the instructions below. The interview is carried out with the subject and/or an informant. The subject should be interviewed alone.

Hand the form to the participant, so that he or she may look at it as you give the following instructions (instructions should closely follow the wording given in bold type):

I want to ask you some questions about your quality of life and have you rate different aspects of your life using one of four words: poor, fair, good, or excellent.

Point to each word (poor, fair, good, and excellent) on the form as you say it.

When you think about your life, there are different aspects, like your physical health, energy, family, money, and others. I'm going to ask you to rate each of these areas. We want to find out how you feel about your current situation in each area. If you're not sure about what a question means, you can ask me about it. If you have difficulty rating any item, just give it your best guess.

It is usually apparent whether an individual understands the questions, and most individuals who are able to communicate and respond to simple questions can understand the measure. If the participant answers all questions the same, or says something that indicates a lack of understanding, the interviewer is encouraged to clarify the question.

However, under no circumstances should the interviewer suggest a specific response. Each of the four possible responses should be presented, and the participant should pick one of the four.

If a participant is unable to choose a response to a particular item or items, this should be noted in the comments. If the participant is unable to comprehend and/or respond to two or more items, the testing may be discontinued, and this should be noted in the comments.

As you read the items listed below, ask the participant to circle her/his response. If the participant has difficulty circling the word, you may ask her/him to point to the word or say the word, and you may circle it for him or her. You should let the participant hold his or her own copy of the measure, and follow along as you read each item.

1. **First of all, how do you feel about your physical health? Would you say it's poor, fair, good, or excellent? Circle whichever word you think best describes your physical health right now.**

2. **How do you feel about your energy level? Do you think it is poor, fair, good, or excellent?** If the participant says that some days are better than others, ask him or her to rate how she/he has been feeling most of the time lately.

3. **How has your mood been lately? Have your spirits been good, or have you been feeling down? Would you rate your mood as poor, fair, good, or excellent?**

4. **How about your living situation? How do you feel about the place you live now? Would you say it's poor, fair, good, or excellent?**

5. **How about your memory? Would you say it is poor, fair, good, or excellent?**

6. **How about your family and your relationship with family members? Would you describe it as poor, fair, good, or excellent?** If the respondent says they have no family, ask about brothers, sisters, children, nieces, nephews.

7. **How do you feel about your marriage? How is your relationship with (spouse's name). Do you feel it's poor, fair, good, or excellent?** Some participants will be single, widowed, or divorced. When this is the case, ask how they feel about the person with whom they have the closest relationship, whether it's a family member or friend. If there is a family caregiver, ask about their relationship with this person. If there is no one appropriate, or the participant is unsure, score the item as missing.

8. **How would you describe your current relationship with your friends? Would you say it's poor, fair, good, or excellent?** If the respondent answers that they have no friends, or all their friends have died, probe further. **Do you have anyone you enjoy being with besides your family? Would you call that person a friend?** If the respondent still says they have no friends, ask **how do you feel about having no friends—poor, fair, good, or excellent?**

9. **How do you feel about yourself—when you think of your whole self, and all the different things about you, would you say it's poor, fair, good, or excellent?**

10. **How do you feel about your ability to do things like chores around the house or other things you need to do? Would you say it's poor, fair, good, or excellent?**

11. **How about your ability to do things for fun that you enjoy? Would you say it's poor, fair, good, or excellent?**

12. **How do you feel about your current situation with money, your financial situation? Do you feel it's poor, fair, good, or excellent?** If the respondent hesitates,

explain that you don't want to know what their situation is (as in amount of money), just how they feel about it.

13. **How would you describe your life as a whole? When you think about your life as a whole, everything together, how do you feel about your life? Would you say it's poor, fair, good, or excellent?**

Scoring instructions for QOL-AD:

Points are assigned to each item as follows: poor = 1, fair = 2, good = 3, excellent = 4.

The total score is the sum of all 13 items.

UWMC/ADPR/QOL Aging and Dementia **Quality of Life in AD** (participant Version)					Score (for clinician's use only)
ID Number Assessment Number Interview Date					
Instructions: Interviewer administer according to standard instructions. Circle your response					
1. Physical Health	Poor	Fair	Good	Excellent	
2. Energy	Poor	Fair	Good	Excellent	
3. Mood	Poor	Fair	Good	Excellent	
4. Living Situations	Poor	Fair	Good	Excellent	
5. Memory	Poor	Fair	Good	Excellent	
6. Family	Poor	Fair	Good	Excellent	
7. Marriage	Poor	Fair	Good	Excellent	
8. Friends	Poor	Fair	Good	Excellent	
9. Self as a whole	Poor	Fair	Good	Excellent	
10. Ability to do chorus around the house	Poor	Fair	Good	Excellent	
11. Ability to do things for fun	Poor	Fair	Good	Excellent	
12. Money	Poor	Fair	Good	Excellent	
13. Life as a whole	Poor	Fair	Good	Excellent	
Comments:					Total

Score Summary Sheet

Informant's score of subject's QoL ☐(Maximum 52)

Subject's own QoL rating ☐(Maximum 52)

APPENDIX G

Mental Health Confidence Scale (MHCS)

Directions: Rate the degrees of your confidence by circling a number from 1 to 6, where 1 = very nonconfident and 6 = very confident

How confident are you right now that you can:	Very Nonconfident	Nonconfident	Slightly Nonconfident	Slightly Confident	Confident	Very Confident
1. Be happy	1	2	3	4	5	6
2. Feel hopeful about the future	1	2	3	4	5	6
3. Set goals for yourself	1	2	3	4	5	6
4. Get support when you need it	1	2	3	4	5	6
5. Boost your self-esteem	1	2	3	4	5	6
6. Make friends	1	2	3	4	5	6
7. Stay out of the hospital	1	2	3	4	5	6
8 Face a bad day	1	2	3	4	5	6
9. Deal with losing someone close to you	1	2	3	4	5	6
10. Deal with feeling depressed	1	2	3	4	5	6
11. Deal with feeling lonely	1	2	3	4	5	6
12. Deal with feeling nervous	1	2	3	4	5	6

13. Deal with symptoms related to your mental illness diagnosis	1	2	3	4	5	6
14. Say no to a person abusing you	1	2	3	4	5	6
15. Use your right to accept and reject mental health treatment	1	2	3	4	5	6
16. Advocate for your needs	1	2	3	4	5	6

Total Score: _____