ENHANCING THE SPIRITUAL WELL-BEING OF ALZHEIMER'S PATIENTS UTILIZING MUSIC

by Sheri K. Heeb

A Thesis Presented in Partial Fulfillment

Of the Requirements for the Degree

Master of Arts in Music and Worship

Liberty University, Lynchburg, VA

April 2017

APPROVED BY:

Keith A. Currie, Ed D, Assistant Professor of Graduate Music, Committee Chair

Rodney D. Whaley, D.Min., Assistant Professor of Worship Studies, Committee Member

Vernon M. Whaley, PhD. Dean of the School of Music

CONTENTS

ACKNOWLEDGEMENTS

The process of pursuing my master's degree in music has been a remarkable journey which requires acknowledgement and thanks to so many. I want to thank all the Liberty University professors who patiently guided me through my studies and answered my endless questions throughout the last three years. A special thanks to my advisor, Dr. Keith Currie and my reader Dr. Rodney D.Whaley for their advice and guidance as I worked on my thesis. I would also like to thank my church family at Grace Missionary Church for their financial and prayer support and Pastor Brett Sauder for his patience as I balanced school and my duties as Worship Director. My sister, Robin Gilstrap, who served as a proofreader on portions of my thesis and all my family members who listened without complaint as I constantly talked about school.

Most importantly, I want to thank my husband John Heeb who has patiently supported me throughout the last three years as I have trudged through the many hours of reading, writing papers, discussion forums and intensive classes. You picked up the slack when things fell by the wayside for me to get that one last assignment submitted. And finally, for being my tireless proofreader on every paper I submitted including this thesis. God has blessed me beyond measure when he blessed me with you for a husband.

Only through God's grace,

Sheri K. Heeb

ABSTRACT

Over 40 million people have some form of dementia. Alzheimer's Disease "is the sixth leading cause of death in the United States."[1] The non-pharmaceutical approaches in this study do not have the side-effects of many of the therapies currently being used for treating Alzheimer's Disease. As part of this project I will reference multiple research studies which include spirituality and Alzheimer's Disease, the Nun Study of the Sisters of Notre Dame, and music therapy and Alzheimer's Disease. Results show that music therapy boosts the memory, reduces anxiety and behavioral issues, and restores a sense of self-awareness. Other studies show that those patients with a spiritual connection to God receive reassurance through prayer, Bible reading, and staying connected with fellow worshippers. The combination of music therapy and spiritual support can greatly enhance the spiritual well-being of those with Alzheimer's Disease.

Keywords: Alzheimer's Disease, music therapy, spiritual well-being, Dementia

[1] "2016 ALZHEIMER'S DISEASE FACTS AND FIGURES," Alzheimer's Association, http://www.alz.org/facts/overview.asp (accessed February 24, 2017).

CHAPTER I: INTRODUCTION

Introduction

Dementia, just the word itself instills fear. A growing number of elderly are suffering from this debilitating condition. Estimates are that worldwide 46.9 million people have some form of dementia.[2] Per the Global Voice on Dementia website, that number will double every 20 years with "9.9 million new cases of Dementia each year worldwide."[3] Dementia does not care if one is male or female or about one's ethnic origin. It crosses the divide among agnostic, atheist, Buddhist, Christian, Judaism, Islam or any other belief system that one can engage in or imagine. The various forms of dementia slowly invade and work their way to a devastating end.

Definition

Dementia is a generic term derived from the Latin "de" (to depart) and "mens" (mind).[4] The term "dementia" describes several progressive and organic brain diseases. In other words, "dementia is not the disease; it is one of the symptoms of the disease."[5] Each has their unique characteristics, which include loss of short-term memory and cognitive

---

[2] Frederick Earlstein, *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* (Nevada.: NRB Publishing, ©2016), Kindle Edition, loc. 30.

[3] "Dementia Statistics," The Global Voice on Dementia, accessed December 28, 2016, https://www.alz.co.uk/research/statistics.

` [4] Frederick Earlstein, *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* (Nevada.: NRB Publishing, ©2016), Kindle Edition, loc. 184.

[5] Gary Joseph LeBlanc, *Managing Alzheimer's and Dementia Behaviors: Common Sense Caregiving* (Outskirts Press, 2012), Kindle Edition, loc. 307.

functioning.[6] Dementia is considered one of the oldest diseases in the world.[7]Aristotle, a 4th century B.C. philosopher, wrote about dementia in his medical journals. Aristotle believed that dementia was "normal and even inevitable, among the elderly."[8] In the 1st century B.C., Cicero, a prominent statesman in Rome, believed dementia "affected only those old men who were weak-willed."[9] In this study, we will learn that both of these assumptions are false.

There are approximately 48 different types of diseases of the brain labeled as "dementia.[10] These diseases are divided into two broad categories: Non-Alzheimer's and Alzheimer's dementias. The Non-Alzheimer dementias include Lewy body dementia, Parkinson's disease; vascular dementia; and frontotemporal dementia.[11] The most common form of dementia is Alzheimer's Disease. According to the Alzheimer's Association, 60-80% of all dementia patients have Alzheimer's Disease.[12] It is a slow-

[6] Clive Holmes and Jay Amin, "Dementia," *Medicine* 44, 1357-3039, no. 11 (November 2016): 687-90.

[7] Frederick Earlstein, *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* (Nevada.: NRB Publishing, ©2016), Kindle Edition, loc. 132.

[8] Ibid. 250.

[9] Ibid.

[10] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 2.

[11] Arvid Rongve, MD, Ph.D., Clive Ballard, MD, Ph.D., and Dag Aarsland, MD, Ph.D., "Non-Alzheimer Dementias," *Journal of Geriatric Psychiatry and Neurology* 29 (2016): 247-48.

[12] "Alzheimer's and Dementia: What is Alzheimer's," Alzheimer's Association, http://www.alz.org/alzheimers_disease_what_is_alzheimers.asp (accessed February 5, 2017).

moving disease that affects mostly only those 65 and older. However, there are cases of early onset as soon as 40 to 50 years of age.[13] There is no cure.

Signs and Symptoms

Providing an accurate medical history is important when assessing a patient with dementia. Many times, the patient is unable to provide this information because of their cognitive decline. To receive the label of "dementia" the disease must affect two or more of the four lobes of the brain[14] and significantly impact two of the five core mental functions which include: “memory; the ability to focus and pay attention; communication and language; reasoning and judgment; and visual perception.”[15]

While memory loss is central to many forms of dementia, in some cases the memory is not impacted.[16] Communication involves the inability to remember words or meanings. Performing complex functions such as zipping a zipper or buttoning a shirt can become daunting for the afflicted. The inability to recognize and know how to use common objects is another symptom. A complication to the accurate diagnosis of what type of dementia a patient has is that there tends to be cross-over between the various types of dementia and this makes diagnosis more difficult.[17]

---

[13] “Alzheimer's and Dementia: What is Alzheimer's,” Alzheimer's Association, http://www.alz.org/alzheimers_disease_what_is_alzheimers.asp (accessed February 5, 2017).

[14] Ibid.

[15] Frederick Earlstein, *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* (Nevada.: NRB Publishing, ©2016), Kindle Edition, loc. 195.

[16] Joseph F. Quinn, ed., *Dementia*, Neurology in Practice (Chichester, West Sussex: Wiley-Blackwell, 2013), 1.

[17] Arvid Rongve, MD, Ph.D., Clive Ballard, MD, Ph.D., and Dag Aarsland, MD, Ph.D., "Non-Alzheimer Dementias," *Journal of Geriatric Psychiatry and Neurology* 29 (2016): 247-48.

Dramatic changes in personality can occur, and the afflicted person may become delusional. Aggressive and violent behaviors have also been recorded or to the opposite extreme, apathy. In advance stages, immobility and incontinence become problematic as well as the inability to swallow which is a life-threatening issue. The most common causes of death are the inability to breathe and or pneumonia. [18]

Since the process of disease progression is so slow, a person who initially has dementia may pass off the symptoms as momentary lapses of memory. The forgetfulness causes confusion, and the afflicted may express sudden outbursts towards those they love most because of their fear and uncertainty.[19] Immediate family members who are with the individual daily may miss key signs, but eventually, there is no denial of the more obvious symptoms.

Risk Factors

There are several factors which have been shown to contribute to the risk of dementia. Some external factors include: "Down's Syndrome, severe head trauma, high blood cholesterol, diabetes, smoking, obesity, heart disease, poor diet, and stroke."[20] Other factors include age, genetics, environment and lifestyle. The risk increases as one

[18] Malavizhi Babu Sandilyan and Tom Dening. “Signs and Symptoms of Dementia.” Nursing Standard (2014+) 29, no. 41 (Jun 10, 2015): 42.

[19] Benjamin T. Mast, Second Forgetting: Remembering the Power of the Gospel During Alzheimer's Disease (Grand Rapids, Michigan: Zondervan, 2014), 43.

[20] Ibid. loc. 408.

gets older. Lifestyle risks include excessive consumption of alcohol and smoking.[21] Genetics can also be a factor as the risk increases if a family member has the illness.

Common Myths

While it is true that dementia is more common among those that are over 65 years of age, the cause is not age itself. Not everyone gets dementia. Statistics estimate that only 5% of the population over 65 will contract some form of dementia.[22]

People who have dementia are aware of their surroundings. They just have difficulty communicating to others what they need and want. They may forget a word, forget how something functions or where to find something. When people develop dementia "they do not forget everything – they still retain some key memories."[23]

In one of my visits to a nursing home, a woman who has dementia was telling me about her bird feeders outside her window. She talked about the birds who came to visit in detail including all the different colors they were. But she was unable to remember the word for birdseed. She became frustrated as she struggled to remember that one word. The inability to remember words and their meaning is one of the struggles of dementia.

Those with dementia are not experiencing a "second childhood." Although in many ways they may seem like a child in their lack of understanding, forgetfulness, or

---

[21] Mary Miller, *Dementia: Early Diagnosis and Treatments: Causes, Signs and Symptoms, Types, Daily Care, Safe Home, Driving, Behavior* (CreateSpace Independent Publishing Platform, 2014), Kindle Edition, Loc. 605-618.

[22] Frederick Earlstein, *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* (Nevada.: NRB Publishing, ©2016), Kindle Edition, loc.214.

[23] "Alzheimer's and Dementia: What is Alzheimer's," Alzheimer's Association, http://www.alz.org/alzheimers_disease_what_is_alzheimers.asp (accessed February 5, 2017).

inability to care for themselves. But they are not children; they are adults trapped in their circumstances. Not all people with dementia are aggressive or violent. Those who do become violent are more than likely just acting out of frustration and fear. Imagine being placed into an environment where you do not recognize anything, know anyone or know what anything means. You want to remember, but the memories are just outside your reach, like a dream that fades away the longer you are awake.

Purpose of the Study

All these facts and figures are a somber start concerning a very severe condition. In this project, we will learn about the different forms of dementia, the diagnoses of the diseases, the common symptoms, treatments, and some of the risk factors associated with dementia. There are many kinds of treatments and therapies for someone who has dementia. These treatments and therapies are covered in more detail in later chapters. This study will focus primarily on Alzheimer's Disease which is the most common form of dementia and the various treatments that are being used to help delay its progression.

The purpose of this study is to show the utilization of music as a therapeutic tool to enhance the spiritual well-being of someone who has Alzheimer's Disease. Various resources can be utilized to help those suffering from this disease.

Significance of the Study

It is easy for the afflicted and their caregivers to lose hope in such a hopeless situation. Imagine the panic and confusion when someone is diagnosed with some form of dementia and realizes that they will gradually lose control of their faculties and eventually not be able to take care of themselves. The caregiver, in return, must watch the slow decline of their loved one who will eventually even forget who they are. While

the memories of the afflicted gradually fade, the caregiver's responsibility increases as the afflicted can do less and less over time.

These circumstances can become overwhelming as the caregiver struggles with fear, sadness, worry, anger and guilt along with a myriad of other feelings over their family member's condition. For some, the demands become too high, and they must turn to a long-term care facility that specializes in the care of their loved one who has dementia. It is important for us to remember that "God's grace is still present, even when the details are forgotten."[24] God does not abandon us. He cares for us in all circumstances. The mind may forget, but the soul is eternal and aware of God. Neither should we abandon those who are suffering from dementia. This study will address how church leaders can provide for the spiritual well-being of those who have Alzheimer's Disease.

[24] Benjamin T. Mast, Second Forgetting: Remembering the Power of the Gospel During Alzheimer's Disease (Grand Rapids, Michigan: Zondervan, 2014), 47.

Abbreviations

ADL	*Activities of Daily Living*
BEHAVE-AD	*Behavior Pathology in Alzheimer's Disease*
BPSD	*Behavioral and Psychological Symptoms of Dementia*
CBS	*Corticobasal Syndrome*
DAT	*Regular Onset Alzheimer's*
EEG	*Electroencephalography*
EOA	*Early Onset Alzheimer's*
FTD	*Frontotemporal Dementia*
IADL	*Instrumental activities of daily living*
LBD	*Lewy Body Dementia*
LOA	*Late Onset Alzheimer's*
MDS	*Minimum Data Set*
MMSE	*Mini-Mental State Examination*
OT	*Occupational Therapist*
PDD	*Parkinson's disease*
PHR	*Personal Health Record*
PSP	*Progressive Supranuclear Palsy*
YOA	*Younger Onset Alzheimer's*

Glossary

Activities of Daily Living (ADLs. These include eating, personal hygiene including going to the bathroom, and getting dressed. As the condition of dementia progresses, the patient will need more assistance in these areas.

Alzheimer's Disease. A form of dementia in which the afflicted will have issues with memory, thinking and behavior.

Amygdala. The portion of the brain which controls emotions.

Amyloid plaque. Also called beta-amyloid, these are toxic protein fragments which become stuck in the brain membranes.

Antidepressants. Drugs used for the treatment of depression and anxiety disorders.

Antipsychotic medications. Drugs used to treat delusions, hallucinations, paranoia or confusion.

Anxiety. A feeling of unease or nervousness.

Anxiolytics. Medication that inhibits anxiety.

Assessment. Identification of needs of a patient which is vital in determining a healthcare plan.

Auditory Cortex. Area of the brain that processes sound and gives the ability to hear.

Behavior Pathology in Alzheimer's Disease (BEHAVE-AD). A rating scale for Alzheimer patients.

Behaviors. Person's response to a situation or different types of stimulation.

Brain Plasticity. The ability for the brain to change and modify in reaction to changes in the body or external environment.

Brain stem. Connects the brain to the rest of the body and controls automatic functions, like breathing, digestion of food, heart rate, blood pressure, and helps regulate sleep and alertness.[25]

[25] "Lewy Body Dementia: Information for Patients, Families, and Professionals," National Institute on Aging, July 29, 2016, https://www.nia.nih.gov/alzheimers/publication/lewy-body-dementia/basics-lewy-body-dementia (accessed February 23, 2017).

Caregiver. Designated person who provides care to someone who is unable to care for themselves.

Cerebellum. Part of the brain which controls the muscles of the body.

Cerebral cortex. Part of the brain which controls "information processing, perception, thought, and language."[26]

Cerebrum. Composed of two hemispheres, right and left. Responsible for the functioning of the senses and the nervous system.

Corpus Callosum. Nerve fibers which connect the two hemispheres of the brain.

Corticobasal Syndrome (CBS). A progressive neurological disorder which causes stiffness and lack of coordination in the arms and legs, This usually affects only one side of the body.

Delusions.A psychotic behavior where the person is unable to tell the difference between the real and the imagined.

Dementia. Term used for several progressive and organic brain diseases.

Depression. Severe feelings of despondency and dejection.

Down's syndrome. A chromosome defect which causes slight to severe developmental disabilities.

Drug Therapy. The use of medication to treat a disease or condition.

Early Onset Alzheimer's (EOA). Term used for when Alzheimer's manifests itself before age 65. Can be employed interchangeably with Younger-Onset Alzheimer's (YOA)

Electroencephalography (EEG). A test which measures the electrical activity in the brain.

Frontotemporal Dementia (FTD). Disease which affects the frontal or temporal lobes of the brain impacting personality and behavior.

Function Impairment. Term used when the person it not working at full capacity.

---

[26] "Lewy Body Dementia: Information for Patients, Families, and Professionals," National Institute on Aging, July 29, 2016, https://www.nia.nih.gov/alzheimers/publication/lewy-body-dementia/basics-lewy-body-dementia (accessed February 23, 2017).

Hallucinations. Experiencing something that does not exist outside the mind but seems to be real to the individual experiencing it.

Hippocampus. The portion of the brain which is essential for forming memories.[27]

Instrumental activities of daily living (IADLs). Activities which allow an individual to live independently.

Iso Principle. Technique used in music therapy where the music used is matched to the patient's current mood then altered to change the mood of the patient.

Late Onset Alzheimer's (LOA). The most common form of Alzheimer's which occurs after age 65.

Lewy Body Dementia (LBD). Form of dementia caused by clumps of protein developing in the brain.

Limbic cortex. Part of the brain that helps control emotions and behavior.[28]

Long-term care facility. A facility which provides long-term or permanent residential care including rehabilitation with skilled nursing staff.

Midbrain. Part of the brain which helps with movement.[29]

Mild Cognitive Impairment. Gradual memory loss of recent events or new information.[30]

Mini-Mental State Examination (MMSE). a 30-point questionnaire which is used to assess cognitive skills. Used in screening for dementia.

Minimum Data Set (MDS). comprehensive assessment used in nursing homes to identify health issues.

Motor Cortex. Portion of the brain which controls planning and execution of voluntary movement.

---

[27] "Lewy Body Dementia: Information for Patients, Families, and Professionals," National Institute on Aging, July 29, 2016, https://www.nia.nih.gov/alzheimers/publication/lewy-body-dementia/basics-lewy-body-dementia (accessed February 23, 2017).

[28] Ibid.

[29] Ibid.

[30] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 180.

Music Therapy. Use of music to maintain and or improve mental, physical and spiritual well-being.

Neocortex. Portion of the cerebral cortex which controls higher brain function.

Nucleus Accumbens. Part of the brain that controls motivation and emotional processing.

Neurofibrillary tangles. Tau protein's - a standard indicator of Alzheimer's disease.

Occupational Therapist (OT). Specialist who helps patient to recover or improve upon the skills needed for daily living.

Palliative care. Specialist who helps improve the quality of life of a patient through relief of the symptoms and stress.

Parkinson's disease (PDD). A form of dementia which involves chronic movement disorder and impacts the muscles causing tremors and speech difficulties.

Personal health record (PHR). Tool used to keep track of health records.

PET Scan. An imaging test of the brain.

Pharmacologic treatments. Consist of three main categories: drugs, supplements and medical foods.[31]

Physical therapist. Specialist who helps patients rehabilitate from injuries and regain mobility.

Prefrontal Cortex. Part of the brain that processes complex thought such as problem-solving.

Progressive Supranuclear Palsy (PSP). A brain disorder that affects walking, balance and eye movements. [32]

Regular Onset (DAT). Refers to Dementia of the Alzheimer's type.

Respite care. Provision for temporary care to provide relief for a long-term caregiver.

---

[31] Richard S. Isaacson, *Alzheimer's Treatment, Alzheimer's Prevention: A Patient and Family Guide*, 2012 ed. (Miami Beach, FL: AD Education Consultants, Inc., ©2012), 45-46.

[32] Mayo Clinic Staff, "Progressive supranuclear palsy," Mayo Clinic, 2017, http://www.mayoclinic.org/diseases-conditions/progressive-supranuclear-palsy/basics/definition/con-20029502 (accessed February 23, 2017).

Sensory Cortex. Control center of the brain for sensory communication throughout the body.

Speech-language pathologist. Also known as a speech therapist who works with patients with communication, voice or swallowing disorders.

Vascular Dementia. Form of dementia caused by reduced blood flow to the brain.

Ventricles. Hollow cavities within the brain.

Visual Cortex. A part of the brain that processes visual input.

Younger-onset Alzheimer's (YOA). A term used for when Alzheimer's manifests itself before age 65. Can be used interchangeably with Early-onset Alzheimer's.

CHAPTER II: DEMENTIA

The Brain

The brain is a complex organ that weighs approximately three pounds. This organ is composed of many parts, each part controls different areas of the human body. It is important to understand the various brain diseases and how they impact different regions of the brain thereby causing different symptoms and challenges for individuals with brain disease. The Cerebrum, also known as the Cortex, is the largest part of the brain and consists of four lobes: the Occipital, the Parietal, the Frontal, and the Temporal. These lobes process all thoughts and actions.

http://www.webmd.com/brain/picture-of-the-brain#1

Figure 1 - The Brain and its Parts[33]

Each lobe divides up its functions between the left and right side of the lobe. In the back of the brain, the Occipital lobe does all the processing for any visual information, as well as processing color and shape. The right side of the Occipital lobe processes inputs from the left side of the body and the left side processes inputs from the right side of the body. If the Occipital lobe of the brain is damaged, the individual could experience issues with discerning colors, loss of vision, have visual hallucinations, be unable to identify words and have distorted visual perception.[34]

[33] Matthew Hoffman, MD, "Picture of the Brain," WebMD, http://www.webmd.com/brain/picture-of-the-brain#1 (accessed February 16, 2017).

[34] Regina Bailey, "Occipital Lobes and Visual Perception," About Education, http://biology.about.com/od/anatomy/p/Occipital-lobes.htm (accessed February 27, 2017).

The Parietal lobe processes input from all parts of the brain, specifically sensory inputs. It is located towards the back of the brain and is also split up into two parts. The Parietal lobe helps with physical navigation. If this area of the brain is damaged, the individual would no longer be able to tell the difference between right and left. Knowing how to place the lips and tongue to speak could be impacted and the ability to write or spell or read.[35]

The frontal lobe, at the very front of the brain, manages executive functions such as problem-solving, the ability to reason, speech, emotions, and motor functions. As the largest portion of the brain, we utilize this area for learning and personality. When this area is damaged, it can impact speech, language, impulse control and the ability to show facial expressions like smiling.[36]

Management of hearing, memory, and speech is in the Temporal lobe. The right side of the Temporal lobe aids in visual memory, like people's faces, while the left side processes verbal memories including languages. Damage to this portion of the brain can cause issues with being able to control the emotions and cause aggression or even inability to speak or understand language.[37]

---

[35] Regina Bailey, "Parietal Lobes of the Brain," About Education, http://biology.about.com/od/anatomy/p/Parietal-Lobes-of-the-Brain.htm (accessed February 28, 2017).

[36] Regina Bailey, "Frontal Lobes and Their Function," About Education, http://biology.about.com/od/anatomy/p/Frontal-lobes.htm (accessed February 27, 2017).

[37] Regina Bailey, "Temporal Lobes," About Education, http://biology.about.com/od/anatomy/p/Temporal-lobes.htm (accessed February 27, 2017).

In the very back of the brain sits the cerebellum which controls coordination and balance.[38] Cerebellum means "little brain.[39] It sits right above the brain stem. The brain uses “20 to 25 percent of your daily energy supply”.[40] Dementia impedes the blood flow to the brain thereby impacting the amount of energy the brain receives. This lack of blood flow causes a more rapid progression of brain disease.[41]

Non-Alzheimer’s Dementia

Non-Alzheimer's Dementias can be divided into four common forms: Lewy body dementia, Parkinson's disease, Vascular dementia, and FrontoTemporal dementia. Each of these forms has subcategories. For this paper, only the four most common types will be described.

1. Lewy Body Dementia

In 1912, Friedrich Heinrich Lewy discovered that the cause of some forms of brain disease is the presence of proteins in the brain called alpha-synuclein that are misfolded. A 'misfolded' protein indicates that the proteins have a deformity in some way. Each of us has over 30,000 proteins each designed for a particular function.[42] When proteins are not structured properly, they can cause diseases.

---

[38] Matthew Hoffman, MD, “Picture of the Brain,” WebMD, http://www.webmd.com/brain/picture-of-the-brain#1 (accessed February 16, 2017).

[39] Regina Bailey, “Anatomy of the Brain - Cerebellum,” About Education, http://biology.about.com/ od/anatomy/p/cerebellum.htm (accessed February 27, 2017).

[40] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 33.

[41] Ibid.

[42] Eszter Herczenik and Martijn Gebbink, “Molecular and cellular aspects of protein misfolding and disease,” *The FASEB Journal* 22, no. 7 (July 2008): 2115-13.

http://www.emedicinehealth.com/image-gallery/lewy_body_dementia_picture/ images.htm

Figure 2 - Lewy Body[43]

There is a crossover in symptoms between Alzheimer's and Parkinson's disease making it easy to misdiagnose. These symptoms include problems with memory, attention span, alertness, and depression. The patient can also experience hallucinations, delusions, and problems with vision and sleep disorders. The only way a Lewy body diagnosis can be definitively determined is through examination of the brain tissue. Various studies have not shown that it is hereditary or genetically based.

Lewy bodies are found throughout the brain with this disease including the Cerebral Cortex, the Limbic Cortex, the Hippocampus, the Midbrain, the Brain Stem and areas of the brain which control the sense of smell. Risk factors include: "diabetes, high blood pressure, and high cholesterol."[44] Smoking, drinking, and poor diet can also be root causes as well as head injuries.[45] There is no cure.

2. Parkinson's Disease

James Parkinson first documented Parkinson's disease in 1817. In his writings, Parkinson called this form of dementia "Shaking Palsy"[46] or as we know it today,

---

[43] "Pictures of Brain Diseases and Problems - Vascular Dementia," emedicinehealth, 2017, http://www.emedicinehealth.com/image-gallery/lewy_body_dementia_picture/ images.htm (accessed February 23, 2017).

[44] Frederick Earlstein, *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* (Nevada.: NRB Publishing, ©2016), Kindle Edition, loc. 619.

[45] Ibid.

[46] John O'Brien, *Dementia with Lewy Bodies and Parkinson's Disease Dementia* (London: Taylor & Francis, 2006), 1.

Parkinson's disease. Parkinson's is a slow-moving disease that is similar to Lewy Body type dementia due to the abnormal protein deposits. Therefore, sometimes Parkinson's is often grouped together with other Lewy Body dementias. Parkinson's, however, has some unique symptoms including involuntary tremors and stiff or rigid muscles which cause issues with walking and imbalance. Because of the overlap of symptoms, the determination of diagnosis is based upon which symptoms appeared first. If the tremors manifest first, the patient is deemed to have Parkinson's. Otherwise, the diagnosis is Lewy Body disease.

Other symptoms include memory problems and difficulties with vision and speech. People with Parkinson's can suffer from depression, irritability and anxiety, as well as difficulty sleeping. They can become delusional and have visual hallucinations.[47] The acronym T.R.A.P. is commonly used to describe the features of this disease. [48] The 'T' indicates tremors, the 'R' refers to the rigidity of muscles, "A" is for akinesia or loss of spontaneous movement, and 'P' refers to posture instability as the patient typically becomes stooped over and loses their balance easily. The acronym T.R.A.P. is an apt descriptor as the patient becomes trapped within their condition.

The portion of the brain that is initially affected by Parkinson's disease is the 'Substantia nigra,[49] in the middle of the brain, this area involves our ability to control

---

[47] Frederick Earlstein, *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* (Nevada.: NRB Publishing, ©2016), Kindle Edition, loc. 864.

[48] William J. Weiner, Lisa M. Shulman, and Anthony E. Lang, *Parkinson's Disease: A Complete Guide for Patients and Families*, third ed., A Johns Hopkins Press Health Book (Baltimore: The Johns Hopkins University Press, 2013), 4.

[49] Ibid. 5.

movement. It is a progressive disease, but the rate of progression varies from patient to patient.[50] There is no cure.

3. Vascular Dementia

Vascular dementia is also called Multi-Infarct Dementia or MID. It is the "second most common cause of dementia.[51] Its cause is blockages, leaks or diseased blood vessels.[52] The compromising of the blood vessels results in a lack of oxygen to the brain which causes the brain cells to die. The symptoms depend upon which area of the brain is affected. The memory loss is not near as severe as in Alzheimer's Disease and is more prevalent in stroke patients.[53] In some cases, the patient may not even know they had a stroke, but the damage is clear in a cat scan.

http://www.emedicinehealth.com/image-gallery/vascular_multi-infarct_dementia_1_picture/ images.htm

Figure 3 - Vascular Dementia[54]

[50] Frederick Earlstein, *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* (Nevada.: NRB Publishing, ©2016), Kindle Edition, loc. 878.

[51] Ibid. loc. 467

[52] Ibid.

[53] Michael J. Schneck, "Vascular Dementia," *Topics in Stroke Rehabilitation* 15, no. 1 (2008): 22, ezproxy.liberty.edu/login?url=http://go.galegroup.com.ezproxy.liberty.edu/ps/i.do?p=ITOF&sw=w&u=vic_liberty&v=2.1&it=r&id=GALE%7CA174598747&sid=summon&asid=8bc3dfed5a1d12f3923f14fb5964544f.

[54] "Pictures of Brain Diseases and Problems - Vascular Dementia," emedicinehealth, 2017, http://www.emedicinehealth.com/image-gallery/vascular_multi-infarct_dementia_1_picture/ images.htm (accessed February 23, 2017).

The risk factors for vascular dementia include age, high blood pressure, diabetes, obesity, cigarette smoking, high cholesterol and cardiac disease.[55] Vascular dementia, while not always reversible, is in most cases preventable by making healthy lifestyle choices and seeking regular preventative care.

4. FrontoTemporal Dementia (Pick's disease or FTD)

FrontoTemporal dementia or Pick's disease is named after Arnold Pick, a Czech neuropathologist. He first diagnosed the disease in 1892.[56] People who have this type of brain disease have what are called Pick bodies and Pick cells.[57] These cells have an overabundance of the abnormal protein called 'tau' which are in the nerve cells.[58] Pick's disease is rare and is often confused with Alzheimer's Disease,[59] however, there are some key differentiators. Pick's disease tends to occur at earlier ages, as young as twenty years old. It only impacts the Frontal and Temporal lobes.

Some of the key symptoms include dramatic personality changes, problems with speech, Corticobasal syndrome, Progressive Supranuclear Palsy (PSP), compulsive

---

[55] Michael J. Schneck, "Vascular Dementia," *Topics in Stroke Rehabilitation* 15, no. 1 (2008): 22, ezproxy.liberty.edu/login?url=http://go.galegroup.com.ezproxy.liberty.edu/ps/i.do?p=ITOF&sw=w&u=vic_liberty&v=2.1&it=r&id=GALE%7CA174598747&sid=summon&asid=8bc3dfed5a1d12f3923f14fb5964544f.

[56] JMS Pearce, "Pick's disease," *Journal of Neurology, Neurosurgery and Psychiatry* 74, no. 2 (February 2003): 169.

[57] Amit M. Shelat, DO, FACP, "Pick Disease," MedlinePlus Trusted Health Information for You, last modified February 7, 2017, https://medlineplus.gov/ency/article/000744.htm (accessed February 22, 2017).

[58] Ibid.

[59] Ibid.

behaviors and diminished abilities in planning and organization.[60] The earlier onset of symptoms and personality changes are what help in the diagnosis of this disease. Also, another unique difference between this and other forms is that it does not impact the memory or ability to reason.[61] There is no cure.

Alzheimer's Disease

In 1901, the first case of Alzheimer's was identified by a German psychiatrist named Alois Alzheimer.[62] It is the most common form of dementia. In Alzheimer's four distinct changes happen to the brain: the brain shrinks, the ventricles enlarge, neurofibrillary tangles form and plaque builds up.[63] These changes eventually impact every lobe of the brain as the cells in the brain continue to die. "It is the sixth leading cause of death in the United States."[64]

There are four forms of Alzheimer's: Regular Onset (DAT), Early or Younger Onset (EOA or YOA), Down's syndrome and Late Onset Alzheimer's (LOA).[65]

---

[60] Frederick Earlstein, *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* (Nevada.: NRB Publishing, ©2016), Kindle Edition, loc. 674

[61] Ibid.

[62] Ibid. loc. 270.

[63] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 37-40.

[64] "2016 ALZHEIMER'S DISEASE FACTS AND FIGURES," Alzheimer's Association, http://www.alz.org/facts/overview.asp (accessed February 24, 2017).

[65] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 24-27.

1. Regular Onset Alzheimer's (DAT)

Regular Onset Alzheimer's is the most common, first manifesting itself when someone is sixty to seventy years old. The progression of the disease is slow, but as the disease progresses will eventually result in severe memory loss and inability of the individual to take care of themselves.

2. Early onset Alzheimer's (EOA or YOA)

Early onset can start as early as the teenage years up to age fifty. It is the most aggressive of the four forms attacking multiple lobes of the brain at the same time, starting with the Temporal lobes.[66] Death usually occurs within five years of diagnosis. A study is currently in process in a small community in Antioquia, Columbia where a high percentage of the population has contracted early onset Alzheimer's. In one extended family, 50% of the offspring were contracting and dying from early onset. The group in Antioquia is the largest concentrated population in the world. A further study discovered a mutation in the PS1 gene. The National Institutes of Health (NIH) is taking on this project as a clinical research trial for a possible immunization for the disease.[67] Due to the length of the trial, they do not expect to see any results until around 2021.

3. Down's Syndrome

In a person that has Down's Syndrome, Alzheimer's usually manifests itself around age fifty. The average life expectancy of someone with Down's Syndrome is

---

[66] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 24-27.

[67] Francisco Lopera, M.D., et al., "Clinical Features of Early-Onset Alzheimer Disease in a Large Kindred with an E280A Presenilin-1 Mutation," *JAMA* 277, no. 10 (March 12, 1997): 793-799.

around sixty years.[68] Alzheimer's first symptoms include confusion and trouble with basic social skills and personal hygiene.[69]

4. Late Onset Alzheimer's (LOA)

Late Onset Alzheimer's begins in the eighties or nineties. It is the slowest of the Alzheimer manifestations. In these cases, the person afflicted will not experience many of the stages of Alzheimer's due to their limited life span.

Seven Stages of Alzheimer's

1. Stage One

There are seven stages of Alzheimer's. The first stage happens as part of normal aging. A natural part of getting older is that it is easier to forget things. It may be harder to focus, or the individual may become more easily distracted. In stage one there are not any outward symptoms that indicate Alzheimer's Disease. The only definite way to know that Alzheimer's Disease is present is to have a PET scan, which is an "imaging test that shows how the brain is working."[70] The brain with Alzheimer's will show lower levels of brain activity as shown in Figure 4. The circled area in the second image shows the lower brain activity.

[68] "Facts About Down Syndrome," NADS: National Association for Down Syndrome, http://www.nads.org/resources/facts-about-down-syndrome/ (accessed March 1, 2017).

[69] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 24-27.

[70] Healthwise Staff, "PET Scans of the Brain," WebMD, January 21, 2017, accessed April 7, 2017, http://www.webmd.com/alzheimers/guide/alzheimers-disease-stages#1.

PET Scans of the Brain

http://www.webmd.com/alzheimers/guide/alzheimers-disease-stages#1

Image 1 Image 2

Figure 4 – Pet Scan of the Brain with and without Alzheimer's Disease[71]

2. Stage Two

The second stage is mild cognitive impairment (MCI) or "benign forgetfulness"[72] At this stage, routine tasks may become more difficult. Socially, this individual can still function. Stages one and two can last up to twenty years with their symptoms being written off as a part of normal aging.

3. Stage Three

Stage three is called "Beginning Dementia"[73]. In this stage, the individual may have trouble finding words or names, possibly using the wrong word to describe something. The individual may also get disoriented and forget how to get from one place to another. It may take more time to do an easy task or items may be misplaced. Mood fluctuations become more erratic as the disease progresses.

4. Stage Four

Stage four is "Moderate Dementia.[74] In this stage, it becomes very apparent to everyone that something is wrong. Short term memory is highly affected with the

---

[71] Healthwise Staff, "Pet Scans of the Brain," WebMD, August 21, 2015, accessed April 7, 2017, http:/www.webmd.com/brain/pet-scans-of-the-brain.

[72] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 180.

[73] Ibid.

[74] Ibid. 188.

individual not remembering recent events. Difficulty in remembering friends and even family members becomes an ordinary event. The inability to read or do basic math will become evident. It is at this stage that the brain has trouble organizing thoughts, so being able to express themselves in words may become very difficult as the left side of the brain begins to deteriorate. The individual may hallucinate and become suspicious of people they formally trusted.

5. Stage Five

In Stage five, "Moderately Severe Dementia",[75] most individuals require 24-hour care since they cannot take care of themselves. They may look perfectly healthy and are aware of what is going on around them but by this time a third of their brain has been destroyed by the disease. They begin to forget to take medicines, to eat, or bathe.

6. Stage Six

Stage six is "Severe Dementia"[76] with the individual losing their ability to recognize familiar items. They dispose of things that they do not remember thinking them unimportant. For example, they may not know what a pair of glasses or a set of keys are used for and throw them away. They lose track of time or even what day or month it is. Something that happened months or years ago seems real in the present. The individual may become anxious or even violent.

---

[75] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 192.

[76] Ibid. 201.

Eventually, two of the three pounds of the brain and all the data or memories stored are lost. Alzheimer's tends to destroy the "brain's memories in reverse order.[77] The most recent memories go first since they are not as deeply engrained. The person who has Alzheimer's will continue to go further back in time to memories that are more deeply embedded.

7. Stage Seven

Stage seven is the final stage and labeled as "Very Severe Dementia, " and the brain now weighs approximately one pound. [78] The afflicted person may sleep twenty or more hours per day, have seizures, and weight loss due to not eating.

Common Treatments or Therapies

While the generalized descriptions of each of these diseases may seem somewhat tedious or even depressing, it helps to understand how each of the diseases impacts the brain and the behaviors of the person afflicted with them. Since there is a lot of cross-over between these various diseases, the cross-over of symptoms can significantly influence the method and effectiveness of therapies.

Pharmacologic Therapy

Many of the treatments suggested for dementia include pharmacologic therapy. Pharmacologic treatments consist of three main categories: drugs, supplements and medical foods.[79] Cholinesterase inhibitors "treat symptoms related to memory, thinking,

---

[77] Tam Cummings, *Untangling Alzheimer's: The Guide for Families and Professionals* ([United States]: Dementia Association, ©2013), 180.

[78] Ibid. 205.

[79] Richard S. Isaacson, *Alzheimer's Treatment, Alzheimer's Prevention: A Patient and Family Guide*, 2012 ed. (Miami Beach, FL: AD Education Consultants, Inc., ©2012), 45-46

language, judgment, and other thought processes."[80] It is important to control high blood pressure, diabetes, and cholesterol in someone who has dementia since these conditions can make the disease progress at a faster rate. Antidepressant drugs are often prescribed at the later stages to stabilize the mood swings of the afflicted. Antipsychotic drugs help to relieve the occurrence of hallucinations.

Some researchers believe that these drugs delay the progression of the disease and its symptoms. However, the cost of Alzheimer's drugs are high, averaging $5 a day.[81] There is much controversy over the effectiveness of the various drugs as they do not seem to increase the life span or outcome of the disease.[82] They do, however, provide relief from the symptoms and stress of the disease and therefore are considered a palliative care treatment. The drugs also only work for a limited time as the disease continues to progress. As with any medications there are risks which must be considered.

Dietary supplements do not require a prescription and can be bought over the counter. Doctors sometimes prescribe Vitamin E in conjunction with other drugs to help support cognitive function.[83] Ginkgo, Omega-3 fatty acids, B vitamins, Asian Ginseng, Grape seed extract, and Curcumin have all been touted to support memory function but

---

[80] "Medications for Memory Loss," Alzheimer's Association, http://www.alz.org/alzheimers_disease_standard_prescriptions.asp (accessed February 24, 2017).

[81] David A. Casey, MD, Demetra Antimisiaris, PharmD, and James Obrien, MD, "Drugs for Alzheimer's Disease: Are They Effective?," *P and T* 35, no. 4 (April 2010): 208-11.

[82] Ibid.

[83] Dennis Thomas, "Daily High-Dose Vitamin E Might Delay Alzheimer's," WebMD, December 31, 2013, http://www.webmd.com/alzheimers/news/20131231/daily-high-dose-vitamin-e-might-delay-alzheimers#1 (accessed February 24, 2017).

have not been shown in studies to be effective.[84] Any type of dietary supplement, while easily available, has side effects which must be monitored.

Medical foods require a prescription, but are not monitored by the Food and Drug Administration (FDA).[85] For a food to be labeled as a "medical food", it must be shown to provide the "distinctive nutritional needs of a specific, diseased patient population being targeted."[86]

Exercise

Exercise is proven to be good for you, and in the case of dementia, exercise is especially important. When we exercise, we increase the blood flow to the brain. Exercise also helps to reduce the protein amyloid which is a toxic protein fragment found in the brains of those who have dementia.[87] Exercise gets to be more of a challenge as the stages of dementia progress but even doing motion exercises while sitting in a chair can be beneficial.

Cognitive stimulation therapy

Cognitive stimulation therapy has been shown to have a positive impact in delaying the symptoms of dementia. By using a variety of activities including physical and mental exercises, one study showed marked improvement in cognition; quality of life

---

[84] "Dietary Supplements and Cognitive Function, Dementia, and Alzheimer's Disease: What the Science Says," National Center for Complementary and Integrative Health, December, 2013, https://nccih.nih.gov/health/providers/digest/alzheimers-science (accessed March 5, 2017).

[85] "Medical Foods," Alzheimer's Association, 2015, http://www.alz.org/documents_custom/statements/ medical_foods.pdf (accessed March 5, 2017).

[86] Richard S. Isaacson, *Alzheimer's Treatment, Alzheimer's Prevention: A Patient and Family Guide*, 2012 ed. (Miami Beach, FL: AD Education Consultants, Inc., ©2012), 49.

[87] Ibid. 4.

which includes physical health, energy and mood as well as memory function; communication; behavior; mental state; and anxiety.[88] Because of the different rates of decline, activities must be geared to match the abilities of the person with dementia. Activities should match each person's interests and hobbies.[89]

Keeping a person with dementia in a familiar environment also helps to slow down the decline. Unfortunately, as the disease progresses, it becomes more difficult for the caregiver to keep them in their home environment. Eventually, most of those afflicted with the disease end up in a nursing facility where nothing is familiar to them. Placement in unfamiliar surroundings accelerates their decline. One nursing facility has sought to change that. Lantern of Chagrin Valley is a high-tech assisted living facility for people with Alzheimer's Disease in South Russell, Ohio. The environment attempts to simulate a small village where its residents can feel at home.

https://www.facebook.com/lanternofchagrinvalley/photos/a.1764653303774589.1073741829.1465774383662484/1764653243774595/?type=1&theater

Figure 5 - Lantern of Chagrin Valley[90]

The controlled environment at Lantern of Chagrin Valley has a special fiber optic lighting system which simulates the outdoors environment with sunlight during the day and stars lighting up the simulated sky at night. The hallways of the facility resemble a

[88] Aimee Spector et al., "Efficacy of an evidence-based cognitive Efficacy of an evidence-based cognitive stimulation therapy programme for people stimulation therapy programme for people with dementia," *BRITISH JOURNAL OF PSYCHIATRY* 183 (2003): 248-54.

[89] Robin Rio, *Connecting through Music with People with Dementia: A Guide for Caregivers* (London: Jessica Kingsley Publishers, 2009), 220.

[90] "Lantern Of Chagrin Valley,", https://www.facebook.com/pg/lanternofchagrinvalley/photos/?ref=page_internal (accessed February 24, 2017).

small town with street lamps, park benches and even a waterfall for the residents to enjoy. The goal of the facility is to prolong the quality of life for its Alzheimer's patients within a closed environment.

The Lantern of Chagrin Valley along with its other two facilities use a patented program called "Svayus" which is Sanskrit for "full with vigor or life."[91] This cognitive therapy program utilizes all five senses to stimulate the resident. The idea is to create guided positive interactions in a simulated environment, which allow the resident to feel less anxious and able to "function at their maximum ability."[92]

Music Therapy

Music therapy was first used during the late nineteenth to early twentieth centuries.[93] In 1804, Edwin Atlee stated that music "has a powerful influence upon the mind, and consequently on the body."[94] In the 1870's a series of concerts was performed at an insane asylum in New York as a therapy for the patients there.[95] In the early 1900's Dr. Evan O'Neill Kane used music during surgery to keep his patients calm and in 1929 Duke University was the first hospital to make available recorded music to its adolescent patients.[96]

---

[91] "spokensanskrit.de dictionary,", http://spokensanskrit.de/ (accessed February 24, 2017).

[92] "Lantern Of Chagrin Valley," https://www.facebook.com/pg/lanternofchagrinvalley/photos/?ref=page_internal (accessed February 24, 2017).

[93] Don G. Campbell, *The Mozart Effect: Tapping the Power of Music to Heal the Body, Strengthen the Mind, and Unlock the Creative Spirit* (New York: Avon Books, 1997), 121.

[94] Ibid. 122.

[95] Ibid.

[96] Ibid.

Music involves “nearly every region of the brain.”[97] Music starts below the Cortex, works its way up to the auditory cortices, engages the hippocampus and the frontal lobes, while lyrics help stimulate the language centers.[98] Because of this, music therapy can be useful for all types of dementia. In the auditory Cortex, we listen to the sound and make an analysis of what we hear. If we are performing or dancing, the visual Cortex helps us to read the music, and sensory Cortex, motor Cortex, and Cerebellum help us to move to music and to play a musical instrument.[99]

https://www.berklee.edu/berklee-today-62

Figure 6 – Music and the Brain[100]

Music therapy uses a variety of principles when engaging with patients: entrainment, the Iso-principle, and diversion.[101] Entrainment involves staying "in step" with the music. A slow piece allows the listener to relax whereas a more upbeat rhythm causes excitement and or energy in the listener. In music therapy, it is important to stay "in step" with the reaction of the patient to the music. If the patient is becoming agitated, it may be necessary to change the music to something that is more soothing. If the patient is lethargic, something more upbeat may be in order.

---

[97] Daniel J. Levitin, *This Is Your Brain On Music: The Science of a Human Obsession* (New York: Plume, 2007, ©2006), 85.

[98] Ibid. 86.

[99] Ibid. 270-271.

[100] Ibid.

[101] Don G. Campbell, *The Mozart Effect: Tapping the Power of Music to Heal the Body, Strengthen the Mind, and Unlock the Creative Spirit* (New York: Avon Books, 1997), 123-125.

Staying "in step" can also be mean staying in rhythm. Whether it be through hand-held percussion instruments or with the clapping of one's hands or stomping of one's feet. When a dementia patient engages in physical movement with music they become more aware of themselves and their environment.[102]

Singing with the music allows a person with dementia to exercise those portions of the brain that also involve speaking. Just making the sounds of music can be a form of expression.[103] Singing also offers the benefits of "conscious breathing, relaxation, and physical stimulation."[104]

The Iso-principle was developed in the 1950's and is a term specifically coined for music therapy. It allows for adjusting the dementia patient's mood by first matching their current mood with the music and then altering the music to achieve the desired mood. In this way, changes are less apt to be abrupt or cause surprise.

The principle of diversion is useful when there is a need to distract the patient from a negative input such as pain, depression, anger, or distress. Since dementia patients are easily distracted because of their brain disorders, diversion can provide an alternative course of thought that brings the patient to a more positive state.

Levitan, in his book '*The World in Six Songs',* reports that music "is not simply a distraction or a pastime, but a core element of our identity as a species, an activity that paved the way for more complex behaviors such as language, large-scale cooperative

---

[102] Robin Rio, *Connecting through Music with People with Dementia: A Guide for Caregivers* (London: Jessica Kingsley Publishers, 2009), 34.

[103] Ibid. 40.

[104] Ibid. 42.

undertakings, and the passing down of important information from one generation to the next."[105] When you mix music with lyrics, it takes on an even greater meaning. Each of us is influenced by music during our lifetime. The variety of music that is available attests to how we as human beings love music. Whether it be classical, opera, country, reggae or gospel music, we all have a favorite that we listen to or that has influenced us in some way. In music therapy, these variations can be valuable in reaching the unreachable. What memory could a particular tune unlock?

Music "supports and stimulates residual memory.[106] A person with dementia can have difficulties converting their short-term memory over to long-term residual memories.[107] Since music stimulates cross functionally across various lobes of the brain, music therapy can strengthen existing memories while helping to embed new memories.

Music can revive old memories. Hearing "White Christmas" on the radio may bring up memories of a Christmas you shared with family years before. Hearing the theme song of a favorite television show brings up memories of the last episode that you watched. The structured patterns of music are much easier to remember than words spoken. The rhythm and rhyme are repeatable and the music engages the listener.

---

[105] Daniel J. Levitin, *The World in Six Songs: How the Musical Brain Created Human Nature* (New York: Dutton, 2009), 3.

[106] Robin Rio, *Connecting through Music with People with Dementia: A Guide for Caregivers* (London: Jessica Kingsley Publishers, 2009), 91.

[107] Ibid.

Glen Campbell Story

In 2013, country music singer Glen Campbell recorded the song, "I'm not Going to Miss You," a song about Alzheimer's from the afflicted person's perspective.

"I'm still here, but yet I'm gone
I don't play guitar or sing my songs
They never defined who I am
The man that loves you 'til the end
You're the last person I will love
You're the last face I will recall
And best of all, I'm not gonna miss you
Not gonna miss you
I'm never gonna hold you like I did
Or say I love you to the kids
You're never gonna see it in my eyes
It's not gonna hurt me when you cry
I'm never gonna know what you go through
All the things I say or do
All the hurt and all the pain
One thing selfishly remains
I'm not gonna miss you
I'm not gonna miss you."[108]

Campbell wrote this song because of his own personal journey. In 2011 Campbell was diagnosed with Alzheimer's. In response, he and his family decided to document his journey. They scheduled a farewell tour to raise awareness of the disease and allowed a camera crew to come along side to document the changes that the singer experienced. The documentary is called "Glen Campbell…I'll Be Me."[109] They wanted others to see and understand what this disease can do to not only the person afflicted but also to those around them.

[108] Glen Campbell and Julian Raymond, *I'm Not Gonna Miss You* (Los Angeles: Big Machine Records, 2014).

[109] *Glen Campbell...I'll Be Me*, directed by James Keach (PCH Films, 2014), Netflix 2015)

Initially, when Campbell stepped on the stage, any symptoms that he was experiencing were not apparent. He easily remembered the lyrics to every song and played every song flawlessly. As the disease progressed, the symptoms became more evident and Campbell was unable to remember which song was next. With a teleprompter on the stage, Campbell could stay on track. He remembered how to play the song on his guitar but at times would begin to ad-lib from what the band had rehearsed. Eventually, Campbell's dramatic mood swings and unpredictable behavior made continuing the tour impossible. Amazingly, what was expected to be a short tour ended with Campbell being able to perform 151 concerts in the United States, Australia, and Europe.[110]

The devastating truth is that a person diagnosed with any form of dementia knows the prognosis and what will be the eventual ending reality. They know that there is no cure. The average lifespan once diagnosed is eight to ten years. The only recourse is to make their remaining days as comfortable and stress-free as possible. This paper endeavors to show how research has proven that music can be used to enhance the spiritual well-being of someone with Alzheimer's.

[110] *Glen Campbell...I'll Be Me*, directed by James Keach (PCH Films, 2014), Netflix 2015)

CHAPTER III: METHODOLOGY

Overview of the Chapter

In the previous chapter, we defined the various types of dementia. We learned how each brain disease manifests itself and what area of the brain is impacted by each disease. We discovered how lifestyle choices and family history could increase our risks for brain disease. There are various therapies available to help either delay these diseases or improve the well-being of someone with brain disease.

The purpose of this study is to show how, through the utilization of music, we can enhance the spiritual well-being of those with Alzheimer's Disease. We will focus on studies utilizing music therapy and will see how music impacts individuals with Alzheimer's Disease.

Questions and Hypotheses

The questions I will seek to answer are as follows:

- What are the success rates in therapies used for Alzheimer's?
- How can music be used as a therapeutic tool to enhance the life of the Alzheimer's patient?
- How can church leaders enhance the spiritual well-being of those in the church family who have Alzheimer's?
- What resources are available to help people who have Alzheimer's?

Research Methods

This qualitative study will utilize the research and writings of experts in Alzheimer's Disease. The studies are broken down into three unique groups: studies in spirituality and Alzheimer's Disease, the Nuns Study, and studies in music therapy and Alzheimer's Disease.

The spirituality studies show how a person's spirituality has an impact on their ability to cope with Alzheimer's Disease. A separate long-term study with the Sisters of Notre Dame demonstrates the effect of attitude, and positive outlook. The final group of studies involve music therapy and show how music can improve the well-being of the patient who has Alzheimer's Disease. The researchers used a variety of methods including ethnographic which concerns people and cultures and longitudinal which are long-term studies.

Direct-data Survey

Each of the studies used a direct-data method to collect the pertinent data concerning the subject matter.

Respondents of the Study

Except for the Nun Study and the Alive Inside projects, all the studies included were for small groups of people of 68 or less. The site of these studies was in nursing facilities with Alzheimer's patients.

The Nun Study, executed simultaneously across multiple locations of the Sisters of Notre Dame order, is a longitudinal study which included subjects with and without Alzheimer's. The Alive Inside study, conducted over a three-year period, encompassed 640 nursing homes across 45 states.

Instrumentation

1. Content analysis

The data gathered from the various studies were evaluated using content analysis.

2. Statistical Treatment

Statistics from the various studies have been included to show the impact of the various methods used during the research.

Ethical Considerations

All participants in each of the studies were treated with dignity and respect. The people who participated were given clear and concise instructions and given time to respond to questions to ensure accuracy. In all the studies the participants were given waivers to sign and the results were kept confidential.

CHAPTER IV: RESEARCH FINDINGS

Spirituality and Alzheimer's Disease

The following studies relate to how a person's spirituality impacts their ability to cope with the stresses of Alzheimer's. Each of these research studies utilized a small subset of participants as noted.

1. Using Spirituality to Cope with Early Stage Alzheimer's Disease - Vanderbilt University School of Nursing

In an ethnographic study done at Vanderbilt University, the fifteen participants consisted of patients 67-91 years of age. Patients with a history of psychotic disorders were not permitted to avoid skewing the results. The participants came from a cross-section of Christian religious backgrounds including Methodist, Baptist, Church of Christ, Episcopalian, Catholic, and Lutheran.[111] The purpose of the study was to see how people in the early stages of Alzheimer's coped with their disease and the influence of their spiritual practices. The researchers collected their data through "interviews, observations and field notes."[112]

Researchers asked the participants a series of questions: How they felt about having Alzheimer's Disease, how Alzheimer's Disease has changed their life, what is their coping mechanism, and how the disease impacted their spirituality.[113] The researchers found three common themes among the participants: personal faith, seeking

[111] Linda Buescher and Victoria T. Grando, "Using Spirituality to Cope with Early Stage Alzheimer's disease," *Western Journal of Nursing Research* 31, no. 5 (August 2009): 583-98.

[112] Ibid.

[113] Ibid.

reassurance and hope, and staying connected.[114] For their personal faith, the participants described God as "loving, caring, protecting, and providing."[115] The participants relied on God and sought reassurance by praying, reading Bible verses, and staying connected with their local churches. The researchers' conclusion is that spirituality is important for coping with all forms of severe and terminal illnesses. It also revealed that spiritual pursuits improve the "health and emotional well-being"[116] of the afflicted. Fourteen of the participants' faith and spiritual practices continued despite their cognitive decline. Prayer was the most important avenue for coping with their condition as it kept them connected to God.

2. *Religion, Spirituality May Slow Alzheimer's* - Baycrest Centre for Geriatric Care

Baycrest Centre for Geriatric Care, conducted a study of 68 Alzheimer's patients over a three-year period. The group studied included a cross-section of religious participants and one atheist participant. Those studied were rated using two scales: one measured "religious attendance, private religious practices, and … the influence of religious beliefs in daily life."[117] In the second scale, the participants rated themselves on their religious or spiritual levels.

---

[114] Linda Buescher and Victoria T. Grando, "Using Spirituality to Cope with Early Stage Alzheimer's disease," *Western Journal of Nursing Research* 31, no. 5 (August 2009): 583-98.

[115] Ibid.

[116] Ibid.

[117] Miranda Hitti, "Religion, Spirituality May Slow Alzheimer's," WebMD, April 13, 2005, accessed March 12, 2017, http://www.webmd.com/alzheimers/news/20070101/religion-spirituality-slow-alzheimer.

The researchers found that the progression of Alzheimer's was slower with those who had higher levels of spiritual and religious belief systems. The study also showed that religion doesn't guarantee health but that it can bring "comfort, hope, meaning, and purpose," along with support from faith-based communities.[118]

***Nun Study: Folic Acid May Slow Degeneration of the Brain in Alzheimer's Disease* – Sisters of Notre Dame**

The Nuns Study is an ongoing study at the Sisters of Notre Dame convents. Initiated in 1986 by David Snowden, a researcher at the University of Minnesota, the researchers tested the nun's genes, their balance and strength, and conducted a variety of memory tests. Six hundred seventy-eight nuns participated in this study. The nuns agreed to undergo continual testing as well as donate their brains for additional study after their death. This is unique as it gives researchers the opportunity to study brains of both those with dementia and without in the same study.

One of the nuns in the study, Sister Mary, lived to be 102. Her case was unique in that, even though her brain had Alzheimer's lesions, her brain functionality stayed firmly intact. The researchers believe this was because few of the lesions were in the Neocortex allowing her primary brain functions to stay intact.[119]

The researchers concluded: having a larger vocabulary at an early age is linked to a lower risk of Alzheimer's Disease, and those nuns with a positive attitude live up to ten

---

[118] Miranda Hitti, "Religion, Spirituality May Slow Alzheimer's," WebMD, April 13, 2005, accessed March 12, 2017, http://www.webmd.com/alzheimers/news/20070101/religion-spirituality-slow-alzheimer.

[119] Vikki Franklin, "Nun Study: Folic Acid May Slow Degeneration of the Brain in Alzheimer's Disease," UK Chandler Medical Center, May 17, 1999, accessed March 12, 2017, http://www.uky.edu/PR/News /MCPRNews/1999/nun.htm.

years longer than those who are less positive. This study is significant because it begins in the early lives of the nuns and follows them throughout their adulthood. The study did not find any measurable indication that the environment or lifestyle had any significant impact on whether or not Alzheimer's Disease would develop.[120]

Studies in Music Therapy and Alzheimer's Disease

"Music has power"[121] in all stages of Alzheimer's Disease. There have been multiple studies on the effectiveness of music therapy with dementia patients. Oliver Sacks, Professor of Clinical Neurology and Psychiatry at Columbia University, states that there are longer-term effects when utilizing music with people who have dementia which include "improvements of mood, behavior, even cognitive function – which can persist for hours or days after they have been set off by music."[122]

1. *Music Boosts Memory in Alzheimer's* - Boston University

In 2010, Brandon Ally was the assistant professor of neurology at the Boston University School of Medicine. He conducted a small study of Alzheimer's patient's ability to recall words when put to music. The study used eighty different children's songs, verified through random screening that these were songs the participants did not know. They began by showing the words on the screen with someone singing them and

[120] Vikki Franklin, "Nun Study: Folic Acid May Slow Degeneration of the Brain in Alzheimer's Disease," UK Chandler Medical Center, May 17, 1999, accessed March 12, 2017, http://www.uky.edu/PR/News /MCPRNews/1999/nun.htm.

[121] Alicia Ann Clair, Ph.D., MT-BC, "Education and Care - Music," Alzheimer's Foundation of America, last modified January 28, 2016, https://www.alzfdn.org/EducationandCare/musictherapy.html (accessed March 5, 2017).

[122] Oliver Sacks, *Musicophilia: Tales of Music and the Brain* (New York: Alfred A. Knopf, 2007), 345.

then had a person sing the song without the lyrics shown and lastly with just the words with no music at all.

Researchers found that when the song is sung with the words, it improves the recall abilities of the patient.[123] The study concludes that there are areas of the brain that process music that may be spared by the disease and that music improves attention and memory in Alzheimer's patients.[124] Researchers are planning additional studies on a larger scale.

2. Musical Training Orchestrates Coordinated Neuroplasticity in Auditory Brainstem and Cortex to Counteract Age-Related Declines in Categorical Vowel Perception - Rotman Research Institute (RRI)

Rotman Research Institute conducted a study on older adults. They chose twenty participants, 10 with a musical background and 10 with no musical background. All those with a musical background had five or more years of training in some form of music. They were amateur musicians and started their musical training before the age of 14. In the study, the participants were asked to identify random speech sounds. The researchers used electroencephalography (EEG) to show that those with a musical background "were 20% faster in identifying speech sounds"[125] than those who did not have musical training.

---

[123] Susan Seligson, "Music Boosts Memory in Alzheimer's," *BU Today*, 2010, 1, accessed March 8, 2017, http://www.bu.edu/today/2010/music-boosts-memory-in-alzheimer%E2%80%99s/.

[124] Nicholas R. Simmons-Stern, Andrew E. Budson, and Brandon A. Ally, "Music as a Memory Enhancer in Patients with Alzheimer's Disease," *Neuropsychologia* 48, no. 10 (August 2010): 3164-67.

[125] Gavin M. Bidelman and Claude Alain, "Musical Training Orchestrates Coordinated Neuroplasticity in Auditory Brainstem and Cortex to Counteract Age-Related Declines in Categorical Vowel Perception," *JNeurosci - The Journal of Neuroscience* 35, no. 3 (January 21, 2015): 1240-49, accessed March 9, 2017, http://www.jneurosci.org/content/35/3/1240.

http://www.jneurosci.org/content/jneuro/35/3/1240/F2.large.jpg?width=800&height=600&carousel=1

Figure 7 – Response time to random speech sounds (M=Musical, NM = Non-Musical)

According to Gavin Bidelman, states that "Musical activities are an engaging form of cognitive brain training and we are now seeing robust evidence of brain plasticity from musical training not just in younger brains, but in older brains too."[126]

3. Music Therapy in Moderate and Severe Dementia of Alzheimer's type: a case-control study - Landspitali University Hospital

This study conducted in Reykjavik, Iceland was by "qualified music therapists at two nursing homes and two psychogeriatric wards."[127] The purpose of the study was to evaluate the effect of music therapy on the behavioral and psychological symptoms of dementia, also known by the acronym BPSD. Forty-six patients diagnosed with moderate to severe dementia participated in the study. The patients ranged in age from 71-87 years of age.

The researchers conducted the study over a six-week period with the participants divided into two groups, a control group and a music therapy group. Only thirty-eight of the patients could complete all of the sessions. The researchers evaluated the patients at the beginning of the study using a rating scale called Behavior Pathology in Alzheimer's

[126] Gavin M. Bidelman and Claude Alain, "Musical Training Orchestrates Coordinated Neuroplasticity in Auditory Brainstem and Cortex to Counteract Age-Related Declines in Categorical Vowel Perception," *JNeurosci - The Journal of Neuroscience* 35, no. 3 (January 21, 2015): 1240-49, accessed March 9, 2017, http://www.jneurosci.org/content/35/3/1240.

[127] H.B. Svansdottir and John Snaedal, "Music Therapy in Moderate and Severe Dementia of Alzheimer's Type: A Case-Control Study," *International Psychogeriatrics* 18, no. 4 (2006): 613-21.

Disease (BEHAVE-AD). The therapy group had 18 sessions of music therapy for 30 minutes, three times a week. The control group received no change in their care.

The therapy consisted of a collection of songs which were familiar to the participants. The participants chose the songs they wanted to sing and each song was sung twice. Instruments were also provided for the patients to use. Some patients danced with the music.

The results of the study were that the BEHAVE-AD scores improved significantly for the group that participated in the music therapy. The conclusion of the study was that "activity disturbances and anxiety can be affected by the patient's participation in music therapy."[128] Researchers also found that four weeks after the conclusion of the study, most if not all the benefits of the music therapy had disappeared.[129]

https://www.researchgate.net/figure/7162647_fig1_Figure-1-Average-scores-for-activity-disturbance-on-the-BEHAVE-AD-p-005

Figure 8– BEHAVE-AD scores for activity disturbance, aggressiveness and anxiety[130]

4. Effects of Group Music Intervention on Behavioral and Psychological Symptoms in Patients with Dementia; A Pilot-Controlled Trial - Daejeon University Study

Daejeon University, Korea Institute of Oriental Medicine and Hanyang University conducted a study in South Korea. The goal of the study was to determine the "effects of group music intervention on behavioral and psychological symptoms in patients with

[128] H.B. Svansdottir and John Snaedal, "Music Therapy in Moderate and Severe Dementia of Alzheimer's Type: A Case-Control Study," *International Psychogeriatrics* 18, no. 4 (2006): 613-21.

[129] Ibid.

[130] Ibid.

dementia."[131] Researchers selected twenty patients who were officially diagnosed as having dementia, able to walk, and that could understand and respond to questions. The research split the patients into a control group and a group which received 50 minutes of music therapy three times a week for five consecutive weeks.

The group that received the music therapy participated in a combination of singing, playing instruments, making instruments and listening to a variety of different types of music. The results showed that the patients who participated in music therapy "showed significant improvement with regard to agitation"[132] compared with the control group.

5. A Randomized Controlled Trial Exploring the Effect of Music on Agitated Behaviours and Anxiety in Older People with Dementia - Griffith University Study

Not all research shows a positive impact of music therapy on Alzheimer's patients. Griffith University in Australia conducted a research project which studied forty-seven patients. The study was conducted over a six-month period and explored the "effect of music on agitation, emotion and quality of life of older people with dementia."[133] The conclusion in this study was that there was no significant improvement

[131] A.N. Choi, A.J. Cheong, and J.s. Lee, "Effects of Group Music Intervention on Behavioral and Psychological Symptoms in Patients with Dementia; A Pilot-Controlled Trial" *International Journal of Neuroscience* 119, no. 4 (2009): 471-81.

[132] Ibid.

[133] Marie L. Cooke et al., "A Randomized Controlled Trial Exploring the Effect of Music on Agitated Behaviours and Anxiety in Older People with Dementia," *Aging and Mental Health* 14, no. 8 (November 2010): 907.

in aggressive behavior. However, the patient was more easily able to express their agitation verbally.[134]

6. *Alive Inside* – Music and Memory Study

Oliver Sacks states in the movie *Alive Inside*, "Music is inseparable from emotion. So, it's not just a physiological stimulus. If it works at all, it will call the whole person – the many different parts of their brain and the memories and emotions which go with it."[135] Dan Cohen is the founder and executive director of Music & Memory.[136] This foundation promotes the use of personal digital music players that they customize to the individual. Cohen documented his study over a three-year period and recorded it in the documentary *Alive Inside: A Story of Music and Memory*. The goal of this study was to see how the quality of life of the Alzheimer's patient could be improved through the utilization of music therapy. The patients were given Apple Ipods with music on them that was specifically selected based on the type of music the patient enjoyed. Cohen demonstrated how music could "combat memory loss and restore a deep sense of self to those suffering from it."[137]

---

[134] Marie L. Cooke et al., "A Randomized Controlled Trial Exploring the Effect of Music on Agitated Behaviours and Anxiety in Older People with Dementia," *Aging and Mental Health* 14, no. 8 (November 2010): 905.

[135] *Alive Inside: A Story of Music and Memory*, directed by Michael Rossato-Bennett (Projector Media, 2014), accessed March 8, 017, https://www.netflix.com/watch/70299276?trackId=14170056&tctx=1%2C14%2C530a1ce8-45d8-4b0a-8d81-a2b7bf415bc6-20263965.

[136] "Alive Inside – About the Team," Alive Inside - A Story of Music and Memory, accessed March 9, 2017, http://www.aliveinside.us/#about-the-team.

[137] *Alive Inside: A Story of Music and Memory*, directed by Michael Rossato-Bennett (Projector Media, 2014), accessed March 8, 2017, https://www.netflix.com/watch/70299276?trackId=14170056&tctx= 1%2C14%2C530a1ce8-45d8-4b0a-8d81-a2b7bf415bc6-20263965.

The documentary highlights the struggles of each of the Alzheimer's patients. Some of the patients were nearly catatonic while others were still in the early stages of the disease. What this study demonstrated is that even in the most advanced cases of Alzheimer's, the music had an impact. To date, Cohen has initiated his Music and Memory program in 640 nursing homes across 45 states. His goal is to make this the standard form of therapy in all 50,000 facilities in the United States.[138]

7. *Musical Minds* – NOVA and Columbia University

In the documentary *Alive Inside,* Oliver Sacks states that "Music imprints itself on the brain deeper than any other human experience. Music evokes emotion and emotion can bring with it memory. Music brings back the feeling of life when nothing else can."[139]

In 2009, Sacks underwent a study in conjunction with Columbia University. They did a cat scan of his brain while listening to a Bach piece and then a Beethoven piece. The study showed that his brain had greater activity and emotion when listening to pieces to which he had an emotional attachment or preference. Both pieces of music caused brain activity but the activity while listening to Bach was much more evident in the scans.

[138] Annie Sneed, "'Alive Inside' Shows How Music Can Break Through the Fog of Dementia," *Scientific American*, July 2014, 1, accessed March 8, 017, https://www.scientificamerican.com/article/alive-inside-shows-how-music-can-break-through-the-fog-of-dementia/.

[139] *Alive Inside: A Story of Music and Memory*, directed by Michael Rossato-Bennett (Projector Media, 2014), accessed March 8, 2017, https://www.netflix.com/watch/70299276?trackId=14170056&tctx= 1%2C14%2C530a1ce8-45d8-4b0a-8d81-a2b7bf415bc6-20263965.

https://medium.com/media-theory-and-criticism-2017/does-the-brain-have-a-mind-of-its-own-a3b36ea9a0ce

Figure 9 – *Musical Minds*[140]

In his research Sacks states, "Music has the ability to activate more parts of the brain than any other stimulus. Music seems to be a cultural invention which makes use of parts of the brain developed for other purposes. Not only auditory parts, but visual parts, emotional parts, and at the lower level, in the cerebellum – all the basic parts for coordination."[141]

[140] *Musical Minds*, directed by Louise Lockwood (Produced for NOVA by Ryan Murdock, 2009), DVD 2009).

[141] *Alive Inside: A Story of Music and Memory*, directed by Michael Rossato-Bennett (Projector Media, 2014), accessed March 8, 017, https://www.netflix.com/watch/70299276?trackId=14170056&tctx=1%2C14%2C530a1ce8-45d8-4b0a-8d81-a2b7bf415bc6-20263965.

CHAPTER V: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

In this study, we have learned what dementia is and more specifically what Alzheimer's Disease is and how it impacts the well-being of someone who has the disease. The research describes the progression of the disease in detail including the inevitable conclusion: there is no cure. Various therapies are being used to treat the symptoms including drug therapy, supplements, and medical foods. Exercise is used to increase blood flow to the brain, and cognitive stimulation therapy helps with energy, mood, communication, and behavioral issues including anxiety and depression. Music therapy is also used to stimulate all areas of the brain and provide an improvement in the mental health and well-being of Alzheimer's patients.

The research divided the next portion of the study into three categories: spirituality and Alzheimer's Disease, the Nuns Study, and studies in Music Therapy and Alzheimer's Disease. The studies utilized participants who were in various stages of Alzheimer's Disease and monitored the impact of the various therapies used to benefit the overall well-being of the Alzheimer's patient.

Conclusions

The purpose of this study is to gain a better understanding of what dementia is, specifically Alzheimer's Disease, and to understand how we can better serve the needs of members of our church family with this disease. The Nuns Study shows that a positive attitude can increase our lifespan by as many as ten years. The studies in spirituality have shown that people with Alzheimer's Disease gain comfort through prayer, reading the

Bible and sharing in community with their local church family. Dementia is a disorder of the mind, not the soul. "God's grace is so amazing. He gives us what we need when we are too weak or confused to ask for it ourselves. In Alzheimer's Disease, we are reminded that God knows us better than we know ourselves."[142]

In scripture, we read "Therefore we do not lose heart. Though outwardly we are wasting away, yet inwardly we are being renewed day by day. For our light and momentary troubles are achieving for us an eternal glory that outweighs them all. So, we fix our eyes not on what is seen, but on what is unseen, since what is seen is temporary, but what is unseen is eternal." (2 Corinthians 4:16-18 NIV) For leaders in the church body it is a challenge to provide support for the members of our church family that are in the various stages of Alzheimer's Disease and for those giving care to them.

In the documentary, *Alive Inside,* Oliver Sacks states that "Music imprints itself on the brain deeper than any other human experience. Music evokes emotion and emotion can bring with it memory. Music brings back the feeling of life when nothing else can."[143] Music awakens the mind of those with Alzheimer's Disease to remember and become reconnected to their surroundings and the people around them. In today's culture, where many of our churches are moving toward "contemporary worship" to be relevant to the younger generation, we tend to remove the hymns that are familiar and comforting to those that have dementia. The hymns that do remain are altered by adding additional

---

[142] Benjamin T. Mast, *Second Forgetting: Remembering the Power of the Gospel During Alzheimer's Disease* (Grand Rapids, Michigan: Zondervan, 2014), 67.

[143] *Alive Inside: A Story of Music and Memory*, directed by Michael Rossato-Bennett (Projector Media, 2014), accessed March 8, 2017, https://www.netflix.com/watch/70299276?trackId=14170056&tctx= 1%2C14%2C530a1ce8-45d8-4b0a-8d81-a2b7bf415bc6-20263965.

phrases or changing the chord structure to make them more "contemporary". This can cause confusion for the worshiper with Alzheimer's Disease who recognizes the song until it suddenly changes midstream to an unfamiliar variation. Keeping the familiar hymns in their original form would not only provide a familiar anchor for those who have Alzheimer's Disease but would also enlarge and enrich the church family's experience musically.

"Even though a person can become confused because of an impaired memory, that person still has real needs, feelings, and longings."[144] The church family has a responsibility to meet the needs of everyone, especially those of the church family who have Alzheimer's Disease. Those needs include physical, emotional and spiritual support through a close connection with the community of believers. Isolating those members in our church family with Alzheimer's Disease from the community of believers contributes to their decline since they have lost one more thing that is familiar to them. "Alzheimer's dims a person's outlook. The role of the church community is to step in and throw open the windows to let the light of hope shine in."[145]

Recommendations

In our church services, it is important to show the love of God especially during times of suffering and uncertainty. In the documentary, *Alive Inside,* it states "Isn't this desire – a desire to awaken another person, to what they are, to what they could be – a

[144] Benjamin T. Mast, *Second Forgetting: Remembering the Power of the Gospel During Alzheimer's Disease* (Grand Rapids, Michigan: Zondervan, 2014), 62.

[145] Ibid. 110.

deep part of being human?"[146] In the church environment, this can be achieved using spiritual songs and hymns that allow a worshiper to move closer to God in worship.

Swinton states in his book *Dementia: Living in the Memories of God,* "If knowledge of God is necessary for knowledge of self, and if the only way to access who we are is through active contemplation of who God is, then we have a problem. What happens when one can no longer remember either self or God? How can I know God if I can no longer contemplate God? Can I no longer know God?"[147] "What does it mean to know God when you have forgotten who God is?"[148]

The project undertaken by *Music and Memory* has clearly shown that music that is familiar provides comfort to the individual with Alzheimer's Disease. We must be sensitive as worship leaders to select songs which enhance the worship experience for everyone in our church family including those with Alzheimer's Disease. The fact that people with Alzheimer's Disease can recall words and lyrics of familiar songs even in the latest stages of the disease gives a unique opportunity to reach the soul of the afflicted in worship. Keeping these songs in their original form provides peace and spiritual contentment for those afflicted with Alzheimer's Disease. The inclusion of familiar scripture passages can also be used to reconnect the worshiper. We are enhancing the

[146] *Alive Inside: A Story of Music and Memory*, directed by Michael Rossato-Bennett (Projector Media, 2014), accessed March 8, 017, https://www.netflix.com/watch/70299276?trackId=14170056&tctx=1%2C14%2C530a1ce8-45d8-4b0a-8d81-a2b7bf415bc6-20263965.

[147] John Swinton, *Dementia: Living in the Memories of God* (Grand Rapids, Mich.: Eerdmans, 2012),11.

[148] Ibid. x.

spiritual well-being of the individual with Alzheimer's Disease when we connect through music and scripture to the person with Alzheimer's Disease in our services,

Taking care of someone with Alzheimer's Disease is demanding and stressful. Caregivers need to have time away to rest and recover. The church body has an opportunity to give of their time by providing caregivers with much needed time away. To stay even for an hour to allow the caregiver to get away and take a break provides a great service to the caregiver. We are to reflect Christ in all that we do. "Therefore, as God's chosen people, holy and dearly loved, clothe yourselves with compassion, kindness, humility, gentleness and patience." (Colossians 3:12 NIV)

BIBLIOGRAPHY

The Global Voice on Dementia. “Dementia Statistics”: https://www.alz.co.uk/research/statistics (accessed December 28, 2016)

Alive Inside: A Story of Music and Memory. Directed by Michael Rossato-Bennett. Projector Media, 2014. Accessed March 8, 2017. https://www.netflix.com/watch/70299276?trackId=14170056&tctx= 1%2C14%2C530a1ce8-45d8-4b0a-8d81-a2b7bf415bc6-20263965

Alive Inside - A Story of Music and Memory. “Alive Inside – About the Team.” Accessed March 9, 2017. http://www.aliveinside.us/#about-the-team.

Alzheimer's Association. “Alzheimer's and Dementia: What is Alzheimer's.” http://www.alz.org/alzheimers_disease_what_is_alzheimers.asp (accessed February 5, 2017).

Alzheimer's association. “2016 ALZHEIMER’S DISEASE FACTS AND FIGURES.” http://www.alz.org/facts/overview.asp (accessed February 24, 2017).

Alzheimer's association. “Medications for Memory Loss.” http://www.alz.org/alzheimers_disease_standard_prescriptions.asp (accessed February 24, 2017).

Alzheimer's Association. “Medical Foods.” 2015. http://www.alz.org/documents_custom/statements/medical_foods.pdf (accessed March 5, 2017).

Bailey, Regina. “Anatomy of the Brain - Cerebellum.” About Education. http://biology.about.com/od/anatomy/p/frontal-lobes.htm (accessed February 27, 2017).

Bailey, Regina. “Frontal Lobes and Their Function.” About Education. http://biology.about.com/od/anatomy/p/frontal-lobes.htm (accessed February 27, 2017).

Bailey, Regina. “Occipital Lobes and Visual Perception.” About Education. http://biology.about.com/od/anatomy/p/occipital-lobes.htm (accessed February 27, 2017).

Bailey, Regina. “Parietal Lobes of the Brain .” About Education. http://biology.about.com/od/anatomy/p/Parietal-Lobes-of-the-Brain.htm (accessed February 28, 2017).

Bailey, Regina. “Temporal Lobes.” About Education. http://biology.about.com/od/anatomy/p/temporal-lobes.htm (accessed February 27, 2017).

Bidelman, Gavin M., and Claude Alain. “Musical Training Orchestrates Coordinated Neuroplasticity in Auditory Brainstem and Cortex to Counteract Age-Related Declines in Categorical Vowel Perception.” *JNeurosci - The Journal of Neuroscience* 35, no. 3 (January 21, 2015): 1240-49. Accessed March 9, 2017. http://www.jneurosci.org/content/35/3/1240.

Beuscher, Linda, and Victorio T. Grando. “Using Spirituality to Cope with Early Stage Alzheimer’s Disease.” *Western Journal of Nursing Research* 31, no. 5 (August 2009): 583-98.

Campbell, Don G. *The Mozart Effect: Tapping the Power of Music to Heal the Body, Strengthen the Mind, and Unlock the Creative Spirit*. New York: Avon Books, 1997.

Campbell, Glen, and Julian Raymond. *I'm Not Gonna Miss You*. Los Angeles: Big Machine Records, 2014.

Casey, MD, David A., Demetra Antimisiaris, PharmD, and James Obrien, MD. “Drugs for Alzheimer’s Disease: Are They Effective?” *P and T* 35, no. 4 (April 2010): 208-11.

Choi, A.N., A.J. Cheong, and J.s. Lee. “Effects of Group Music Intervention on Behavioral and Psychological Symptoms in Patients with Dementia; A Pilot-Controlled Trial” *International Journal of Neuroscience* 119, no. 4 (2009): 471-81.

Clair, Alicia Ann. “Education and Care - Music.” Alzheimer's Foundation of America. Last modified January 28, 016. https://www.alzfdn.org/EducationandCare/musictherapy.html (accessed March 5, 2017).

Cooke, Marie L., Wendy Moyle, David H.K. Shum, Scott D. Harrison, and Jenny E. Murfield. “A Randomized Controlled Trial Exploring the Effect of Music on Agitated Behaviours and Anxiety in Older People with Dementia.” *Aging and Mental Health* 14, no. 8 (November 2010): 905-16.

Cummings, Tam. *Untangling Alzheimer's: The Guide for Families and Professionals*. [United States]: Dementia Association, ©2013.

Earlstein, Frederick. *Dementia: Types, Diagnosis, Symptoms, Treatment, Causes, Neurocognitive Disorders, Prognosis, Research, History, Myths, and More!* Nevada.: NRB Publishing, ©2016. Kindle Edition.

emedicinehealth. “Pictures of Brain Diseases and Problems - Vascular Dementia.” 2017. http://www.emedicinehealth.com/image-gallery/vascular_multi-infarct_dementia 1_picture/ images.htm (accessed February 23, 2017).

Franklin, Vikki. “Nun Study: Folic Acid May Slow Degeneration of the Brain in Alzheimer’s Disease.” UK Chandler Medical Center. May 17, 1999. Accessed March 12, 2017. http://www.uky.edu/PR/News/MCPRNews/1999/nun.htm.

Glen Campbell...I'll Be Me. Directed by James Keach. PCH Films, 2014. Netflix. 2015.

Healthwise Staff. “7 Stages of Alzheimer’s Disease.” WebMD. January 21, 2017. Accessed April 7, 2017. http://www.webmd.com/alzheimers/guide/alzheimers-disease-stages#1.

Healthwise Staff. “PET Scans of the Brain.” WebMD. August 21, 2015. Accessed April 7, 2017. http://www.webmd.com/brain/pet-scans-of-the-brain.

Herczenik, Eszter, and Martijn Gebbink. “Molecular and cellular aspects of protein misfolding and disease.” *The FASEB Journal* 22, no. 7 (July 2008): 2115-13.

Hitti, Miranda. “Religion, Spirituality May Slow Alzheimer's.” WebMD. April 13, 2005. Accessed March 12, 2017. http://www.webmd.com/alzheimers/news/ 20070101/religion-spirituality-slow-alzheimer.

Hoffman, MD, Matthew. “Picture of the Brain.” WebMD. http://www.webmd.com/ brain/picture-of-the-brain#1 (accessed February 16, 2017).

Holmes, Clive, and Jay Amin. “Dementia.” *Medicine* 44, 1357-3039, no. 11 (November 2016): 687-90.

Isaacson, Richard S. *Alzheimer's Treatment, Alzheimer's Prevention: A Patient and Family Guide*. 2012 ed. Miami Beach, FL: AD Education Consultants, Inc., ©2012.

“Lantern of Chagrin Valley.” https://www.facebook.com/pg/ lanternofchagrinvalley/ photos/?ref=page_internal (accessed February 24, 2017).

LeBlanc, Gary Joseph. *Managing Alzheimer's and Dementia Behaviors: Common Sense Caregiving*. Outskirts Press, 2012.

Levitin, Daniel J. *The World in Six Songs: How the Musical Brain Created Human Nature*. New York: Dutton, 2009.

Levitin, Daniel J. *This Is Your Brain On Music: The Science of a Human Obsession*. New York: Plume, 2007, ©2006.

Lopera, M.D., Francisco, et al. "Clinical Features of Early-Onset Alzheimer Disease in a Large Kindred with an E280A Presenilin-1 Mutation." *JAMA* 277, no. 10 (March 12, 1997)

Mast, Benjamin T. *Second Forgetting: Remembering the Power of the Gospel During Alzheimer's Disease*. Grand Rapids, Michigan: Zondervan, 2014.

Mayo Clinic Staff. "Progressive supranuclear palsy." Mayo Clinic. 2017. http://www.mayoclinic.org/diseases-conditions/progressive-supranuclear-palsy/basics/definition/con-20029502 (accessed February 23, 2017).

Miller, Mary. *Dementia: Early Diagnosis and Treatments: Causes, Signs and Symptoms, Types, Daily Care, Safe Home, Driving, Behavior*. CreateSpace Independent Publishing Platform, 2014. Kindle Edition.

Musical Minds. Directed by Louise Lockwood. Produced for NOVA by Ryan Murdock, 2009. DVD. 2009.

NADS: National Association for Down Syndrome. "Facts About Down Syndrome." http://www.nads.org/resources/facts-about-down-Syndrome/ (accessed March 1, 2017).

National Center for Complementary and Integrative Health. "Dietary Supplements and Cognitive Function, Dementia, and Alzheimer's Disease: What the Science Says." December, 2013. https://nccih.nih.gov/health/providers/digest/alzheimers-science (accessed March 5, 2017).

National Institute on Aging. "Lewy Body Dementia: Information for Patients, Families, and Professionals." July 29, 016. https://www.nia.nih.gov/alzheimers/publication/lewy-body-dementia/basics-lewy-body-dementia (accessed February 23, 2017).

O'Brien, John. *Dementia with Lewy Bodies and Parkinson's Disease Dementia*. London: Taylor & Francis, 2006. Accessed February 15, 2017.

Pearce, JMS. "Pick's disease." *Journal of Neurology, Neurosurgery and Psychiatry* 74, no. 2 (February 2003): 169.

Peretz, Isabelle, Lise Gagnon, Sylvie Herbert, and Joel Macoir. "Singing in the Brain: Insights from Cognitive Neuropsychology." *Music Perception: An Interdisciplinary Journal* 21, no. 3 (2004): 373-90. doi:10.1525/mp.2004.21.3.373.

Quinn, Joseph F., ed. *Dementia*. Neurology in Practice. Chichester, West Sussex: Wiley-Blackwell, 2013.

Rio, Robin. *Connecting through Music with People with Dementia: A Guide for Caregivers*. London: Jessica Kingsley Publishers, 2009.

Rongve, MD, PhD, Arvid, Clive Ballard, MD, PhD , and Dag Aarsland, MD, PhD. "Non-Alzheimer Dementias." *Journal of Geriatric Psychiatry and Neurology* 29 (2016): 247-48.

Sacks, Oliver. *Musicophilia: Tales of Music and the Brain*. New York: Alfred A. Knopf, 2007.

Sandilyan, Malavizhi Babu and Tom Dening. "Signs and Symptoms of Dementia." Nursing Standard (2014+) 29, no. 41 (Jun 10, 2015): 42, http://ezproxy.liberty.edu/login?url= http://search.proquest.com.ezproxy.liberty.edu/docview/1784931737?accountid=12085.

Schneck, Michael J. "Vascular Dementia." *Topics in Stroke Rehabilitation* 15, no. 1 (2008): 22. ezproxy.liberty.edu/login?url=http:// go.galegroup.com.ezproxy.liberty.edu/ps/i.do?p=ITOF&sw=w&u=vic_liberty&v=2.1&it=r&id=GALE%7CA174598747&sid=summon&asid=8bc3dfed5a1d12f3923f14fb5964544f. Assessed February 21, 2017.

Seligson, Susan. "Music Boosts Memory in Alzheimer's." *BU Today*, 2010. Accessed March 8, 2017. http://www.bu.edu/today/2010/music-boosts-memory-in-alzheimer%E2%80%99s/.

Shelat, DO, FACP, Amit M. "Pick Disease." MedlinePlus Trusted Health Information for You. Last modified February 7, 2017. https://medlineplus.gov/ency/article/000744.htm (accessed February 22, 2017).

Simmons-Stern, Nicholas R., Andrew E. Budson, and Brandon A. Ally. "Music as a Memory Enhancer in Patients with Alzheimer's Disease." *Neuropsychologia* 48, no. 10 (August 2010): 3164-67.

Snowden, David. "Aging and Alzheimer's Disease: Lessons From the Nun Study." *The Gerontologist* 37, no. 2 (1997): 150-56.

Spector, Aimee, Lene Thorgrimesen, Bob Woods, Lindsay Royan, Steve Davies, Margaret Butterworth, and Martin Orrell. “Efficacy of an evidence-based cognitive Efficacy of an evidence-based cognitive stimulation therapy programme for people stimulation therapy programme for people with dementia.” *British Journal of Psychiatry* 183 (2003): 248-54.

“spokensanskrit.de dictionary.” http://spokensanskrit.de/ (accessed February 24, 2017).

Svansdottir, H.B., and John Snaedal. “Music Therapy in Moderate and Severe Dementia of Alzheimer's Type: A Case-Control Study.” *International Psychogeriatrics* 18, no. 4 (2006): 613-21.

Thomas, Dennis. “Daily High-Dose Vitamin E Might Delay Alzheimer's.” WebMD. December 31, 2013. http://www.webmd.com/alzheimers/news/20131231/daily-high-dose-vitamin-e-might-delay-alzheimers#1 (accessed February 24, 2017).

Weiner, William J., Lisa M. Shulman, and Anthony E. Lang. *Parkinson's Disease: A Complete Guide for Patients and Families*. third ed. A Johns Hopkins Press Health Book. Baltimore: The Johns Hopkins University Press, 2013.

APPENDICIES

Illustrations

Figures

Resources

Alzheimer's Foundation of America (AFA)
AFA National Toll-Free Helpline
Phone: (866) 232-8484
Website: http://www.alzfdn.org/

Alzheimers.gov
U.S. Department of Health & Human Services
Website: www.alzheimers.gov

BrightFocus Foundation
Alzheimer's research and resources
Website: http://www.brightfocus.org/

Morningside Ministries
Caregiver training videos Online
Website: http://www.mmlearn.org

Music & Memory
Website: https://musicandmemory.org/

National Institute on Aging
Alzheimer's Disease Education and Referral (ADEAR) Center
Phone: (800) 438-4380
Website: https://www.nia.nih.gov/alzheimers/

WebMD
Alzheimer's Disease Support and Resources
Website: http://www.webmd.com/alzheimers/guide