2018

Parkinson's Disease: Promoting Wellbeing Through CREATION Health

Rupelin Pichot
Southern Adventist University

Parkinson's Disease: Promoting Wellbeing Through CREATION Health

Rupelin Pichot

Winter Semester, 2018

A Scholarly Paper Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Nursing Practice

Southern Adventist University

School of Nursing

Abstract

There are approximately 1.5 million Americans affected by Parkinson's disease (PD). In spite of medications and technological advances in managing the disease, patients with PD still live poor quality lives. Therefore, effective natural interventions are essential in promoting wellbeing and quality of life among PD patients. This research study aimed to examine the usefulness and efficacy of a PD brochure designed especially for PD patients and their caregivers by utilizing CREATION Health (CH) principles to promote wellbeing and quality of life in patients with PD. This study employed mixed methods of quantitative and qualitative research designs to evaluate the design, attractiveness, readability, quality, and usefulness of the information in the brochure. The majority of the participants rated all CH elements with high scores on the Likert Scale between four to five, and only a few participants rated the CH elements with low scores of one to three on the Likert Scale. The PD brochure was revised according to the feedback and recommendations of participants. The PD brochure has captured great interest among PD patients and primary caregivers. Study participants believe that the PD brochure is very helpful and beneficial for PD patients in attaining wellbeing and quality of life and also is useful for PD caregivers in assisting PD patients to improve PD symptoms.

Keywords: Brain-derived neurotrophic factor, balance, bradykinesia, dyskinesia, gait, motor activity, neurological disorders, Parkinson's disease, substantia nigra

Dedication and Acknowledgements

I dedicate this research project to my husband, Paul Pichot, who had battled progressive symptoms of Parkinson's disease (PD) and lived a poor quality of life in the last ten years. Because of Paul's health problem, I was motivated to search evidence-based articles and made a booklet on how to improve wellbeing and quality of life of patients with PD. In spite of his physical limitations, he tried to stay active and practiced some of the principles based on CREATION Health. I appreciate Paul's patience, support, and encouragement as I compiled this research project and designed the PD booklet to be used in health education primarily for patients with PD.

I also acknowledge the enormous effort and support of Dr. Holly Gadd, coordinator for the graduate program in nursing at Southern Adventist University, for her wise input, suggestions, and recommendations while editing and making this scholarly project an authentic source for health education among PD patients and their caregivers. The PD booklet used in this study was also designed as a guide for primary care providers, health therapists, and specialists in educating PD patients on how to slow down disease progression and for patients to acquire optimum wellbeing and better quality of life.

I hope that primary care providers and specialists will promote the interventions recommended in this research project to their PD patients and their caregivers and also for nursing instructors to educate their students on the importance of CREATION Health principles not only in slowing down PD progression, but also in reversing other chronically-acquired diseases.

Table of Contents

LIST OF TABLES AND FIGURES

Parkinson's Disease: Promoting Wellbeing Through CREATION Health

CHAPTER 1 – INTRODUCTION AND BACKGROUND

Introduction

Parkinson's Disease (PD) is a neurological disorder characterized by a progressive decline in speed, rigidity, and resting or "pill-rolling" tremors, poor balance, unsteady gait, and postural instability that increases PD patients' risk for falls. PD greatly affects movement, yet it also manifests non-motor symptoms such as fatigue, depression, anxiety, apathy, dementia, sleep disturbances, loss of smell, constipation, sexual dysfunction, and slurred speech. The non-motor manifestations of PD, which may be mistaken for signs of incompetence, apathy, or a disagreeable personality makes PD patients isolate themselves and evade personal interactions. Some of the non-motor symptoms of PD could be present for five to ten years before movement disorders become prominent (McNamara, 2016)

PD is mainly caused by a degeneration and atrophy of the substantia nigra of the midbrain resulting in the destruction of the brain cells that produce dopamine. The decreased amount of dopamine impairs the transmission of messages in the different parts of the brain and results in a disruption of body functions, including coordination, mobility, cognition, and emotion (Gisbert & Schenkman, 2015). There are also other factors contributing to the development of the disease that are unrelated to dopamine (McNamara, 2016).

Background and Significance of Proposed Project/Intervention

There are approximately 1.5 million Americans affected by PD with incidence rate of 60,000 and mortality rate of 23,000 every year. There are four million people worldwide affected by PD currently, and as many as nine million people worldwide will be affected by PD by the year 2030 (Babayeva et al., 2016). PD presents a heavy economic burden nationally, with an

estimated health care cost of more than $14.4 billion in 2010. A total of $6.3 billion results from indirect costs such as missed work, or loss of job for the patient or family member who takes care of the patient, adult day care, and personal caregivers. Health care expenditures for more than 103,000 PD patients in the nursing homes amount to approximately $5 billion. Rick (2013) concluded that if PD progression could be slowed down by 50 percent, there would be a 35% reduction in health care costs, which is a remarkable reduction in health expenditure spread over a longer period of a patient's lifetime.

Although PD is typically thought of as a disease of aging, a substantial number of young adults are developing the disease as well (Knipe et al., 2011). PD is now considered a world health problem and health care priority due to its complex presentations (McNamara, 2016). Caucasians, males, and people 60 to 80 years old are more prone to developing PD. Genetics, traumatic brain injuries, exposure to environmental pollutants (such as insecticides, herbicides, and pesticides), illegal drug use, well water, and other toxic chemicals used in welding, agriculture, and manufacturing industries are some of the contributing factors that cause PD development. Additionally, other causes may be attributed to infections, intestinal disorders, and antibiotic use (Vaughan, 2014; McNamara, 2016). Greger and Stone (2015) mentioned that autopsy studies among PD patients found high levels of pesticides and other pollutants causing significant brain damage especially in the substantia nigra. Although the use of these chemicals was banned many years ago, they are still present in the environment. These toxic chemicals are also present in fish, milk, meat, and other animal products. Greger & Stone (2015) found that PD was directly associated with dairy consumption and that milk was highly contaminated with neurotoxins and these toxins were also present in cheese. Interestingly, people who eat a plant-based diet were found to have lower serum levels of the toxins. Greger & Stone (2015) also

mention that in the past half-century cigarette smoking was known to decrease incidence of Parkinson's disease. Scientists have tried to figure out the reason behind this finding. Some scientists propose that the decreased incidence of PD associated with tobacco smoking could be due to the fact that people who smoke die before they are diagnosed with PD. Greger & Stone (2015) argued that although tobacco has neuro-protective effects, the benefits do not outweigh the risks because smoking creates a great risk for stroke as well as other health problems.

There are no standard diagnostic tests for PD. There is no lab test or brain scan that can determine the presence of the disease; the diagnosis is based on symptoms during a neurological examination. Levodopa is a drug that is specific for PD. It is used to treat stiffness, tremors, spasms, and poor muscle control associated with PD. If motor symptoms such as rigidity, tremors, and dyskinesia get better with a trial dose of Levodopa, then most likely the individual has PD. PD is associated with low levels of a neurotransmitter called dopamine. The body changes Levodopa to dopamine and therefore increases levels of dopamine (emedicinehealth, n.d.).

Purpose of the Study

This research study aims to examine the usefulness and efficacy of a PD brochure designed especially for PD patients and their caregivers by utilizing CREATION Health principles to promote wellbeing and quality of life in patients with PD. The PD brochure will contain information supported by evidence-based research.

This brochure will be distributed to PD patients and their caregivers, primary health care providers, specialist providers, Southern Adventist University-Doctorate in Nursing Program (SAU-DNP) faculty, and editor(s) of the CREATION Health for evaluation and critique.

Participants will make critiques and feedback about the PD brochure on the second page of the evaluation form. This information will be used to refine the brochure for a final product.

The PD brochure will serve as a foundation to educate both PD patients and their caregivers, which can eventually be used by primary care or specialty providers in their practice. Furthermore, this PD brochure will also be used as a model for creating different CREATION Health brochures for other diseases.

Hypothesis

Patients with PD, PD caregivers, primary healthcare providers, specialist providers, and the editor(s) of the CREATION Health will validate the usefulness and efficacy of the CREATION Health brochure in improving wellbeing among PD patients. PD caregivers, primary care providers, and specialist providers will be able to use this brochure as a guide in PD patient education and health promotion to improve PD patients' wellbeing and quality of life.

Related theoretical definitions: (definitions from www.google.com/search/)

1. Brain-derived neurotropic factor (BDNF): BDNF helps in developing new nerve pathways and in the repair and regeneration of brain cells.
2. Bradykinesia: Bradykinesia is a slow movement associated with a decreased capacity to adjust to the body's position.
3. Dopamine: Dopamine is a hormone that controls the brain's reward and pleasure centers and regulates movement and emotional responses.
4. Dyskinesia: Dyskinesia refers to the difficulty in performing voluntary movements and may be due to a long-term levodopa therapy.
5. Substantia nigra: Substantia nigra is a layer of large pigmented nerve cells in the midbrain that produces dopamine.

Theoretical Framework

The theoretical frameworks that are used for this study are the Southern Adventist University (SAU) School of Nursing (SON) framework and the CREATION Health Model, combined (Figure 1.). The PD patient is at the center of the three intersecting circles, which are the biological, psychological, and the social needs of the patient. The health provider's responsibility is to meet those needs by caring, connecting, and empowering the patient in improving wellbeing and quality of life by applying CREATION Health principles. God, in the outmost circle, encompasses the patient and the provider and enables them to proficiently apply CREATION Health principles.

This study model is a holistic approach that can be utilized in improving wellbeing and quality of life in patients affected by PD. The acronym CREATION stands for the eight elements in which "C" is for choice, "R" for rest, "E" for environment, "A" for activity, "T" for trust in God, "I" for interpersonal relationship, "O" for outlook, and "N" for nutrition (Creation, 2014). The Parkinson's Disease and CREATION Health (PDCH) brochure educates PD patients and their caregivers on how to exercise their power of choice, such as by choosing the way to life and health, getting adequate quality rest and sleep, and utilizing resources in the environment such as fresh air and sunshine. Regular physical activity is encouraged in spite of PD patients' limitations in movement. Trusting in God instead of being anxious and depressed, fostering a positive interpersonal relationships to enhance social support, having a positive outlook in life, and adhering to a healthy dietary regimen are also discussed in the brochure.

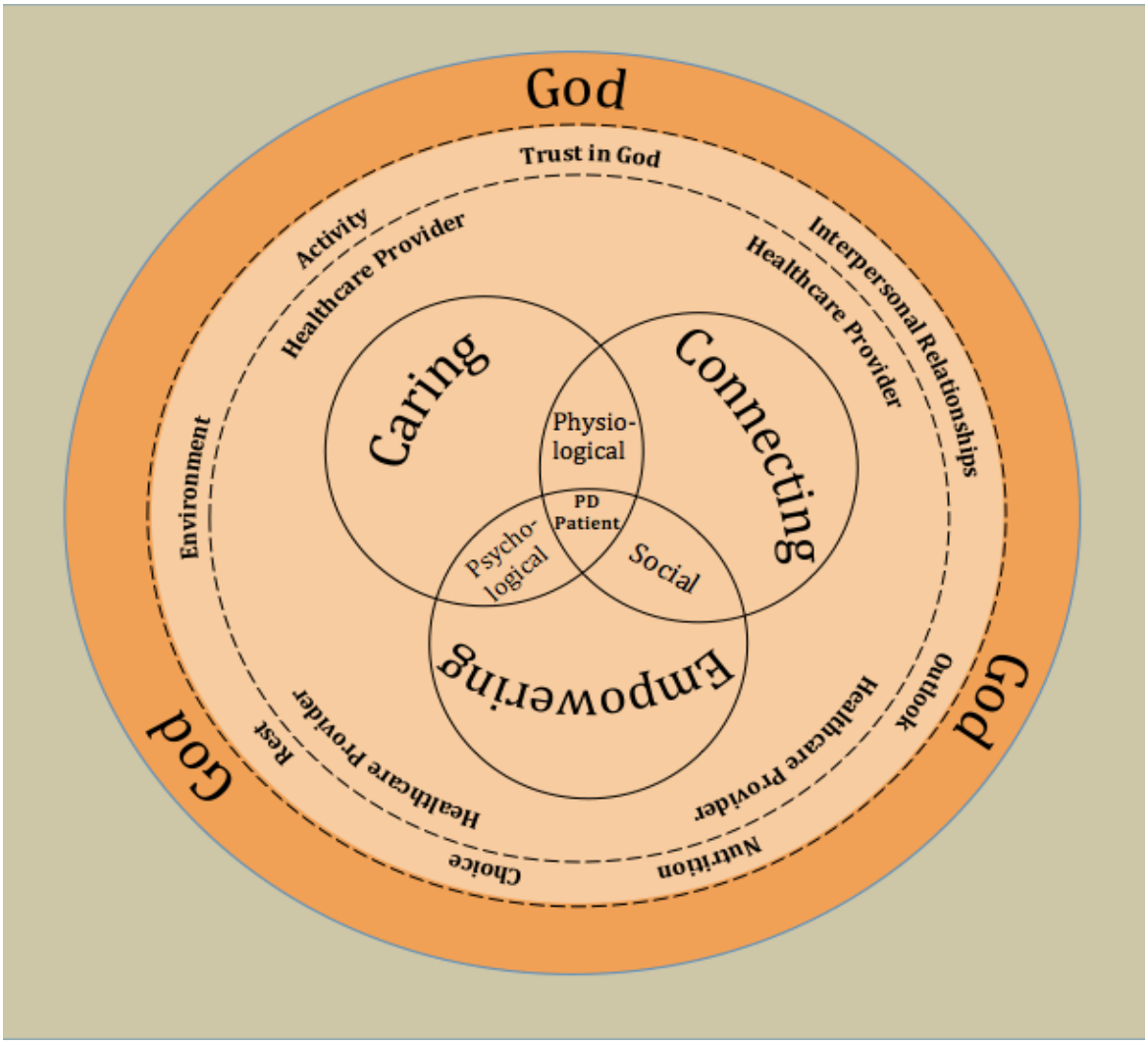

Figure 1. Combination of the SAU Theoretical Framework and the CREATION Health Model

CHAPTER 2 – LITERATURE REVIEW

A review of literature was done using databases from the McKee Library at Southern Adventist University. Key words included Parkinson's disease, choice, rest, activity, trust in God, interpersonal relationships, outlook, nutrition, alternative treatments, and interventions to slow down PD progression.

The CREATION Health Model served as a framework for the review of literature. Specific research evidence was sought to support a variety of patient self-care activities for those with PD.

Literature

Choice

Individuals must have feelings of competency and autonomy to benefit from their choices. Individuals who exercise their power of choice feel confident when they understand the value of the task they are trying to do. Self-confidence is increased when the task is connected to the values and interests of the individual (Thompson & Beymer, 2015). Plath (2014) developed five steps in making evidence-based decisions. The five steps are as follows: identify the problem, verify research evidence to manage the problem, critically appraise evidence for quality and usability, apply best evidence to treat the problem, and evaluate process and outcomes.

Hager et al. (2014) found that choice is associated with intrinsic motivation, increased task performance, endurance, and greater satisfaction. Individuals who exercise the power of choice feel more in control, responsible, competent, and confident in their environment and behavior. On the contrary, lack of choice results in decreased intrinsic motivation (Hager et al., 2014). The effects of choice on intrinsic motivation depend on the cultural background of the participants. Studies have shown that the types of motivation individuals develop depend on

whether they are an individualist or a collectivist type of person. Researchers found that when individualist participants were provided a choice of whether or not to complete a task, the group showed an increased level of intrinsic motivation. In contrast, collectivist participants, showed a high level of intrinsic motivation, when assigned a task by a group member. Preferences and perceptions of choice are linked to beneficial outcomes, such as better quality of life, treatment satisfaction, and lower depression (Geers & Rose, 2011). Study participants who were given a choice over different treatment options reported reduced anxiety and depression, decreased pain perception, and increased pain tolerance. Provision of choice to patients may increase treatment effectiveness and can also strengthen expected placebo effects (Geers & Rose, 2011). Individuals who are allowed health care choices display higher levels of treatment satisfaction, experience greater pain relief, and they feel more positive about the treatment, which leads to reduced perceptions of pain (Fox et al., 2016).

Individuals who are offered a choice will develop the motivation to complete the tasks that both interest and benefit them. Individuals who have an interest in a task will find that being given a choice increases motivation. On the contrary, individuals who show no interest in a task will find choosing overwhelming (Patall, 2013). When individuals feel competent in performing a task, they may be more motivated to make a task choice. If an individual is not confident in performing a task, providing a choice may lead to decreased motivation (Patall et al., 2014).

Rest

Sleep problems among PD patients are categorized into disturbances of sleep and disturbances of wakefulness. Sleep disturbances include insomnia, restless leg syndrome, sleep apnea, and parasomnias such as sleep talking, sleepwalking, and sleep terrors. Sleep disturbances in wakefulness include excessive daytime sleepiness (EDS) and effects of medications (Salawu

& Olokoba, 2015). PD patients have the tendency to fall asleep unintentionally due to sleep disturbances at night and the sedative effects of PD medications. Non-pharmacologic interventions are the main approaches to improve mild to moderate EDS in PD. These interventions include proper sleep hygiene and behavioral therapy, such as stimulus-control therapy, sleep restriction therapy, chronotherapy, and bright light therapy (Salawu & Olokoba, 2015; Knie et al., 2011). Minimum use of sedatives, treatment of sleep disorders, and use of the lowest dose of dopaminergic medication with optimal symptom control can be helpful in reducing EDS (Salawu & Olokoba, 2015.) Other non-pharmacological measures include a hot bath two hours before bedtime, sleeping on a recliner as preferred by some patients, scheduling a fixed wake-up and sleep time, and relaxation techniques if the patient wakes up during the night. If patient wakes up early in the morning, the patient should get up and perform regular daily activities rather than staying in bed trying to sleep. Long day-time naps should be avoided, and bedroom should be well-lighted and well-ventilated, with a suitable and comfortable temperature (Knie et al., 2011). Sleep strategies that are helpful to improve sleep disturbances include a schedule for regular traditional mealtimes, scheduling activities during times of somnolence, and exposure to early morning sunlight (Stacy, 2002; Manni et al., 2007). Similarly, another study showed that following a regular wake-sleep cycle, bedtime sleep restriction, avoidance of frequent daytime naps, and moderate daytime physical exercise also improve sleep disorders in patients with PD (Manni et al., 2007). In addition to t'ai chi and aerobic exercises, the practice of quigong, which is a traditional Chinese therapy involving meditative movements to attain psychological and physiological relaxation, was also found to be beneficial in improving sleep quality and EDS by improving motor symptoms at night (Wassom et al., 2014).

Environment

Several factors in the environment such as air, water, and sunshine, could affect PD. A clean and orderly home environment and contact with nature such as caring for animals and plants can also impact the lives of persons with PD. Padilla (2011) stated that the elements in the environment greatly impact health because what surrounds a person could gain access inside the body through the skin, mouth, and senses, and then could affect mood and wellbeing. Padilla (2011) found that ambient music, aromatherapy, and Snoezelen are effective in reducing agitation, although the effects are short-term. There is a correlation between light and serotonin production. In addition to the light-induced modulation of serotonin through the retina, the skin also helps in serotonin production as a result of photo-stimulation. Sansoni & Sansoni (2013) mentioned that the seasonal alterations in serotonin may be due to the decreased photo-stimulation on the skin. Padilla (2011) also found that bright light therapy is effective in regulating mood and the sleep-wake cycle, resulting in wakefulness during the day and improved sleep at night. DeAngelis (2017) stated that natural light improves one's mood. He recommended that sunlight be allowed to penetrate through the windows, and patients should look out on calming scenery and not on busy roads and disturbing lights and sounds. In another study, Field et al. (2005) found that decreased exposure to sunlight was associated with seasonal mood disorders. Researchers also found that participants developed increased risk for depression with low levels of vitamin D. Participants with the lowest serum level of vitamin D were twice as likely to have depression compared to those with normal levels of vitamin D. Low vitamin D serum level is also associated with osteoporosis in patients with PD (Sheard & Ashi, 2015). Patients with PD are at risk for falls and may easily sustain a fracture due to osteoporosis. Therefore adequate sunshine exposure is essential in persons with PD.

Buijze et al. (2016) found that pet therapy was effective in relieving depression and in promoting a positive mood. Animal visits reduced loneliness among nursing home residents and facilitated social interactions among the residents. Caring for birds and petting an animal resulted in reduced depression, fear, and anxiety. Animal interactions have also resulted in decreased levels of cortisol, epinephrine, and norepinephrine among participants (Beetz et al., 2012).

Water is abundant in the environment. It can be used internally and externally, to promote health. In a study among patients with PD physiotherapy, the patients' functional reach test was improved with land and water-based therapy, while balance and postural stability were improved with just aquatic therapy (Buijze et al., 2016). Whirlpool immersions for 10 minutes also resulted in increased feelings of wellbeing and decreased anxiety. The use of a cold shower was also found to have an anti-psychotic effect similar to that of an electroconvulsive shock (Buijze et al., 2016). Water, when taken internally, was found to relieve constipation in patients with PD (Schuster, 2015; Sheard & Ash, 2015).

PD is usually associated with dementia, depression, and anxiety. One of the elements in the environment that can impact memory and mood is music. Baker (2017) found that listening to music or songs one heard in the past triggered memories. Regularly listening to slow and calming music helped the body and mind to relax, reducing stress and anxiety. Participants who listened to music were also found to have improved sleep quality and decreased depressive symptoms. Herbs and essential oils were also found to be beneficial in people with mood disorders. The use of essential oils, such as the lavender, bergamot, sandalwood, yuzu, limonene, linalool, and linalyl acetate were found to improve anxiety, depression, and sedation (Baker (2017).

Indoor air pollution is considered one of the world's greatest health threats. Pesticides, insecticides, and cleaning products are air pollutants that were found to impact PD. Studies have shown that plants help decrease indoor air pollution (Papindack et al., 2009).

Martyn & Brymer (2014) found that connection with nature was significantly related to decreased anxiety and resulted in relaxation, enjoyment, and sensory engagement. Gardening is one way of connecting with nature. Van Den Berg, & Custers (2010) found that 30-minutes of gardening promoted relief from acute stress as evidenced by decreased cortisol levels.

Clutter in the home not only presents a risk for falls among the elderly, but also impacts the mood. Sabee & Repetti (2010) found that women with cluttered homes had increased level of depression, while women with a restorative home environment had decreased depression mood throughout the day.

Activity

PD ultimately leads to complete disability. Physical activities must be a part of the daily routine of a person with PD, in spite of fatigue, gait unsteadiness, postural instability, and poor balance (Gisbert & Schenkman, 2015). Lazarus (n.d.) stated some guidelines found in the National Parkinson Foundation and recommended tips on being physically active by starting the day with warm-up exercises such as gentle stretching exercises, short walks around the home, and by having a walking buddy. Exercise of 10 minutes three times a day is a good start and increments must be done gradually. Having a calendar of activities is essential to track progress in exercise. Exercise should be something that the individual enjoys doing and practices regularly to form a habit. In a review of Cochrane databases, Gisbert and Schenkman (2015) found significant improvements in walking speed, balance, total activity of daily living, and motor scores in PD patients who engaged in regular physical exercise. Researchers also found a

small improvement in gait cadence and stride length, but they these factors were considered not clinically significant. In another study, Alberts et al (2011) found that the use of a tandem cycle to deliver forced exercise improved motor function in PD patients. There were improvements in cardinal motor symptoms, such as rigidity (41%), tremor (38%), and bradykinesia (28%) after the eight-week intervention. Uhrbrand et al. (2015) found strong evidence for intensive exercise therapy, such as resistance training (RT) and endurance training (ET). Other intensive training modalities (OITM) in PD may be associated with improvement in balance, walking performance, the Unified Parkinson's Disease Rating Scale-111 (UPDRS-111) score, and quality of life, but findings were inconsistent. Strong evidence showed that RT could improve muscle strength while moderate evidence showed that ET could improve cardio-respiratory fitness in PD. No studies found deterioration in any outcomes following exercise therapy (Uhrbrand et al., 2015).

Exercise is essential in the life of a person with PD. The National Parkinson's Foundation (NPF) notes that exercise benefits a PD patient by improving symptoms and by slowing down PD progression (Lazarus, 2017). Statements from the NPF included findings from research studies showing that exercise can improve gait, balance, tremor, flexibility, grip strength, and motor coordination. Other forms of exercises that benefit PD patients are treadmill training, biking, tai chi, and yoga. Physicians and physical therapists agree that improved mobility decreases the risk of falls and some other complications of PD. They also agree that practicing movements through physical therapy, occupational therapy, and participating in an exercise program could improve mobility (Lazarus, n.d.). Neurologists recommend that patients who have a family history of PD should exercise 300 minutes a week, utilizing half of the time for intense walking or running or bike riding. One of the Parkinson's Outcomes Project study found that people with PD who exercise for two and a half hours per week showed a slow decline in quality

of life and remarkably slowed down the disease progression when they start intensive exercise therapy right after disease diagnosis.

Exercise has to be done on a consistent basis. PD patients who engaged in exercise programs, regardless of intensity, showed improvements in functional balance and mobility as compared to having only two-week or ten-week duration exercises. Experts have said that people with early onset of PD have to exercise with increased intensity and frequency, such as one hour a day three to four times a week (Lazarus, 2017). A primary care physician needs to be consulted before starting on an exercise regimen. The NPF helpline (1-800-4PD-INFO) may also help to explain the importance of making an exercise plan that suits the individual PD patient.

Exercise does not increase the amount of dopamine or the number of neurons in the brain, but the brain cells use dopamine more efficiently after exercise. Types of exercise programs for people with PD include: intensive sports training, treadmill training with body weight support, resistance training, aerobic exercises, alternative forms of exercise (yoga), home-based exercise (workout tapes), and practice of movement strategies (Lazarus, 2017). The use of aquatic therapy in eight sessions of the chair-sit- and reach performance in the pool showed improvements in balance and mobility among PD patients (Marinho et al., 2014). Balance, gait, mobility, and postural stability were also improved by boxing therapy (punching bags, speed bags, and focus mitts) for 45 to 60 minutes for 24 to 36 sessions (Combs, et al. (2011) and one hour of dance therapy such as tango, waltz, or fox trot for 12 to 13 weeks duration (Gisbert & Schenkman, 2015; Batson, 2010)). Gisbert & Schenkman (2015) also found that a 20-minute to 120 minutes cuing in gait for two to eight weeks duration improved balance and gait. Martial arts such as t'ai chi for three months also improved balance and decreased risk of falling among PD patients (Song et al., 2015, Crew et al., 2015). Furthermore, performance of qigong (one trial) for 12 to

24 weeks duration (Song et al., 2015), as well as dual tasks (transporting objects while walking) (Foster et al., 2014; Ford et al., 2015) were also found in improving balance and gait. In another study, Bruin et al. (2010) also discovered that PD patients improved in gait velocity, stride time, cadence, and motor symptom severity when salient music was integrated with walking exercises three times a week for 13 weeks.

Alberts et al (2011) found that healthy adults have responded positively to acute exercise that releases neurotrophins, which are considered essential elements in neuroplasticity. Consequently, acute aerobic exercise (not strength training) transiently increased basal peripheral brain-derived neutrophic factor (BDNF) concentrations, which suggested that there is a relationship between exercise intensity and BDNF response. Increased BDNF levels in the bloodstream flow to the tissues resulting in neurotrophic and neuroprotective benefits, which could possibly contribute to neuromotor recovery. BDNF is considered to be beneficial in the protection and survival of neurons, growth, and remodeling of the axons and dendrites, neuronal differentiation, and synaptogenesis. Furthermore, the release of endogenous neurotrophins had been linked to improved cognition, learning, and memory (Alberts et al., 2011).

Trust in God

Keri & Keleman (2016) found that dopamine and serotonin levels affect the individual's spiritual experiences. Altered neurotransmitter functions affect a person's spiritual experiences but not his or her beliefs and attitudes towards his or her chosen Christian faith. A decreased positive spirituality could be a result of the patient's reaction upon receiving a diagnosis of a neurodegenerative disease, or it could also be due to depression associated with PD. A decreased religiosity was associated with severe PD symptoms, while coping with severe illness may be linked with strong religious beliefs (Keri & Keleman, 2016).

Religious and spiritual values affect how an individual approaches health, as evidenced by his or her lifestyle choices, physical activity, dietary habits, use of alcohol, and the like. Individual's religious practices also influence their social, psychological, and biological factors as well. Studies show that religious practices provide protective and health-promoting effects on mental health (Lake 2012). Individuals who are involved in religious activities find support and encouragement from other members of the group. As a result, they develop optimism and resilience in coping with the challenges they encounter in life. Furthermore, prayer and other forms of spiritual healing may also affect mental health. In a study involving 832 elderly men, researchers found that symptoms of cognitive depression are less severe in those who use religious practices as coping mechanisms (Lake, 2012). Elderly depressed patients who are involved in spiritual activities showed less severe symptoms and are were less likely to commit suicide. Those who have strong religious beliefs have better mental health and adapt more easily to stressful situations. Improvements in mood were also found in study participants who prayed and who were prayed for. There is an association between subjects' beliefs about the effects of prayer to bring healing and knowing that they are being prayed for. In a double blind study on intercessory prayer, patients who had transient anxiety after a pituitary surgery and who were prayed for reported less anxiety and requested less pain medications. In another study, researchers found that spiritual factors influenced PD patients' wellbeing. By demonstrating faith in God, PD patients can accept the reality of the situation they are in, cope with the realities of life, and remain hopeful that God has a plan and purpose for their life. Furthermore, PD patients can engage in prayer for healing, for wisdom in managing disease, and for making wise decisions (Soundy et al., 2014).

Interpersonal Relationships

PD has a severe impact on the individual's social confidence and social engagement. PD patients may avoid social contacts due to their reduced mobility, functional abilities for daily living, and increased depressive symptoms (Soundy et al., 2014). Researchers found that social support and interactions influence the wellbeing of patients with PD. PD patients recognized the importance of social and emotional support from family, friends, or others. PD patients claim that the emotional support they receive makes them feel valued and accepted and prevents them from feeling marginalized due to their disease condition. Social support enables other individuals to be more patient and understanding of PD symptoms and thereby avoid misunderstanding the PD disease and minimizing the stigma and negative attitude towards a person with PD. Patients with PD who belong to a PD support group found that they were able to relate to each other and understand the challenging experiences each other goes through. Support and encouragement from other PD patients increases their motivation to cope up with the everyday challenges (Soundy et al., 2014). PD support groups could be an appropriate place wherein the elderly PD patients, who have limited social support, could share and express their problems and experiences as they journey through life (Saeedian et al., 2014). Health care professionals should focus on PD patients need to engage in society and not dwell on reasons for not being able to accept the diagnosis, effects of stigma, and reduced social confidence as reasons for not engaging in social activities (Soundy et al, 2014).

Outlook

Takeda et al. (2010) state that negative or a positive emotional behavior can greatly affect a person's health. Negative feelings are expressed in disgust, frustrations, fear, and alarm resulting to the fight or flight response. Inversely, a positive emotional behavior is associated

with joy, play, humor, and laughter that can be helpful in learning new behavior**.** The Bible says in Proverbs 17:22 that "A merry heart does good like medicine, but a broken spirit dries the bones." Laughter strengthens the immune system, improves the endocrine responses, and increases pain tolerance (Takeda et al., 2010). Robottom et al. (2012) found that patients with PD experienced that a positive outlook increased wellbeing and decreased depression. They also discovered that greater resilience is associated with less disability and better physical and mental quality of life, while severe symptoms of PD are associated with less resilience. Among non-motor symptoms and personality domains, resilience is strongly correlated with less apathy, less depression, and more optimism, while moderate resilience was correlated with fatigue and anxiety. In another study, Soundy et al. (2014) found that PD patients practiced different strategies in maintaining a positive outlook to promote wellbeing and prevent depression. Having hope and optimism for the future is very crucial because life could be difficult without it. The PD patients in this study chose to live one day at a time, engage in the present, and not worry about the future. They also decided to make the best out of their situation, which meant doing activities to the best of their ability in spite of their limitations. Some individuals reported being appreciative of what they have, such as their health status, the ability to live, and the support available for them. They are also thankful that they are not in worse situations than what they have now expressed appreciation for their current situation. A sense of humor was also identified as very important outlet for living and experiencing PD. Takeda et al. (2010) state that humor decreases the effects of stressful events on emotional disturbances such as in depression and anxiety. Other beneficial effects of humor were associated with better sleep, outlook and self-esteem. Participants recognized the importance of maintaining dignity and social identity by acting as they did in the past, especially in social gatherings. They were also determined to

exercise resiliency by not giving up in fighting the functional limitations caused by the disease. Participants also aimed to develop autonomy and independence to maintain their identities, and continued their functional activities. Having a regular schedule of activities and understanding the need for rest are important to perform activities of daily living (Soundy et al., 2014).

Nutrition

People with PD are at risk for malnutrition. Attaining and maintaining a desirable weight is very important for Parkinson's patients. The involuntary movements associated with PD result in increased energy expenditure, while both disease symptoms and medication side effects can limit food intake. PD patients are also at risk for constipation, dehydration, weight loss, and bone fracture. Nutritional considerations are important in patients with PD. Milk and dairy products are risks factors in the development of PD due to the pesticides and other toxic substances present in them (Seidi et al., 2014). Milk and milk products block Levodopa absorption to a greater extent than other proteins. Levodopa must not be taken with meals. Food in the stomach can slow the progress of the Levodopa by delaying the emptying of stomach contents into the small intestine. The longer Levodopa remains in the stomach, the more vulnerable it is to enzymes that prematurely convert it to dopamine, which is ineffective if not produced in the brain. Once in the small intestine, the Levodopa must compete with any large neutral amino acids (LNAAs) present for absorption into the bloodstream. Also, Levodopa has a very short plasma half-life, which means that it will start to disappear from the blood in 60 to 90 minutes. Therefore, it needs to reach the brain before this process occurs.

Dietary carbohydrates are essential to the absorption of Levodopa by promoting the secretion of insulin to decrease levels of LNAAs in the blood, which aids in delivering Levodopa to the brain. Approximately 55 to 60 percent of the calories in the diet must be taken from

carbohydrates. People with PD need a minimum of 0.8g of protein per kg body weight per day. Protein deficiency can result in malnutrition, slow wound healing, and reduced resistance to disease, but higher amounts of protein have been also found to interfere with Levodopa in some people with PD (Sheard & Ash, 2015). People with PD need not more than 30 percent of calories from fat with less amount coming from saturated fats. Fat takes a longer time to digest compared to carbohydrate or protein, so high-fat meals have to be avoided when taking Levodopa because they can decrease the effectiveness of the medication by delaying gastric motility. Levodopa is structurally similar to certain amino acids such as the LNAAs, and they compete for the same transport system across the blood-brain barrier. Levodopa must arrive at its destination in the brain to be converted to dopamine, and this competition can decrease the amount of Levodopa reaching the brain. Some people with Parkinson's disease are not affected by protein in the diet, but others notice a reduced effectiveness of Levodopa when the medication is taken too close to meals.

Constipation is a common problem in Parkinson's disease. It is caused mainly by medications, decreased fluid intake, or decreased peristaltic movement due to PD. The stomach takes longer to empty, and food travels through the intestines slowly. Adequate dietary fiber is very important in the management of constipation. The consumption of five servings of fruits, vegetables, and whole grains, as well as drinking six to eight cups of water each day, will help prevent constipation (Sheard & Ash, 2015). Increasing water intake is also beneficial for those with low water intake or who are taking bulk-forming agents as long as there are no restrictions as in heart or kidney failure. Apple, pear, and prune juices contain sorbitol that may help in promoting a bowel movement. Foods high in fiber are excellent food sources in preventing constipation. Soluble fiber (eg, psyllium) is preferable than insoluble fiber (eg, bran). Fiber

intake should be increased gradually (eg, increased by 5 g per week up to 20 to 30 g per day) to avoid flatulence and bloating (Schuster, 2015).

Vitamins and minerals are essential in health promotion in people with PD. Vitamin D aids in the absorption of calcium and phosphorus and regulates the calcium levels in the blood. Sunshine aids the body in producing Vitamin D by promoting the synthesis of cholesterol when it touches the skin. Older adults need approximately 600 units of Vitamin D daily because as they age, their skin is not able to produce as much Vitamin D compared to younger people. Other sources of Vitamin D are from fortified foods or from a dietary supplement (Sheard & Ashi, 2015).

People with Parkinson's disease have an increased risk of bone loss. Calcium helps in strengthening the bones as well as preventing risks of fractures in patients with PD from falls due to decreased balance and unsteady gait. It also assists in muscle contraction and promotes normal nerve function. Dark green leafy vegetables (kale, broccoli, bok choy), calcium-fortified soymilk and orange juice, and tofu made with calcium sulfate are good sources of calcium. The recommended dietary allowance (RDA) for adults is 800 IU until age 50, and then it is increased to 1200 IU. Calcium citrate is a good choice because it does not cause constipation and does not affect stomach acidity (Sheard & Ashi, 2015). Vitamin C and vitamin E are excellent antioxidants that could prevent the progression of PD. Foods that are high in Vitamin C, such as fruits and vegetables, increase iron absorption. Iron supplements can hinder Levodopa absorption, so they should be taken separately, but the small amount of iron contained in multivitamin does not create a problem (Sheard & Ashi, 2015).

Taking Levodopa with meals can delay its absorption due to slowed gastric motility. Absorption can also be influenced by amino acids in food, which compete for the same site for

transport mechanisms. Levodopa should be taken at least 30 minutes prior to meals, except in cases where the drug produces nausea, or if there is an excess of dyskinesia after taking Levodopa. For nausea, which is common during the early adjustment to Levodopa, it should be taken with a light, low-protein snack. For dyskinesia, Levodopa should be taken with a small, high-protein snack (Loew & Pratt, 2009).

Lazarus (2017) mentioned that the National Parkinson Foundation (NPF) recommends guidelines so PD patients get the nutrients they need. The NPF advises to avoid "fad" diets, consume at least 20-15 grams of fiber a day, eat frequent smaller meals, drink adequate water intake to prevent dehydration, and consume Mediterranean meals, which are rich in monounsaturated fats, as well as foods rich in antioxidants, such as the bright-colored and dark vegetables. Protein in the diet could also hamper the absorption of Levodopa; therefore it is wise not to take medication with food.

Summary

Research showed many modalities that are can help control motor-and non-motor symptoms of PD patients, but these interventions present adverse effects, which could result to neurologic complications and even death. Little is known about the importance of CREATION Health principles in managing PD to improve patients' wellbeing and quality of life by slowing the progression of disease. Furthermore, there is little research published for PD and caregivers to pull together evidence-based information of this nature into a concise and useful patient education resource. Therefore, this project is essential to find evidence in formulating guidelines outlining healthy practices for the clinical management of PD.

CHAPTER 3 – METHODOLOGY

Purpose/Objectives

This scholarly project aimed to present information for promoting wellbeing in patients with PD through CREATION Health (PDCH) framework. The researcher created a PD brochure using CREATION Health principles, which were supported by evidence-based research. The participants then evaluated and critiqued the design, readability, attractiveness, quality, and usefulness of the information in this brochure. Furthermore, the PD brochure aimed to serve as a foundation to educate both PD patients and their caregivers and can be eventually used by other primary care or specialty providers in educating their PD patients to improve wellbeing and quality of life.

Research Design

By utilizing the most current research evidence in helping this population to improve wellbeing and quality of life, the researcher developed an educational brochure specifically for PD patients and PD caregivers. The brochure was formatted as a bi-fold booklet with two to four pages of evidence-based content for each CREATION Health (CH) element. The brochure contained essential information in a variety of formats including paragraphs, bullets, pictures, and text areas for patient reflection, notes, and writing. This study employed mixed methods of quantitative and qualitative research designs. The quantitative method utilized questionnaires to evaluate the design, attractiveness, readability, quality, and usefulness of the information in the brochure. Ratings for each element were based on a Likert Scale from one to five with one as being poor, two as being below average, three as average, four as above average, and five as excellent. The qualitative brochure evaluation asked for additional comments related to the

strengths and potential areas of improvement of the brochure prior to final mass printing/publication and distribution.

The PD brochure was evaluated by PD patients, PD patients' caregivers, primary care providers, medical provider specialists in southern Tennessee, faculty from Southern Adventist University-Doctorate in Nursing Practice (SAU-DNP) program, and the CREATION Health editor(s) from Florida Hospital Mission Development, Orlando, FL, USA.

Procedures

The first draft of the PD brochure development was submitted to the research advisor for editing and approval. An edited draft was included in the study proposal and was submitted for approval from the Southern Adventist University (SAU) Institutional Review Board (IRB) and the IRB of the hospital in southern Tennessee where the study was conducted.

After the study was approved, the edited brochure was printed and distributed to 16 PD patients and 16 PD caregivers for evaluation during its presentation at the PD support group in one of the hospitals in southern Tennessee. The PD brochures were also distributed and evaluated by 19 health care providers and specialists, SAU-DNP faculty, as well as the editor(s) of the CREATION Health book. The contents of the brochure were based and focused on the eight elements of CREATION Health in which "C" is for Choice, "R" for Rest, "A" for Activity, "T" for Trust in God, "I" for Interpersonal Relationship, "O" for Outlook, and "N" for Nutrition.

There were no written consent forms involved in the implementation of this study. The researcher assumed implied consent, meaning that the participants showed voluntary consent to participate in the study when they returned the completed questionnaires (Polit & Beck, 2012). Participants were assured that their identity would remain anonymous, and confidentiality was maintained throughout the study. The researcher also prevented harm and maximized benefits for

the participants by not subjecting them to unnecessary risks or discomfort. The nature of the study was discussed with the participants from the PD support group prior to the PDCH presentation. The researcher also explained the brochure evaluation procedure to the healthcare providers, SAU-DNP faculty, and the CREATION Health editor(s) before they evaluated the brochure. Participants were informed that the data would be used in research and consent to use the data would be assumed if the questionnaires were submitted. Participants were encouraged to participate and to ask questions during the session. There were no monetary incentives given to the participants for this study, but the participants were allowed to keep the brochure and the pen used for evaluating the PD brochure.

Evaluation Plan

The first step in the evaluation plan included the numbers of each type of participants (PD patients, caregivers, primary care providers, specialists, faculty, and editor of CREATION Health). The ratings of the evaluation of different CREATION Health elements were categorized into two groups. Ratings from one to three were considered as a low score, and ratings from four to five were considered as a high score. The researcher also determined the percentage of participants who gave low and high scores in their evaluations of each of the CH elements. The results of the quantitative data were presented in tables (Appendix B) and analyzed according to the scores of the criteria of each CH element. The qualitative data were categorized according to emerging themes and overall comments were summarized in a paragraph form (Appendix C).

CHAPTER 4 - RESULTS

This chapter addresses the project's implementation. Quantitative and qualitative data are presented from the research surveys. Data are presented for the group of patients and their caregivers and separately for professional participants.

The participants were composed of a convenience sample of 16 PD patients and 16 PD caregivers who attended the PD support group, 14 primary healthcare providers, three specialist providers from southern Tennessee who were solicited for their voluntary participation, one SAU-DNP faculty, and one CREATION Health editor. There were no personal data required to participate in this study, but participants specified on the evaluation form whether they were a PD patient, caregiver, health care provider, specialist, SAU-DNP faculty, or editor(s) from CREATION Health.

The PD brochures and evaluation forms were distributed to the members of the PD support group, which meets in one of the hospitals in southern Tennessee. The first part of the evaluation form contained the quantitative questions. Each participant had to grade each element of CH from one to five, where one signified poor and five excellent, according to design/attractiveness, readability, accuracy, quality, and usefulness of information. The qualitative questions asked for the strengths and weaknesses of the PD brochure and for other comments and feedback. The participants took approximately 20-30 minutes to evaluate the PD brochure. The researcher and the PD support group coordinator gathered the completed evaluation forms but left the PD booklet for participants to keep if they wanted it. The completed evaluation forms were placed in a box and stored in a safe place. Some of the participants who were not present during the first meeting had a chance to evaluate the PD booklet during the next

meeting. Still others who had no time to evaluate the PD booklet during the meeting were given a booklet and evaluation forms to take home, which were mailed back to the researcher.

The project was implemented over the course of three months. The researcher distributed the PD booklets to a few SAU-DNP faculty, primary care providers, and neurology specialists in the vicinity of Southern Adventist University and collected the booklets at an appointed time. A PD booklet was also sent to the CREATION Health editor in Florida, USA. Altogether, there were 51 participants involved in this study.

The quantitative data were analyzed according to participant groups. Group one consisted of PD patients and PD caregivers, while group two consisted of professionals such as the primary care providers, specialists, faculty, and editor of CREATION Health. Evaluation ratings of different CREATION Health elements were categorized by the percentage of participants who rated low and high scores. Likert Scale ratings from one to three were designated as low scores and four to five as high scores. The low and high scores were presented in separate tables showing the different CH elements with corresponding criteria. The qualitative data were categorized according to emerging themes and overall comments were summarized in a paragraph form.

The participants gave invaluable information and feedback regarding the design/attractiveness, readability, accuracy, quality, and usefulness of information, which were quite essential in the revision of the PD booklet. The majority of the participants rated the CH elements with high scores on the Likert Scale between four to five, and only a few participants rated the CH elements with low scores of one to three on the Likert Scale (Table 1 and 2). The PD brochure was revised according to the feedback and recommendations of participants.

Brochure Evaluation – Survey Results

Choice

In the choice element, 9% of group one participants (PD patients and PD caregivers) gave low scores, while 91% gave high scores for all criteria. On the other hand, none of the participants from group two (professionals) gave a low score in all criteria, and 100% of them graded high scores on the *design* and *usefulness* criteria, five percent graded low scores and 95% graded high scores on *readability* and *quality* of information, while 10% graded low scores and 90% graded high scores on *accuracy*.

Rest

The rest element evaluation showed that 6% to 12% of the group one participants graded low scores in all criteria, while 88% to 94% of them graded high scores. Five percent of the participants in group two rated low scores in four of the criteria, and nobody graded a low score on *usefulness of information*. Ninety-five to a 100% of the group two participants gave high scores in all criteria.

Environment

The researcher found that the environment element evaluation, there were six to nine percent of the participants in group one who gave a low score in all criteria, while 91% to 94% of them gave high scores. However, 21%, 16%, and five percent of the group two participants gave low scores in accuracy, quality, and usefulness of information respectively. There were 79%, 84%, and 95% of the group two participants who graded high scores on accuracy, quality, and usefulness of information respectively, while 100% of them graded high on design and readability.

Activity

The evaluation of the activity element shows that, there were six percent to nine percent of the group one participants who rated a low grade in all criteria and 91% to 94% of them graded high scores. Among the group two participants, only five percent of them graded a low score in four categories (*design, accuracy, quality, and usefulness of information*) and none gave a low score on *readability* criterion. So, 95% to 100% graded high scores in all criteria between the group two participants.

Trust in God

In the trust in God element evaluation, there were three percent to nine percent of group one participants who gave low scores in all criteria while 91% to 97% gave high scores. Whereas between the group two participants, five percent gave a low score in the *quality* criterion, 10% gave a low score on the *accuracy* criterion, and ninety percent to 100% of them gave high scores in all criteria.

Interpersonal Relationships

The researcher found that in the interpersonal relationships element, there were 9% to 12% of group one participants two who gave a low score in all criteria, and 88% to 91% of them gave high scores. Among the group two participants, only five percent and 10% gave low scores on the *accuracy* and *quality of information* criteria respectively, while100% of them gave high scores on *design*, *readability*, and *usefulness of information*.

Outlook

The evaluation of the outlook element showed that there were six percent to nine percent of the participants in group one who rated low scores in all criteria, while 91% to 94% of them rated all criteria with high scores. However, 10% of the group two participants gave a low score

in *accuracy and quality of information* criteria, five percent gave a low score in *usefulness of information*, and 90% to 100% of them gave high scores in all criteria.

Nutrition

In the nutrition element evaluation, the researcher found that six to 12% of the group one participants gave low scores in all criteria, while 88% to 94% of them gave high scores. Among the group two participants only five percent graded a low score on the *accuracy* criterion and 95% to 100% of them graded high scores in all criteria.

The qualitative data were analyzed by making a summary of participants' comments and critiques. Study participants were grouped into two groups to determine what types of comments each group gave. The first group was composed of PD patients and their caregivers, and the second group consisted of primary care providers, neurology specialists, SAU-DNP faculty, and CREATION Health editor. These two groups had many comments in common regarding the layout and information contained in the PD booklet, many of which were positive. However, some participants in the second group were not quite agreeable that the CREATION Health principles were adequate enough to manage PD.

From the perspective of the first group, the strengths of the PD booklet were "well-done, attractive, very informative, simple, easy to read and understand, and useful in helping PD patients improve wellbeing and quality of life." PD caregivers think they could be better in helping their loved ones improve their symptoms and slow down disease progression by following the recommendations in the PD booklet. Participants in the first group were grateful for the natural methods of dealing with PD through CREATION Health information they found in the PD booklet. The information they found in the PD booklet gave them hope and encouragement when they thought they had no way out in battling the disease and improving PD

symptoms. The participants in the second group stated that the PD booklet contained excellent information, which will be useful in their practice in educating PD patients in improving wellbeing and quality of life. The booklet also gave a concise definition of PD and incorporated it with CREATION Health. Other comments stated that the PD booklet had an excellent layout, contained detailed and useful information with components that were "well explained, explicitly connected with PD and was supported by evidence-based research." Overall, the first group commended the researcher for doing an excellent job at compiling the PD booklet, which contained simple recommendations they could do for themselves to live better.

The participants also discovered some weaknesses of the PD booklet. The first group commented that some pages displayed information with poor readability, blurry pictures, small fonts that were hard to read, and too many pictures crowded in a page. Some participants thought that the information about "scents" should be removed because PD patients lose their sense of smell and this information is of no use for them. One of the comments on the "Nutrition" element regarding gluten stated that the information was inconclusive because avoidance of gluten only applies to PD patients who have gluten intolerance. Other errors noted by the first group were the inconsistent page numbers, repeated statements, and words and page numbers that were missing or cut because they were written beyond the margins.

The second group mentioned that the PD booklet had too many photos and each page was crowded. The line spacing needed to be consistent to give it a more refined and cleaner look. Furthermore, one participant commented that the footnotes were distracting and recommended that the footnotes be removed and have a separate reference section according to the CREATION Health elemental topics with corresponding page numbers. Another participant from the specialists did not agree that sunshine prevents osteoporosis and fractures, but rather, by

preventing falls prevents fractures, and by adjusting the dosage of Sinemet improves gait, balance, and rigidity thereby preventing falls and fractures. This specialist participant also commented that they "felt that the information was very misleading and inaccurate starting with the title." She further said that the "CREATION Health elements were not steps to manage PD or slow disease progression, but symptoms are managed at best by increasing the production/retention, or use of dopamine." In addition, one of the primary care providers stated that "this PD booklet did not mention the paradox that exists between the fact that some of the most conscientious followers of the lifestyle recommended in the booklet seem to ultimately develop their share of the disease."

Limitations of the Study

This study has a lot of limitations. Some research articles included in this study were not specific for PD but addressed symptoms such as depression, constipation, and risk for falls, which are symptoms also common in patients with PD. The sample size was small. There were only 51 participants and most of them were in PD stage three to four, which determines the way they view the CH recommendations due to their severity of symptoms. Very few specialists participated in the study. Ether they were too busy or just not wanting to do anything with natural remedies to slow down PD progression.

CHAPTER 5 DISCUSSION AND RECOMMENDATIONS

This chapter addresses conclusions and recommendations that can be made based on this scholarly project and research process. Specifically, there are recommendations for advanced practice, future development of CREATION Health materials, and further research that can be made to enhance patients' wellbeing and quality of life.

Discussion

Patient education materials exist for many different disease processes. These range from one-page disease summaries to colorful booklets of several pages. In addition, many online teaching materials from various professional and lay organizations are available for patients with various diseases as information sources. Prior to this project, nothing existed to help PD patients and caregivers within the context of CREATION Health and use of complementary therapies to improve wellbeing in the presence of this devastating disease.

Evaluation of the newly developed PDCH brochure revealed an overwhelmingly positive reception and confirmed the need for such educational materials. Patients, caregivers, primary care providers, specialists, and others overall had positive responses related to the design/attractiveness, readability, accuracy, quality, and usefulness of information. Qualitative data confirmed the positive elements of the PDCH brochure that were noted in the qualitative data, as well as further elucidating the elements, which could be improved.

Recommendations

Further Research

Further research is needed to evaluate the effectiveness of the utilization of the PDCH brochure among those who participated in the study and for those who have received the PDCH education from primary care providers. The research will examine what elements in the PDCH

brochure they found most useful and for which they actually practice in their daily life. Patients who follow the recommendations in the PDCH brochure may have some ideas or tips they could commend to the second edition of the PDCH booklet. Future researchers must also take into account how much of the guidelines recommended in this brochure are used by other professions especially the primary care providers and therapists. The creation of an online version to track hits to the site where the second PDCH booklet is posted will be a great tool for evaluation and analysis. Further research is also needed on the general recommendations that are not specific on PD to examine how CH elements impact PD specifically. Most of the recommendations are already applicable to people who have other chronically acquired diseases, but a research should be helpful in determining the extent of the impact of these general recommendations for patients who have PD. This study will be very important for those who do not know they have PD because PD actually develops at least a decade before diagnosis is made.

Advanced Practice

The PDCH brochure is a great tool in patient education among PD patients therefore, medical professionals, such as primary care providers, therapists, and specialists need to use the CREATION Health Model as a framework for PD patient care. This task is quite a slow process because not very many medical providers know and understand how CREATION Health elements work. Most of the providers rely on medications and interventions in managing PD. Persistent and aggressive dissemination of the CREATION Health Model is needed among medical professionals, so that they in turn can incorporate the CH recommendations to their patients. The second edition of PDCH brochure needs to be distributed to various primary care and specialists' offices as a guideline in health education. Various brochures addressing different chronically acquired diseases need to be developed and made available in every medical and

therapist office for promoting and disseminating CH principles. Surveys of the efficacy and usefulness of the brochure will be done through evaluation forms online, by distributing them in the medical office, or by mailing them to patients and have patients mail them back to the providers' office.

Nursing Education

There is a great need in utilizing CREATION Health as a framework for nursing institutions to train future nurses and nursing leaders in incorporating CREATION Health principles in patient education whether in the hospital or in the community setting. Nursing educators need to encourage future nurses to maximize the use and innovation of CH brochures and short education videos online so that all types of patients whether young or old, and especially those with special needs can gain easy access to CH education. Student nurses should be required to make one CH project presentation on the disease of their choice as one of the requirements for graduation.

Conclusion

The PD brochure has captured a great interest among PD patients and primary caregivers. Study participants believe that the PD brochure is very helpful and beneficial for PD patients in attaining wellbeing and quality of life and also useful for PD caregivers in assisting PD patients to improve PD symptoms. As the majority of the American population are getting sick and living poor quality lives, there is a great need to educate the public in natural ways of reversing or slowing down progression of their diseases not only for improving wellbeing and quality of life, but also to save money on health care expenditures.

References

Alberts, J. L., Linder, S. M. Penko, A. L., Lowe, M. J., & Phillips, M. (2011). It is not about the bike, it is about pedaling: Forced exercise and Parkinson's disease. *Exercise Sport Science Review*, *39*(4), 177-186.

Babayeva, M., Assefa, H., Basu, P., Chumki, S., & Loewy, Z. (2016). Marijuana compounds: A nonconventional approach to Parkinson's disease therapy. *Hindawi Publishing Corporation*, *2016*, 1-19. Retrieved from http://dx.doi.org/10.1155/2016/1279042.

Baker, D. M. (2017). The scientific benefits of music. Retrieved from: http://www.scienceofpeople.com/2016/03/scientific-benefits-music

Batson, G. (2010). Feasibility of an intensive trial of modern dance for adults with Parkinson disease. *Complementary Health Practice Review, 15*, 65-83.

Beetz, A., Uvnas-Moberg, K., Julius, H. & Kotrschal, K. (2012). Psychosocial and psychophysiological effects of human-animal interactions: The possible role of oxytocin. *Frontiers in Psychology,* 3: 234. https://doi.org/10.3389/fpsyg.2012.00234

Bruin, N., Doan, J. B., Turnbull, G., Suchowersky, O., Bonfield, S., Hu, B., & Brown, L. (2010). Walking with music is a safe and viable tool in Parkinson's Disease: The effect of a 13-week feasibility study on single and dual task walking for gait training. *Parkinson's Disease*, *2010*, 1-9. http:// dx.doi.org/10.4061/2010/483530.

Buijze, G. A., Sierevelt, I. N. van der Heijden, B., Dijkgraaf, M. G., & Frings-Dresen M. (2016). The effect of cold showering on health and work: A randomized controlled trial. *PLOS ONE, 11*(9). https: //doi.org/10.1371/journal.pone.0161749.

Combs, S. A., Diehl, M.D., Staples, W. H., Conn, L., Davis, K., Lewis, N., & Schaneman, K. (2011). Boxing training for patients with Parkinson's disease: A case series. *Physical Therapy*, *91*(1), 132-142.

CREATION Health (2014). *God's eight principles for living life to the fullest seminar personal study guide.* Orlando, Fl: Florida Hospital Mission Development.

Crew, A., Petrosky, J., Byrnes, K., & Nelson, R. (2015). The effects of t'ai chi on

physical functioning in older adults with Parkinson's disease. *Therapeutic Recreational Journal*, *49*(1), 80-83.

Day, J. (2015). BDNF may control our lifespan: The longevity plan with Dr. John Day. Retrieved from: http://drjohnday.com/10-ways-to-boost-brain-function-with-bdnf/

Ebersbach, G., Ebersbach, A., Edler, D., Kaufhold, O., Kusch, M., Kupsch, A., & Wissel, J. (2010). Comparing exercise in Parkinson's disease: The Berlin LSVT BIG study. *Movement Disorder, 25*(12), 1902-1908.

Ford, M. M., Howell, J. B., Moore, B. C., St. Amie, S. T., Cook, L. C., Weaver, K. R., & Dolbow, D. R. (2015). The effect of dual task activities on the walking gait of indivduals with Parkinson's 'disease. *Clinical Kinesiology*, *69*(1), 1-4.

Fox, J., Close, S. R., Rose, J. P., & Geers, A. L. (2016). Identifying when choice helps: Clarifying relationships between choice making, self-construal, and pain. *Journal of Behavioral Medicine, 39*(1), 527-536.

Foster, E. R., Bedekar, M., & Tickle-Degnen, L. (2014). Systematic review of the effectiveness of occupational therapy related interventions for people with Parkinson's disease. *The American Journal of Occupational Therapy*, *68*(1), 39-49.

Gisbert, R. & Schenkman, M. (2015). Physical therapist interventions for Parkinson's Disease. *Linking Evidence and Practice*, 95(3), 299-305.

Geers, A. & Rose, J. (2011). Treatment choice and placebo expectation effects. *Social and Personality Compass, 5*(10), 734-750.

Greger, M. & Stone, G. (2015). *How Not To Die*. New York, NY: Flatiron Books.

Hager, M. S., Rentzelas, P. & Chatzisarantes, N.L.D. (2014). Effects of individualist and collectivist group norms and choice of intrinsic motivation. *Motivation and Emotion Journal, 38*, 215-223.

Hooton, T. M.(2017). Drinking more water cuts UIT risk in half, sparing antibiotics. *Infectious Disease News*, 1-2. Retrieved from https://www.healio.com/

Keri, S. & Keleman, O. (2016). Faith unchanged: Spirituality, but not Christian beliefs and attitudes, is altered in newly diagnosed Parkinson's disease. *Religions, 7*(73),

1-9. doi: 10.3390/rel7060073.

Knie, B., Mitra, M. T., Logishetty, K., & Chaudhuri, K. R. (2011). Excessive daytime sleepiness in patients with Parkinsons' disease. *CNC Drugs, 25*(3), 203-212

Knipe, M., Wickremaratchi, M., Wyatt-Haines, E., Morris H. R., & Ben-Sholomo, Y. (2011). Quality of life in young- compared with late-onset Parkinson's disease. *Movement disorders, 26*(11), 2011-2018.

Lake (2012). Spirituality and religion in mental health: A concise review of the evidence. *Psychiatric Times*, 34-38.

Lazarus, J, (Ed.) (2017). Tips for becoming physically active. *National Parkinson's Foundation.* Retrieved from: http://www.parkinson.org/sites/default/files/Tips%20for%20Becoming%20Physically%Active.pdf

Loew, J. E. & Pratt, C. (2009). Good Nutrition and Parkinson's Disease. *American Parkinson Disease Association, Inc*. 1-20 https://www.apdaparkinson.org/uploads/files/Good-Nutrition-book-iEQ.pdf.

Mahler, L. A., Ramig, L.O., & Fox, C. (2015). Evidence-based treatment of voice and speech disorders in Parkinson's disease. *Current Opinion in Otolaryngology & Head and Neck Surgery, 23*(3), 209-215.

Manni, R., Terzaghi, M., Pacchetti, C., & Nappi, G. (2007). Sleep disorders in Parkinson's disease: Facts and new perspectives. *Neurology Science, 28*, S1-S5.

Marinho-Buzelli, A. R., Bonnyman, A.M.,& Verrier, M.C. (2014). The effects of aquatic therapy on mobility of individuals with neurological diseases: a systematic review. *Clinical Rehabilitation*, *29*(8), 741-751.

Martyn, P. & Brymer, E. (2014). The relationship between nature relatedness and Anxiety. *Journal of Health Psychology, 21*(7), 1436-1445.

McClung, C. A. (2007). Circadian genes, rhythms, and the biology of mood disorders. *Pharmacology & Therapeutics, 114*(2), 222-232.

McNamara, P. (2016). What is Parkinson's disease? Symptoms, treatments, and living with Parkinson's. Retrieved from: https://www.verywell.com/what-is-parkinsons-

disease-2612163.

Nowak, D. J., Hirabayashi, S., Bodine, A., & Grenfield, E. (2014). Tree and forest effects on air quality and human health in the United states. *Environmental Pollution, 193,* 119-129.

Padilla, R. (2011). Effectiveness of environment-based interventions for people with Alzheimer's disease and related dementias. *American Journal of Occupational Therapy, 65*(5), 514-522.

Papindack, H. L., Holcomb, E. J., Best, T. O., Decoteau, D. R. (2009). Effectiveness of houseplants in reducing the indoor air pollutant ozone. *Horticulture Technology 19*, 286-290.

Patall, E. A. (2013). Constructing motivation through choice, interest, and interestingness. *Journal of Educational Psychology, 105*(2), 522-534.

Patall, E. A., Sylvester, B. J., Han, C. (2014). The role of competence in the effects of choice on motivation. *Journal of Experimental and Social Psychology, 50*, 27-44.

Payman, V., George, K., & ryburn, B. (2008). Religiosity of depressed elderly inpatients. *International Journal of Geriatric Psychiatry, 23*(1), 16-21.

Plath, D. (2014). Implementing evidence-based practice: an organizational perspective. *British Journal of Social Work, 44*, 905-923.

Polit, D. F. & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice (9th ed.)*. Philadelphia, PA: Lippincott Williams & Wilkins.

Ramig, L.O., Sapir, S., Countryman, S., Pawlas, A. A., O'Brien, C.,HOehn, M., & Thompson, L. (2001). Intensive voice treatment for patients with Parkinson's disease. *Journal of Neurology, Neurosurgery, & Psychiatry, 72*(4), 1-6.

Rick, A. C. (2013). Dollar cost of health care cost of Parkinson's underscores need for research. *Science News- Parkinson's Disease Foundation*. Retrieved from: http://www.pdf.org/en/pd-comm-news/release/pr-1361484795.

Robottom, B. J., Gruber-Baldini, A.L., Anderson, K. E., Reich, S.G. Fishman, P. S., Weiner, W.J., & Schulman, L.M. (2012). What determines resilience in patients with Parkinson's disease. *Parkinsonian Related Disorders, 18*(2), 174-177.

Sabee, D. E, & Rapetti, R. (2010). No place like home: Home tours correlate with daily patterns of mood and cortisol. *Personality and Social Psychology Bulletin, 36*(1), 71-81.

Saeedian, R. G., Nagyova, I., Krokavcova, M., Skorvanek, M., Rosenberger, J., Gdovinova, Z., Groothoff, J. W., & van Dijk, J. P. (2014). The role of social support in anxiety and depression among Parkinson's disease patients. *Disability and Rehabilitation, 36*(24), 2044-2049.

Sansoni, R. A. & Sansoni, L. A. (2013). Sunshine, serotonin, and skin: A partial explanation for seasonal pattern in psychopathology. *Innovations in Clinical Neurosciences, 10*(7-8), 20-24.

Saxbee, D. E. & Rapetti, R. (2010). No place like home: Home tours correlate with daily Patterns of mood and cortisol. *Personality and Social Psychology Bulletin, 36*(1), 71-81

Schuster, B. G. (2015). Stepwise approach to keep things moving. *Canadian Family Physician, 61*(2), 152-158.

Seidi, S. E., Santiago, J., Bilyk, H., & Potashkin, J. A. (2014). The emerging role of nutrition in Parkinson's disease. *Frontiers in Aging Neuroscience, 6*, 36. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3945400/ doi: 10.3389/fnagi.2014.00036.

Sheard, J. M. & Ashi, S. (2015). Current practice in nutrition diagnosis and intervention for the management of Parkinson's disease in Australia and Canada. *Nutrition & Dietetics*, *72*, 30–35 doi: 10.1111/1747-0080.12118.

Snider, A. M., & McPhedran, S. (2014). Religiosity, spirituality, mental health, and mental health treatment outcomes in Australia: A systematic literature review. *Mental Health, Religion, & Culture, 17*(6), 568-581.

Solawu, F. & Olokoba, A. (2015). Excessive daytime sleepiness and unintended sleep episodes associated with Parkinson's disease. *Oman Medical Journal, 30*(1), 3-10.

Song, R., Ahn, S., So, H., Lee, E., Chung, Y., & Park, M. (2015). Effects of T'ai Chi on balance: a population-based meta-analysis. *The Journal of Alternative and*

Complementary Medicine, *21*(3), 141-151.

Stacy, M. (2002). Sleep disorders in Parkinson's disease: epidemiology and management. *Drugs Aging, 19*(10), 733-739.

Soundy, a., Stubbs, B., & Roskell, C. (2014). The experience of Parkinson's disease: a systematic review and meta-ethnography. *The Scientific World Journal*, Vol. 2014, Article 613592, 19 pages. http://dx.doi.org/10.1155/2014/613592.

Takeda, M., Hashimoto, R., Kudo, T., Okochi, M., Tagami, S., Morihara, T, Sadick, G., & Tanaka, T. (2010). Laughter and humor as complementary and alternative medicines for dementia patients. *BMC Complementary and Alternative Medicine*, https://doi.org/10.1186/1472-6882-10-28.

Uhrbrand, A., Stenager, E., Pedersen, M. S., & Dalgas, U. (2015). Parkinson's disease and intensive exercise therapy: A systematic review and meta-analysis of randomized controlled trials. *Journal of Neurology Science, 353*(1-2), 9-19. doi: 10.1016/j.jns.2015.04.004

Van Den Berg, A. E. & Custers, M. H. G. (2010). Gardening promotes neuroendocrine and affective restoration from stress. *Journal of Health Psychology, 16*(1), 3-11.

Vatsal, A. (2015). Tips to improve interpersonal relationships: Retrieved from https://www.onlymyhealth.com

Vaughan, K. (2014). Parkinson's Disease: Pathophysiology and herbal treatment. *Journal of the American Herbalist Guild*, *14*(1), 33-45.

Van Den Berg, A. E. & Custers, M. H. G. (2010). Gardening promotes neuroendocrine and affective restoration from stress. *Journal of Health Psychology, 16*(1), 3-11.

Verall, A. (2013). How to prevent falls (Factsheet). Aging and Physical Disability Research and Training Center. Retrieved from Http://agerrtc.washington.edu.

Wassom, D. J., Lyons, K. E., Pahwa, R., & Liu, W. (2014). Qigong exercise may improve sleep quality and gait performance in Parkinson's disease: A pilot study. *International Journal of Neurosciences, 125*(8), 578-584. http://dx.org/10.3109/00207454.2014.966820.

Zhang, Y., Wang, Z. Z., Sun, H. M., Li, P., Li, Y. F., & Chen, N. H. (2014). Systematic review of traditional Chinese medicine for depression in Parkinson's disease. *The American Journal of Chinese Medicine*, *42*(5), 1035-1051

Appendix A

Sample of the Evaluation Form

Parkinson's Disease: Promoting Wellbeing through CREATION Health
Evaluation Questionnaires

Please circle the category you belong to:

1. PD Patient 2. PD Caregiver 3. Primary Care Provider 4. Specialist provider 5. CH Editor/Faculty

Directions:
Based on the scale below, please rate each CREATION Health element as presented in the booklet.

5 = Excellent 4 = Above Average 3 = Average 2 = Below Average 1 = Poor

	Design/ Attractiveness	Readability	Accuracy	Quality of Information	Usefulness of Information
Choice	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Rest	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Environment	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Activity	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Trust in God	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Interpersonal Relationship	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Outlook	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Nutrition	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

Parkinson's Disease Management through CREATION Health
Qualitative Questionnaires

Comments:

1. What are the strengths of the PDMCH brochure?

2. What areas of improvement would you like to suggest?

2. Other comments/feedbacks?

Appendix B

Quantitative Data

Table 1 – PD Patient/Caregiver (N=32), % high score (4 to 5 on Likert Scale)

Elements	C	R	E	A	T	I	O	N
Design	91%	94%	91%	94%	91%	91%	91%	91%
Readability	91%	88%	94%	94%	97%	91%	91%	94%
Accuracy	91%	96%	91%	94%	94%	91%	91%	94%
Quality	91%	91%	91%	91%	91%	88%	91%	88%
Usefulness	91%	94%	94%	94%	94%	88%	94%	94%

Table 2 – Professionals (N=19), % high score (4 to 5 in Likert Scale)

Elements	C	R	E	A	T	I	O	N
Design	100%	95%	100%	95%	100%	100%	100%	100%
Readability	95%	95%	100%	100%	100%	100%	100%	100%
Accuracy	90%	95%	79%	95%	90%	95%	90%	95%
Quality	95%	95%	84%	95%	95%	90%	90%	100%
Usefulness	100%	100%	95%	95%	100%	100%	95%	100%

Appendix C

Qualitative Data Summary

Group 1 (PD patients and PD caregivers)

A. Strengths of the PD booklet

1. "Well-done, attractive, and shows a balance of what people can do with this tough disorder."
2. "Clear presentation without belaboring the elements. Should be very helpful for PD patients and caregivers."
3. "The information I learned will help me to be a better caregiver."
4. "Very informative. Nice to know natural ways of dealing with PD."
5. "Provides complete references in the back."
6. "Useful info that we all need to practice."
7. "Simple, easy to read, and comprehend."
8. "This information will help or motivate me to do something to improve my symptoms and quality of life."

B. Weaknesses of the PD booklet

1. "Poor readability. Some pictures and words are blurred. Small fonts. Hard to read."
2. "Placement of page numbers is inconsistent."
3. "Pictures for scent are irrelevant because PD patients lose their sense of smell."
4. "Not clear illustration on Choice. Aquatic therapy has to be included in Activity and not in Environment."

Group 2 (Primary care providers, Neurology specialists, CH editor/SAU-DNP Faculty)

A. Strengths of the PD booklet

1. "Excellent layout! Very good job!"
2. "Good information and use of references."
3. "This is a great brochure. This brochure would be very beneficial for patients and their family members who have been diagnosed with PD."
4. "The CREATION health information is very detailed and well done."
5. "This brochure is very helpful in my practice."
6. "I like the way it starts with very concise definition of PD and incorporates it with CREATION Health Model. It is very well explained and each component is explicitly connected with PD."

B. Weaknesses of the PD booklet

1. "Some of your basic information like sunshine prevents osteoporosis and fractures. We prevent fractures by preventing falls. We prevent falls by trying to adjust the dosing of their Sinemet to help their gait, exercise, and balance."

2. "Too many photos; each page is too crowded; Need consistent line spacing and putting them close together will give a less-cluttered look."

3. "We felt that some of the information are very misleading and inaccurate starting with the title. These are not steps to manage PD or slow progression. We manage symptoms of PD at best and nothing in the brochure mentioned about increasing the production/retention or use of dopamine."

4. "It would be more useful to mention the paradox that exists between the fact that some of the most conscientious followers of healthy lifestyle recommended in the work seem to

ultimately develop at least their share of the disease. I do not see that this study is included in the bibliography."

5. "Footnotes are distracting. References need to be numbered according to CREATION Health topics."

6. "Should focus more on the pharmacologic treatment of PD."