POSSIBLE BENEFITS OF ADVENTURE THERAPY ON THOSE WITH ALZHEIMER'S AND DEMENTIA

By

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

BACHELOR OF INTERDISCIPLINARY STUDIES

THOMPSON RIVERS UNIVERSITY

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ABSTRACT

This project examines the potential of adventure therapy as an adjunct treatment to medication for those with Alzheimer's and dementia as a way to positively impact their quality of life. The research identifies common underlying mechanisms of adventure therapy that that correspond with therapeutic considerations for those living with Alzheimer's and dementia. It is proposed that adventure therapy shows significant potential for being a beneficial form of therapy for those with Alzheimer's and dementia. This literature review also provides the foundation for developing and implementing a tailor made Alzheimer's adventure therapy program in Canada and future research designs.

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ACKNOWLEDGEMENTS

This thesis would not have been possible without the countless support and patience of my thesis committee, family and friends. I would like to thank Reid Webster for accepting the role of becoming my thesis supervisor late in the semester, for the extensive editing sessions and for keeping me on track. Thank you to my other committee members, Star Mahara and Ross Cloutier, for your patience and flexibility throughout this process. I would also like to express my gratitude to Wendy Hulko and Mark Wallin who both assisted me in the beginning stages of this project and have encouraged me along the way. A special thank you goes out to all of my loving and supportive family and friends who have never stopped believing in me.

DEDICATION

This thesis is dedicated to my grandmother, Elsie Huffman, who has been progressing through the stages of Alzheimer's over the last few years. She has been the driving force behind this project and her well-being will continue to motivate my future research.

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INTRODUCTION

> "My yesterdays are disappearing, and my tomorrows are uncertain, so what do I live for? I live for each day. I live in the moment."
>
> -Lisa Genova, *Still Alice*

Whether you are living it first hand or experiencing it through a loved one, most of us have been, or are, affected personally by the cruel reality of Alzheimer's disease, a disease that steals time and memories as it afflicts the mind, body and spirit. In her book, *Still Alice*, Lisa Genova (2007) captures the cruel nature of the disease through the life of Alice Howland as she progresses through the beginnings of early onset Alzheimer's. With Alzheimer's disease stripping away her sense of self and what she knows to be true, Alice comes to understand the importance of living for each moment. Although it is a concept that should be applied to all of our lives, it is particularly important for those with Alzheimer's as their forced reality is living moment by moment. What is true to the rest of the world may not be true to someone with Alzheimer's. Their sense of time can be altered by the progression of the disease which causes them to revert back to different times of their life. For example, an 80 year old woman may be asking for her mother who in reality is deceased. In her reality, however, she may be a young girl who is still being cared for by her mother and is frightened that she does not know where she is. It is because of these altered senses of reality that it is critical for us as caregivers to meet them where they are and be present in that moment with them to offer assurance and love, and "create moments of joy" (Brackey, 2008).

Alzheimer's disease is not a disease that is limited to those who are elderly. Although the onset of Alzheimer's disease is more commonly seen in people over 65 years of age, with its prevalence increasing in their seventies and eighties, early-onset Alzheimer's can occur

during middle age (Alz.org, 2015; Bjorklund, 2011; Comer, 2014). Alzheimer's is a progressively fatal disease with a prognosis of individuals surviving 8 years on average from the time of onset, although survival can range from 4 to 20 years (Alz.org, 2015; Comer, 2014). Age as well as health issues that occur as the result of cognitive and physical deterioration are key factors that can impact the length of time an individual has after the onset on Alzheimer's disease (Alz.org, 2015; Bjorklund, 2011; Comer, 2014). For example, as their cognitive and physical functioning begins to decline, Alzheimer's patients can become more susceptible to falls. Although these falls can range in severity, the recovery of even a somewhat minor fall can be compromised due to the individuals having less awareness of their limitations. This lack of awareness can have them do things such as getting out of bed on their own that can lead to further harm. These actions can become a regular occurrence that results in a longer recovery time, additional falls and injuries, as well as an increased time of bedrest that leads to other complications resulting from a lack of physical exercise.

With its numbers increasing, Alzheimer's disease is the most prevalent type of neurocognitive disorder (Bjorklund, 2011; Comer, 2014). The rate at which this number is climbing should directly influence the urgency placed onto Alzheimer's research as well as the development of new therapeutic interventions for those that it afflicts. Facilities and programs for those with Alzheimer's and other forms of dementia can be quick to treat the more aggressive individual symptoms rather than individual as a whole which can impact their overall quality of life. For example, overmedication for behavioural changes (i.e., agitation and aggression) leads to an individual losing other skills (i.e., verbal communication) that they may still have access to but that are being masked by sedatives.

We may not be able to fully understand the reasoning behind them hitting the side of their chair or speaking incomprehensibly, however, there is a need there despite the fact that they cannot communicate it. Taking the time to understand what the need is in that moment and helping to fill that need will greatly impact their quality of life.

The aim of this research is to examine new therapeutic interventions for those living with Alzheimer's and dementia. Specifically, I will be reviewing the potential of adventure therapy as an adjunct treatment to medication for those with Alzheimer's and dementia. This literature review also provides the foundation for developing and implementing a tailor-made Alzheimer's adventure therapy program in Canada.

HOW ALZHEIMER'S AFFECTS THE BRAIN

Alzheimer's disease is the most common type of dementia that leads to the deterioration of the brain, specifically areas involving high cognitive functioning (Alz.org, 2015; Bjorklund, 2011). The areas that are most commonly affected first are those that control short-term memory/learning and decision making/planning, but over time this deterioration will begin to affect social/behavioural as well as physical functioning (Alz.org, 2015; Bjorklund, 2011). The deterioration begins due to the abnormal activity and formation of "excessive senile plaques and neurofibrillary tangles" in the brain (Comer, 2014, p. 487-488). Senile plaques are small, circular deposits of a molecule called the beta-amyloid protein that "form in the spaces *between* cells in the hippocampus, cerebral cortex, and certain other brain regions, as well as in some nearby blood vessels" (Comer, 2014, p. 487). Neurofibrillary tangles consist of twisted protein fibers that are "found *within* the cells of the hippocampus and certain areas of the brain" (Comer, 2014, p. 488). The hippocampus is an area of the brain where we are able to form new memories (Alz.org, 2015) which is why one

of the first key signs of Alzheimer's is confusion about events or conversations that recently took place. As the disease progresses, the cerebral cortex begins to shrink which causes damage to areas of the brain like the frontal lobe that is involved in planning, thinking and remembering (Alz.org, 2015). Although the formation of plaques and protein fibers in the brain are considered a normal part of aging, these formations tend to be exceptionally high in those with Alzheimer's disease (Comer, 2014). It is theorized that some of the plaques that are formed by the beta-amyloid proteins cause a breakdown in another protein in the brain, tau, resulting in excessive neurofibrillary tangles and the death of neurons in key functioning areas of the brain which leads to Alzheimer's disease (Comer, 2014). The continued progression of Alzheimer's disease eventually consumes the areas of the brain involved with senses and movement, leading to a fatal deterioration.

MEDICATIONS

Some medications that are currently prescribed for those with Alzheimer's disease are cholinesterase inhibitors such as "tacrine (trade name Cognex), donepezil (Aricept), rivastigmine (Exelon), galantamine (Reminyl), and memantine (Nemada)" (Comer, 2014, p. 491); these are designed to affect acetylcholine and glutamate which are the neurotransmitters that are significant for memory and learning (Alz.org, 2015; Comer, 2014). The benefits of taking these medications appear to be mild as short-term memory, reasoning, coping under pressure, and the use of language appear to only improve slightly in some people with Alzheimer's disease after use (Comer, 2014). Some clinicians believe that these medications may be the most beneficial for those in the early stages of Alzheimer's disease (Comer, 2014); with any medication, however, we need to consider if the positive yet limited benefits outweigh the harmful risks involved. For example, although tacrine (Cognex) is still

accessible, it is rarely prescribed and has even been discontinued in the United States due to its more harmful effects than the other medications including liver damage (Alz.org, 2015; National Institute on Aging, n.d.; Mayo Clinic, 2015). Side effects for other medications listed above can be seen here in Figure 1.

DRUG NAME	DRUG TYPE AND USE	HOW IT WORKS	COMMON SIDE EFFECTS
Namenda® (memantine)	N-methyl D-aspartate (NMDA) antagonist prescribed to treat symptoms of moderate to severe Alzheimer's	Blocks the toxic effects associated with excess glutamate and regulates glutamate activation	Dizziness, headache, constipation, confusion
Razadyne® (galantamine)	Cholinesterase inhibitor prescribed to treat symptoms of mild to moderate Alzheimer's	Prevents the breakdown of acetylcholine and stimulates nicotinic receptors to release more acetylcholine in the brain	Nausea, vomiting, diarrhea, weight loss, loss of appetite
Exelon® (rivastigmine)	Cholinesterase inhibitor prescribed to treat symptoms of mild to moderate Alzheimer's (patch is also for severe Alzheimer's)	Prevents the breakdown of acetylcholine and butyrylcholine (a brain chemical similar to acetylcholine) in the brain	Nausea, vomiting, diarrhea, weight loss, loss of appetite, muscle weakness
Aricept® (donepezil)	Cholinesterase inhibitor prescribed to treat symptoms of mild to moderate, and moderate to severe Alzheimer's	Prevents the breakdown of acetylcholine in the brain	Nausea, vomiting, diarrhea

Figure 1. Alzheimer's Disease Medications Fact Sheet. (National Institute on Aging) Retrieved from: http://www.nia.nih.gov/alzheimers/publication/alzheimers-disease-medications-fact-sheet#table

While some of these side effects may seem less severe for the average person, we need to look at them with respect to the individual with Alzheimer's. For example, dizziness and confusion as a result of taking Nemenda (memantine) for moderate to severe Alzheimer's worsens their already progressing symptoms of decreased cognitive functioning. Similarly, diarrhea, weight loss, loss of appetite and muscle weakness as a result of taking the other listed medications prematurely takes away their sense of competence in mild to moderate stages of Alzheimer's as well as worsens their progressing symptoms of decreased physical functioning in severe stages of Alzheimer's.

Although medications do not necessarily stop the progression of Alzheimer's disease, they can "delay [the] worsening of symptoms for 6 to 12 months, on average, for about half the people who take them" (Alz.org, 2015). If used correctly, they can be used as a positive form of treatment to help improve their quality of life. For example, about 30-50% of individuals with Alzheimer's disease often experience depression (Kim, Kim, & Kong, 2013) during various stages of the disease as they try to cope with the frustration and loss of cognitive as well as physical functioning. Depression is also due to the physical loss, or lowered activity, of the neurotransmitters serotonin and norepinephrine as the disease progresses (Rosenberg, Mielke, Han, et al., 2012). This suggests that antidepressants, "that increase the availability or enhance the action of these neurotransmitters might be beneficial in slowing disease progression" (Rosenberg et al., 2012, p. 1249). These types of antidepressants include selective serotonin reuptake inhibitors (SSRIs; e.g., Celexa) and serotonin-norepinephrine reuptake inhibitors (SNRIs; e.g., Effexor). Furthermore, there has been evidence that antidepressants also contribute to improvements in agitation, cognition, behavioural disturbances and even "hippocampal neurogenesis" (Kim et al., 2013, p. 1284; Rosenberg et al., 2012, p. 1249).

Although medications can be a beneficial form of treatment, they do not address all of the needs of the individual living with Alzheimer's. Additional therapies that exercise cognitive functioning would help to fill these gaps in treatment. For example, fine and gross motor activities (i.e., throwing a ball and catching it) can encourage cognitive training while also providing the individuals with positive social interactions. Continued research for alternative forms of therapy for those with Alzheimer's and dementia will help to ensure that more of their needs are being met with the goal of improving their quality of life.

ADVENTURE THERAPY

According to beloved author and environmental activist Edward Abbey, "wilderness is not a luxury but a necessity of the human spirit" (Abbey, 1968, p. 169). Adventure therapy involves the use of wilderness and wilderness activities as a form of therapy to bring about positive change in an individual by increasing their resilience and promoting a greater quality of life. By empowering people with the skills necessary to participate in outdoor activities, the counsellors and instructors are also equipping them with essential life skills (e.g., social connectedness and positive coping mechanisms).

The concept of adventure therapy has been around for some time, but this form of therapy is slowly becoming better known and respected for its unique and positive results. The development of adventure therapy programs stem from one of the pioneers of experiential learning, Kurt Hahn, through his creation of the Outward Bound programs which were initially used to prepare seamen to survive at war (Rosol, 2000; Howden, 2012). These programs continued as a method for promoting psychological and behavioural change in youth under his philosophical framework that the best way people learn is by doing (Rosol, 2000; Howden, 2012). This was also the foundation for experiential schools that he founded, such as Gordonstoun, where his aim was to "foster in young people the qualities of skill, compassion, honesty, initiative, adventure and a sense of service to their fellow beings," (Gorsonstoun, 2013). These qualities continue to be taught in adventure therapy and outdoor experiential learning programs.

The goal of adventure therapy is to use nature and wilderness adventure activities as a way to bring about positive psychological, social and behavioural change in the lives of the participants (Weston, & Tinsley, 1999; Rosol, 2000). Adventure therapy research has

frequently been focused on working with youth-at-risk. These "high-risk" individuals may be experiencing adverse life outcomes such as problems with behaviour, delinquency, low self-esteem, substance abuse, and poor social skills (Werner, 1989; Weston & Tinsley, 1999; Rosol, 2000). Adventure therapy research and practice has been merging into other disciplines to prove that adventure therapy can be an effective form of alternative treatment.

Adventure therapy programs offer the unique characteristics and delivery methods of outdoor and experiential education. They offer a practical development of skills that can be applied to all areas of life. Experiential learning provides individuals with a better understanding of the task at hand which increases the opportunity for them to achieve greater competence and confidence in a skill (Knecht-Sabres, 2013). Using the outdoors as an educational setting, participants are given the opportunity to join in natural yet highly challenging activities that requires them to engage all aspects of themselves in order to be successful. Connecting all of these areas within the activities helps develop personal identity, values and attitudes as participants discover aspects about themselves they never knew. This is achieved by removing the individual from the distractions and stress of everyday life, engaging in challenging activities, developing deep social support groups and the opportunity for personal reflection in a beautifully natural environment.

In recent years, adventure therapy has become more recognized as an effective form of treatment for a variety of groups through significant positive effects that benefit a person's overall health. For example, studies have demonstrated that adventure therapy activities and programs have or already make significant improvements in the quality of life for those with cancer (e.g., Ray & Jakubec, 2014; Epstein, 2004), HIV/AIDS (e.g., Bidell, 2010), and traumatic brain injuries (e.g., Shanahan, McAllister, & Curtin, 2009). In more specified

studies of mental health, adventure therapy has proven to be a beneficial adjunct treatment for anxiety and depression (e.g., Kyriakopoulos, 2011; Gelkopf, Hasson-Ohayon, Bikman, & Kravetz, 2013), substance abuse (e.g., Bennett, Cardone, & Jarczyk, 1998), and psychosis (e.g., Bryson, Feinstein, Spavor, & Kidd, 2013).

Some of the various activities used throughout these studies included hiking (e.g., Bidell, 2010; Kyriakopoulos 2011), sailing (e.g., Gelkopf et al., 2013), dragon boat racing (e.g., Ray & Jakubec, 2014), ropes courses (e.g., Bidell, 2010; Bennett et al., 1998; Bryson et al., 2013), and camping (e.g., Bidell, 2010; Bryson et al., 2013). High and low ropes courses specifically appear to be a widely used activity that is beneficial for providing personal challenge and increasing confidence. The duration of programs varied from a 1 day hiking adventure (e.g., Kyriakopoulos 2011) to the delivery of sailing excursions over the course of 2 years (e.g., Gelkopf, 2013).

Although the results vary slightly depending on the nature of the program or activity there are common themes present in the participants post intervention. Participants experienced decreased anxiety/stress and depression (e.g., Bennet, 1998; Bidell, 2010; Bryson et al., 2013; Kyriakopoulos, 2011; Gelkopf et al., 2013; Ray & Jakubec, 2014), an improved sense of well-being and overall quality of life (e.g., Kyriakopoulos, 2011; Gelkopf et al., 2013; Ray & Jakubec, 2014), increased confidence and motivation to seek physical activities outside of the program (e.g. Bryson et al., 2013; Kyriakopoulos, 2011), and increased feelings of physical health (e.g., Bryson et al., 2013; Ray & Jakubec, 2014). These improvements were commonly due to their active involvement in a challenging activity, experiencing group connectedness, gaining confidence and control, being away from external

stimuli and stressors from everyday life as well as being able to reflect in a natural and secure environment for healing.

These studies support adventure therapy as an adjunct form of therapy for various groups; however, they are not without their limitations. The lack of random assignment of participants to groups introduces threats to the internal validity that make it difficult to determine whether the intervention or some other uncontrolled variable, or both, account for the positive findings. In order to determine whether adventure therapy alone is the causal tool of change, randomization needs to be used when assigning participants to groups so that the groups are equivalent at the outset of the study; in this way, researchers can be more confident that the differences between the groups at post-intervention are due to the therapeutic intervention (i.e., adventure therapy) rather than to the influence of uncontrolled and extraneous variables such as selection, history, or maturation for example. In essence, randomization and a well-designed study allows us to eliminate competing explanations so that we can more confidently conclude that it was the treatment (i.e., adventure therapy) that accounts for the changes in the participant's behaviours.

Another significant limitation common to many of these studies includes a very small sample size (e.g., Kyriakopoulos, 2011; Bennett et al., 1998). Regardless of any drop-out rates during the program, many of them still began with a small sample size. For example, when participants drop out of the research, they take with them vital data that could impact the measures of significance found within the study. While using a small group during a specific activity may be beneficial for the participants, a small sample size limits the degree to which the results can be generalized back to the target population. Finally, these studies would benefit from the use of longitudinal designs to examine how the effectiveness of

adventure therapy goes beyond the time of the program. Since a lot of the data for adventure therapy programs is based on participant self-analysis, they may be offering a biased opinion of its effects while they are still experiencing the "high" of the adventure either during or just after the program ends. Although all of these studies are very promising for the current and future benefits of adventure therapy programs, these limitations need to be eliminated in further studies to gain greater credibility.

UNDERLYING MECHANISMS IN ADVENTURE THERAPY

Over the course of my research I have found some underlying mechanisms of adventure therapy that correspond with therapeutic considerations for those living with Alzheimer's and dementia. The mechanisms that I will discuss include attention restoration theory, physical exercise, social connectedness as well as the importance of incorporating risk/challenge and risk management.

Attention Restoration Theory

Attention restoration theory suggests that we can experience attentional fatigue when exposed to the constant, directed attention of the same environment (Herzog, Black, Fountaine, & Knotts, 1997). According to Herzog et al. (1997), the recovery from this attentional fatigue is achievable through a restorative environment that consists of four different elements. The setting must be different from the individual's everyday environment, it must be able to promote exploration and engage the mind, it must stimulate fascination/effortless attention, and it must be compatible to goals and purposes of the individual (Herzog et al., 1997, p. 165). Although it can be argued that some urban settings offer these characteristics of a restorative environment, attention restoration theory "proposes

that natural settings tend to be liberally endowed with all of them" (Herzog et al., 1997, p. 165).

Attentional fatigue might lead to a "lowered ability to concentrate and solve problems, heightened irritability, and a greater proneness to mistakes or accidents" (Herzog et al., 1997, p. 165). People with Alzheimer's/dementia already experience some of these consequences, and therefore they will only be heightened if they don't get the opportunity to experience an attentional change. Brawley (2001) states that "being outside is necessary for well-being and for life itself. Exposure to natural sunlight helps to regulate circadian rhythm and sleep/wake cycles, offers the opportunity to exercise and increases general feelings of well-being" (p. 81). Therefore, nature can positively benefit a person's emotional/mental and physical health which is especially important for those with dementia.

Physical Exercise

One main element in adventure therapy programs is the presence of a "high-adventure" activity or a "low-adventure" activity (Weston & Tinsley, 1999). High-adventure activities can be considered slightly more intense pursuits such as survival training or rock climbing, while low-adventure activities can be lower intensity ventures such as flat-water canoeing or day hikes (Weston et al., 1999). No matter the intensity, each activity provides a time for physical exercise which has been proven to positively impact participants both physically and mentally. Although many research studies reveal a positive relationship between physical exercise and an improvement in cognitive functioning, we cannot say yet that it is a guaranteed preventative form of therapy for dementia (Rockwood & Middleton, 2007). It can delay, however, the onset of cognitive impairment or dementia for those who participate in some form of physical exercise three times a week on average (Rockwood &

Middleton, 2007). Leading a healthy physical lifestyle can also reduce the risk of vascular dementia which often results from a stroke (Rockwood & Middleton, 2007). Furthermore, a healthy lifestyle can decrease the risk of cardiovascular disease which studies have shown to be linked to dementia (Rockwood & Middleton, 2007).

Social Connections

Adventure therapy provides participants with a sense of social connectedness that they may be deprived of in their everyday life. For example, one factor that may define youth-at-risk is the lack of emotional support and connection from their immediate family (Werner, 1989). Resilience in youth, however, improves if they can receive that emotional support from outside of their immediate family that can assist and encourage them during times of transition or crisis (Werner, 1989). The instructors, counsellors and teammates within an adventure therapy program can act as a type of replacement social support system when a strong family support system does not exist for the individual. This is especially true when participating in activities that challenge the participants to step outside of their comfort zone to achieve a goal. For those living with Alzheimer's and dementia this support as well as human connection is crucial for their well-being. This is not only true from a safety standpoint but also because being placed in indoor care homes can take away a lot of their social interaction. When they do reach out to other residents in the care home, their need for touch is not always reciprocated which can result in physical disputes that lead to injury. For example, while living in a nursing home, my grandmother reached out to take another resident by the hand who in her reality she believed to be my grandfather. After trying a few times to guide them by the hand the other resident pushed her, causing her to fall and break her hip. I have found that as the disease progresses, this need for physical human connection

increases since they can eventually experience a poverty of speech that limits their verbal communication. Adventure therapy programs can provide those living with Alzheimer's and dementia to experience social connectedness in a small group setting where their actions can be monitored and their needs can be met.

The Importance of Risk/Challenge and Risk Management

It is important to understand the inclusion of risk in adventure therapy. More often than not, the concept of risk is understood only through its negative connotations. Risk, however, is "both the potential of losing something of value and also the potential for gaining something of value" (Curtis, 2007, p. 1). If the association and management of risk are properly implemented within adventure therapy programs then the potential for gaining something of value will increase to ensure that the participants will have a positive outcome. It is also important to differentiate between perceived risk and actual risk. Perceived risk is a subjective understanding of the risks involved that are influenced by their own feelings about the potential for loss or gain within the adventure activity (Dickson & Dolnicar, 2004). Actual risk is more of an objective understanding of the risks involved based on the factual evidence of the potential for loss or gain due to the nature of the adventure activity. Perceived risk development is often encouraged among practitioners in order to facilitate change within the participant, however it must also be monitored depending on the individual (Davis-Berman & Berman, 2002). People often feel the most at-risk when they feel like they don't have control of the situation (Davis-Berman & Berman, 2002). The idea behind perceived risk is that it is going to vary amongst individuals within a group. For example, participants may enter the program already struggling with an anxiety disorder that will impact their compliance towards an activity. It is therefore crucial to the participants' success

that practitioners as well as the individuals come to understand their comfort zones and level of perceived risk. It is in fact significant for the participants to step outside of their comfort zone to gain greater experiences and encourage change. The threshold for change, however, should not go beyond the point of success into dangerous territory by pushing the individual into unnecessary situations beyond the scope of the program that will cause inevitable harm. This line between peak adventure and misadventure is outlined in the Adventure Experience Paradigm (AEP; see Figure 2) developed by Martin and Priest (Jones, Hollenhorst & Perna, 2003). The AEP reveals how adventure participants can achieve an optimal experience by understanding and applying a balance between perceived risk and actual competence (Jones et al, 2003). Devastation and disaster can occur when the risk is substantially higher than the level of individual and/or group competence (Jones et al., 2003). A successful program finds the balance to achieve the optimal experience of peak adventure.

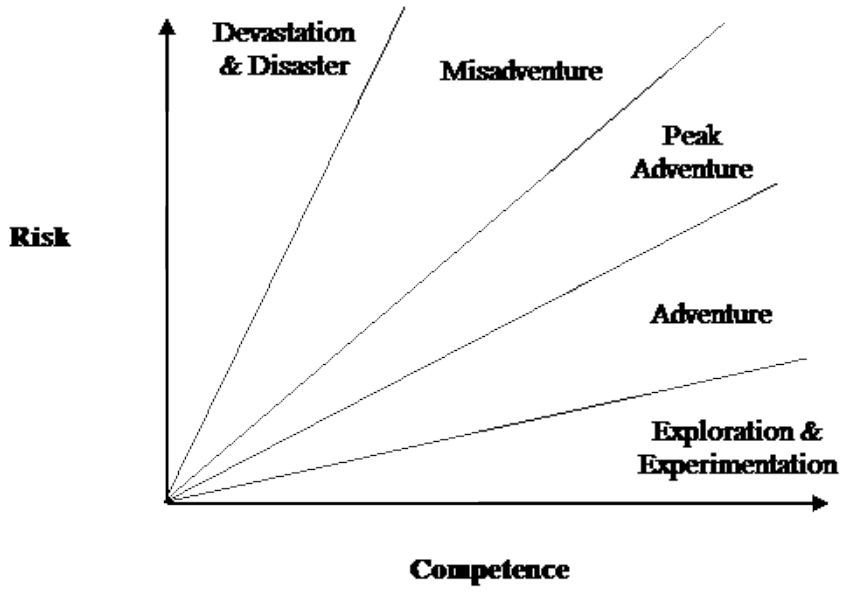

Figure 2. The Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1990, 1999) Retrieved from: http://www.wilderdom.com/philosophy/PriestAdventureExperienceParadigm.html

While there are those who are anxious over the risk involved, there are also those who are drawn to it (Davis-Berman & Berman, 2002). This excitement they experience will no doubt motivate their involvement into the activities. It is also important in these circumstances to come to understand the behaviours of the individual as they enter the program. They may in fact be excited to engage in a risky activity because they demonstrate negative risky behaviour in other aspects of their life. It is equally important for practitioners to understand the risk limits of these individuals so as not to inflict harm to them or the group. In this way, these programs can encourage a successful experience by taking the adventurous strengths of the individual and applying them to a group environment. For example, a participant who is a high risk taker could be given some control by being a supervised leader of an activity. Teaching him orienteering skills on a canoe trip to help guide the group can allow him to feel a sense of empowerment that he may not have felt at home, which in turn can teach him ways to hone his strengths and interests in a healthier manner when he returns home. Being entrusted with these responsibilities will help develop self-discipline by understanding that his actions will affect the safety, enjoyment and growth of the others. Therefore, promoting a certain level of risk in adventure therapy activities is essential to elicit positive mental and emotional change in participants through overcoming individual challenges which can increase a higher level of resilience. These changes will set a foundation for further transformations in behaviour which in turn will positively benefit other areas of their life.

Risk Management for Participants with Alzheimer's Disease

Program development and implementation for those with Alzheimer's will share the common principles of risk management that would be applied to any group. There are added

concerns, however, that need to be considered due to the nature of the disease and the ability of the participants. It is important across all participating groups for the staff to understand the group's needs, wants and desires for the duration of the activity so that they can work towards the desired outcome of the activity. This understanding is even more crucial for staff working with those with Alzheimer's as participants have increased needs. Staffing considerations for Alzheimer's programs will differ because of this. Not only would staff require common program requirements (i.e., advanced wilderness first aid certifications) they would also need to have proper training in Alzheimer's disease knowledge and experience working with those with Alzheimer's/dementia to aid in positive risk management. This added training allows for all staff to be ready for situations that they would not normally need when working with other groups (i.e., increased risk of injury or wandering due to impaired cognitive functioning). To help mitigate these risks, the staff-participant ratio should be one staff member to one participant or at least one staff member to two participants if their caregivers/loved ones are joining them for the activity. Furthermore, even with medically trained staff it is crucial to be aware of the location of medical care facilities surrounding the adventure site as well as the availability and accessibility of transportation in case of emergencies. This is particularly true for the development of Alzheimer's adventure programs to help mitigate the added risks involved through detailed pre-trip planning.

One goal of implementing adventure activities for those with Alzheimer's and dementia is to provide them with the opportunity to connect with nature and experience a sense of adventure (Dementia Adventure, 2012) that so often becomes lost within indoor care facilities. Since perceived risk and actual risk will vary between individuals and activities, especially as the disease progresses, staff members will need to meet the needs and desires of

the participants by offering activities that suit their tailored interests. For some, experiencing a sense of adventure can be through participating in horticulture activities and sensory gardens while others may experience it through higher intensity activities such as sailing. No matter the activity, the proper identification of hazards and perils will help aid in positive risk management by weighing the potential loss versus potential gain before going forward with the adventure activity. Identifying potential hazards and perils are also important when designing an environment for those with Alzheimer's and dementia. Designing a risk management plan that maintains industry standards will help these programs gain credibility within the industry.

ADDITIONAL CONSIDERATIONS FOR THOSE WITH ALZHEIMER'S

Environmental

Specific environmental concerns for those with Alzheimer's and/or dementia need to be taken into consideration throughout the caring process. Those with dementia often develop problems with "sensory overstimulation" which in turn can increase the "distraction, agitation, and confusion associated with dementia" (Day, Carreon, & Stump, 2000, p. 407). This overstimulation can come in the form of excessive noise or having too many people in one room, for example. It is important to find a balance between sensory overstimulation and under stimulation so as to create a non-threatening environment (Day et al., 2000). Adventure therapy programs can provide this balance by removing an individual from an over-stimulating environment filled with the stress of their everyday lives, and placing them in a naturally calming environment. Adventure therapy programs utilize a variety of naturally calming environments such as forests, lakes, and mountains that can be catalyst for attentional restoration. The wilderness creates this calming atmosphere by allowing the

individual to experience natural lighting, open spaces, and peaceful visual surroundings. These types of surroundings, however, also run the risk of becoming over-stimulating for those with dementia by going from one environmental extreme to the other. Therefore, this environmental sensitivity needs to be taken into consideration when constructing programs for those with dementia to ensure that they have a positive experience. This can be achieved by first having a one-on-one caregiver accompanying them on the adventure. The individual caregiver will be able to gage any agitation being experienced by the participants where they can then promptly bring them reassurance or even a change of scenery if needed (i.e., take them for a walk down to the lake).

Another environmental concern is the poor and/or dim lighting that can confuse their already altered senses and perception by creating unnatural shadows (Brawley, 2001; Gonzalez & Kirkevold, 2013). Deceiving shadow and light can interfere with depth perception and prove to be more dangerous to those who have come to depend on their surrounding environment to "compensate for increasing frailty, sensory loss, and dementia" (Brawley, 2001, p. 79). Although a properly well lit room is important in this case, controlled natural lighting would be best to avoid the overstimulation of florescent lighting (Brawley, 2001). This exposure to natural light also provides improvements in sleep patterns by restoring circadian rhythm which is critical for dementia patients as they often experience sleep disturbances (Gonzalez & Kirkevold, 2013). Since one of the main goals of adventure therapy programs is to bring people back outside, these programs will increase their amount of time spent outdoors as well as their exposure to natural lighting which can therefore promote healthier sleep patterns.

Psychological and Behavioural Functioning

Adventure therapy programs strive to "facilitate improvements in the psychological and behavioural functioning of the participant" (Weston & Tinsley, 1999, p. 31). Behaviours exhibited by those suffering from Alzheimer's/dementia like "pacing, intrusion into others' spaces, random vocalizing, [and] aggression" can be considered disturbing or disruptive (Lawton, 2001, p. 56). These behaviours, however, are primarily coming from their own "internal anxiety and agitation…rather than an expression of goal-directed energy" (Lawton, 2001, p. 56-57). The anxiety and often aggression they feel may emanate from the lack of control in their lives due to impaired cognitive functioning. Activities incorporated in adventure therapy programs "emphasizes the active involvement of the participants" (Weston & Tinsley, 1999, p. 31). This is not to say that participants are forced into such activities, but rather the control is placed in their hands to work together as a group to be successful. These tailored activities have goals in mind so that they feel as though they are working towards something meaningful. Participating in a purposeful activity, particularly one that is tailored to their interests and level of functioning, helps the individual remain active and engaged for longer periods of time (Gonzalez & Kirkevold, 2013; Kolanowski, Bossen, Hill, Guzman-Velez, & Litaker, 2012). At the same time, the participation in such hands-on and goal-oriented activities exercises memory and possibly stimulates long term memory (Gonzalez & Kirkevold, 2013; Mapes, 2011). Also, by working closely in a small group, participants can gain a greater sense of community, which is especially important for those with dementia.

Horticulture Therapy and Sensory Gardens

Resent research (e.g., Gonzalez & Kirkevold, 2013; Kolanowski, Bossen, Hill, Guzman-Velez, & Litaker, 2012) examines new methods of therapeutic programming that positively impact the lives of those with Alzheimer's and dementia by creating moments of joy through natural and tailor made activities. It is crucial to create these moments of joy for the individual as their reality, what is true to them, lives and dies in the present moment. Successful programs include the use of horticulture therapy and sensory gardens for individuals to re-experience a connectedness to nature. The use of these intervention activities can be considered "active use" by planting flowers and maintaining the gardens, to "passive use" by simply being on the grounds and experiencing the beauty and natural elements (Gonzalez & Kirkevold, 2013). The benefits of these types of interventions ranged from improvements in sleep patterns, mood, and behaviour as well as decreased injury, and decreased use of psychotropic drugs (Annerstedt & Wahrborg, 2011; Gonzalez & Kirkevold, 2013). The use of outdoor sensory gardens and horticulture therapy would provide an increased exposure to natural light that allows for the restoration of circadian rhythms that becomes altered as Alzheimer's progresses. Dementia facilities and other programs that use these forms of therapy also provide the resident/participant with a safe and stimulating area to wander, which is something that some of them are already prone to do (Gonzalez & Kirkevold, 2013).

Chapman, Hazen, and Noell-Waggoner (2005) discuss the importance behind the design of the garden for those with dementia to ensure a positive experience. The design elements they mention include the choice of flowers, the overall layout, the accessibility, and the option of sun and shade (Chapman et al., 2005). To ensure a year round experience, there

should be plants and flowers that can be present in all four seasons that are also stimulating to the senses (Chapman et al., 2005). The overall layout of the gardens avoids confusion by having circular pathways that have no dead ends (Chapman et al., 2005). Accessibility involves a smooth terrain, rest areas throughout and raised garden beds to ensure that everyone can reach the flowers without being limited (Chapman et al., 2005). Having taller trees that provide shade will give participants the option to walk in the sun or in the shade throughout their day (Chapman et al., 2005). This could increase the amount of time that they are able to interact outside without being negatively affected by the elements (i.e., heatstroke).

The beneficial effects of these nature-based interventions might be due to the fact that they incorporate a multi-sensory learning environment which engages all areas of the mind and the body. Crisp (1998) explains that this "multi-sensorial learning modality" is a key component in wilderness and adventure therapy that promotes healthy growth and change in the individual. Crisp (1998) goes on to say that the physical and environmental demands of this kind of therapy can be increasingly important for those clients who are unable to benefit from traditional verbal therapy. Some individuals with dementia may experience a poverty of speech where they are unable to verbally communicate effectively, which contributes to impairments in their social and cognitive functioning.

DEMENTIA ADVENTURE

One program that has already paved the way for the future research and development of adventure therapy programs for those with dementia is Dementia Adventure. Established in 2009, Dementia Adventure is a company based out of Essex that is being run by Neil Mapes and Lucy Harding (Dementia Adventure, 2015). They believe that people with

dementia are “at risk of being excluded from nature spaces” as they are often placed into a locked down indoor setting (Dementia Adventure, 2012). They work together with individuals and other organizations across the UK with the goal of “connect[ing] people living with dementia with nature and a sense of adventure” to increase their quality of life (Dementia Adventure, 2015). In a small group setting, Dementia Adventure designs and delivers “short breaks” and/or “holidays” for both the person living with dementia and their loved one to go on together (Dementia Adventure, 2015). Some sample activities that they provide with the help of adventure businesses have included sailing, walking/hiking, and “escape[s] to the country” where participants can just get away from it all (Dementia Adventure, 2015). They also help design tailor made activities based on the individuals previous and current interests such as white water rafting excursions (Dementia Adventure, 2015). These tailor made activities provide those living with dementia the opportunity to experience beloved activities that they thought they would not get the chance to do again (Dementia Adventure, 2012). Participating in activities that they used to enjoy can help to produce a “physical memory” of those past experiences (Dementia Adventure, 2014). Once the activity is chosen, Dementia Adventure takes care of organizing the accommodation, itinerary, travel arrangements and any necessary tickets so that the only thing the participants need to do is enjoy the activity together and truly take the time to relax (Dementia Adventure, 2015). Not only do they take away the stress of the details but they also provide each participating couple with a staff member from Dementia Adventure, providing them with a set of extra hands during the holiday to assist them in any way they need (Dementia Adventure, 2015). This especially helps to relieve the caregivers of any burdens and gives them the opportunity to just enjoy the moment with their loved one who has dementia and

experience a sense of normalcy again. Dementia Adventure hopes to "challenge the stigma associated with dementia" by sharing their adventures using multimedia (Dementia Adventure, 2012). Furthermore, Dementia Adventure also provides other organizations like care homes with training and consulting sessions so that they feel confident that they can bring these kinds of activities and principles into their own establishments (Dementia Adventure, 2012).

DISCUSSION

Those who experience disabling conditions of mental health are often greatly susceptible to an ongoing stigma. The development and implementation of new therapeutic interventions for mental health deliver community resources for the individual as well as provide society with greater mental health education with the goal of ending stigmatization. After reviewing the literature we are able to see that adventure therapy programs have proven to be beneficial for improving physical and mental health in a variety of groups (i.e., cancer survivors and substance abusers, for example). By examining the progression of the decline of psychological and behavioural functioning with the positive outcomes that these groups experienced (i.e., reduction in stress/anxiety and depression, for example), we are able to see the potential benefits of adventure therapy as an adjunct treatment to medication to positively impact their quality of life. Research on the use of horticulture and sensory gardens in care homes as well as adventure activities through Dementia Adventure support the potential that nature activities can improve the quality of life for these individuals. Although they may not remember the activity itself, the past emotions and feelings associated with it can be sparked by participating in an activity they once enjoyed. Currently, however, there are not a lot of

empirical studies available to specifically support the benefits of adventure therapy activities for those with Alzheimer's and dementia.

FUTURE RESEARCH

In order to gain credibility as a beneficial form of therapy for those with Alzheimer's and dementia, adventure therapy needs to produce both qualitative and quantitative data that showcases its benefits. This thesis is the first step to a potentially larger project. Further master's studies can provide me with a greater amount of time and financial assistance to design and implement a structural example of an adventure therapy program for Alzheimer's patients. I believe that a greater emphasis should be placed on testing whether certain adventure therapy activities are more beneficial than others for improving, or at least maintaining, quality of life during different stages of Alzheimer's. This research would help to determine who is best suited for what activity based on the physical and mental changes they are going through as the disease progresses. For example, those with early onset Alzheimer's or in the early stages may benefit from a high intensity activity (i.e., canoeing and ropes courses, for example), whereas those in the later stages of Alzheimer's may benefit more from low intensity activity (i.e., horticulture/sensory gardens and walking trails, for example). Developing a program that is tailor made to their interests as well as where they fall in the progression of the disease will encourage optimal therapeutic benefits for each individual. In the future, it will be important to design an adventure therapy facility that can simultaneously support programs for individuals going through various stages of Alzheimer's. Having individuals going through different stages on site can assist research by comparing groups and activity benefits.

When researching the effectiveness of adventure therapy for these individuals, how we view effectiveness must be recognized. Although, we may not see a specific transformation in the individual from pre-intervention to post intervention, this does not mean, however, that the therapy did not work. We know that Alzheimer's is a progressive disease, therefore the success of these programs need to be based on their ability to slow the individuals decline rather than elicit change.

After designing and executing my initial comparative studies at the facility, I would need to be able to replicate them in order to determine their effectiveness. This facility would also be designed based on the environmental considerations for those with Alzheimer's and dementia as outlined in this paper in order for individuals to gain the most from their surroundings.

CONCLUSION

Delivering alternative forms of therapy for those with Alzheimer's and dementia as an adjunct treatment to medication will help to ensure that more of their needs are being met. It is important that therapeutic interventions look at the person with Alzheimer's as a whole and not just at their singular symptoms. In doing so, caregivers can improve the individuals' quality of life by generating greater potential for experiencing moments of joy. Creating moments of joy is crucial for the individual as their reality, what is true to them, lives and dies in the present moment. Genova (2007) captures the urgency of creating these moments when she writes, "But just because I'll forget it some tomorrow doesn't mean that I didn't live every second of it today. I will forget today, but that doesn't mean that today doesn't matter" (p. 293). It is critical that society comes to understand the authenticity of the reality of the

individual with Alzheimer's in order to provide better care and also to reduce the stigma that follows.

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