The Use of Snoezelen Multi-Sensory Environments to Treat Depression in Individuals with Dementia

by

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DEDICATION

This study is dedicated to all the friends made during my placements at long-term care facilities. Everyone I have met has taught me something different to take with me on the road of life.

The conversations will not be forgotten.
Abstract

Dementia is a syndrome in which there is deterioration in memory, thinking, behaviour and the ability to perform everyday activities (World Health Organization, 2014). Snoezelen Multi-Sensory Environments (SMSE) are designed to adapt to the needs or abilities that have been compromised by dementia by providing a stress-free environment that can be changed at anytime. The one-on-one intervention in this study involved one female, aged 91, who was diagnosed with depression. It was hypothesized that the use of the Snoezelen MSE with an individual suffering from dementia and related depression will help to reduce some of their symptoms. Empirically supported literature about SMSE was described in detail pertaining to processes that are involved in SMSE and the positive outcomes of treatment sessions. The research design was a case study using a pre- and post-test method that included the Cornell Scale for Depression in Dementia (CSDD) to determine if the treatment had an effect, a depression scale to determine how the individual felt before and after treatment, and a staff rating scale that was administered to those who interacted with the client. Following the treatment intervention, the participant and the caregiver both rated the participant as lower on the CSDD that indicating a reduction in the symptoms of depression. The higher ratings of mood on the depression scale indicated that the participant felt “happier” after treatment sessions. The “staff ratings” administered at the end of treatment indicated Debbie was below the threshold for depression. This study provided evidence to support the hypothesis that the use of the Snoezelen MSE with an individual suffering from dementia and related depression could help to reduce some of the experienced symptoms.
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Chapter I: Introduction

Summary
Dementia is a syndrome in which there is deterioration in memory, thinking, behaviour and the ability to perform everyday activities (World Health Organization, 2012). This cognitive decline includes, but is not limited to, loss of memory or changes in mood and behaviour that can affect the quality of life of the individual (Alzheimer Society, 2013). Behavioural and psychological symptoms of dementia are divided into five main categories: aggression, psychosis, motor agitation, depression, and apathy (Verkaik, Van Weert, & Francke, 2005). Care facilities primarily serve residents with depression, agitation, and apathy. Compromised brain function related to dementia can interfere with the individual’s ability to engage in daily activities, which can negatively impact the quality of life, and may exacerbate these pre-existing conditions. Caregivers working in establishments that provide personal care for individuals also benefit from guided training with the Snoezelen Multi-Sensory Environments system because caregivers can provide better individualistic care toward each individual with dementia (Verkaik et al., 2005).

Snoezelen Multi-Sensory Environments (SMSE) are designed to suit the needs or abilities that have been compromised by dementia and provides a stress-free environment that can be changed at any time. Snoezelen MSE creates opportunities to exercise a choice of pleasurable experiences through guided activities and can reduce negative cognition, perception, behaviour, or physical impairments (Alzheimer Society, 2013). A typical environment created by Snoezelen MSE contains a visual system, tactile system (vibration or pressure), auditory (sound), olfactory (smell), gustatory (taste) systems, proprioception (movement of the organism) and vestibular (balance) motion (Alzheimer Society, 2013). The positive environment created by Snoezelen MSE allows the individual to seek out pleasure through to relaxation, learning, and therapy. In addition, those who experience a form of dementia or Alzheimer's have the opportunity to build trust with caregivers, which in turn will help reduce the client’s agitation and aggression associated with their personal care.

Purpose
The proposed study incorporates one female, aged 91, diagnosed with situational depression. She was identified as a potential candidate by a registered nurse and a life enrichment coordinator in the facility. Due to depressive symptoms, personal care and life enrichment services offered in the long-term care facility can become a burden for staff and the client. Because of the severity of the depression, this woman was a suitable candidate for treatment aimed at increasing positive behaviour and willingness to engage in social activities in the home. Literature incorporating the Snoezelen Multi-Sensory Environments (SMSE) states that more testing and information is needed to prove that SMSE can demonstrate a potential reduction in negative cognition, perception, and behaviour. This study will add to the literature resources with an intervention that includes a pre- and post-treatment using the Cornell Scale for Depression in Dementia (Alexopoulous, Abrams, Young, & Shamoian, 1988), a depression scale (displays personal feelings of sadness one to ten with ten being most depressed) used before and after each session and staff ratings administered once every two weeks to determine if the treatment has an effect.
It is hypothesized that use of the Snoezelen MSE with an individual suffering from dementia and related depression will help to reduce some of their symptoms.

**Overview**

The following chapter will review relevant literature concerning the Snoezelen Multi-Sensory Environments (SMSE) in relation to dementia in long-term care facilities and depression in individuals with dementia. Topics such as geriatric care, client-centered care, dementia, and depression in individuals with dementia, quality of life in dementia patients, studies using Snoezelen Multi-Sensory Environments (SMSE) with dementia and SMSE with other populations will be examined in a literature review. The methodology of this study will be explained in detail with the results of the pre-and post-treatment measures. The conclusion of the thesis incorporates a summary, limitations and strengths, potential contributions to psychology, and any implications for further research.
Chapter II: Literature Review

The following literature will be reviewed as it pertains to the current study; the research being reflective of the use of Snoezelen Multi-Sensory Environments with elderly individuals who have dementia in a long-term care facility.

Geriatric Care

There is a shortage in care for individuals diagnosed with dementia in long-term care facilities. Currently, there are fifteen-thousand beds available for those in need of long-term care, but the demand for beds is predicted to increase to one-hundred and fifty-seven thousand beds by 2032 (Rockwood & Keren, 2010). Due to this increase in population over the next few decades, facilities will need to change how they are designed for clients with dementia or Alzheimer's disease to ensure each individual's needs are met. The Ontario Alzheimer Strategy is currently the most comprehensive approach because of the educational strategies they provide for the community. The “PIECES” program is a well-known educational strategy that allows those in the long-term care field to examine the individual during their stay and offer relevant care and services (Rockwood & Keren, 2010). The acronym includes the Physical, Intellectual, Emotional health, and the Environment where an individual portrays their Social, Cultural and Spiritual life story. This program can offer a method for treating most behavioural and psychological symptoms experienced in health care settings. Community health care providers are beginning to discuss these innovations to continue developing and strengthening geriatric care. Geriatric care, as a whole, is under scrutiny because of the lack of diagnosis, worldwide expertise, focus on quality of life, and management of any behavioural or psychological co-morbid disorders (Rockwood & Keren, 2010). In order to provide geriatric care, caregivers must create rapport with the client using client-centred care.

Client-Centred Care

Client-centred care is an approach used in geriatric care that is important because professional caregivers are responsible for providing the adequate care for the individual residing in a long-term care facility. Client-centred care is broadly defined as a caring relationship involving interpersonal communication, respect, autonomy, empowerment, and shared decision making (Van Den PolGrevelink, Jukema, & Smits, 2012). Continuous dialogue between the caregiver and client is an important component to client-centred care because the client can influence the provided health care (Van Weert et al., 2006). Most caregivers working in long-term care facilities have not had the proper education to respond to the emotional issues related to dementia and are unaware of their effect on the individual (Van Weert et al., 2006). Van Weert et al., (2006) indicate that a relationship between the caregiver and the client contributes to the behaviour of the individual. Clients who have dementia in long-term care facilities are sensitive to the emotional behaviour of the registered staff who provide care to the individuals (Van Weert et al., 2006). Improved interpersonal communication with caregivers, positive changes with mood and behaviour, increased feelings of well-being, and improved self-determination are effects that are noted with the client-centred approach (Van den PolGrevelink, Jukema, & Smits, 2012). The effects produced by the client-centred approach can improve job satisfaction amongst those who care for individuals with dementia. The client-centred approach
can also improve the facility by providing a financial benefit because a decrease in stress will decrease the number of days needed for sick leave. Literature suggests more research is needed to provide further explanations for the limited empirical research pertaining to the importance of client-centred care and dementia and how knowledge of dementia is the foundation for creating strong client-centred care.

**Dementia**

Dementia is a syndrome where there is deterioration in memory, thinking, behaviour and the ability to perform everyday (World Health Organization, 2012). This cognitive decline includes, but is not limited to, loss of memory, changes in mood, and behaviour that can affect the quality of life of the individual (Alzheimer Society, 2013). Dementia is not a specific disease and may result from other ailments such as Alzheimer's, heart trauma, or even vitamin deficiencies. Before providing services for a diagnosis of dementia, a broad spectrum of any possible related symptoms such as a cognitive impairment, must be examined (Arlt et al., 2008). Collecting information about the individual with the diagnosis of dementia from three different perspectives (patient, caregiver, and clinicians) is considered important for an understanding of the overall wellbeing of the individual. In a study completed by Arlt, Hornung, Eichenlaub, Jahn, Bullinger, and Petersen, (2008), describes the client’s self-report as an inaccurate source of information because the caregivers and clinicians rated the client worse than the client rated themselves. Gathering information with the prominent individuals surrounding the client, like the family and the clinician, can generate a comprehensive image of the situation. The communication between all parties involved can foster communication to ensure proper diagnosis are made and treatment tools implemented that will aid the client through the change in lifestyle. Because of dementia, change in lifestyle could create depressive symptoms in elderly individuals who live in long-term care.

**Depression in Individuals with Dementia**

Depression and dementia are two of the most common diseases experienced by those in old age (Verhülsdonk & Engel, 2012). Research indicates that those residing in long-term care with dementia developed symptoms of depression within a period of two years during their stay (Verhülsdonk & Engel, 2012). Evidence from multiple studies reviewed by Verhülsdonk & Engel (2012) revealed that depressive symptoms can reduce everyday competence of the person living with dementia. Similar studies by Kales, Blow, Copeland, Bingham, Kammerer, and Mellow, (1999) and Kaup, Loreck, Gruber-Baldini, German, Zimmermann, and Burton, (2007) indicate that individuals with a comorbidity of depression and dementia have severe impairments (Verhülsdonk & Engel, 2012). These impairments are accompanied by increased restrictions to daily living and every competence with any routine tasks in long-term care facilities. The depression that accompanies the dementia has a negative impact on the quality of life of the individual, necessitating proper diagnosis and adequate treatment. Many individuals with dementia and depression who live in long-term care facilities are under-diagnosed and obtain satisfactory treatment (Verhülsdonk & Engel, 2012). If the depression and dementia are accurately detected, effective treatments can be personalised to the individual (Arlt et al., 2008). With accurate detection of depression, the individual has the ability to obtain a more stable quality of life.
Quality of Life in Dementia Patients

Quality of life is defined by the World Health Organization as “an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person’s physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment” (Oort, 2005). This encompasses the impact of disease and the treatment outcomes on an individual’s life (Weijenberg, Lobbezoo, Knol, Tomassen, & Scherder, 2013). Quality of life includes factors in an individual’s life such as physical health (pain, absence of pain), physical function (daily living tasks are done independently), mental health (absence of agitation, mood disorder and fear), cognitive function (aware of, perceives, and comprehends ideas) and social interactions (hobbies, support groups) (Weijenberg, Lobbezoo, Knol, Tomassen, & Scherder, 2013). Some literature suggests that individuals with advanced dementia are able to reliably complete a quality of life questionnaire (Hoe, Katona, Rochm, & Livingston, 2005). However, individuals who have severe dementia are not usually able to respond to the quality of life questionnaire because of trouble understanding the questions or have difficulty recalling a relevant situation in relation to the quality of life questionnaire (Gräske, Fischer, Kuhlmeny, & Wolf-Ostermann, 2012). In order to allow elderly individuals with dementia to partake in a quality of life questionnaire, clinicians are needed to support and provide assistance.

There are fewer clinicians who specialize in geriatrics than are needed to support the growing number of elderly who will be going into long-term care (Shay & Burris, 2008). Improvements in care and funding for the elderly with dementia is needed because of the increase in cognitive impairments in individuals diagnosed with dementia. Increased caregiver support is needed to manage the younger individuals with a comorbidity of needs who receive geriatric care (Shay & Burris, 2008). Health aides (nurses, home care workers etc.) are in a short supply because of exhaustion, stationary salary, and the lack of nursing facilities (Shay & Burris, 2008). Quality of life will continue to be redefined for dementia patients as their personal care is changed by professionals in preparation for the increase of patients with the need for geriatric care. One-third of Canadians with dementia live alone and the quality of home care that they receive will be inadequate due to the increase of individuals with increased care (Rockwood & Keren, 2010). Community caregivers are being further educated in dementia care enabling them to delay the necessity of transferring dementia patients to a long-term care facility and extend the duration of time dementia patients are cared for in their home. The hope is to decrease the burden of overworked staff and to improve the overall care performance with the use of education for staff; this will hopefully result in the improvement of quality of life in dementia patients (Rockwood & Keren, 2010). The quality of life for a dementia patient can be improved by professionals working together, coordinating goals, and developing strategies for treatment to improve their living situation (Verhulsdonk & Engel, 2012). The main focus of dementia care is to sustain well-being and continue to maintain an optimal quality of life (Li et al., 2013). Dignity is an important component of quality of life for dementia patients. The presence of dementia results in an increased the need for care as the disease progresses; creating dignity-preserving care is a crucial step to enhancing the quality of life (Tranvåg, Petersen, & Nåden, 2013). Allowing dementia patients to express rights to make their own choices (until the individual loses the ability to make sound decisions), residing in purposeful environments (calmer and homelike), and reinforcing opportunities to engage in any aspect of daily routine can preserve
and optimise the quality of life for dementia patients (Tranvåg, Petersen, & Nåden, 2013). Lessons learned in improving quality of life in one population could be applied to other populations.

**Snoezelen Multi-Sensory Environments (SMSE) and Other Populations: Traumatic Brain Injury**

Trauma to the brain is a major cause of disability in children with two-hundred-and-fifty children being admitted to hospitals for treatment each year in North America (Hotz, Castelblanco, Lara, Weiss, Duncan, & Kuluz, 2006). Recovery from a brain injury is complex and influenced by many factors such as, but is not limited to, the mental age at the time of the injury, the amount of time that has elapsed after the injury and the possible increase of severity of the injury over the elapsed time. A current treatment for severe brain injury in children is sensory regulation programs (Hotz et al., 2006). The goal of most sensory stimulation programs such as SMSE is to provide enriched environments that allow these patients the opportunity to process and respond to stimuli. Therefore, the recovery of the nervous system is facilitated and the patients are able to process incoming information from the senses at an elevating variety and complexity. SMSE is a sensory “buffet” that is used to promote relief from any tension or pressure with the improvement of general behaviour that incorporates a highly humane approach. The study conducted by Hotz et al., (2006) included 14 children with traumatic brain injury that were placed in the SMSE room three times per week for 30-minute sessions. Results indicated that there was an improvement with agitation from stimuli and a decrease in negative behaviour was also noted. Also, not only does SMSE evoke the relaxation it intends but appears to affect the heart rate, their overall behaviour and a decrease in there muscle tone tension in the extremities of the affected children. This study shows evidence that SMSE is beneficial for children recovering from traumatic brain injury and indicates a need for further studies in SMSE in this population. SMSE treatment is also transferable to populations with intellectual disabilities.

**Intellectual Disabilities**

A number of therapies such as art therapy, active therapy, and relaxation have been introduced for individuals who have intellectual disabilities (ID) to improve their quality of life. SMSE is used for individuals with ID because the primary method of interaction with the environment is through sensory and motor modalities (Lindsay, Black, Broxholme, Pitcaithly, & Hornsby, 2001). The ability to achieve a relaxed state in an individual with ID is physically and psychologically valuable. Lindsay, Black, Broxholme, Pitcaithly, & Hornsby, (2001) reviewed two studies (Long & Haig (1992), and Lindsay et al., 1997) that found that a significant decrease of maladaptive behaviours occurs in children with ID and that participating in SMSE had a positive effect on concentration in children with ID. Lindsay et al., (2001), conducted a study of eight participants with ID; this was a crossover design with four therapies (relaxation, hand massage with aromatherapy, active therapy, and Snoezelen) to study their effects. The results indicated that the participation in the SMSE increased positive communication in the eight individuals with ID. This study also supports that more research should be conducted because of the potential of positive effects in numerous areas of behaviour. A similar study by Lindsay et al., (1997), found that, that SMSE has a significant effect on improving the abilities (concentration, motor dexterity) of individuals with ID. The present study evidences the need for
further research into the generalised effects of Snoezelen outside of its environment. SMSE could improve the quality of life for those who also live with chronic pain.

**Chronic Pain**

Pain, acute or chronic, can develop over months or years until the pain impacts most of the individual’s life. Because of the multidimensional impact chronic pain has on an individual’s quality of life, treatment programs are designed to promote the development of coping strategies for the management of pain experienced. Schofield & Davis, (2000) examined the sensory environment produced by SMSE and the effect it has on the management of chronic pain. This study suggests that relaxation techniques did not directly reduce pain but using the relaxation techniques decreased the chronic pain that was experienced indirectly. The relaxation techniques eventually reduce chronic pain indirectly by providing strategies to strengthen the painful area of the body which, should negate the unpleasant effects of pain (unable to move a ligament for example) on the body. SMSE environments cannot only be more than just a relaxation strategy but a powerful tool to speed up the effects of desired relaxation in relation to chronic pain. In addition, the Schofield, & Davis, (2000) study suggests that the pain reduction increased significantly if the duration of time spent in the environment was increased. Individuals who participated in this study experienced a significant reduction in disability by pain because of the SMSE environment. Further research is also supported by this study because of the effective relaxation produced in the sessions and the improvements of chronic pain experienced by individuals.

**Snoezelen Multi-Sensory Environments (SMSE)**

Snoezelen Multi-Sensory Environments (SMSE) rooms are used in long-term care facilities for relaxation and to provide stimulation for those who have dementia (Klages, Zecevic, Orange, & Hobson, 2011). The study provided by Klages, Zecevic, Orange, & Hobson, (2011) found that SMSE generates unique and tailored experiences with different levels of interaction that incorporates multi-sensory stimulations that are used depending on the individual’s interest, mood and level of functioning to reduce the symptoms of depression. SMSE sessions incorporate instruments such as spot lights, mirrors, bubble machines, music system, fibre optic lights, aroma devices, vibrating equipment (pillows, rods) and comfortable chairs that create the SMSE experience (Lancioni, Cuvo, & O'Reilly, 2002). SMSE is used to promote relaxation and refreshment that incorporates the physical arrangement of the room and the role of the staff who are also partaking in the session (Lancioni, Cuvo, & O'Reilly, 2002). In addition, those who experience a form of dementia or Alzheimer's have the opportunity to build trust with caregivers which, in turn, may help reduce agitation and aggression associated with personal care (Van Weert et al., 2006).

Van Weert et al. (2006) completed a study of personal care and dementia patients. The results indicated that SMSE produced a positive change using the sensory stimulation that is provided during sessions in an individual related to symptoms of dementia during his regular routine morning-care regiment. Because of SMSE being integrated into personal care, care givers could better establish client-centred care which could prevent the development of behavioural problems, and clients are more likely to comply to regular care regiment without behavioural
disturbances. Verkaik, van Weert, & Francke (2005) stated that scientific evidence suggests that SMSE can offer objective scientific outward measurements (multi-sensory) with depressive behaviour that can offer a possible reduction of symptoms. Alongside the two previous studies that suggest further research of SMSE. Schofield, & Davis, (2000) also suggested further exploration. Schofield, & Davis, (2000) explained that because of the positive outcomes and the potential for the environment to become a relaxation strategy. Because of the increased contact between caregiver and client, the attention a client receives is increased which could have a role in the decrease of depressive symptoms after using SMSE. An attention effect is a possible variable produced during SMSE sessions as explored by Baillon et al. (2004). Baillon et al. (2004)’s study controlled intervention differences by using the same therapist for both interventions conducted in the study. This enabled an evaluation of SMSE effects independent of the effects from increased staff attention. Baillon et al. (2004) suggests further research with a larger number of subjects to examine benefits that are additional to those that were derived from increased staff attention during SMSE treatment sessions. Many variables pertaining to SMSE still need to be researched to enhance the validity of SMSE treatment, in order to do so further investigation of SMSE is warranted.

A Study conducted by Barton, Reichow, Schnitz, Smith and Sherlock, (2015) examined sensory-based therapies to address problems with sensory processing in children with behavioural and developmental disabilities. Findings concluded from the study indicated that multi-sensory environments produce inconsistent results across studies and lack empirical support for treatment. A study conducted by Carter and Stephenson, (2012) examined the use of multi-sensory environments in educational institutions (school or treatment facilities). In summary, there is a lack of empirical evidence found to support the use of multi-sensory environments for therapeutic purposes. More empirical based research is needed to fill the gaps because of the lack of research pertaining to multi-sensory environment. Lotten and Gold (2009) examine SMSE in a study because of the absence of research in this area. The study concluded that the twenty-eight articles examined give initial support for SMSE as a valued therapeutic approach. This study emphasises the weakness of the lack of sufficient research pertaining to SMSE, the minor number of available research projects, and the minute number of individuals who participated in the conducted research. Further research is needed to enhance the validity of SMSE as a effective-therapeutic intervention.

Relationship between Literature Review and the Current Study

The above literature summary examined the changes taking place in geriatric care to improve and redefine the personal care patients with dementia receive in a long-term care facility. Personal care is given on a 24-hour basis in long-term care, and client-centred care is incredibly important to build trust and a positive repertoire between the individual receiving care and the individual providing the care. Allowing continuous dialogue between all parties involved with the individual who has been diagnosed with dementia can foster a positive transition into a facility where personal care is received. Literature reinforces the overall goal to sustain a state of well-being and continue to maintain an optimal quality of life as individuals reside in long-term care. Snoezelen Multi-Sensory Environments (SMSE) is supported by literature as a transferable treatment to other populations such as those with traumatic brain injury, intellectual disability, and the management of chronic pain. However, these studies indicate that further research is
needed to strengthen claim of treatment offered by SMSE. Literature about SMSE is described in detail pertaining to processes that are involved in SMSE and the positive outcomes of treatment sessions however there is a limited empirical literature to support its effectiveness in treating depression within individuals suffering from dementia. Therefore, this current thesis seeks to provide support for the effectiveness of SMSE with individuals experiencing dementia and related depression.
Chapter III: Methodology

Participant

Debbie was a 91-year-old female diagnosed with dementia due to Alzheimer’s disease (unspecified). She resided in a long-term care facility in the Alzheimer's ward and was selected out of a cohort of individuals who have situational depression. Debbie was born in Montreal with her one brother and three sisters. She worked as a secretary in Montreal Royal Bank until she was diagnosed with dementia in 2010. Debbie had been a resident at the long-term care facility for approximately one year at the time of the referral. There was often a lack of cooperation on Debbie’s part when involved in activities and, she frequently refused to participate; it was believed that this was related to her depression. Her behaviour would, at times, impact her relationships with staff members negatively. She was referred for this study by a nurse and a life enrichment coordinator at her long-term care facility to treat her moderate to severe depressive symptoms. Debbie scored moderate to severe depression on the Cornell Scale for Depression in Dementia prior to intervention. Debbie was also diagnosed with degeneration of macula and posterior pole, chronic, and lymphocytic leukemia. Because of the moderate to severe depression, this woman was a suitable candidate for treatment aimed at increasing positive behaviour and willingness to engage in social activities in the home.

Contact was made with Debbie’s Power of Attorney (POA) to obtain consent for the treatment and collection of data on the participant. Verbal and written consent was obtained from both Debbie and her POA on October 28th, 2014.

Design

The non-experimental research design was a case study using a pre- and post-test method without a control group that was approved by the Research Ethics Committee in Psychology at St. Lawrence College. The design was used to demonstrate the impact on noticeable or expressed symptoms of depression after treatment with the Snoezelen MSE. The independent variable is the use of the Snoezelen Multi-Sensory Environments (SMSE) and the dependent variable was total and severity of the symptoms of depression. Symptoms of depression are defined as: diminished interest or pleasure in desired activities, feelings of worthlessness or guilt, thoughts of suicide or death, irrationally fearful, sadness expressed through tears with no known reason, withdrawal and isolation from interests and peers. The intervention will take place in a long-term care facility.

This individual resided in the Alzheimer's and dementia unit of the building. The participant was provided with opportunities to take part in the Snoezelen Multi-Sensory Environments (SMSE); these opportunities were offered on Thursday and Saturday at nine thirty in the morning for thirty minutes each. The individual participated in the Snoezelen MSE to provide a positive environment to relieve agitation or sadness. The student researcher guided the client through preferred activities offered by the Snoezelen MSE in an attempt to reduce symptoms of depression.
NORD and CSDD Scales

Registered staff who work in a long-term care facility can further develop an accurate understanding of depression in dementia by using the Nijmegen Observer-Rated Depression (NORD) scale with individuals who experience depression (Leontjevas et al., 2012). NORD showed acceptable performance in depression screening with individuals diagnosed with dementia. The NORD scale in dementia is easily comparable with other extensive scales such as the Cornell Scale for depression in dementia because of the quick administration of the scales and the minimal time taken to complete the scale. Leontjevas et al., (2012) reviewed a study in the Journal of the American Geriatrics Society (2003) that indicated the Cornell Scale can evaluate depression in an individual with dementia with depth and accuracy. The Cornell Scale for depression in Dementia should be used for moderate to severe dementia. The Cornell Scale can utilize information gathered from the caregiver and the individual with dementia because it was designed specifically for individuals with dementia (Alexopoulous, Abrams, Young & Shamoian, 1988). This scale is found to be reliable and sensitive of the subject with the various degree of depression in dementia. A study conducted by Komer et al., (2006) confirms that the CSDD is a suitable screening assessment for a population of individuals suffering from dementia. Using the NORD and Cornell Scale together can increase the accuracy of the detection of depression with dementia.

Data Analysis

The data from the CSDD was presented in an excel document and displayed in a bar graph to demonstrate the efficacy of the treatment. The indicator for depression was a score of 12.3. The data collected from the Depression Scale was displayed in a line graph. The data collected from the Staff Ratings allowed the examination of descriptive statistics after the treatment. The CSDD administered pre- and post-intervention provided information about the depression and whether there had been a decrease in the number and degree of severity of symptoms of depression.

Data Collection and Measures

The information regarding symptoms of depression was gathered pre- and post-treatment using the Cornell Scale for Depression in Dementia (CSDD; Alexopoulous, G.S., Abrams, R.C., Young, R.C., Shamoian, C., 1988) (Appendix A) to determine if the treatment had an effect. Cornell Scale for Depression in Dementia was used in this facility with residents who have symptoms of depression. A study conducted by Komer et al., (2006) confirms that the CSDD is a suitable screening assessment for a population of individuals suffering from dementia. Two interviews were required for the scale; in the initial interview the caregiver was interviewed and asked to rate the resident based on behaviours observed in the week prior. In the second interview, the resident was briefly interviewed. The scale is composed of 19 questions within five major headings including: mood-related signs, behavioural disturbance, physical signs, cyclic functions and ideational disturbance. Each question was scored on a two-point scale including 0 (absent), 1 (mild), 2 (severe), and n/a (unable to evaluate). A minor or probable major depressive disorder has a score of 12.3 on the scale. A depression scale (Appendix B) was administered before and after each treatment session during the month of treatment. The depression scale was developed by Benjamin Evans, the student researcher, to evaluate how the individual felt before and after using Snoezelen MSE. Validated measures such as the Beck Depression Inventory scale (BDI) (Beck, A.T., Steer, R., 1987) were considered as an
appropriate scale to determine pre- and post-session mood. Because of the given level of cognitive functioning of the client, the depression scale created by Benjamin Evans was a simple question of the client’s mood before and after the treatment sessions. The BDI, or any other validated measures, would have been too complicated for the individual and the participant would not have been able to answer the questions accurately. This depression scale determined how the individual felt personally from “1” which means not at all depressed to “10” indicating extremely depressed. There are two faces on either end of the graduating scale ranging from 1 to 10 with a sad face placed beside 10 and a happy face placed beside 1. Staff ratings (Appendix C) were administered once every two weeks to the registered staff who interacted with the client. This provided data pertaining to the behaviour of the participant during daily personal care that may be indicative of depression. The data collected included the indication of depression as measured by the Cornell Scale for Depression in Dementia. The data recording sheet was presented with a writing utensil to record the depressive behaviour. The procedures that were used during this intervention were as follows: four, 30-minute sessions with the Snoezelen MSE took place over the course of 1 month, occurring once a week either on Thursday or Saturday mornings at 9:30am. Materials included during this intervention were a stopwatch, writing utensil, data collection sheet, pre- and post-test Cornell Scale for Depression in Dementia and materials required during Snoezelen MSE sessions.
CHAPTER IV: Results

Pre- and Post-Test Results of the Cornell Scale for Depression in Dementia

Before the intervention was offered to Debbie, a registered nurse from the long-term care facility administered the Cornell Scale for Depression in Dementia (CSDD) to one caregiver who provided frequent care for Debbie. The caregiver was asked to rate the resident based on the behaviours observed in the week prior. The results indicated a “lack of reactivity to pleasant events,” “loss of interest,” and “multiple awakenings during sleep” as highlighted depressive symptoms. The caregiver scored a 13 on the depression scale. The registered nurse then briefly interviewed Debbie using the CSDD. Debbie scored 13 points, indicating the presence of “major depression.” There was congruence between Debbie's reported feelings and the behaviour noticed by the caregiver. Debbie scored 2 (severe) in the major headings of A) Mood Related Signs, B) Behavioural Disturbances, D) Cyclic Functions that display a “lack of reactivity to pleasant events,” “loss of interest,” and “multiple awakenings during sleep.”

After one month of weekly treatment sessions a different registered nurse was asked to complete the CSDD with a caregiver who provided frequent care for Debbie during the week prior. A different registered nurse was asked to complete the CSDD because the personal care staff are not always responsible for the same clients day to day due to the numerous individuals throughout the facility. The caregiver scored Debbie’s behaviour as a 10 which is below the threshold for probable depression. The score 2 (severe) was only given in two categories C) Physical Signs, and D) Cyclic Functions. The highlighted depressive symptoms were “weight loss” and “multiple awakenings during sleep.” The registered nurse interviewed Debbie using the same scale and scoring system. Debbie scored a 7 placed her in the category of “depression” and is not severe. The only highlighted 2 (severe) score was under the category of D) Cyclic Functions that pertained to “multiple awakenings during sleep.”

Figure 1.
Pre- and Post-Test using the Cornell Scale for Depression in Dementia
Figure 1. Displays a reduction in score relating to the CSDD from both the caregiver and the participant after the intervention had taken place.

**Depression Scale**

Week 1, November 6th 2014

The depression scale determined how Debbie felt personally from “1” which means not at all depressed to “10” indicating extremely depressed. There are two faces on either end of the graduating scale ranging from 1 to 10 with a sad face placed beside 10 and a happy face placed beside 1. Before the treatment Debbie was asked by the student researcher, Benjamin Evans, to examine the scale that was designed and point to how she had been feeling. Debbie pointed to “5” which means she is not happy nor sad but complacent. After participating in the 30-minute Snoezelen Multi-Sensory Environments (SMSE) she was asked to rate how she felt after her experience and she said “4.”

Week 2, November 13th 2014

Using the same scale before the second treatment session Debbie was asked by the student researcher how she was feeling. Debbie pointed to the “5” and explained she was neither happy nor sad, just complacent. After the treatment Debbie was asked to rate how she felt on the depression scale. Debbie pointed to the number “3” and said she felt really relaxed and could almost fall asleep.

Week 3, November 20th 2014

The depression scale was administered before the third treatment and Debbie was asked to rate how she was feeling. Debbie said she felt right in the middle or number “5”. She was complacent but was looking forward to her experience. After the treatment Debbie was asked how she was feeling and said she felt a little better and more relaxed and pointed to number “3.”

Week 4, November 27th 2014

Debbie was feeling really sad before she participated in her treatment session. The depression scale was administered and Debbie pointed to the number “6” and said she felt sad today. After her 30-minute treatment she was asked to rate how she was feeling. Debbie pointed to the number “4” and said she felt more relaxed and that she could fall asleep.

Table 1.

*Depression scale before and after treatment sessions (example)*
Week, Date, and Time | Before treatment depression scale score | After treatment depression scale score
--- | --- | ---
Week 1, November 6th 2014, 9:30 am | “5” means neither sad nor happy | “4” indicates feeling moderately happy
Week 2, November 13th 2014, 9:30am | “5” means neither sad nor happy | “3” indicates feeling happy and relaxed
Week 3, November 20th, 10:30am | “5” means neither sad nor happy | “3” indicates feeling happy and relaxed
Week 4, November 27th, 9:30am | “6” indicates unhappiness | “4” indicates feeling moderately happy

**Staff Ratings**

Week 2, November 13th 2014

The Nijmegen Observer-Rated Depression scale (NORD) was administered two weeks after treatment began. Scoring “yes” on four of the six questions indicates some form of depression. The student researcher administered the NORD scale to Debbie’s caregiver who was asked to score a “yes” or “no” pertaining to the relevant questionnaire. The following four questions each scored a “yes”:

1) Does the client often look sad, gloomy or cheerless?

2) Does the client often cry or is he/she often emotionally distressed?

5) Does the client often need to be encouraged to do something or participate in joint activities?

6) Has the client often problems with sleep (falling asleep, maintaining sleep, waking up) or appetite (no appetite, usually hungry)?

The total of four on the NORD scale indicated that there is some form of depression.

Week 4, November 27th 2014

After the last treatment, four weeks into treatment, the NORD was administered to Debbie’s caregiver. Two yes’s were scored on the following questions:

5) Does the client often need to be encouraged to do something or participate in joint activities?

6) Has the client often problems with sleep (falling asleep, maintaining sleep, waking up) or appetite (no appetite, usually hungry)?

The score of two is below the threshold for depression on the NORD.
Figure 2. Displays the number of weeks the treatment had taken place as well as the rating of depression before and after treatment. After each treatment session the score of “depressed feelings” was lower than the before-treatment score.
CHAPTER V: Discussion

Summary

The case study was designed to provide further support for the effectiveness of Snoezelen (MSE) with an individual suffering from dementia and related depression. A 91-year-old woman named Debbie with situational depression agreed to participate in the conducted case study that took place in a long-term care facility.

The Snoezelen (MSE) was used by the participant once weekly for one month. Data was collected using the Cornell Scale for Depression in Dementia (CSDD) prior to and following the intervention. Debbie and the caregiver rated Debbie lower on the post-intervention with a score of 6 (by Debbie) and 10 (by caregiver) on the CSDD, indicating depression no severe, than the pre-intervention CSDD, which consisted of two scores of 13 indicating major depression. The lowered score on the CSDD supports the hypothesis of Snoezelen (MSE) can lower symptoms of depression. After treatment Debbie would feel better by indicating a “3” or “4” on the depression scale. “Staff ratings” (Nijmegen Observer-Rated Depression scale (NORD)) were used with individuals who interact with the client, to indicate the signs of depression evident in the client. Four weeks into the treatment the “Staff ratings” were administered and a total of “2” points were scored indicating Debbie was below the threshold for depression. As hypothesized, the use of the Snoezelen MSE with an individual suffering from dementia and related depression can help to reduce some of the experienced symptoms.

Implications for the Behavioural Psychology Field

The current case study has various strengths that contribute to the Behavioural Psychology field and can provide recommendations for future research.

A strength noted in the current study is that it expands on previous, limited, research with Snoezelen (MSE) and depression. Snoezelen (MSE) has been used in the past with elderly who have depression and dementia. Incorporating the core concepts of Snoezelen (MSE) that include: unique experiences (with different levels of interaction), and the use of multi-sensory stimulations (that are used depending on the individual’s interest, mood and level of functioning) into a case study to determine if Snoezelen (MSE) would be beneficial for a 91-year-old woman with dementia and related depression. The concepts of Snoezelen were tested in the current case study and the displayed promising results to add to the previous literature that Snoezelen (MSE) has a positive effect on depression in elderly individuals with dementia.

The literature review, examining Snoezelen (MSE), highlighted the gaps in research and emphasized the need for future study in this area. Literature pertaining to client-centered care, traumatic brain injury, intellectual disabilities, chronic pain, and Snoezelen (MSE) explain that more research is needed to fill gaps pertaining to literature studies to ensure a reduction in the lack of literature researched for this study. Future studies pertaining to Snoezelen (MSE) could incorporate validated measures for mood, such as the Beck Depression Inventory scale, which would be more useful to obtain accurate answers to questions provided by the scales. Validated measures for mood would be useful if the participant was at a functioning level where the individual would be able to provide the information needed for these measures.
Limitations

Maintenance of the treatment could have been improved during the time of the current treatment program. Maintaining a regular treatment schedule is important to improve the treatment outcomes. Time elapsed between one treatment session and another could have been shortened because there may be an increase in treatment benefits with less time between treatments. Research on literature examining the support for frequency and duration causing increased treatment benefits could be perused to strengthen the notion of reduced time and increased treatment sessions to produce greater treatment results. With an extended duration of treatment time, more information could be gathered to strengthen this study. The maintenance of a regular treatment schedule could have been improved over the allotted treatment time period. Remembering is a factor that limits the treatment maintenance because the client can become confused as to when she has been or has to go to treatment. If the client believes she has been to treatment in the week prior, her motivation to participate in a treatment sessions is reduced. This causes strain on the maintenance of the treatment that is needed to ensure valid results. The elapsed time between treatment sessions could have been shortened. Due to the long-term care facility having only one treatment room to utilize, the time between treatment sessions is greater than would be ideal because of other individuals using the treatment room during their scheduled times. More treatment rooms and longer hours of operation of the room would help reduce the time between sessions. This reduction in time could create a reduction in depressive feelings and enhance treatment results. Extending the time allotted for treatment is one way to achieve stronger results that will strengthen this study. Because of time constraints, there was a limited amount of data collected to begin examining confounding variables that could contribute to the results.

An attention confound is another limitation to this study. Intervention improvement might be due to the increased attention obtained during Snoezelen (MSE) sessions. This could be controlled by requiring another individual to attend treatment sessions at the same time as the researcher to create a control element to the treatment sessions. As the client is permitted to interact with sensory stimuli of their choice, Snoezelen may in itself increase client interaction which may decrease depression due to a possible strengthen of attention time allotted to specific stimuli.

A relaxation confound may be a limitation for this study using Snoezelen (MSE). Using relaxing music that is played during the treatment session as a control group and allowing a treatment session without music to determine if the music, with attention and client chosen stimuli, has an effect on the treatment outcome. Relaxing music is effective regardless of the rationale.

In addition, this study could attempt to reduce further bias by recording the compliance of five specific tasks that are asked of the client each day. The percentage of compliance with the specific tasks could be graphed in excel to display a line graph displaying three points prior to baseline and having the tasks executed during treatment. Follow up after treatment could be executed to examine the generalization of added tasks to the client’s daily repertoire. This could remove subjective measurements of depressive scales.
Multilevel Challenges to Service

The focus of the following is the challenges that occur when implementing a treatment to reduce depression in an individual with dementia.

Client Level: There is difficulty found when implementing a treatment with individuals who have dementia and are 90-years or older. Implementing a treatment used to decrease depression in an elderly individual is challenging because maintaining client motivation to participate in treatment at a certain time is difficult. Because the client has dementia, judgment can be impaired when the individual is not lucid. When the client is lucid, the potential for agreement to participate in treatment is increased because the client can remember how much she enjoyed the previous sessions. There is also difficulty with the timing of the treatment because of the set times the room can be used. If the room were available more often the treatment times could be scheduled at certain times of the day when the client is happy and agreeable. If there were time to reiterate the entire purpose of the study before asking the client to go to a treatment session, it might increase the likeliness of participation. Explaining the entire purpose of treatment, every treatment session, could remind the client what the treatment was about and increase the chance of participation.

Program Level: The treatment program was only in session for one month which limited the number of treatment sessions that could be delivered. The treatment room was only available once a week for 30-minutes because of the demand for usage within the facility. If the number of months were increased, more treatment sessions could have been provided. There were not enough staff to care for the special requirements of select individuals who need to participate in frequent and consistent treatment. The treatment room has select available times during a week where clients can participate in Snoezelen (MSE). There is not enough staff to participate in Snoezelen (MSE). The minimal staffing affects the agency because more tasks are added to the regular work load. In doing so, less attention is addressed to the behavioural treatment sessions and individuals who benefit from treatment will not receive the required interventions.

Organization Level: Within the long-term care facilities there are many departments that work together to make the facility prosper. Because of the many departments in a long-term care facility, change is a slow process when it comes to funding for specific needs throughout the facility. More funding is needed to enhance the Snoezelen (MSE) experience and the funding could be applied to creating more rooms within the building or employing educated staff to take residents to treatment.

Societal Level: Families of the individuals in long-term care facilities have high expectations of care of their family member in the home. When a treatment program is introduced for an individual the family expects their loved one will comply with treatment. Caregivers try to ensure treatment expectations are met, alongside the regular care that is provided. Treatment improvements are slow because the caregivers are managing numeral tasks besides the added treatment expectations. Family members may not see any improvement over a period of time because of the mental state of the individual on any given day. Although the effect of treatment on mood is hoped to last for several days after a session, this may not be the case. Families care about the mental health of their family member in a long-term care facility. When caregivers and family collaborate on the well-being of an individual, this can affect the well-being of the family.
member, the client, and the staff that help facilitate the change. Providing reliable treatment that results in some noticeable change can impact friends, acquaintances and employees and can foster community collaboration (volunteering) to aid with treatment requirements.

Future Research

Research on the effectiveness of using Snoezelen (MSE) used with the target population and conducted with better access to Snoezelen (MSE) equipment could expand upon the current case study and contribute to current Snoezelen (MSE) literature. Future studies of Snoezelen (MSE) will only benefit the relatively small collection of literature supporting this treatment because more information and study is needed to solidify the treatment effects that Snoezelen (MSE) can provide. Using Snoezelen (MSE) as a treatment option with a male client rather than a female client may yield different results. A future study could incorporate frequent treatment sessions to examine if the effects of Snoezelen (MSE) are noticed more promptly than the extended duration of time between sessions. More research can be conducted on individuals who have not progressed into a later stage of dementia to examine the effects of starting treatment early to negate depression before the progression of dementia.
References


USE OF SNOEZELEN MULTI-SENSORY ENVIRONMENTS


Appendix A: Informed Consent Letter

Project title: Using Snoezelen Multi-Sensory Environments to Reduce Behavioural and Psychological Symptoms in an Individual with Dementia

Principal Investigator: Benjamin Evans
Name of supervisor: Erin McCormick
Name of Institution: St. Lawrence College
Name of part partnering institution/agency: Long-term care facility

Invitation
You are being invited to take part in a research study. I am a student in my 4th year of the Behavioural Psychology program at St. Lawrence College. I am currently on placement at long-term care facility. As a part of this placement, I am completing a research project (called an applied thesis). I would like to ask you for your help to complete this project. The information in this form will help you understand my project. Please read the information carefully and ask all the questions you might have before you decide if you want to take part.

Why is this study being done?
This study is being done to reduce depression in an elderly individual. This will benefit the individual socially and mentally. This study is to see if the Snoezelen Multi-Sensory Environments (SMSE) is able to reduce situational depression in the individual. This will also aide staff and reduce stress during activities or outings in the community.

What will you need to do if you take part?
If you choose to take part in this study you will be asked to take part in a one month treatment program using the Snoezelen Multi-Sensory Environments (SMSE). The sessions will be twice a week for thirty minutes either Thursday or Saturday at 9:30am. The sessions will be run one to one with myself and the client. The session includes relaxation techniques and activities of the clients choice. Before starting the sessions a Cornell Scale for Depression in Dementia to rate the depression before and after treatment to display change in feelings. An observer depression rating scale will be used once every two weeks for staff to evaluate change in mood.

What are the potential benefits of taking part? (if applicable)
Benefits of taking part in this research study include a possible reduction in the situational depression, increased energy and mood, and continue developing a social network in the home.

What are the potential benefits of this research study to others? (if applicable)
The potential benefits of this research study to others include adding more enjoyment living in a long-term care facility enjoyable, improve social network within the home. This study can add to the limited information pertaining to Snoezelen Multi-Sensory Environments and the effectiveness of the intervention.

What are the potential disadvantages or risks of taking part?
Risks from taking part in this research study are minimal but may include emotional stress and
being tired or bored from answering questions.

**What happens if something goes wrong?**
Every individual is different and if there is anything that needs to be brought to attention, you may talk to me, or the life enrichment staff.

**Will my information you collect from me in this project be kept private?**
The participation is not mandatory and the Power Of Attorney can withdrawal consent at any time, and all data collected will be immediately destroyed. Information is strictly confidential unless required by law. All information collected will be encrypted on a USB device and written work will be stored in a locked cabinet. You will not be identified by name in any reports, publications, or presentations resulting from this project.

**Do you have to take part?**
Taking part is voluntary. It is up to you to decide whether or not to take part in this research project. If you do decide to take part, you will be asked to sign this consent form. If you do decide to take part in this research project, you are still free to withdraw at any time, without giving any reason, and without incurring any penalty, or negative effects.

**Contact for further information**
This project has been approved by the Research Ethics Board at St. Lawrence College. The project will be developed under the supervision of Erin McCormick my supervisor from St. Lawrence College. I really appreciate your cooperation and if you have any additional questions or concerns, feel free to ask me, bevans20@sl.on.ca. You can also contact my College Supervisor (ErinMcormick@sl.on.ca) or you may also contact the Research Ethics Board at reb@sl.on.ca.

**Consent**
If you agree to take part in this research project, please complete the following form and return it to me as soon as possible. A copy of this signed document will be given to you for your own records. An additional copy of your consent will be retained at the agency [and in a secure location at St. Lawrence College, if applicable].

By signing this form, I agree that:

- The study has been explained to me.
- All my questions were answered.
- Possible harm and discomforts and possible benefits (if any) of this study have been explained to me.
- I understand that I have the right not to participate and the right to stop at any time.
- I am free now, and in the future, to ask any questions I have about the study.
- I have been told that my personal information will be kept confidential.
- I understand that no information that would identify me will be released or printed without asking me first.
- I understand that I will receive a signed copy of this consent form.
I hereby consent to take part.

<table>
<thead>
<tr>
<th>Participant Name</th>
<th>Signature of Participant</th>
<th>Date</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Student Printed Name</th>
<th>Signature of Student</th>
<th>Date</th>
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## Appendix B: Cornell Scale for Depression in Dementia

### Cornell Scale for Depression in Dementia

<table>
<thead>
<tr>
<th>Name:</th>
<th>D.O.B.</th>
<th>Age:</th>
<th>Sex:</th>
<th>Date:</th>
</tr>
</thead>
</table>

**Rating:** Score rates are based on information obtained by clinician interviews with a member of the nursing staff (or a carer) and the patient.

**Time taken:** 20 minutes with nurse or carer, 10 minutes with patient.

### Scoring System

- `a` = unable to evaluate
- `1` = mild or intermittent
- `2` = severe

Ratings should be based on symptoms and signs occurring during the week prior to the interview. No score should be given if symptoms result from physical disability or illness.

#### A. Mood Related Signs

1. Anxiety – anxious expression, ruminations, worrying
   - `a`: 0
   - `1`: 1
   - `2`: 2

2. Sadness – sad expression, sad voice, tearfulness
   - `a`: 0
   - `1`: 1
   - `2`: 2

3. Lack of reactivity to pleasant events
   - `a`: 0
   - `1`: 1
   - `2`: 2

4. Irritability – easily annoyed, short tempered
   - `a`: 0
   - `1`: 1
   - `2`: 2

#### B. Behavioural Disturbance

5. Agitation – restlessness, handwringing, hairpulling
   - `a`: 0
   - `1`: 1
   - `2`: 2

6. Retardation – slow movements, slow speech, slow reactions
   - `a`: 0
   - `1`: 1
   - `2`: 2

7. Multiple physical complaints (score 0 if GI symptoms)
   - `a`: 0
   - `1`: 1
   - `2`: 2

8. Loss of interest – less involved in usual activities
   - (score only if change occurred acutely, i.e. in less than 1 month)
   - `a`: 0
   - `1`: 1
   - `2`: 2

#### C. Physical Signs

9. Appetite loss – eating less than usual
   - `a`: 0
   - `1`: 1
   - `2`: 2

10. Weight loss (score 2 if greater than 51b or 2.5 kgm in a month)
    - `a`: 0
    - `1`: 1
    - `2`: 2

11. Lack of energy – fatigues easily, unable to sustain activities
    - (score only if change occurs acutely i.e. in less than 1 month)
    - `a`: 0
    - `1`: 1
    - `2`: 2

#### D. Cyclic Functions

12. Diurnal variation of mood - symptoms worse in the morning
    - `a`: 0
    - `1`: 1
    - `2`: 2

13. Difficulty falling asleep – later than usual for this individual
    - `a`: 0
    - `1`: 1
    - `2`: 2

14. Multiple awakenings during sleep
    - `a`: 0
    - `1`: 1
    - `2`: 2

15. Early morning awakening earlier than usual for this individual
    - `a`: 0
    - `1`: 1
    - `2`: 2

#### E. Ideational Disturbance

16. Suicide – feels life is not worth living, has suicidal wishes, or makes suicide attempts
    - `a`: 0
    - `1`: 1
    - `2`: 2

17. Poor self esteem - self-blame, self deprecation, feelings of failure
    - `a`: 0
    - `1`: 1
    - `2`: 2

18. Pessimism – anticipation of the worst
    - `a`: 0
    - `1`: 1
    - `2`: 2

19. Mood-congruent delusions – delusions of poverty, illness, or loss
    - `a`: 0
    - `1`: 1
    - `2`: 2

### Scale

<table>
<thead>
<tr>
<th>No depression: up to 7</th>
<th>Depression: 7 or more</th>
<th>Major depression: 12/13 and up</th>
</tr>
</thead>
</table>

**Signature of Assessor:**

---

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Appendix C: Depression Scale

10 = Not at all happy and really sad
1 = Feeling great with no sad thoughts
Appendix D: Staff Rating scale

Table 1  Items of the Nijmegen Observer-Rated Depression scale

Instruction: Answer "yes" when behavior is present, and "no" when behavior is not present or not applicable to your client. "Often" means several hours during more days present than not present, during at least the last two weeks.

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does the client often look sad, gloomy or cheerless?</td>
</tr>
<tr>
<td>2. Does the client often cry or is he/she often emotionally distressed?</td>
</tr>
<tr>
<td>3. Does the client often seem to be restless or irritable (quick-tempered, bad-mood)?*</td>
</tr>
<tr>
<td>4. Does the client often lack a positive response to social contacts or pleasant events?</td>
</tr>
<tr>
<td>5. Does the client often need to be encouraged to do something or participate in joint activities?</td>
</tr>
<tr>
<td>6. Has the client often problems with sleep (falling asleep, maintaining sleep, waking up) or appetite (no appetite, unusually hungry)?</td>
</tr>
</tbody>
</table>
Appendix E: Treatment Sessions

Week 1, November 6th 2014

Debbie was brought to the Snoezelen (MSE) room to begin her treatment sessions. Debbie was asked what really captivated her attention in the room. She sat down on the reclining chair and placed the vibrating pillow behind her back. When the student asked her to rate herself using the depression scale, Debbie pointed to the number “5” indicating she is complacent (neither happy and nor sad). Debbie closed her eyes and asked if she could relax in the chair for the 30 minutes she was in the room. The student researcher asked if she would like fiber optic lights placed on her body so she could see the flashes of colour when her eyes were closed. Debbie agreed and asked for some music to listen to with the lights. A nature sound track was played and Debbie said she enjoyed the sounds of the birds and that the sounds made her relaxed. The student turned off the lights which allowed the fiber optic lights to glow. Debbie was on the chair with the vibrating pillow to her back, fiber optic lights on her body, and listened to nature music for her 30-minute treatment session. When her session in the Snoezelen (MSE) room was over, the music was turned off, lights were turned on and the fiber optic lights were removed from her body. When asked, Debbie rated herself as a “4” on the depression scale, reporting she felt “really relaxed.” She moved from the chair to her walker and was brought back to her wing in the long-term care facility when the treatment was finished.

Week 2, November 13th 2014

Debbie was brought back to the Snoezelen (MSE) room to begin her second treatment session. When Debbie entered the room she sat down on the reclining chair and moved the vibrating pillow to her back. She remembered sitting in the chair and asked if she could have the lights and the music on. Before the student researcher placed the fiber optic lights and put on music, he asked Debbie if she would answer how she was feeling on the depression scale. Debbie pointed to the number “5” indicating she was complacent (neither happy nor sad). The student researcher placed the fiber optic lights on her body, turned on the music and turned off the lights. At the end of the session all instruments were removed and the lights were turned on. The student asked if she could answer how she was feeling using the depression scale. Debbie pointed to the number “3” indicating she felt happy and relaxed. Debbie was removed from the reclining chair and was given her walker to bring her back to her wing in the long-term care facility.

Week 3, November 20th 2014

The student researcher asked Debbie if she would go to the Snoezelen (MSE) room with him for a treatment session. Debbie was excited and walked to the treatment area with the student. When the door was opened Debbie walked to the reclining chair and moved the vibrating pillow to behind her back. When the student researcher asked her to point to how she was feeling on the depression scale, Debbie pointed to the number “5” indicating she was complacent (neither happy nor sad). The student researcher placed the fiber optic lights upon Debbie and turned on the nature music while turning off the lights. After the 30-minute session the instruments were removed and the lights turned on. When the student asked she to indicate how was feeling using the depression scale, Debbie pointed to the number “3” indicating she felt
happy and relaxed. The student researcher gave Debbie her walker and brought her back to her wing in the long-term care facility.

Week 4, November 27th 2014

The student researcher asked Debbie if she wanted to participate in the Snoezelen (MSE) treatment session for the last time. Debbie said she was feeling really sad and thought that would help. Debbie was brought to the treatment room and placed herself on the reclining chair and moved the vibrating pillow to her back. Before placing the fiber optic lights, playing the music, and turning out the lights, Debbie was asked by the student researcher to score how she was feeling on the depression scale. When asked, Debbie pointed to the number “6” indicating she felt unhappy. After the 30-minute treatment session the fiber optic lights were removed and the music was turned off. When the student researcher asked Debbie to point how she was feeling on the depression scale after treatment, Debbie pointed to the number “3” indicating she felt happy and relaxed. Debbie asked if she could continue the treatment sessions after the student researcher left the facility. The student agreed and said he would inform the Life Enrichment staff about Debbie's desire to continue participation with the Snoezelen (MSE). Debbie was given her walker and was brought back to her wing in the long-term care facility.