Evaluating the Effectiveness of Non-Pharmacological Interventions for Decreasing Behavioural and Psychological Symptoms of Dementia

Applied Thesis

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Dedication
Mom and Dad- thank you for all that you do for me. Thank you for the endless support throughout these four years. There are no words for how much you both mean to me. I love you.

Becky- I can’t thank you enough for proofreading my thesis. I appreciate all the help you gave me throughout this process.

Nanny and Grandy- Because of you, I entered this field of work. Because of you, I have found what I love to do, xx.

To the rest of my family and friends- I love you!
Abstract

Dementia is a disease that affects a large portion of the geriatric population. Dementia is not a specific disease, however many diseases can cause dementia. The diseases include, Alzheimer’s disease, Lewy Body disease, frontotemporal dementia, vascular dementia, Parkinson’s disease, Huntington’s disease, and Creutzfeldt-Jakob disease (“Normal aging vs dementia,” 2015). The disease affects individuals differently however the most common symptoms are both behavioural and psychological. It is found that 60-90% of individuals with a diagnosis of dementia will portray distressed symptoms and behaviours (Mitchell & O’Donnell, 2013). Lately, non-pharmacological interventions have become a popular method for decreasing Behavioural and Psychological Symptoms of Dementia. The purpose of this thesis is to evaluate the effectiveness of a variety of non-pharmacological interventions used in both long-term care and adult day centers. Non-pharmacological interventions in dementia care are stated as best practices and should be primarily pursued before pharmacological interventions are implemented (Douglas, James, Ballard, 2004). Peer reviewed literature was examined from online databases accessed through St. Lawrence College and Queens University. The existing literature suggests that the discussed non-pharmacological interventions including Doll Therapy, Validation Therapy, Music Therapy, Aromatherapy, Multi-sensory Therapy, Montessori Based Activity Therapy, and Reminiscence Therapy can be used to both decrease behavioural disturbances as well increase an individual’s quality of life and independence. For the purpose of any future research, it is suggested that future studies include pairing intervention methods to determine the level of effectiveness in decreasing BPSD, increasing quality of life and increasing independence.
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Introduction

As the population ages, understanding the needs of geriatric population is critical. One ailment that is rapidly increasing amongst the aging population is dementia (Rizzi, Rosset, & Roriz-Cruz, 2014). As individuals age the chance of a dementia diagnosis becomes more prevalent. According to Rizzi, Rosset, and Roriz-Cruz (2014), approximately 35 million people worldwide are living with dementia. Dementia is a progressive condition, meaning symptoms will gradually worsen as the brain cells become damaged and die (“Normal aging vs dementia,” 2015). Dementia is not a specific disease, however many diseases can cause dementia. The diseases include, Alzheimer’s disease, Lewy Body disease, frontotemporal dementia, vascular dementia, Parkinson’s disease, Huntington’s disease, and Creutzfeldt-Jakob disease (“Normal aging vs dementia,” 2015). The conditions may have overlapping symptoms. Dementia is a term for a group of symptoms that are produced by disorders affecting the brain including memory loss, difficulties with problem solving, language, difficulties with thinking, and can be so severe that an individual’s ability to complete everyday tasks is diminished (“10 Warning signs,” 2015). An individual with a dementia diagnosis may also experience changes in behaviour or mood.

There are varying forms of dementia leading to behavioural and psychological symptoms (Chiu, Chen, Yip, Hua, & Tang, 2006). About 60-90% of individuals with a diagnosis of dementia will display distressed symptoms and behaviours (Mitchell & O’Donnell, 2013). According to Kales, Gitlin, and Lyketos (2015), the responsive behaviours that include agitation, depression, aggression, eating complications, wandering, and social inappropriate behaviours. One of the difficulties with a dementia diagnosis is that the individual does not have a collective understanding of what is happening or how to stop it due to the deterioration of the brain, causing the inappropriate behaviours to become normative (Herrmann et al., 2012).

Non-pharmacological approaches are important in the management of dementia. These approaches are used to manage behavioural symptoms without the conventional approach of pharmaceutical medicine, thereby reducing many of the accompanying side effects. Cholinesterase inhibitors such as galantamine, donepezil, and rivastigmine, are one example of many non-pharmacological approaches to combatting specifically Alzheimer’s, but generalizing towards dementia as a whole (Birks, 2006). The intention of a non-pharmacological approach is an intervention that is implemented in order to manage behavioural symptoms without the use of medication and the accompanying side effects. Ethical practices dictate that non-pharmacological interventions should always be considered for use, before considering any pharmacological intervention. Non-pharmacological interventions are implemented early to discourage and/or decrease the frequency of the previously mentioned undesired behaviours (Kales et al., 2015). Non-pharmacological interventions are dependent upon therapists, the caregivers, and the individual patient (Yamaguchi, Maki, Yamagami, 2010). Therefore, it is critical that the diagnosed individual be surrounded by a positive group of people for support. According to Yamaguchi, Maki, Yamagami (2010), a non-pharmacological therapy intervention
is primarily effective when therapists focus on how communication is perceived by the individual rather than what specific approach may be implemented.

Many families become overwhelmed when caring for their loved ones with dementia and experience caregiver burden whilst negatively reacting to the undesired behaviours (Salzman et al., 2008). This may lead caregivers to make the decision to place their loved one into a long-term care facility. The purpose of this study is to evaluate the effectiveness of three non-pharmacological interventions through the following forms of therapy: doll therapy, music therapy, and reminiscence therapy, which are prominently used in long-term care homes to decrease Behavioural and Psychological Symptoms of Dementia (BPSD). The following three non-pharmacological interventions are all described as positive and effective in decreasing BPSD.

Doll therapy is described as the careful use of dolls in order to improve the welfare of the individuals specifically diagnosed with dementia (Beard, 2011). Doll Therapy is implemented by a recreational therapist, occupational therapist, or care staff and is defined as presenting a doll to the individual, and using the doll as a therapeutic approach. The doll is to be seen as a baby and not a doll (Mitchell & O’Donnell, 2013). John Bowlby’s work on attachment theory from 1969 is frequently mentioned as a rationale for doll therapy. According to Verity (2006), doll therapy produces both behavioural and social benefits by introducing happiness and enhanced quality of life. In a study completed by Mitchell and O’Donnell (2013), “dolls” used within doll therapy can be diverse and include stuffed animals, teddy bear, plastic dolls, knitted dolls, real life dolls, etc. Overall, doll therapy has great value and importance (Mitchell & O’Donnell, 2013).

Music therapy is described as a safe and effective technique for controlling agitation and aggressiveness in individuals diagnosed with dementia (Svansdottir and Snaedal, 2006). This study randomly assigned 38 individuals with moderate to severe Alzheimer’s disease to a music therapy or control group for six-weeks (Svansdottir & Snaedal, 2006). Alterations in undesired behaviour was measured using the Behaviour Pathology in Alzheimer’s Disease Rating Score (BEHAVE-AD) and demonstrate an effective reduction in behaviour disturbances (Svansdottir & Snaedal, 2006). While music therapy has been proven effective in decreasing behavioural symptoms and increasing quality of life, it is also important to identify underlying mechanisms for the most effective practice (Koger, Chapins & Brotons, 1999). For example, determining the individual’s favourite genre of music through assessment for further enjoyment and more effective results.

The final intervention, reminiscence therapy, is the discussion of past events, experiences and activities within a group whilst using tangible prompts such as pictures and videos to engage conversation. Reminiscence therapy is one of the most prevalent psychosocial interventions in dementia care interventions (Woods, Spector, Jones, Orrell, Davies, 2005). In a study completed by Yamagami, Oosawa, Eto, and Yamaguchi (2007), activation reminiscence therapy (ART), displayed improvements in interaction and behavioural symptoms. This 12-week brain-activating rehabilitation study, 18 individuals with dementia as well as lucid individuals were exposed to ART for one hour every week (Yamagami, Oosawa, Eto, & Yamaguchi, 2007). Results were measured through interviews with family and caregivers to determine significant differences in behavior patterns (Yamagami, Oosawa, Eto, & Yamaguchi, 2007).
The purpose of this review is to evaluate and compare the use of three non-pharmacological interventions in dementia care through four major components. The first component of the review is dementia and the need for a treatment. Next, doll therapy, music therapy, reminiscence therapy, will be evaluated and compared in regards to the effectiveness of behavioural symptom reductions. The overall goal of this review is to discuss three major non-pharmacological interventions and determine best practice.

In conclusion, completing this review will allow the author to compare and evaluate the effectiveness of non-pharmacological interventions in order to determine best practices for BPSD within long-term care homes. The growing population of a dementia diagnosis fluctuates from 60-90% according to Mitchell and O’Donnell (2013), which illustrates the importance of non-pharmacological management strategies. However, by evaluating non-pharmacological approaches, the most effective method can be made accessible for not only long-term care homes but for caregivers with loved ones at home for BPSD. The importance of this review is to aid both adults and the elderly to live life to the fullest with lesser behavioural symptoms and a higher quality of life.
Literature Review

Dementia and the Need for a Treatment

Dementia is defined as an observable decline of mental capacities (Gustafson, 1996). According to Gustafson (1996), dementia is an acquired clinical condition with a progressive decline in conative, cognitive, mental, and emotional abilities. There are many diverse forms of dementia including Alzheimer’s disease, Lewy Body disease, Fronto-Temporal dementia, Vascular dementia, Parkinson’s disease, Huntington’s disease, and Creutzfeldt-Jakob disease, however, the most common are Alzheimer’s disease and vascular dementia (“Normal aging vs dementia,” 2015). Alzheimer’s disease is described as an advanced decline in cognitive function, including memory deterioration, which is often confirmed through assessing the amount of amyloid plaque to protein particles in the brain (Reitz, Brayne & Mayeux, 2011). An increase in amyloid plaque is responsible for the deterioration, damage and the eventual death of the brain cells (Reitz, Brayne & Mayeux, 2011). In contrast, vascular dementia is a result of a cardiovascular event, such as strokes, which cause a loss in mobility (Ott et al. 1995). According to Fauth and Gibbons (2013), a dementia diagnosis cannot be determined through a single test but rather through a thorough medical assessment, commonly done through an autopsy after death.

Commonly, individuals with dementia have varying symptoms based on the severity and stage of the condition. For example, as the condition progresses, isolated memory loss occurs along with other cognitive impairments such as difficulties with problem solving, language, and thinking, which can be so severe that an individual’s ability to complete everyday tasks is diminished (Brown et al. 1997). Other symptoms such as balance and gait impairments can occur during late stages of the disease as brain cells start to die resulting in the patient requiring the use of a wheelchair for mobility reasoning and safety procedures for falling (Henriet, 1983; Zarranz, 2003). Zarranz (2003) also stated that an individual with a dementia diagnosis might be bed bound and not just a wheelchair.

Behavioural and psychological symptoms of dementia (BPSD) are also common with approximately 90% of individuals diagnosed with dementia exhibiting these challenging behaviours (Chen, 2006). BPSD is described as an individual showing signs or symptoms of disturbed perception, thoughts, behaviour, and mood (Kales, Gitlin, & Lyketsos, 2015). BPSD is an umbrella term for a list of behaviours that include agitation, depression, aggression, eating impairments, wandering, and social inappropriate behaviour (Kales et al. 2015). These behaviours, according to Kales et al. (2015) are some of the most stressful and costly, and may lead to early placement in a long-term care home.

In order to decrease BPSD in individuals, it is suggested that non-pharmacological interventions are considered prior to the use of pharmacological alternatives (Douglas, James & Ballard, 2004). Currently, there is no cure for a dementia disorder, however, non-pharmacological treatments are available and effective in targeting BPSD and improving the patient’s quality of life. Non-pharmacological interventions are diverse and include many different approaches, however, this study will focus on the six most popular therapies including doll therapy, music therapy, reminiscence therapy, validation therapy, multi-sensory therapy, and Montessori Method activity therapy.
Currently the prevalence rate of a dementia diagnosis is approximately 35 million worldwide and continually increasing (Rizzi, Rosset, & Roriz-Cruz, 2014). It is hypothesized that by 2050 the rate of prevalence of those diagnosed with dementia will be close to 115 million suggesting the immediate need for alternative therapies for the management of this disorder (Rizzi, Rosset, & Roriz-Cruz, 2014).

Non-Pharmacological interventions with Dementia

Non-pharmacological interventions in dementia care are stated as best practices and should be primarily pursued before pharmacological interventions are implemented (Douglas, James, Ballard, 2004). According to Sink, Holden, and Yaffe (2005), pharmacological interventions are not effective for the management of behavioural and psychological symptoms, and trigger complicated side effects, including a heightened risk of stroke. Despite this, the use of antipsychotics to reduce BPSD still remains high in long-term care homes (Khan and Curtice, 2011). The implementation of non-pharmacological interventions may offer a greater quality of life, reduce caregiver burden, and therefore support and re-introduce independence for the individual (Douglas, Simon, James, & Ballard, 2004).

According to Cohen-Mansfield (2000) the inappropriate and agitated BPSD, are related to the “unmet needs” model, which can be described as a combination of 1) behavioural learning model, 2) environmental model, and 3) biological model.

Overall, a description of this model contains the individual’s current condition, which varies from physical health to mental health (Cohen-Mansfield, 2000). The individual’s environment should also be included in this model and would include observations such as under and over stimulation, behaviours of other individuals interacted with, a loss of memory to which the individual cannot find what it is that is necessary ex: bathroom, clothing drawer, kitchen, etc. An effective and informal assessment in this case could include an ABC Assessment (Antecedent, Behaviour, Consequence). When assessing what happens before the behaviour, the behaviour itself, and what occurs concurrently after the behaviour may help to assess the unmet needs of the individual. In order to use the Unmet Needs Model for non-pharmacological interventions it is important to remember the following: Assess behaviour, postulate why the behaviour is occurring, consider treatment options, implement the intervention, and follow up (Cohen-Mansfield, 2000). For example, if vocal agitation occurs it is most likely caused by under stimulation, depression, and boredom. By determining past hobbies, enjoyments, and occupations of the individual through family members or caregivers, it may be possible to straightforwardly discover the unmet needs of the individual. Once past habits are determined it is easier to match the non-pharmacological intervention to the individual and their likes and dislikes.

Non-pharmacological interventions including stimulation, structured activities, and environmental interventions are made integral to the “unmet needs”. The majority of the non-pharmacological interventions can be described as having a positive effect, providing greater benefits when paired with the capabilities and needs of the individual (Cohen-Mansfield, 2001).

In order to determine a proper and accurate intervention for the individual, the therapist must determine the individual’s needs based on Maslow’s Hierarchy of Needs (Scholzel-Dorenbos, 2010). Maslow’s Hierarchy of Needs is a combination of human motivators, and includes Self-actualization, Esteem, Love and Belonging, Safety, and lastly Physiological (Huitt,
Once completed the therapist may take the results and determine best practice for the related behavioural and psychological symptoms. It is important to be considerate and aware of the individual’s current needs as well as how their needs may change with the progression of the disease (Thielke et al., 2012). Maslow’s Hierarchy of Needs can help health care providers and caregivers evaluate and produce thorough non-pharmacological interventions (Thielke et al., 2012).

In addition to Maslow’s Hierarchy of Needs, an assessment termed the Chamberwell Assessment of Need for the Elderly Care (CANE) may be beneficial (Reynolds et al., 2000). CANE was created to help caregivers understand the individual with dementia, discover their unmet needs and the distinct characteristics associated with the level of needs (Reynolds et al., 2000). According to Reynolds et al. (2000), a lot can be done to increase the patient’s quality of life and decrease responsive behaviours, therefore promoting the use of the CANE assessment. The CANE assessment consists of 24-items that records caregiver needs, patient needs, as well as staff needs (Reynolds et al., 2000). The 24-item assessment is described as having good content and constructs validity. The CANE assessment helps develop a plan for non-pharmacological interventions best suited for the individual.

Overall, by determining an individual’s needs through the unmet needs model by Cohen-Mansfield, Maslow’s hierarchy of needs, as well as the CANE assessment, the more accurate and personalized the chosen non-pharmacological interventions can be to decrease the individuals BPSD. There are several non-pharmacological interventions available for the intended use of dementia care. However, the following non-pharmacological interventions are determined best practices throughout the scholarly literature reviewed.

**Doll Therapy and BPSD**

The first non-pharmacological intervention is doll therapy. Over the past decade doll therapy has become an increasingly popular therapeutic intervention for individuals with dementia (Mitchell, 2014). The existing evidence of doll therapy demonstrates an increase in overall wellbeing, as well as a reduction of responsive behaviours such as agitation, wandering, and aggression (Mitchell, 2014). The intervention and use of dolls may recover past memories of parenting as well as encouraging calmness (MacKenzie, Wood-Mitchell, & James, 2007). When developing Doll Therapy interventions, the candidate’s earlier life may trigger past memories including parenting, nanny, babysitter, and once presented with a baby again, the memories may diminish the responsive behaviours that occur. In a study completed by Bisiani and Angus (2012), a female participant with advanced dementia was observed to experience the benefits of using a real-life baby doll as a tool to decrease responsive behaviours. Authors were hopeful that the doll would take the place of the attachment needs of the individual diagnosed with dementia (Bisiani & Angus, 2012). The findings of this study indicated that the real-life baby doll created and fulfilled the attachment need of the female participant, and therefore demonstrated a reduction in responsive behaviours, as well as an improvement in social interactions and communication with other individuals (Bisiani & Angus, 2012). According to Bisiani and Angus (2012), there is controversy regarding doll therapy in regards to ethical considerations. According to Mitchell and Templeton (2014), individuals believe Doll Therapy could be considered inappropriate to one’s dignity and non-maleficence within ethical considerations. However as stated, Doll Therapy should be considered and used as a therapeutic tool approach in order to further enhance dementia care in a positive view.
According to Fraser and James (2008), when an individual with dementia moves into a long-term care home, they often lose their sense of worth. Staff introduced baby dolls to residents, and the authors suggested that once being faced with a new estranged lifestyle the baby dolls filled the sense of attachment for the individual. The process of dementia discussed by Fraser and James (2008), is characterized by a sense of loss, feelings regarding insecurity, loss of family. Miesen (1992), suggests that the majority of individuals with a dementia diagnosis are in perceived situations that may be defined as strange and uncomfortable. Therefore the strong attachment need is then activated and fulfilled by the utilization of baby dolls (Misesen, 1992). In another study completed by Tamura et al. (2001), baby dolls were used with several individuals with advanced diagnoses of dementia in varying environments. During therapeutic intervention periods, an occupational therapist would present the baby doll, which consisted of two soft plastic dolls, as well as one silicon doll for a period of 90 seconds. The overall intervention period was a total of 60 minutes, and during that period, through the 90-second intervals the occupational therapist recorded the individuals’ reactions to the baby doll. Reactions were classified into four subcategories:

- No reaction
- Close reaction
- Caring for the baby doll
- Communication with other individuals whilst caring for the doll

In addition to the 60-minute intervention period, the baby dolls were also presented to individuals following dinner in the main hall of the long-term care home. The individuals, who were categorized as caring for the baby doll in the previous session, were the individuals whose attention was caught after dinner by the baby dolls (Tamura et al., 2001). Overall the residents of the long-term care home appeared to have a higher quality of life, as well as a reduction in responsive behaviours once the baby dolls were presented (Tamura et al., 2001).

Mackenzie, James, Morse, Ladinska, Reichelt (2006), completed a study in which 14 dolls were presented into two long-term care homes. This study examines 37 participants with each resident in the study being given the choice of a doll. Once the resident had a doll of his or her choice, the interaction between the resident and the doll was monitored over a three to six week period. Throughout the study period staff described the observable changes within the residents, which included reduction in behaviours, a calming effect, improvement in speech, and approachability (Mackenzie, James, Ladinkska, & Reichelt, 2006). The positive effects such as the reduction in responsive behaviours and calming effect exhibited through the cost-effect non-pharmacological intervention home impressed staff within the long-term care.

Overall, as discussed and demonstrated through studies Doll therapy has many benefits including encouraging positive behaviour, and decreased responsive behaviours amongst those defined in BPSD. However, due to the lack of IOA data, this study has some limitations.

**Validation therapy and BPSD**

Between 1963 and 1980, Validation therapy (VT), was developed by Naomi Feil for the elderly with cognitive impairments. However, the approach has now been applied and
implemented for individuals with a dementia diagnosis. Feil (2014), states that there are four stages of cognitive impairments within a dementia diagnosis, including:

- Mal Orientation
- Time Confusion
- Repetitive Motion
- Vegetation

As a whole, this therapy focuses on validation, reality, and experience, with a variety of different techniques. The concept of Validation therapy suggests the discussion of current events in both the individual’s life as well as other individuals in group. states that with late stage dementia, the importance of VT implementation is the opportunity to build a relationship in regards to physical losses as well as learning coping strategies within a group setting. When individuals start to lose their memory, sensory perception, and mobility, VT is proposed in order to restore the past in terms of finding safety and comfort in a new estranged lifestyle (Feil, 2014). The individual implementing VT will work with the disoriented individual with dementia and will try to understand the meaning behind behaviours as well as communication when necessary (Feil, 2014). VT is a combination three therapies that include:

- Behaviour Modification
- Reality Orientation
- Re-motivation Techniques

Behaviour modification can be described as theoretical implications of therapist interaction, inner speech, the contents of change in regards to the client’s judgement, an interest in cognitive factors, and lastly mediation (Meichenbaum, 1977). Behaviour modification is used in many different populations as well as many different settings (Meichenbaum, 1977). Overall, behavior modification aids with coping mechanisms and added resources in order to manage with stressful situations (Meichenbaum, 1977).

Reality Orientation therapy originated from the primary usage of rehabilitating war veterans and is now applied to geriatric individuals diagnosed with with dementia (Spector, Orrell, Davies, & Woods, 2000). The purpose of Reality Orientation therapy is to present the individual with information regarding their present environment (Spector, Orrell, Davies, & Woods, 2000). This means individuals in group therapy are given the current date, time, place, and current person-related information in order to re-learn information that may be forgotten, therefore contributing positively to mood and behavior (Spector, Orrell, Davies, & Woods, 2000).

Re-motivation techniques refer to a theme-centered and structured format, in an effort to rekindle and stimulate individuals with a dementia diagnosis (Siberski, 2005). Re-motivation techniques focus on cognition, affectional warmth, helpfulness, social contact, and humor (Siberski, 2005). The hope of using Re-motivation techniques is to delay the progression of the disease, by maximizing the usage of unaffected lobes of the brain (Siberski, 2005). For example, in a session individuals in group may start by shaking each other’s hands and introducing themselves, demonstrating what affectional warmth and social contact look like (Siberski, 2005).

A study was conducted by Tondi, Ribani, Bottazzi, Viscomi, and Vulcano, (2007), in order to determine if Validation therapy (VT) was an effective intervention method in decreasing
BPSD. Fifty individuals took part in the study, and were divided in two separate groups defined as the case and control group consisting of 23 and 27 individuals. In order to assess a significant change in behaviours the Neuropsychiatric Inventory (NPI), and the Bedford Alzheimer nursing severity scale (BANSS) were used at the beginning and ending of the intervention period. Overall, it was shown that using VT for individuals experiencing BPSD has a potential to be effective in the reduction of behavioural symptoms. As a whole the symptoms that were shown to be the most improved included agitation, irritability, apathy, and nighttime behaviours.

Deponte and Missan (2007) conducted a study evaluating the effectiveness of Validation therapy in individuals with a dementia diagnosis. According to Deponte and Missan (2007), Validation therapy is one of the best psychosocial therapies for the elderly specifically diagnosed with dementia. The study had a total of 30 participants in a nursing home setting and assessed Validation Therapy in regards to behavioural symptoms. Results demonstrated a positive decrease in behavioural symptoms in the individuals within the treated group of the study (Deponte & Missan 2007).

When reviewing Validation therapy it is clear that there is a lack of research in this field. However, from the studies discussed it is clear that Validation therapy may be used successfully to reduce behavioural symptoms in individuals with dementia used in dementia care.

Music Therapy and BPSD

Music therapy is the third non-pharmacological intervention method discussed in the best practices use for BPSD. Music therapy has been shown to have a positive impact on individuals with the following diagnosis: Cancer, autism, neurological deficiencies, and pre mature babies within the NICU, as well as for BPSD.

Clair and Memmott (2008), stated that the therapeutic use of music is a strategy which can be used in dementia care to decrease symptoms of depression, behavioural symptoms, provide both emotional and physical stimulation, agitation, communication, and relieving stress. Each individual diagnosed of dementia is different, and therefore it is important to have a form of therapy, such as music therapy that is easily individualized for the specific person and their symptoms.

Music therapy is proposed for usage in lessening the behavioural and psychological symptoms of dementia (Vink, Bruinsma & Scholten, 2003). Music therapy is implemented by a music therapist or support staff to a group of residents within the long-term care home (Tuckett et al, 2015). Tuckett et al. (2015) stated that not only is the music an effective intervention, but how the music therapist interacts with the residents. Tuckett et al. (2015) stated that eye contact; kindness, empathy, and compassion are all ways to be person centred and are effective through music therapy. It is suggested that music therapy should be implemented during sundown, as this is the period in which the behaviours of increased impairment and arousal occur (Tuckett et al. 2015). According to Bliwise (1993), sundowning could be caused by a REM sleep behaviour disorders as well as partial complex seizures. Music therapy is usually implemented during this period of time in order to decrease the responsive behaviours that naturally occur (Tuckett et al. 2015).

In a study conducted by Svansdottir and Snaedal (2006), 38 patients with moderate to severe Alzheimer’s disease were randomly assigned to a control or music therapy group and examined over a six-week intervention period. After the six-week intervention period, there was
a significant reduction in inappropriate responsive behaviours. After an additional four-weeks of observation Svansdottir and Snaedal (2006), suggested that the negative effects of what had disappeared for the most part. Overall, Music Therapy is described as an effective non-pharmacological intervention for treating agitation behaviours in moderate to severe Alzheimer’s disease.

In a study by Raglio et al. (2008), the effectiveness of music therapy was evaluated to reduce BPSD in individuals with moderate to severe dementia diagnoses. The study included 59-participants with unpredictable behavioural symptoms (Raglio et al., 2008). The experimental group received 30 Music Therapy sessions over a period of 16-weeks, whereas the control group received entertainment activities and educational support. Many assessments were completed at the 8th, 16th, and 20th week mark, including: Mini Mental State Examination, Barthel Index, and Neuropsychiatry Inventory. As a result of Music Therapy sessions, it was determined that the NPI scores decreased significantly while the following BPSD symptoms improved by decreasing in frequency and intensity; agitation, delusions, apathy, irritability, aberrant motor activity, and night-time disturbances (Raglio et al., 2008).

Lastly, Ueda, Suzukamo, Sato, and Izumi (2013), determined the efficiency of Music Therapy in comparison to BPSD as well as anxiety through a review of the literature. Twenty studies were reviewed including controlled clinical trials, randomized controlled trials, and cohort studies and demonstrated that Music Therapy had positive effects on both BPSD and anxiety (Ueda, Suzukamo, Sato, & Izumi, 2013). Overall, this suggests that the use of method of Music Therapy as a non-pharmacological intervention may be an effective means in controlling BPSD.

Aromatherapy and BPSD

Aromatherapy is an implemented procedure used to treat countless diseases and their associated symptoms including: Alopecia, anxiety, agitation, and insomnia. Aromatherapy has been used since, from ancient times and employs the use of concentrated oils extracted from flowers, herbs, and other varying parts of plants by administering them into the skin to receive a sensation.

Ballard, O Brien, Reichelt, and Perry (2002), stated that behavioural and psychological symptoms of dementia are a severe and frequent symptom in a dementia diagnosis. A study was conducted to evaluate the effectiveness of essential oils to reduce BPSD (Ballard, O Brien, Reichelt, & Perry, 2002). Seventy-two individuals were randomly assigned to either a control group or a placebo group, 36 in each group (Ballard, O Brien, Reichelt, & Perry, 2002). The essential oil were mixed with a cream and applied to the control residents within the care facility, whereas the placebo group only received cream (Ballard, O Brien, Reichelt, & Perry, 2002). Throughout the intervention, the Cohen-Mansfield Agitation Inventory and Dementia Care Mapping were used to track behavioural symptoms of the residents. (Ballard, O Brien, Reichelt, & Perry, 2002). It was demonstrated that the utilization of essential oils produced no side effects and displayed positive results in regards to appropriate behaviour (Ballard, O Brien, Reichelt, & Perry, 2002). The authors conclude that Aromatherapy may be an effective therapy to treat individuals experiencing agitation with a dementia diagnosis (Ballard, O Brien, Reichelt, & Perry, 2002).
In a separate randomized control study conducted by Smallwood, Brown, Coulter, Irvine, and Copland (2001), the effectiveness of Aromatherapy as an intervention method was also evaluated. However, this study focused on the effect of essential oils on motor behaviours in individuals with a dementia diagnosis (Smallwood, Brown, Coulter, Irvine, & Copland, 2001). As stated by the authors, Aromatherapy was determined to significantly reduce behavioural symptoms of dementia and therefore deemed an effective non-pharmacological intervention (Smallwood, Brown, Coulter, Irvine, & Copland, 2001).

A crossover study was conducted in order to determine if Aromatherapy is an effective intervention method for agitated behaviours in dementia (Lin, Chan, & Lam, 2007). The study conducted was focused towards agitation behaviours based on a statement from the authors describing the distressing symptoms for both the individual and their caregivers (Lin, Chan, & Lam, 2007). Pharmacological interventions have been described to have adverse side effects, where non-pharmacological interventions such as Aromatherapy are becoming more prevalent as a therapy method (Lin, Chan, & Lam, 2007). The study investigates the use of essential lavender oil in treating and decreasing agitation behaviours in dementia (Lin, Chan, & Lam, 2007). Seventy adults with a dementia diagnosis were chosen and randomly assigned to an active or control groups for the 6-week intervention period (Lin, Chan, & Lam, 2007). Agitation was measured on the Cohen-Mansfield Agitation Inventory, as well as the Neuropsychiatric Inventory (Lin, Chan, & Lam, 2007).

Results demonstrated that the use of essential lavender oil is an effective therapy method to decrease agitation behaviours in dementia (Lin, Chan, & Lam, 2007).

Multi-Sensory Therapy and BPSD

Multi-Sensory therapy is a relatively new therapy within dementia care. In 1960 Multi-Sensory therapies originated in the field of learning disabilities, however with the overwhelming positive results the therapy was adapted for use in other fields including dementia care, chronic pain management, maternity, paediatrics, and more (Baillon, Van Diepen, & Prettyman, 2002). Multi-Sensory therapy is also commonly known as sensory stimulation and is related to the snoezelen intervention, which is derived from Dutch terms meaning explore and relax (Baillon, Van Diepen, & Prettyman, 2002). The therapy occurs in a specific room where individuals experience a variety of scattered visual, auditory, and tactile stimulation (Baillon, Van Diepen, & Prettyman, 2002). The therapy rooms are individualized in order to enrich feelings of relaxation, safety, and comfort states (Baillon, Van Diepen, and Prettyman, 2002).

The therapy rooms are designed to meet the needs of the specific group of individuals and therefore vary in the required equipment (Baillon, Van Diepen, & Prettyman, 2002). However, in general the rooms are usually painted a light colour in order to project the light radiating from the equipment within the room (Baillon, Van Diepen, & Prettyman, 2002), and include equipment such as a projector, curtains that individuals can hold, relaxing music, an interactive board including different knobs for sensory touch engagement as well as triggering lights and music when touched. Multi-Sensory Stimulation has a variety of aspects when implemented within a long-term care setting including:

- Relaxation
- Rapport building
• Stimulation
• Responsive
• Free of failure

In accordance to dementia care, Multi-Sensory therapy has a positive effect in regard to behaviours, as well as increasing individual’s awareness of surroundings. According to Baillon, Van Diepen, & Prettyman (2002), the following are benefits of Multi-Sensory therapy in dementia care:
• Reduction in responsive behaviours
• Reduced fears and sadness
• Increased suitable communication skills
• Increased relaxation, enjoyment, and happiness

Multi-Sensory therapy is most effective in individuals with a diagnosis of moderate to severe dementia where other structured interventions may fail (Baker et al. 1998). Staff within long-term care stated that Multi-Sensory therapies seemed to relax agitated patients, as well as stimulate unresponsive residents (Baillon, Van Diepen, & Prettyman, 2002).

In a study conducted by Staal et al., (2007), 24 participants in a hospitalized setting were engaged in a group intervention process regarding Multi-Sensory Therapy (MST). The study focused on agitation and activities of daily living and was measured using the Pittsburgh Agitation Scale and the Scale for the Assessment of Negative Symptoms in Alzheimer's Disease (Staal et al., 2007). However, all individuals were receiving pharmacological treatment throughout the intervention, limiting the accuracy of MST on its own (Staal et al., 2007). Overall, the authors state that the data suggests an improvement in both aggression as well as improved daily living within the inpatient patients (Staal et al., 2007).

In a separate study performed by Baker et al., (2001), Multi-Sensory therapy was evaluated as effective intervention for mood, behaviour, and cognition modifications. Fifty-five individuals with a dementia diagnosis participated in the study for 30-minute sessions over a 4-week intervention period (Baker et al., 2001). The sessions included Multi-Sensory Stimulation (MSS) and assessed ratings of behaviour and cognition at both the hospital and home settings through a pre, mid, and post evaluation (Baker et al., 2001). Immediately after MSS sessions were conducted the individuals appeared more aware, happy, and active (Baker et al., 2001). The results of this study found that MSS was effective in decreasing responsive behaviour occurrences as well as mood in patients that displayed BPSD.

Lastly, a study compared the effectiveness of Snoezelen therapy and Reminiscence therapy in regards to agitated behaviours in individuals with a dementia diagnosis. The crossover study was developed in order to determine the best intervention to decrease and/or manage agitated behaviours in dementia (Baillon, Van Diepen, Prettyman, Redman, Rooke, & Campbell 2004). Twenty individuals with severe agitation behaviours were selected for the intervention process (Baillon, Van Diepen, Prettyman, Redman, Rooke, & Campbell 2004). Of the twenty individuals involved in the study, all received 3 sessions of both Snoezelen and Reminiscence therapy and the effects were measured by agitated behaviours as well as the individual’s heart rate (Baillon, Van Diepen, Prettyman, Redman, Rooke, & Campbell 2004). It was determined that over the six sessions both therapies were effective in reducing agitated behaviours in these individuals. Baillon, Van Diepen, Prettyman, Redman, Rooke, and Campbell, (2004), stated that
there was a large difference as to how individuals reacted to the two therapies, however overall they were both effective in reducing agitation in these patients.

**Montessori Based Activity Therapy and BPSD**

The Montessori Method is a combination of observation and action, and the relationship between the two (O’Carroll, 2012). The Montessori Method was created by Maria Montessori in the early 1900’s, and was primarily used in the education system for school aged children. The purpose of The Montessori Method was to involve children in everyday tasks in an effort to decrease undesirable behaviours. Montessori believed that when children were faced with tasks in a prepared environment the optimal development level would increase. According to Lillard and Else-Quest (2006), on numerous measurements children attending schools that practiced the Montessori Method had improved standardized test scores as well demonstrated greater positive interactions, advanced control and social cognition compared to children attending any regular elementary school.

For many years Montessori Methods were only used with children, however more recently this method has been implemented in the care of dementia patients (Orsulic-Jeras, Schneider, and Camp, 2000). According to Orsulic-Jeras, Schneider, and Camp (2000), the use of Montessori Methods in geriatric rehabilitation includes guided repetition, task breakdown, and progression through simple to difficult tasks (Orsulic-Jeras, Schneider, and Camp, 2000). Montessori Methods also use external cueing as well dependence on inherent memory (Orsulic-Jeras, Schneider, and Camp, 2000). Montessori Methods are interventions in which meaningful activities are completed. When participating in the activities the reduction of agitation, boredom, and negative affect may occur (Jarrott, Gozali, and Gigliotti, 2008).

According to various studies, Montessori Methods have strong ties with occupational and physical therapy, as well as cognitive and developmental psychology (Camp et al., 1997). In a study completed by Judge, Camp, and Orsulic-Jeras (2000), Montessori Methods were evaluated to determine their effectiveness for dementia care in an Adult Day-Centre setting. Participants underwent nine months of Montessori based Activity Therapy, where they exhibited both positive verbal and motor behaviours, as well as responding positively to activities throughout the day (Judge, Camp, & Orsulic-Jeras, 2000). It was demonstrated that participants in the study participated in more Montessori based therapy compared to other regular activities offered at the Adult-Day Centre (Judge, Camp, & Orsulic-Jeras, 2000).

Montessori Methods created an encouraging and positive environment, rather than a passive and negative environment for residents in long-term care (Orsulic-Jeras, Schneider, and Camp, 2000). Montessori Methods are multi-interventional, and can be implemented by a variety of staff including recreation, nursing, and rehabilitation staff (Orsulic-Jeras, Schneider, and Camp, 2000). Montessori Methods can include but are not limited to a simple task such as cards, to a more cognitively challenging activity such as grouping photographs based on colour, items, etc., (Van der Ploeg & O’Connor, 2010).

A study by Jarrott, Gozali, and Gigliotti (2008) was conducted with 10 participants in a long-term care home. Activities were conducted in a group setting with a 1:1 staff client ratio (Jarrott, Gozali, and Gigliotti, 2008). Throughout the group intervention it was clear to staff that the
constructive engagement levels as measured by self-monitoring in Montessori Method activities were much higher than regular activities, thus restating the meaningfulness of activities, and reinforcing the need for residents to complete an activity with a purpose (Jarrott, Gozali, and Gigliotti, 2008).

Additionally, Van der Ploeg and O’Connor (2010), evaluated the effectiveness of Montessori Methods in dementia in order to decrease behavioural symptoms. Verbal and physical behaviour disturbances, as well as lowered mood are often linked to a lack of socialization and occupation (Van der Ploeg and O’Connor, 2010). In order for participants to be included in the study, they must partake in one physical agitated behaviour that requires staff attention (Van der Ploeg & O’Connor, 2010). In regards to dementia Montessori Methods are designed and implemented in order to utilize procedural memory with external cues in order to compensate for any cognitive insufficiencies (Van der Ploeg & O’Connor, 2010). Twenty to twenty-five individuals were chosen to participate, and implementers in partnership with caregivers choose 10 Montessori activities for the participants based on past interests and hobbies (Van der Ploeg & O’Connor, 2010). The intervention included three-30 minute sessions, for a total of 90 minutes (Van der Ploeg & O’Connor, 2010). For data recording purposes, during a session there could be a range of 0-30 points given in accordance to behaviours on the rating scale (Van der Ploeg & O’Connor, 2010). This method of evaluation was chosen by the authors based on the positive results in other studies in regards to inter-rater reliability (Van der Ploeg & O’Connor, 2010). Overall, Montessori Based Activity Therapy was shown to be an effective therapy to decrease behavioural symptoms in dementia patients. It is important to state that Montessori Methods can be implemented in a variety of settings, as well as by a variety of professionals including:

- Caregivers
- Families
- Nurses
- Support staff
- Volunteers

Overall, through extensive research it is clear that Montessori based Activity Therapy is an effective method in decreasing behavioural symptoms in dementia care in a variety of setting such as home care, long-term care, and Adult-Day Centre’s.

Reminiscence Therapy and BPSD

Finally, Reminiscence therapy is related to the hypothesis created by Butler (1963) and referred to as ‘Life Review’. Butler (1963), defined reminiscence as the process of recalling past experiences. Reminiscence Therapy can be implemented for a variety of diagnoses including dementia, depression, and the cognitively impaired, however Reminiscence Therapy is primarily utilized in dementia care. Individuals diagnosed with dementia are often unable to recall events from the same day, however are able to remember and recall events from childhood (Swann, 2013). Nonetheless, life review is a basis of Reminiscence Therapy and has different methods of intervention (Woods, Spector, Jones, Orrell, and Davies, 2005). For example, life review is completed individually with a therapist, in which the individual with dementia is guided chronologically through past experiences (Woods, Spector, Jones, Orrell, and Davies, 2005). Whereas according to Woods, Spector, Jones, Orrell, and Davies (2005), Reminiscence Therapy is completed individually or within a group of others discussing past events, experiences, and
activities. In order to conduct a Reminiscence Therapy session the use of tangible aids including household items, past music enjoyments, as well as photographs are required for the ability to reminisce (Woods, Spector, Jones, Orrell, and Davies, 2005). Reminiscence Therapy is one of the most widely used psychosocial interventions in dementia care, and is highly enjoyed by both staff, caregivers, and the individuals diagnosed with dementia. This review completed by Woods, Spector, Jones, Orrell, and Davies (2005) suggests that Reminiscence Therapy significantly improved patients’ moods and behaviours, cognition, as well as caregiver-strain without any harmful side effects.

A study investigating the effectiveness of Activity Reminiscence Therapy (ART) for improving positive behaviours was performed in individuals with dementia as well as lucid individuals (Yamagami, Oosawa, Ito, and Yamaguchi, 2007). Eighteen participants between the ages of 82 and 89 took part in with eight individuals assigned to the test group and 12 to the control group (Yamagami, Oosawa, Ito, and Yamaguchi 2007). The study was separated into two different periods including control and intervention, and during the intervention period the participants were put into small groups, as ART is more effective when administered in this way (Yamagami, Oosawa, Ito, and Yamaguchi 2007). Yamagami, Oosawa, Ito, and Yamaguchi (2007), demonstrated improvements in the behaviour, interaction, and communication of individuals in the treatment group compared to the control group. As a whole, the studies on Reminiscence Therapy are sparse with small sample sizes.

Kuwahara, Abe, Yasuda, and Kuwabara (2006), developed and networked Reminiscence Therapy conveyed through video. Dependent on the long-term care home, there is not always a 1:1 ratio from staff to resident to administer this type of therapy; therefore, the focus is placed on videophone therapists. It was found that videophone Reminiscence Therapy sessions were as effective as face-to-face sessions in reducing behavioural disturbances (Kuwahara, Abe, Yasuda, and Kuwabara 2006), demonstrating that Reminiscence Therapy promotes wellbeing as well as an improvement of depression (Swann, 2013).

Lastly, a study completed by Gowans, Campbell, Alm, Dye, Astell, & Ellis (2004), discussed the use of a conversation aid in regards to Reminiscence Therapy. This aid is referred to as the Computer Interactive Reminiscence Conversation Aid, also referred to as CIRCA (Gowans, Campbell, Alm, Dye, Astell, & Ellis, 2004). As dementia progresses and the brain deteriorates it is particularly hard for individuals to communicate and formulate responses due to the loss of short-term memory. CIRCA was created in order to utilize media that could be interactive for individuals including music, and video, as well as animation, to stimulate and prompt both long-term and short-term memory (Gowans, Campbell, Alm, Dye, Astell, & Ellis, 2004). CIRCA is an immediate tool that can be adapted to any individual, thus reinforcing the significance of the tool and the endless possibilities of enhancing one’s quality of life (Gowans, Campbell, Alm, Dye, Astell, & Ellis, 2004).

Overall, the hope of the literature review was to review best practices in non-pharmacological approaches for diminishing BPSD, while enhancing the individual’s quality of life, and reducing caregiver burden. The utilization of non-pharmacological approaches in long-term care homes is promising and hopefully can become generalized to other settings in which individuals with dementia reside such as, respite care, adult day programs, hospitals, or living with family.
Limitations

After extensive research of non-pharmacological interventions, it is clear that the interventions are effective in treating behavioural symptoms and should be primarily considered prior to pharmacological intervention. However, it is also clear that there are limitations to the effectiveness of these interventions, especially in dementia care. There is no one fits all approach in dementia care that is effective for all individuals. This is especially true as the disorder continues to progress to more severe stages.

Doll Therapy

Doll Therapy as discussed is the use of a doll in order to fill an attachment void. Based on the stage and severity of the disease, the therapy may be more effective for some than others. The limitations that come forward when Doll Therapy is discussed is the ethical boundaries and the thought processes of individuals. According to Mitchell, McCormack, and McCance (2014), ethical considerations suggest Doll Therapy is childish and should not be used in dementia care. As well, attachment is just a hypothesized construct that is being addressed by the theory, and there is no IOA to assess behaviour change. However, the benefits demonstrated in multiple research trials may out way the negative associations and prove to be an effective therapeutic method in dementia care.

Music Therapy

Through the research the only limitations discussed were based on the stage and decline of the dementia diagnosis. Although, Music Therapy was found to be effective in all the studies it should be kept in mind that the sample size was small and further research is required to ensure repeatability.

Reminiscence Therapy

Reminiscence Therapy is the discussion of past events in order to decrease behaviours in dementia care. Limitations are based on the severity and decline of the disease. As the disease progresses, and the brain cells start to deteriorate and die, there is a point where functioning and participation is limited. Once in a vegetative state, individuals with a dementia diagnosis may not necessarily be able to discuss past events, and therefore this therapy would not be effective.

Validation Therapy

Validation Therapy is the discussion of current events within dementia care. The limitations in this therapy method vary based on the severity of the diagnosis. In severe later stages of dementia, this therapy method may be hard to implement based on the fact short-term memory is typically non-apparent. Another limitation would include individuals in a vegetative state, when discussion is not possible.

Aromatherapy

Aromatherapy is the use of scents in order to relax and therefore decrease agitation behaviours within dementia care. Limitations for this therapy method are allergies. Dependent on the individual and their past medical history, it may be a simple conclusion that Aromatherapy is not the best therapy method for certain individuals. As a whole, Aromatherapy is an effective method in decreasing agitation behaviours in dementia care.
Multi-Sensory Therapy

Multi-Sensory Therapy is the use of tools such as lights, sounds, and touch machines in order to develop a response to decrease behaviours in dementia care. As discussed with music therapy the only discussed limitations were small sample sizes, and the concept of further research is required to determine more tools for the reduction of behaviours.

Montessori Based Activity Therapy

Montessori Methods are discussed as a therapy to improve behaviours and everyday tasks. This method of therapy is very effective in the reduction of undesirable behaviours. However, based on the task completion ability, this therapy may not be effective for every stage of dementia. If the individual is in the later stages of the disease and still mobile, it would be deemed effective, however, if in late severe stages and not mobile the therapy would be difficult to implement.

Significance of Literature Review

This literature review discusses the growing population, the high rates of dementia, and the non-pharmacological interventions available to decrease behavioural and psychological symptoms of dementia. It has become increasingly apparent to researchers, caregivers and staff that pharmacological interventions should not be the first treatment option, but rather the use of non-pharmacological interventions need to be considered as they not only provide effective treatment, but do so without the harmful side effects. It is also discussed through the literature that any professional within this field of work can implement the therapy methods once training is received on the specific qualifications needed. Overall, according to the research conducted, non-pharmacological intervention methods can be used in a variety of settings within dementia care including: long-term care, respite, adult-day centres, and at home. The implementation and outcomes have been demonstrated throughout this literature review for each of the six different non-pharmacological therapy.

As a whole, this literature review took into consideration the best practices for non-pharmacological dementia care, as well as which therapies are most effective with the different stages of dementia. This literature review hoped to produce information available for caregivers and loved ones, in order to manage and decrease behavioural and psychological symptoms in individuals with a dementia diagnosis. With empirically supported research, it is determined that the six non-pharmacological interventions discussed; Doll Therapy, Music Therapy, Reminiscence Therapy, Validation Therapy, Multi-Sensory Therapy, and Montessori Based Activity Therapy, are the most effective methods to decrease behavioural and psychological symptoms of dementia depending on the severity and stage of the disease.
Method

A search of the literature was completed in order to develop this review. Information was utilized through EBSCOhost databases available at St. Lawrence College, Kingston, Ontario, (HEALTHSOURCE, MEDLINE, PSYCinfo, PSYTests, PSYArticles, PSYCbooks). Literature was also collected through Queens University databases in Kingston, Ontario, (PSYArticles, PSYCinfo, PSYCbooks). In addition, recreation staff at the agency provided information in regards to non-pharmacological interventions through a resource called dementiability produced by Gail Elliot.

The key search terms included: Dementia, Geriatrics, Long-term care home, Music therapy, Doll therapy, Reminiscence therapy, Aromatherapy, Multi-Sensory Stimulation, Montessori Based Activity Therapy, Validation Therapy, Non-pharmacological intervention, Pharmacological intervention, Galantamine, Donepezil, and Rivastigmine. However, due to limited research, search terms were then broadened to Quality of life, Medication, Behaviour therapy, Independent living, and Caregiver burden.

Articles were used if they contained full-text and were a form of relevant information in regards to non-pharmacological interventions, pharmacological interventions, the setting of implementation, quality of life, and the specific responsive behaviours related to dementia including: aggression, irritation, wandering, eating problems, and memory. Through the search of the literature many articles were viewed and discussed, however a total of 25 articles were used in the development of the paper for the purpose of empirical evidence, as well as two articles from The Alzheimer Society of Canada for general definitions.

The selected 25 empirical articles focused on dementia and the non-pharmacological interventions available in order to decrease Behavioural and Psychological Symptoms of Dementia. The review of the literature includes research articles, published literature reviews, books, and information from The Alzheimer Society of Canada in order to create a more complete and comprehensive review of best practices. The research articles were published in English, and completed within the last 20 years. Research is limited within these seven therapy topics, therefore the inclusion criteria was widened from the original consideration of 10 years to 20 years whilst searching for literature to generate a sufficient amount of peer reviewed articles. Empirical articles found were summarized and compared in a table for the agency to use if/when needed.
Results

The goal of this thesis was to evaluate the published literature on the use of non-pharmacological interventions in regards to behavioural and psychological symptoms of dementia in order to determine the different interventions for varying diagnoses of BPSD. A study of the literature was conducted on non-pharmacological interventions for individuals with a dementia diagnosis experiencing BPSD. The research affirmed, that non-pharmacological interventions were more effective and less harmful than any pharmacological interventions implemented for BPSD. The results of this study were used to recommend options for any long-term care or adult day centers that have residents or clients with a dementia diagnosis experiencing BPSD.

The section that follows summarizes findings that were derived during the completion of this literature review in order to determine appropriate and effective intervention methods for different individuals. The sections following provide further detail about the effectiveness of the seven non-pharmacological interventions of those experiencing BPSD.

Dementia and the Need for a Treatment

The research reviewed for dementia and the need for treatment determined that the disease is a growing diagnosis and the amount of individuals diagnosed per year is increasing at a rapid speed. Throughout the research, it was determined that dementia is a disease in which many cognitive abilities slowly deteriorate over time in regards to speech, memory, and motor abilities. It is discussed that the use of non-pharmacological interventions can aid with the deterioration of abilities without the negative side effects pharmacological interventions may produce.

Doll Therapy

The literature on Doll Therapy demonstrated the importance and effectiveness of this therapy intervention in decreasing BPSD. The therapy focuses on modified attachment theory, and demonstrates the careful use of dolls to decrease aggressive behaviours (Mitchell and Templeton, 2014). Over the past decade Doll Therapy has become more popular and used more frequently within long-term care as well as adult day centers due to staff training (Mitchell and Templeton, 2014).

Validation Therapy

Validation Therapy focuses on reality and current experiences for individuals with dementia. The goal of Validation Therapy is the acquisition of coping strategies taught within group sessions, and finding comfort and safety within a new estranged lifestyle due to the disease (Feil, 2014). Validation Therapy is a combination of behaviour modification, reality orientation, as and re-motivation techniques (Feil, 2014). Studies suggest this therapy method is found somewhat effective for dementia and specifically BPSD.

Music Therapy

Music Therapy is used with BPSD, as calming effects work to soothe the symptoms Dementia produces (Raglio et al., 2008). The symptoms include however are not limited to:
Wandering, aggression, depression, and behavioural symptoms. Music Therapy has been found to be effective for individuals with a dementia diagnosis and is used in many long-term care and adult day centers (Raglio et al., 2008).

**Aromatherapy**

Aromatherapy is a therapeutic intervention that has been in place for many years for many different diseases and diagnoses (Lin, Chan, & Lam, 2007). However, just recently it has been used for dementia, in particular with BPSD. The essential oils used in Aromatherapy have been found effective in decreasing behavioural symptoms as well as resulting in a lesser amount of adverse effects throughout treatment process (Lin, Chan, & Lam, 2007).

**Multi-Sensory Therapy**

Multi-Sensory Therapy is an intervention that is used in many diagnoses including dementia. Multi-Sensory Therapy is a combination of visual, auditory, and tactile stimulation (Baillon, Van Diepen, & Prettyman, 2002). This therapy has been found effective for decreasing behavioural disturbances, and increases communication as well as relaxation techniques (Baillon, Van Diepen, & Prettyman, 2002). This method can be used ranging from moderate to severe dementia and within a variety of settings including long-term care and adult day centres (Baillon, Van Diepen, & Prettyman, 2002).

**Montessori Methods**

Montessori methods were developed by Maria Montessori and were primarily used with school-aged children; however, over time Montessori Methods have been generalized to geriatrics, specifically dementia (Camp et al., 1997). The practice of Montessori Methods involves the completion of everyday activities in order to decrease undesirable behaviours. This has been found to be a favorable intervention and is being implemented in many long-term care homes and is an effective non-pharmacological intervention with positive effects (Camp et al., 1997. It is also discussed the importance and use of this therapy method throughout any stage of dementia. Montessori Methods can be monitored and individualized in order to determine best fit and effectiveness for any individual with any stage of dementia (Camp et al., 1997. Therefore restating the importance of using Montessori Methods.

**Reminiscence Therapy**

Reminiscence Therapy is a therapy in regards to life experience in accordance to past events. Reminiscence Therapy is considered important as due to the cognitive deterioration recent memories are easily forgotten, whereas childhood memories remain intact and can be thoroughly discussed within group sessions (Yamagami, Oosawa, Ito, and Yamaguchi, 2007). The use of Reminiscence Therapy has been found effective in dementia care, especially in decreasing aversive behaviours, increasing communication as well as resident involvement (Yamagami, Oosawa, Ito, and Yamaguchi, 2007).
Discussion

This following section provides a discussion of outcomes and implications from the results section of the literature review. The strengths and limitations of this literature review are examined on a multi-level systems’ perspective including discussion on the client, the program itself, as well as the societal level. The Behavioural Psychology application section goes into further detail as to what this literature review will contribute to the Behavioural Psychology field. Finally, suggestions and recommendations for future research and developments are offered.

Implications of Results

Dementia is a disease that affects a large portion of the geriatric population. As discussed, there is no cure for dementia and as the population continues to age the use of non-pharmacological interventions becomes crucial to both decrease behavioural and psychological symptoms of dementia as well as improve quality of life for those affected. Throughout the entire literature review and the results section, non-pharmacological interventions were found to have potential to be an effective method of therapy, in reducing BPSD as stated, whilst aiding in caregiver burden. It was determined that non-pharmacological interventions should be the primary intervention method before any pharmaceutical intervention.

This literature review included peer-reviewed articles summarizing the use of non-pharmacological interventions in dementia care. As a result, this literature review indicates the effectiveness of using non-pharmacological interventions for dementia in long-term care homes as well as adult day centers. It is important to state that staff in both long-term care homes as well as adult day centers should have training in the use of all non-pharmacological interventions as some interventions are more purposeful for some residents than others. Furthering the use of non-pharmacological interventions for dementia care may reduce costs in future endeavors as individuals may become more independent from the implementation of interventions, as well as the decrease in any medications for behavioural symptoms. Not only will this reduce costs, the number of staff needed per floor may decrease due to the independence.

Strengths and Limitations

Strengths

One of the strengths of this literature review would be the multiple interventions discussed. Individuals with dementia may respond to interventions differently, that is why it is important to have a thorough understanding of many non-pharmacological interventions to best suit the individual and their needs from the impairment of the disease. As stated previously, non-pharmacological interventions should be the primary intervention method in dementia care, however which non-pharmacological intervention chosen is irrelevant and individualized.

Another strength of this literature review is the method section. Any professional in the field can review the method and determine which search terms to use to further educate themselves on non-pharmacological interventions used in dementia care to treat behavioural and psychological symptoms of dementia.
Furthermore, the results from this literature review may encourage future research in a long-term care or adult day centers to determine the best of the non-pharmacological interventions mentioned and discussed within dementia care.

Overall, the strength of this literature review is the accessibility and readability for professionals in the field to read and review. This literature review gives professionals an idea as to what interventions can be implemented and in what settings it is found a potential to be effective.

Limitations
One of the major limitations of this literature review was the lack of studies completed with relevant information as well as methodological problems in which research techniques and data collection methods are not discussed. Although peer-reviewed articles were found and used, there were not a wide variety of articles to incorporate within this literature review, therefore causing a firm conclusion difficult to make.

Another limitation of this study was the population. Although all of the participants in the study had a diagnosis of dementia, the participants were over the age of 60. However, within the growing age of dementia, the early onset population was not evaluated. Early onset dementia can be diagnosed as early as 40. Therefore, through discussion, non-pharmacological interventions are effective in decreasing BPSD in late dementia, however, there is little known about the impact on the early-onset-dementia population.

Lastly, a large limitation of this literature review was that there was no clinical data collected. Most of the studied reviewed did not look at inter-rater reliability, which specifically doubt the effectiveness of the non-pharmacological intervention methods. All data and material was taken from a third source and reviewed for this study. Although all studies using non-pharmacological interventions were found to be effective, the completion process of collecting data through an intervention was not conducted.

Application to the Behavioural Psychology Field
This thesis contributed to the Behavioural Psychology field by suggesting that non-pharmacological interventions are an effective method for decreasing Behavioural and Psychological symptoms of dementia. This thesis aids professionals in the field working with those diagnosed with dementia due to the prevalent growing population. Individuals with dementia diagnosis are considered a vulnerable population and therefore it is crucial to have the proper training in order to benefit the diagnosed individuals.

Recommendations for Future Research
It is recommended that further research into the non-pharmacological field of dementia care be developed. Although the non-pharmacological interventions were shown to have a potential to be effective throughout the literature review, it would be interesting for research to be developed regarding further methods of data collection showing reliability and validity as well as the pairing of non-pharmacological interventions and their empirically-derived degree of effectiveness. Additionally, staff within long-term care homes and adult day centers should be all trained on the implementation of non-pharmacological interventions and a determination made about the effectiveness of increased training on the interventions. Lastly, as stated future research
should expand the population range to early onset dementia to determine the age range non-pharmacological interventions can be effective towards.

Reference


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