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Running head: MUSIC THERAPY AND DEMENTIA

MELODIES, MEMORIES, AND MEANING: THE USE OF MUSIC THERAPY FOR
PERSONS WITH DEMENTIA

by

Emily Alayne Carl

Submitted to the Honors Program Committee

in partial fulfillment

of the requirements for University Honors Scholar

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2018

MUSIC THERAPY AND DEMENTIA

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2018

Dedication

I would like to dedicate my research and this thesis to the residents of Grace Manor Lake Morton Assisted Living Memory Care. Working with the residents here has taught me how powerful music can be to one's quality of life. I have loved watching the residents come alive and display their true personalities and abilities through song and music. You continually amaze me with your musical abilities and it is a joy to share the gift of song and with you. Thank you for helping me discover my purpose in life, for encouraging me to pursue my nursing degree, and for confirming that music will always be an important part of my life.

Abstract

Dementia is a growing public health issue, as there are 24.3 million people currently diagnosed worldwide. Being that there is no cure, non-pharmacological interventions are important to optimize quality of life for this population. Music therapy is a non-pharmacological intervention with fine usability for dementia patients. This thesis will examine the positive effects of music therapy on the behavioral symptoms, mood management, self-esteem, language skills, cognition, and reminiscence for the individual with dementia based on existing literature and will provide practice recommendations for the clinical use of music therapy and research. A short literature review will focus on the field of visual art therapy, for the purpose of examining the effect and usability of the fine arts as non-pharmacological interventions.

KEY WORDS: Music therapy, dementia, music, quality of life, Alzheimer's

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Chapter I: Introduction

Dementia is the general term for a decline in mental ability severe enough to interfere with daily life. It is used as the umbrella term for a group of conditions which result in progressive decline in cognitive function. Worldwide, 24.3 million people are affected by dementia. This number is expected to double by the year 2020 as 4.6 million new cases of dementia are diagnosed annually. Given these statistics and the continuous aging of the *Baby Boomer* generation it should be acknowledged that dementia is a growing public health issue that warrants research and attention (Alzheimer's Disease Overview, 2018).

There are many types of dementia including: vascular, Lewy-body, Alzheimer's, alcohol induced dementia, and Parkinson's; the most commonly occurring dementia is Alzheimer's disease. A common misconception is that dementia is a normal part of aging. A diagnosis of dementia is given when a decline in memory is present along with one of the following: failure to speak coherently or understand speech and written language, inability to recognize or identify objects despite intact sensation, inability to perform motor tasks, sensory function, or comprehension of the activity, lack of abstract thought, judgment, and ability to plan and complete complex tasks (Alzheimer's Disease Overview, 2018).

The costs associated with dementia care amounted to \$604 billion in the year 2010 (World Alzheimer's Report, 2010). Given the increase in diagnoses annually, costs continue to rise each year. Most of the costs associated with dementia care result from the degenerative effects on mentation, cognition, and brain anatomy. Alzheimer's is a progressive neurodegenerative disease with no reversal process or cure. In the beginning

stages, short-term memory and the ability to learn new tasks that are impaired first. Upon progression of the disease, symptoms of agitation, aggression, wandering, confusion, depression, and apathy often result. Late stages of this disease often require 24/7 around the clock care, as affected individuals lose the ability to perform activities of daily living, motor and sensory function, and experience severe language impairment. Currently, there is no cure for dementia and Alzheimer's disease; rather, treatment must focus on management of symptoms and maintenance of optimum quality of life in later years. The United States Food and Drug Administration has five approved drugs which aim to slow the progression of symptoms of dementia, however, these are only found to be effective in 50 percent of individuals. Symptoms including memory loss, sleep changes, anxiety, agitation, and depression are often managed through separate pharmacologic treatments (Alzheimer's Disease Overview, 2018).

Music has long been noted for its power and effects on the brain. The idea of music as a healing influence for health and behavior dates back to the writings of Plato and Aristotle. There has been a recent rise in the use of music therapy in many healthcare settings and among multiple populations. The impact of music on spatial abilities is known as the *Mozart Effect* and has long been recognized. (Irish et.al, 2006). Even if the science behind it is not yet fully understood, there is no question of the potential for therapeutic use. Music "lies so deep in human nature that one must think of it as innate" (Sacks, 2012, p. x). This study will examine the effects of music therapy on individuals with dementia.

Because there is no cure currently available for Alzheimer's, the optimization of quality of life represents the best possible outcome attainable in all stages of dementia and

Alzheimer's disease (AD). Quality of life in this illness comprises the same domains as in people with intact cognition. Domains of quality of life in patients with AD include competent cognitive functioning, the ability to perform activities of daily living, engaging in meaningful time use and social behavior, as well as a favorable balance between positive emotion and absence of negative emotion. Non-pharmacological interventions are important to improve and optimize the quality of life for this population. Music therapy is a non-pharmacological intervention with fine usability for Alzheimer's and Dementia patients. This therapy can be utilized at little to no cost and provide positive effects in the following areas: behavioral symptoms, mood management, self-esteem, language skills, cognition, reminiscence, personal identity, and neurohormonal response. All of these aspects contribute to one's quality of life, thus music therapy can enhance quality of life in the various stages of dementia.

Clinical Problem

Does the usage of music therapy as a non-pharmacological intervention improve the quality of life of elderly persons living with dementia? The purpose of this study is to determine if music therapy is an effective intervention to improve the quality of life of individuals diagnosed with dementia.

PICO Question

Is the use of music therapy effective in improving the overall quality of life, evidenced by decreased behavioral incidents, improved self-esteem, and preserved cognitive and language skills, of residents of long term care facilities over the age of 65 who have been diagnosed with dementia versus the residents that receive standard care?

Search Terms

Databases used for this literature review were EBSCO, NCBI, SAGE Journals, and PubMed. Search terms used were as follows: music therapy, Alzheimer's and Dementia care, quality of life, dementia and agitation, dementia and music, dementia quality of life, non-pharmacological interventions. Database research completed on March 3, 2018.

Chapter II: Review of Literature

Quality of Life is defined by the World Health Organization website (2018) as "a state of complete physical, mental, and social well-being not merely the absence of disease" (para. 1). This is often considered a standard of an individual's well-being and fulfillment in life, and is rather subjective. Because there is no cure for dementia and Alzheimer's disease, it is essential that quality of life be maximized throughout the course of the illness. Many individuals with Alzheimer's are placed in a long-term facility for their last years; this life change and the progressive nature of dementia can greatly affect quality of life. Individuals may experience feelings of loneliness, depression, anxiety, loss of control, and loss of self. Several research and case studies have shown that music therapy is beneficial in improving the quality of life for those with dementia in long-term care. Music therapy is also beneficial for the non-residential individual living with dementia. This individual is also affected by the changes and losses this illness brings, even though they may still reside in their home. Dementia is not an illness that can be ignored, it is a reality that individuals and caregivers must learn how to live with and adapt to. It can be difficult for the at home caregiver to watch the decline of their loved one. Music therapy provides opportunities for self-expression, self-awareness, social interaction, decreased agitation and anxiety, and improved language and word recall, enhanced reminiscence, and retained sense of identity. All of these areas contribute to overall quality of life; when these are enhanced, quality of life is improved. Music therapy is an important method for neuropsychological, social behavior, and cognitive goals in the field of dementia with low-cost. Because of the lack of side-effects and little cost, music therapy is a reliable non-pharmacological intervention that been

growing in popularity as a means to alleviate common symptoms associated with dementia (Guetin, Portet, & Picot, 2013).

What is Music Therapy?

The “fundamental basis for music therapy is the fact that all human being communicate musically” (Gold, 2013, p. 258). The American Music Therapy Association (2018) defines music therapy on their website as “the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program” (para. 1). A music therapist must have at least a master’s degree and be board certified. It is essential that they create and maintain a therapeutic relationship, understand how to set goals to be accomplished throughout therapy, and assess each client’s needs.

Music therapists utilize both active and passive music therapy. Passive music therapy interventions involve the client listening to or meditating on music. Active music therapy interventions involve engaging the client in singing, playing an instrument, composing songs, or practicing improvisation. While many styles of music therapy have the potential to be useful and effective for an individual, music therapists tailor therapy to each individual’s needs and typically utilize active interventions. In the long-term care setting, music therapists may offer both individual and group music therapy sessions. Both types have potential for positive outcomes (Pakash, n.d.). Music therapy contributes to the holistic model of person-centered care which focuses on care of the whole person rather than the disease.

Music and the Brain

Because music contains many different elements, including rhythm and melody that the brain must process simultaneously, music “accesses different parts of the brain, particularly the right hemisphere, and the limbic system which deals with emotions and language as a function of the left hemisphere of the brain” (Wall & Duffy, 2010, p. 108). The combination of music and language in song results in increased neurological activation greater than language alone. Musical stimuli have been shown to activate specific pathways in several brain areas associated with emotional behaviors such as the hypothalamus and prefrontal cortex (Wall & Duffy, 2010). For people with dementia, music therapy “leads to feelings of positive self-esteem, increases feelings of competence and independence, and diminishes feelings of social isolation” (Ray & Mittelman, 2015, p. 689).

There is an inexpressible depth of music, as it involves the full brain and the body. Listening to music is “not just auditory and emotional, it is motoric as well” (Sacks, 2012, p. xi). When listening to music, the body reacts by moving to time at the same time as thought and emotions are evoked. The brain’s auditory system also identifies musical patterns and elements such as: pitch, rhythm, melodic contour, tones, and harmonies. The brain simultaneously processes these separate elements and strings them together to form a perception of music. The auditory and nervous systems are “exquisitely tuned for music” (Sacks, 2012, p. xi).

Music Therapy and Symptoms of Agitation

Individuals with dementia often experience poor quality of life due to behavioral and psychological symptoms: agitation, anxiety, depression, wandering, etc. (Sakamoto,

Ando, & Tsutou, 2013). Of those with dementia living in long-term care facilities, 48-82 percent show symptoms of agitation (Ridder, Stige, Qvale Gold, 2013). In the late stages of dementia agitation is identified as the most significant symptom contributing to patient distress and caregiver strain. Alleviation of the agitation and behavioral disturbances can be essential in maximizing one's quality of life.

Behavioral symptoms are often managed by pharmacological agents. These pharmacological agents have high cost and undesired side effects attached. It should be noted that antipsychotics are prescribed twice as often to nursing home residents with dementia than to those without dementia (Ridder et. al, 2013). Although the benefits of some of these medications such as atypical antipsychotics (i.e. risperidone and olanzapine) are effective in treatment of neuropsychiatric symptoms, there is evidence which reports that these agents cause physical problems, such as cognitive impairment, extrapyramidal symptoms, constipation, urinary retention and an increase in falls (Cooke, Moyle, Shum, Harrison, & Murfield, 2010). High levels of agitation as well as psychotropic medication use are associated with low levels of quality of life (Ridder et. al, 2013). It is necessary for healthcare professionals to seek non-pharmacological methods of intervention.

Individual music therapy for nursing home residents with dementia has been shown to decrease agitation and aid in prevention of psychotropic medication use. Agitation disruptiveness decreased in the group receiving music therapy and actually increased in the control group receiving standard care (Ridder et al., 2013). Music therapy may provide a safe and active environment that meets the social and emotional needs expressed by people with dementia who demonstrate agitated behaviors (Ray &

Mittelman, 2015). The person-centered approach of care presents that agitation is closely related to needs. Agitation is not an aspect of a disease process, rather it is a human reaction to unmet psychosocial needs. Therefore, agitation may be an attempt to communicate needs for an individual who has impaired communication abilities (Ridder et al, 2013). Rather than administering antipsychotics at the first sign of agitation, the individual's needs should be assessed and less restrictive measures should be implemented first.

Through a systemic literature review of thirteen studies, Wall & Duffy, 2010 found that the majority of these studies reported that music therapy influenced the behavior of older people with dementia in a positive way by reducing levels of agitation. Through both quantitative and mixed methods studies, several researchers observed a short-term reduction in agitation after the use of music therapy (Brotons & Koger, 2000; Ridder et al., 2013).

Ray and Mittelman (2015) followed the need-driven, dementia-compromised behavior model based on clinical observations that challenging behaviors expressed by persons with dementia are an expression of an unmet need. Their study provided person-centered music therapy interventions and tested the effects. Two weeks after musical intervention, they found that baseline agitation scores (59.11) decreased to 49.86, suggesting that the two-week intervention had immediate and lingering effects on agitation. This supports the findings of Sakamoto et al. (2013) that agitation and other neuropsychiatric symptoms significantly decreased for two weeks following cessation of music therapy. The Ridder et al. (2013) study showed that six weeks of music therapy reduced agitation disruptiveness and prevented medication increases in people with

dementia. Their analysis on agitation disruptiveness using the Cohen Mansfield Agitation Inventory, CMAI-di, showed an increase in agitation disruptiveness during standard care (3.26) and a decrease during music therapy (-3.51); this finding reached statistical significance ($p = 0.027$). The analysis of quality of life (ADRQL) showed a decrease during standard care, but an increase during music therapy (Ridder et al., 2013). Several studies utilized scales such as the Dementia Quality of Life, Alzheimer's disease Related Quality of Life, and FACES scale to assess quality of life and emotional state (Cooke et al., 2010; Ridder et al., 2013; Sakamoto et al., 2013). The positive trends in several studies and literature reviews regarding the correlation between agitation frequency and quality of life call for further research with a larger sample. However, the literature provides evidence of the positive effects of music therapy on agitation and behavioral well-being, even if these effects are short term.

Music Therapy and Depression

In many long-term care settings, there is a lack of adequate activities for residents. It has been shown that symptoms of depression and anxiety can worsen when an individual with dementia goes for long periods of time without participation in meaningful activities (Sole, Meracdal-Brotons, Galati, & Castro, 2014). Meaningful interactions with others and within self are a human need. It is important for people with dementia to be provided with a creative outlet for expression, especially during times of distress, dysfunction, and changes in mood that often occurs due to the diagnosis and disease process. For individuals with dementia, music therapy leads to feelings of positive self-esteem, increased sense of competence and independence, and diminished feelings of social isolation (Ray & Mittelman, 2015). In several randomized controlled

trials, depression, assessed through the Geriatric Depression Scale, was significantly reduced in the group that received music therapy (Cooke et al., 2010; Guetin et al., Ray & Mittelman, 2015). Depression, anxiety, and social interaction are key elements that contribute to one's self-esteem and emotional wellbeing. These are large components of one's overall quality of life. The more time a person participates in activities involving opportunities for social interaction, the better their emotional well-being. Emotional well-being has a correlation with quality of life and studies have shown participation in musical activities contribute to a better quality of life (Sole et. al, 2014).

Through the use of the Dementia Quality of Life Questionnaire (DQOL) and the Geriatric Depression Scale (GDS), Cooke et al. (2010) found improvements in self-esteem and decreased feelings of depression over time in the group that received music therapy. Guetin et al. (2013) used the Hamilton Scale to evaluate anxiety and the GDS to determine depression following individual music therapy sessions at weeks 4, 8, 16, and 24 of their study. By the end of the 16 week intervention, anxiety scores for those in the music therapy group compared to the control group significantly changed ($p < 0.001$). This change correlates to a 60% improvement in anxiety symptoms in the music therapy participants versus a 4.8% improvement in the control group. At the 24th week, a follow up analysis showed persisting effects of music therapy on anxiety symptoms ($p < 0.002$). The study results should be replicated, as this is one of the few studies which showed results actually lasting that long.

Chu, Yang, Lin, Ou, Lee, Obrien, & Chou conducted a study among 102 participants with dementia and living in a facility in Taiwan. The Chinese version of the Cornell Scale for Depression in Dementia (CSDD) was used to assess the effects of the

music intervention on depression. This 19-item scale is specifically designed to measure depression in persons with dementia. The scale encompasses five dimensions: mood and related signs, behavior disturbance, cyclic function, ideational disturbance, and physical signs. Scores on the CSDD range from 0 to 38, with higher scores reflecting greater severity of depression. Fifty-two individuals were assigned to the music therapy group and fifty two acted as the control group, receiving standard care. The experimental group received group music therapy in thirty minute sessions twice a week for 6 weeks. The results of this study revealed that group music therapy has potential to decrease depression in institutionalized elderly persons with dementia. The mean CSDD scores for the experimental group trended downward throughout the course of music therapy from 17.39 at baseline to 11.47, 8.22, and 11.23 at Times 2, 3, and 4, respectively. Time three was the end of music therapy intervention and time four represented a follow up. The control group did not experience a decrease in mean CSDD scores. Their scores were 15.70, 14.66, 13.78, and 11.43, for the same time points, respectively. This study supports that music therapy can have a positive effect on depression for persons with dementia. For best effects, music therapy should be integrated in the activity programs to allow for consistency and improved mood management over time. (Chu et. al, 2013).

Music Therapy: Social Success and Emotional Wellbeing

According to a literature review conducted by Wall and Duffy (2010), research has identified a positive increase in participants' mood and socialization skills as a result of music therapy. Active music interventions may enhance life through bio-physiological responses. Music therapy for nursing home residents provides opportunities for self-discovery, awareness, increased self-esteem and pleasure. Because dementia can greatly

impair the ability to express one's needs, it should be noted that music therapy may help in addressing and meeting one's needs. Musical success such as success in singing, playing an instrument, moving to music, or sharing memories related to music may help to meet an individual with dementia's unmet needs for self-expression, achievement, and meaning in life.

Wall & Duffy (2010) concluded that music therapy acted as a powerful stimulus which induced various positive effects on behavior, and improved the wellbeing of participants. Involvement in music-based programs for nursing home residents with dementia offers social opportunities that often are neglected. Engaging in various types of music activities such as movement, rhythm-based programs, and singing, done individually or in a group setting, may lead to lessening of anxious and depressive symptoms and improved sense of personal fulfillment. This kind of activity can be greatly beneficial to one's psychosocial health and wellbeing. Music therapy in the long-term care setting can create a space which offers rich interpersonal interaction which can meet the need for socialization and acceptance.

Music is one activity in which nursing home residents can experience social interaction (Ray & Mittelman, 2015). Meaningful social interactions are an important component of one's self-esteem. Without adequate opportunities for fulfilling social interaction, one can easily experience disturbances in mood and emotional wellbeing. Music employs parts of the brain which are responsible for both emotion and language function; this results in enhanced mood management and language function. When employed in a social setting, music therapy can help individuals engage in positive interactions and effectively express language and emotion. The FACES Scale assessment

revealed that music interventions elicited pleasant emotional states to a significant extent compared with the control group. Music therapy has potential effects to increase personal self-esteem and to improve dementia patients' interactions with others (Sakamoto et al., 2013; Cooke et. al, 2010). This can be empowering for the individual who has struggled to effectively communicate language and express emotions. As a human, those emotions are still inside, but their ability to express them has become impaired.

In a long-term care setting, when many residents begin to sing and enjoy the music together, there is an important sense of community and belonging. Patients who were once isolated by their disease, are able to, at least in this moment, recognize and bond with each other. They are able to share meaningful moments together, and recognize they are not alone. Such participation and interactions are essential to restoring self-esteem and improving overall quality of life (Sole et. al, 2014).

Music Therapy and Cognition

A common measure of cognitive function is the Mini Mental State Examination (MMSE). The MMSE is a 30-point questionnaire that measures cognitive impairment examining functions including registration, attention and calculation, recall, language, ability to follow simple commands, and orientation. Cognitive ability was found to improve following music therapy interventions in several studies. In the Ridder et al. (2013) study, the group assigned to standard care showed a significantly lower mean score in cognitive functioning on the MMSE than the group that participated in music therapy. In another study on the temporal limits of cognitive change from music therapy, patient MMSE scores significantly improved by 2.00 points on the same day immediately following music therapy and by 3.69 points the day after therapy (Bruer, Spitznagel, &

Cloninger, 2007). These findings did not persist long term and indicate that the cognitive effects of music therapy may only be effective for a short period of time; however, enough research is available to support that music therapy maximizes cognitive function in dementia (Botons & Koger, 2000; Beard, 2011). Improved recall of verbal material and improved naming occurred following music therapy (Botons & Koger, 2000; Wall & Duffy, 2010). Based on empirical relationships known to exist between cognition and music, improved cognition should be expected with the use of music therapy treatments for dementia (Bruer et al., 2007).

The Chu et. al (2013) study also examined the effects of music therapy on cognition and utilized the MMSE for assessment and data evaluation. Results analysis indicated that the mean MMSE scores of the experimental group were 1.44–2.69 points higher than the control group at Times 2, 3, and 4. These differences reached statistical significance ($p = .026$, $p < .001$, $p = .044$, respectively). This study also analyzed scores for the six major cognitive domains in the MMSE. The mean registration score of the experimental group was found to be 0.50 points higher than that of the control group at Time 2, a statistically significant difference ($p = .006$). Of the MMSE scores for the experimental group, the most improvement was found in the recall area scores.

The positive effects persisted throughout the course of music therapy and for one month after. The intervention also delayed the deterioration of cognitive functions, especially recall. It should be noted that “the nature of rhythm, the spatial relationships in notation, the temporal sequence of musical events, and the logic of musical form all may aid in reintegrating and organizing recall in elderly individuals with dementia” (Chu et. al, 2013, p. 216). Understanding that rhythm helps to drive and maintain temporal order,

the researchers intentionally designed the group music therapy sessions to stimulate the six cognitive functions (orientation to time, orientation to place, registration, short memory, attention and calculation, and language). This is important, as it may contribute to the cognitive success seen in this study. This intentional design, and the positive effects that resulted, may have implications for clinical use. Further research should be conducted concerning the effects of group music therapy for persons with dementia to examine the long-term effects.

Music Therapy: Communication Skills and Language Function

The therapeutic use of music offers a means of communicating with those with dementia; it is thought that as the person's ability to understand verbal language diminishes, the ability to process music is preserved by a part of the brain that is last to deteriorate during this illness (Cooke et al., 2010). There are neuronal pathways which connect language and music. It should be noted that although individuals with dementia have a diminished ability to understand verbal language, their receptive and expressive musical abilities remain intact (Wall & Duffy, 2010).

For individuals experiencing aphasia and language disturbances as a result of Alzheimer's and dementia, the inability to verbally communicate can be unbearably frustrating and isolating. Individuals experiencing this are often neglected and treated differently because they cannot speak. However, music therapy and the power of song can give a new voice to these individuals. It is interesting to note that individuals with dementia who exhibit language difficulties, both productive and comprehensive in nature, are able to clearly articulate and recall words when singing a song. The ability to sing words coherently can be a great reassurance and a point of restored self-esteem. A sense

of control and self-worth can be found when the individual, and their caregivers, realize that language capacity is not lost. The words are “still in them somewhere, though it may take music to bring them out” (Sacks, 2012, p. 216). It is remarkable to witness individuals with language disturbances sing song lyrics smoothly and coherently without any delay or issue in speech production.

There are differences in the process of speech and song production in the brain (Sacks, 2012). Music activates both hemispheres of the brain and recruits speech and language centers. It is thought that musical ability may be functionally and anatomically dissociable from language. In the Brotons and Koger (2000) study, music therapy sessions were structured to provoke discussion, verbal function, and memory recall in an effort to determine the effects music therapy has on language ability. Songs focused on a specific topic one week and then members of the group reminisced and conversed based on what memories of the topic the song stimulated. For example, the session themed around *flowers* included the songs: Yellow Rose of Texas, My Wild Irish Rose, When You Were a Tulip, and Daisy Bell. Results from 20 participants revealed that music therapy significantly improved performance on both speech content and fluency dimensions of the spontaneous speech subscale of the Western Aphasia Battery ($p = .01$). Whether music effects short-term memory recall or language function, the results revealed “perceptibly positive effects on speech” (Brotons & Koger, 2000, p. 191). More research should be conducted in the area of music therapy’s effects on language functioning in persons affected by dementia. However, therapeutic implications, including enhanced communication between patients and their caregivers, friends and family members, are profound and improve quality of life for the individual with

dementia. For a caregiver to realize their loved one still has language and communicative abilities, can be greatly therapeutic. Music therapy holds potential for success in language function as “language embedded in music” (Sacks, 2012, p. 217).

Music Therapy and Reminiscence

Whether communal or individualized, it is remarkable to see the effect music therapy can have on reminiscence. Music therapy provides an accessible method for individuals with dementia to access memories from the past that may not difficult to communicate via traditional verbal method (Botons & Koger, 2000). To watch several confused and isolated individuals respond to familiar music is astonishing. When the brain recognizes familiar musical patterns and songs, it is as if the person inside is reawakened. “Familiar music acts as a Proustian mnemonic, eliciting emotions and associations that had long been forgotten” (Sacks, 1990, p. 334). This gives the individual access to a piece of their past and always for recall of memories that may have been seemingly lost. Autobiographical memory is integral to self-concept and identity (Irish et.al, 2006)

In a study conducted by Takahashi and Matsushita (2006), those in the music therapy group met together once a week to follow the active reminiscence music therapy method where participants would discuss memories evoked by songs they sang. Researchers and facility workers saw success in the reminiscence activity and content. They believed this contributed to the individual’s emotional stability and helped facilitate social interactions with others. It is believed that the success in reminiscence which followed these music therapy sessions led to maintenance of cognitive function.

An individual's perception comprises a particular pattern of neuronal firing. This is stimulant specific. Memory becomes a process of recruiting the same group of neurons used during perception. The more a specific memory is accessed, the more active the recollection circuits become. Memories can be a trigger for a whole range of associations. Music therapy may stimulate memories and the neuronal circuits involved in the formation of those memories. Music therapy create opportunities for effective reminiscence therapy (Levitin, 2006).

Music Therapy: Identity and Dementia

Someone with Alzheimer's may experience severe regression in function and capabilities; however, elements of the person's essential being still remain within. Personality and individuality survive even in the most advanced Alzheimer's. Likewise, the response to music is preserved throughout the course of dementia. For individuals with dementia, the goals of music therapy are not strictly focused on achieving curative outcomes, rather they "seek to address the emotions, cognitive powers, thoughts, memories and the surviving self of the patient" (Sacks, 2012, p.336). Music therapy stimulates each of these areas restoring the individual's identity. Music therapy can be powerful in restoring freedom, stability, control, and communication to the individual with dementia, overall improving their quality of life.

Involvement in activities including music therapy "fosters feelings of accomplishment" (Sole et.al, 2014, p. 105). When individuals with dementia, both mild and severe, engage in meaningful music therapy experiences, this may lead to a better sense of self and emotional well-being. As the individual interacts with the music therapist, and other members in a group music therapy setting, there is sense of

community. Most music therapists utilize songs with which the elderly are familiar. The recognition of this music and meaningful interactions within the musical intervention may help the individual to realize that they are remembering something or possibly learning new things. This addresses the concept of personal development, which is a component of quality of life and self-actualization (Sole et. al, 2014).

Self-actualization is a human need placed at the top of Maslow's hierarchy of needs. This pyramid represents the way the human self prioritizes needs. This prioritization can be done consciously or subconsciously. Maslow's hierarchy of needs is an important principle when dealing with someone with dementia because the patients themselves are often unsure of which needs have been met. This can lead to anxiety, agitation, paranoia, and fear. It is essential to ensure that the patient feels that their needs have been met. (Maslow's Hierarchy of Needs, n.d.). Only when the lower level needs are met, can one move on to achieving higher needs. Self-actualization can be achieved when basic physiological needs, safety needs, relational needs of love and belonging, and self-esteem are met. Music therapy assists in meeting the need for acceptance and belonging and can help an individual maintain self-esteem. This can lead to the process of self-actualization and can help the individual find meaning and value in themselves and their musical success.

Music Therapy: Neurohormonal Effects

It is widely known that music therapy has soothing and relaxing effects. The specific neurohormonal responses and systems have not yet been thoroughly investigated through research. The role of neuroendocrine function is important when working with an individual with Alzheimer's. Individuals with Alzheimer's often experience symptoms of agitation and behavioral disruption. Neuroendocrines and hormones in the brain that are altered in response to stressful stimuli those related to the hypothalamic-pituitary-adrenal

axis, melatonin, prolactin, serotonin, and catecholamines. These same hormones and neurotransmitters are active in regulating behavioral responses to stimuli, aggressive behaviors, and depression. Melatonin is also known to be involved in the regulation of physiological functions such as: circadian rhythm, sleep, mood, and sexual behavior. It is known that these neurotransmitters experience marked changes during the normal aging process and exaggerated changes in the person with dementia. Interactions between these neurotransmitters and hormones suggest that methods of relaxation including music therapy may create simultaneous changes in the levels of neuronal factors. Measurement of these neuronal factors may help outline the underlying mechanisms and may provide biological markers of behavioral changes produced as a result of music therapy (Kumar et. al, 1999).

In 1999, Kumar et. al, a group of ten professors at the University of Miami, created a study to assess the effects of music therapy on blood concentration levels of melatonin, norepinephrine, epinephrine, serotonin, and prolactin in patients with Alzheimer's disease. Blood levels were taken before the initial therapy session, immediately at the end of four weeks of therapy sessions, and a six weeks follow up period after the cessation of therapy sessions. The patients involved in this study received thirty to forty minute music therapy sessions five times a week for four consecutive weeks. It was found that serum melatonin levels increased significantly as a result of the music therapy sessions and continued to increase at the six week follow up period. Similarly, norepinephrine and epinephrine levels increased significantly after the four week therapy, however, these levels fell back to their baseline values at the six week follow up (Kumar et. al, 1999).

Plasma levels of norepinephrine and epinephrine showed a significant increase and correlation following the time between baseline measurements and the music therapy interventions ($r= 0.73$, $n=13$, $P<0.004$). While this finding is significant, levels of both neurotransmitters returned to baseline values at the six week follow up period. The results of this study reveal a significant improvement in serum melatonin levels over time. At the six week follow up period, serum concentration of melatonin was significantly higher than at baseline or following the intervention period. A paired t test and further analysis confirmed this significance. There was an increase in melatonin levels from baseline to the period after music therapy ($t(12)=2.44$, $p<.03$), from baseline measurements to the six week follow up ($t(12)= 3.28$, $p< .0001$) and from the cessation of intervention to the six week follow up time ($t(12) =3.28$, $p< .007$) (Kumar et. al, 1999).

The positive effects music therapy had on melatonin in this particular study have important implications for the population with Alzheimer's dementia. Secretion of melatonin typically follows the circadian rhythm; this results in low serum levels in the daytime and higher levels at night. Age related change in these levels including disturbance in peak time become more severe with individuals with Alzheimer's. Music therapy appears to stimulate melatonin levels for the individual with dementia, which can be influential in regulating circadian rhythm and sleep patterns.

In the normal aging process there is a decrease in sex hormone levels for both males and females. This reduction has been correlated with symptoms such as impaired cognitive function, memory disturbance, and mood changes. These sex hormones are lower in Alzheimer's disease patients than in the healthy elderly adult. Hormone therapy replacements are sometimes administered to mitigate these symptoms.

The age-related reduction in sex hormones along with the Alzheimer's disease process present a *critical risk factor* (Fukai, Arai, and Toyoshima, 2012). As Alzheimer's is a neurodegenerative disease of the brain, estrogen levels are important for their role in protecting the nerves and controlling cell proliferation. A hallmark finding of Alzheimer's disease is the Beta-amyloid plaques in the brain tissue. Estrogen has been shown to decrease Beta-amyloid peptide content and deposition in the neurons. This protects the brain and the body against the neurotoxicity of Beta-amyloid. Estrogen is also noted for its ability to improve cognitive function by increasing the cholinergic activity in the brain, stimulating dendrite formation, and delaying cerebral arteriosclerosis. Estrogen replacement therapy has potential for Alzheimer's prophylaxis.

In the clinical setting, estrogen has been used for post-menopausal women with Alzheimer's and improvements in verbal memory and attention were noted. The incidence of Alzheimer's has been significantly lower in patients receiving estrogen than controls and females not receiving estrogen treatment. Testosterone, a nerve protecting androgen, has also been noticed for its potential in Alzheimer's prophylaxis. Since the action of testosterone is distinct in the portion of the brain responsible for cognition and memory.

Music is closely associated with the hormones that govern emotions including sex hormones. In the Fukai et. al (2012) study, testosterone and Beta-estradiol levels were assessed over time for residential participants with Alzheimer's. One group talked to the therapist only; there was no music intervention involved. The second group engaged in music listening only. The third group received music therapy and music listening. Music therapy was given weekly for one month. None of the participants were receiving

hormone replacement therapy, and there was no known drug usage. While both of the music groups showed improvement in estrogen levels, the greatest increase was in the music therapy group. A post hoc test revealed a significant increase in 17 Beta-estradiol levels for the music therapy groups versus the non-music group ($P=0.0130$) (Fukai et. al, 2012). Testosterone levels also showed an increase from music therapy intervention. A post hoc test showed a significant increase in testosterone levels for the music therapy group versus the music listening group ($P=0.0213$). (Fukai et. al, 2012).

The results of this study indicate that music therapy elicits positive neurohormonal responses. Hormone replacement therapy is expected to be effective in the prevention and treatment of Alzheimer's. However, hormone replacement therapy is not widely used for the population with Alzheimer's due to the risk of adverse reactions. Therefore, appropriate treatments and interventions which do not cause severe adverse reactions are needed. Music therapy can be an alternative to this. The risks and adverse reactions associated with hormone replacement therapy are not seen with music therapy. Music therapy can stimulate the production of sex hormones which have protective neurological effects.

Long Term Effects of Music Therapy for Dementia

While much of the research in circulation focuses on the immediate and short-term effects of music therapy, there have been a few studies designed specifically to examine long-term effects. Takahashi and Matsushita (2006) conducted a study on forty-three facility residents with dementia. The aim of this study was to use salivary cortisol levels and blood pressures as objective measures of the long-term effects of music therapy. Twenty-four subjects received weekly music therapy interventions, while the

control group of nineteen received standard care. For both groups, saliva samples were collected before the start of therapy sessions, six months after, and at one and two years after the first music therapy session. Saliva samples were taken at the same time of day for all patients in both groups between 13:30 and 15:30 and were analyzed by enzyme-linked immunosorbent assay. The subjects' blood pressures were also measured at these same time intervals. Before the start of the therapy sessions, both groups were given the same intelligence test (HDS-R) to obtain their baseline. A psychiatric counselor conducted this test again at six months, one year, and two years after the first music therapy session (Takahashi & Matstushita, 2006).

Music therapy sessions were led by a board certified music therapist and followed an active reminiscence music therapy model. Throughout the course of this study, music therapy sessions included group song singing and memory reminiscence, activities in which subjects were able to perform while sitting down, seasonal and familiar songs, and playing in a concert. It was reported that after singing songs familiar to the elderly, the subjects showed greater reminiscence and showed greater improvements in activity levels.

Between the baseline salivary cortisol levels, blood pressures, and HDS-R scores, there was found to be no statistical difference. In examining the long-term changes in salivary cortisol levels, it was shown that cortisol levels increased in the non-music therapy group, but decreased in the music therapy group. This finding did not reach statistical significance, however. After two years, the mean systolic blood pressure of the subjects in the non-music therapy group increased significantly as compared to the group that received music therapy. Among the non-music therapy group there was also found to

be an increase in systolic blood pressure at the one-year time after baseline values were assessed.

For the purpose of further analyzing music therapy's effects on systolic blood pressure, the participants were categorized into a high-blood pressure group (more than 160mmHg) and a low blood pressure group (less than 100mmHg). It is interesting to note that immediately after music therapy intervention systolic blood pressure decreased in those in the high blood-pressure group and increased in those in the low blood pressure group. This finding suggests that music therapy has a "homeostatic effect of bringing systolic blood pressure closer to the normal value" (Takahashi & Matsushita, 2006, p. 330).

HDS-R scores remained constant in the music therapy group two years after the therapy, however these scores declined in the group that received standard care only. This finding did not reach a point of statistical significance. Overall, the results of this study reveal that music therapy can be beneficial to the health, well-being, and quality of life for individuals in all stages of dementia. Music therapy sessions led to maintenance of physiologic and cognitive functions. (Takahashi and Matsushita, 2006).

Much of the existing literature and research studies report only short-term findings and outcomes of music therapy. There is additional research needed to address the potential for long-term effects and the long term effects. Research should include larger sample sizes.

Art Therapy for Dementia Patients

Another non-pharmacological intervention that is growing in clinical use is art therapy. The American Art Therapy Association (2017) defines art therapy as “an integrative mental health and human services profession that enriches the lives of individuals, families, and communities through active art-making, creative process, applied psychological theory, and human experiences within a psychotherapeutic relationship” (para. 3). Clinical art therapy is provided by a trained, licensed professional. However, art activities can be employed as a therapeutic activity in any setting. Much like music therapy, the process of creating art requires complex cognitive, emotional, and sensorimotor processes. Art production simultaneously recruits activity from several brain regions. Different parts of the nervous system play a role in the creative process, including the motor system, the somatosensory pathway, the visual pathway, the affective processing system, and the cognitive symbolic system. Researchers have suggested that creative processes enhance synaptic connections, and in turn alter neuronal structure and function. This can make the art therapies beneficial to the population of those with dementia. Such therapy programs may be “crucial to improving quality of life” while maintaining mental function (Ehresman, 2014, p. 43). While providing rich brain stimulation and function, art therapy can enrich the lives of individuals by allowing a safe expression of self and providing a means of communication (Safar & Press, 2011; Ehresman, 2014; Kahn-Denis, (1997).

Both hemispheres of the brain process visuospatial information and are involved in making art. In the frontal lobe, the prefrontal cortex helps plan and organize the artistic expression. Regions of the brain such as the motor, premotor frontal region, basal

ganglia, and cerebellum, are responsible for carrying out the precise movements associated with art production. The somatosensory pathway is employed to manipulate the art tools used in the process. Responsible for emotional regulation, the limbic system participates in the emotional response evoked throughout the creative process and while looking at the finished product (Safar & Press, 2011). Because art production involves the simultaneous function of several brain regions, it is healthy for the brain experiencing deterioration from dementia and Alzheimer's disease.

The focus of art therapy and production for the individual with dementia is not on the aesthetic beauty and value, rather the importance of self-expression and communication through artistic means. Much like music therapy, visual art therapy has multiple areas it effects. The visual arts can be applied to promote non-verbal communication skills, enhance opportunities for reminiscence, provide sensory stimulation and enjoyment, to strengthen the individual's sense of self, and to provide a positive mechanism of coping (Ehresman, 2014; Khan-Denis, 1997).

When produced throughout the course of the disease, changes in an individual's artwork can be seen and often indicate which part of the brain is experiencing impairment. The art production as changes over time seem to mimic the progressive course of dementia. This creates a reflection of the cognitive experience for the individual with dementia. The can assist staff, family, and caregivers in evaluating the progression of the disease (Kahn-Denis, 1997).

Art therapy can provide the individual with dementia access to a means of communication and self-expression, even in the midst of deteriorating cognitive function. For those that experience aphasia and language impairments, art therapy can provide a

way to express feelings. One art therapist shared her story of working with a woman with Alzheimer's disease and expressive aphasia. During one art therapy session, the therapist noticed the woman was increasingly restless and could not understand her unusual behavior. Upon seeing some painting and other art materials, this woman began to draw her representation of a sad face. The therapist asked, "Are you sad?" and the woman responded by painting her depiction of sadness. This interaction and the nature of the artwork produced allowed the therapist to assess how she truly was feeling. Through the non-verbal communication evoked in this art therapy session, the therapist shared the experience with the caregiver and staff. The client was taken to the doctor for a physical and it was found that she had an infection causing discomfort. This particular client was unable to verbally express her discomfort and her needs. Art therapy allowed a means of self-expression and communication (Kahn-Denis, 1997). Just as healthy individuals, persons with dementia experience a full spectrum of feelings and personal emotions, but often they lose the ability to adequately communicate their feelings to others. The arts can "give form to feelings, thoughts, and emotions of an individual at his or her own level of development" (Kahn-Denis, 1997, p. 196).

The process of art therapy and the work produced during can be a powerful tool for reminiscence. Through therapeutic technique, art can promote reminiscence, as an individual may rely on familiar scenes and experiences from the past while painting or creating artwork.

Although cognitive and intellectual abilities decline throughout the course of dementia, within the individual there still remains a desire to reconnect with the self. Art therapy can allow clients to "see their obscure abilities and to rekindle a sense of their

own identity and self” (Kahn-Denis, 1997, p.198). Because art production offers the client choices and freedom in decision making, this can be an empowering experience in a time when other aspects are out of the client’s control (Ehresman, 2014).. This can be especially important for the individual as the progressive nature of dementia causes the individual to lose control of many areas of their life. The individual living with dementia is often forced to relinquish activities such as: employment, management of personal finances, driving, hobbies, home ownership, and personal time expenditures, but can maintain control in the process of art production.

Regardless of the severity of illness, one’s sense of personal identity remains within each individual. Different activities or experiences may be influential in fulfilling one’s sense of identity. Art therapy provides a reflection of what dementia patients can still accomplish and who they still are inside. Author Oliver Sacks (1990) states, “From the outset a disease is never a mere loss or excess- that there is always a reaction, on the part of the individual, to compensate for and to preserve its identity, however strange the means may be”(p. 6). Art therapy can be the means by which an individual experiences success in self-expression and retained personal identity. An individual’s paintings can depict a wide range of past life experiences and can represent the reality of present experience.

In the book, *Natural History of the Senses*, author Diane Ackerman (1991) states that “the senses don’t just make sense of life in bold or subtle acts of clarity, but they tear reality apart into vibrant morsels and reassemble them into meaningful patterns” (p. xvii). This has important implications for the individual with progressive dementia. In the advanced stages, individuals are unable to regulate their responses to stimuli, both

internal and external in nature. The ability to effectively filter and make sense of environmental stimuli is lost. While individuals with dementia are not able to make sense of what is seen, heard, felt, or experienced, there is still pleasure that can be derived from sensation. Art therapy allows for safe, therapeutic sensory stimulation and expression (Kahn-Denis, 1997).

Art therapy and art production provides many opportunities for sensory stimulation. Though a largely visual process, it also involves the touching and manipulating of materials. This alone can be a pleasing experience for a person with severe dementia. The process of art production involves the individual to whatever extent is still possible. This allows the brain to connect and balance input from the sensory environment. Kahn-Denis (1997) states, “the sensory system provides a pathway to unique information and can, at times, bypass cognition” (p. 197).

Art therapy can also be beneficial in assisting the individual with dementia in positive coping mechanisms. Art production can be a soothing experience in itself, but the end product can be a powerful tool for self-reflection. Pieces of art created by the individual can be referred back to at a later time and can help the individual gain perspective. Depending on the stage of the dementia, the individual may not possess the cognitive ability to reflect on past art therapy sessions and creations, so it would be important to assess each individual’s case. Art therapy can be a therapeutic technique that “promotes positive reminiscing and emotional states that can indirectly influence life outside of the therapy session” (Ehresman, 2014, p. 46).

Artwork serves as a visual reminder that individuals with dementia are still capable of accomplishing and learning new things, despite cognitive deterioration. This is

powerful is helping the public see beyond and individual's limitations to see their strengths (Beard, 2011). Art therapy serves as a form of communication between the individual and others. Art can allow a person to rekindle their personal identity and to take pride in work produced. It should be noted that art may also make the individual experience negative emotions due to the recognition of one's decline in abilities.

Negative emotions are an important part of the human experience, and should still be addressed. This can help the individual in discussing and validating their feelings and needs. Art therapy is an important and accessible method to identify and address the psychosocial and emotional needs of the person with dementia (Safar and Press, 2011).

Chapter III: Practice Recommendations

For the purpose of this particular paper, practice recommendations will only be made regarding the use of music therapy for individuals with dementia.

Residents in long-term care facilities that have been diagnosed with dementia should receive music therapy to decrease neuropsychiatric symptoms and the use of pharmacologic interventions. This intervention is non-restrictive and yet effective. Several studies revealed that as a result of music therapy, “agitation disruptiveness decreased,” and concluded that music therapy should be further implemented and researched as a “valid treatment of agitation and as a possibility to reduce psychotropic medication” (Ridder et al., 2013, p. 676). In the Ray & Mittelman (2015) study, “multivariate analyses confirmed a relationship between music therapy and change in neuropsychiatric symptoms associated with dementia” (p. 689).

A repeated measures analysis of variance (ANOVA) in this study determined that after two weeks of music therapy, symptoms of depression and agitation significantly reduced. The individual with dementia experiences impaired self-expression and language abilities. This may cause them to exhibit neuropsychiatric symptoms in an attempt to express a need, whether it be physical, emotional, or environmental. Rather than using antipsychotics and psychotropic medications as a first line treatment to control neuropsychiatric symptoms, music therapy can be an effective intervention; music taps into areas of the brain that regulate emotion and remain untouched by dementia, making it an effective mood management and de-escalation tool. The Ray & Mittelman (2015) study concluded that music therapy interventions effected symptoms of depression and agitation “over and above any medication effects” (p. 702).

In the long-term care setting, music therapy should be utilized to improve self-esteem and emotional well-being for the individual with dementia. Throughout the course of the disease, individuals slowly lose pieces of themselves, as their ability to perform tasks fades. This can have a detrimental effect on the individual's self-esteem, and many persons with dementia experience depression. In the Cooke et al. (2010) study, quality of life and self-esteem scores significantly increased over time for the individuals who attended ≥ 50 per cent of music therapy sessions. Likewise, results of the Guetin et al. (2009) study correlated to a 47 percent improvement in depressive symptoms for the participants who received music therapy versus a 1.7 percent improvement for the control group participants.

Further studies with larger sample sizes are necessary to continue to determine the effects of music therapy related to depressive symptoms. Music therapy creates a social environment in which self-expression and meaningful relationships are encouraged; the result of this interaction enhances self-esteem for the individual with dementia. Active music interventions may enhance quality of life through biophysiological responses, self-discovery, awareness, increased self-esteem and pleasure (Wall & Duffy, 2010). Music therapy provides an environment for success in musical and motor skills and is a powerful tool to elicit the sharing of memories related to music. These activities, done individually or when shared amongst a group of residents, hold the potential to enhance social interaction, creating a meaningful atmosphere for self-expression, socialization, and shared experiences. All of these domains contribute to and enhance the overall well-being and quality of life of individuals with dementia in a long-term care setting. Even in

advanced stages of dementia, music therapy has the potential to foster active participation which promotes emotional well-being (Sole et al., 2014).

With individuals living with dementia in long term care facilities music therapy should be utilized to maintain current cognitive function and enhance language skills of those with dementia. There is no cure for this disease, but because music intervention has many beneficial effects on cognitive and language functioning, this may aid in the management of dementia (Sakamoto et al., 2013). Speech content and fluency, as assessed by the Western Aphasia Battery speech subscale, were better following music therapy sessions than conversational sessions with a therapist (Brotons & Koger, 2000). Involvement in music can assist the individual in stimulating and organizing higher mental functions, even though these processes have experienced damage (Brotons & Koger, 2000).

It is important that language skills be maximized as this is a critical portion of self-esteem, self-expression, and essential communication. Cognitive improvements were found immediately following music therapy sessions (Bruer et al., 2007; Cooke et al. 2010). Although studies did not reveal significant cognitive improvements over a long period time, enough evidence suggests music therapy to be beneficial for up to eight weeks after intervention. For maximum benefit, music therapy should be continued regularly to stimulate cognitive functioning and language skills, and the long-term results should be researched over time.

Chapter IV: Conclusion

Music therapy should be considered and employed as a nonpharmacological intervention for the management of dementia and optimization of quality of life. This intervention, with its low cost and lack of side effects, can easily be implemented in the long-term care setting as well as for non-residential persons with dementia. The results of this literature review and research show that music therapy appears overall to be an effective intervention for managing a variety of dementia symptoms including behavioral problems, decreased social/emotional skills, diminished cognitive ability, and diminished language function. Much of the research revealed short-term improvement symptoms, but suggested there is potential for long term positive effects.

Music therapy is not a curative measure for dementia but has been shown to decrease symptoms. Multiple meta-analyses and randomized control trials have determined that music therapy is a safe, humane intervention, with effects on measures of behavior that are similar to those of regularly prescribed psychiatric interventions. When structured effectively, music therapy can enhance participation, social and emotional skills, decrease behavioral problems, and act as a stimulus for recall and language skills for people with dementia (Wall & Duffy, 2010). The emotions and personal responses elicited as a result of music therapy validate one's personal identity even through the deterioration of this illness. With its multiple benefits concerning behavioral, emotional, cognitive, and communication domains, music therapy should be employed in the long-term care setting to promote highest attainable quality of life for residents with dementia. Individuals with dementia who are still in residential living at home can also benefit from music therapy.

Although much research and literature proposes the use of music and art therapies for the purpose of outcome-based reasons, it is important to utilize these therapies for personal enrichment of the participants' lives and quality of life. While it is necessary to assess outcomes and gather data in order to evaluate and validate research, the subjective realities of the individuals with dementia must be acknowledged. There is subjective meaning and value that art therapies can add to a person's life and these feelings should be validated. This is especially important in the context of Alzheimer's and dementia, where there is no cure and the focus becomes maintenance and optimization of quality of life. For individuals in long term care settings meaningful activities and interactions can be severely lacking, leading to feelings of isolation, loneliness, and boredom.

The art therapies bring together individuals into a safe environment where they can express themselves and enjoy meaningful experiences. The art therapies provide a means for treatment of the whole person rather than the illness and assists the individual in rediscovering obscured abilities and self-worth. Therapeutic models should support the goal of enrichment and optimization of quality of life, rather than focusing on a mere biomedical approach to management of symptoms or behaviors that enforces solely outcome-based interventions. This approach allows an individual to live with dignity and self-esteem.

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