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Use of Evidence to Assess Decreased Agitation in Alzheimer's Patients with Music Therapy

by

Rebecca Kreis
Master of Science, University of North Dakota, 2012

An Independent Project

Submitted to the Graduate Faculty

of the

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In partial fulfillment of the requirements

for the degree of

Masters of Science

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May

2012

This independent study, submitted by Rebecca Kreis in partial fulfillment of the requirements for the Degree of Master of Science from the University of North Dakota, has been read by the faculty advisor under whom the work has been done and is hereby approved.

Yarew Semmens

Faculty Advisor

PERMISSION

Title Staying Vertical: Effectiveness and Implementation of Multifactorial Fall Prevention Programs for Community Dwelling Older Adults

Department Nursing

Degree Master of Science

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Abstract

The purpose of this paper is to provide evidence-based research of the literature on music therapy as an intervention for agitation in Alzheimer's dementia patients. An agitated behavior state continues to be one of the most challenging behavior states in caring for individuals with Alzheimer's disease. An extensive review of the literature showed that music therapy is a successful, easy to apply, low cost intervention for agitated behavior in Alzheimer's disease patients.

Evidence Summary: Use of Evidence to Assess Decreased Agitation in Alzheimer's
Patients with Music Therapy

Introduction

Alzheimer's disease (AD) continues to be on the rise in the United States (U.S.) According to the Alzheimer's Association (2007) it is estimated that someone develops AD about every 72 seconds. With the changing demographics of the U.S. population leading to a higher percentage of older adults, the number of Americans with AD is expected to rise to about 14 million by the year 2050 (Mauk, 2010).

Families with loved ones affected by AD find behavioral symptoms to be the most challenging and distressing effects of the disease (Alzheimer's Association, 2007). Unfortunately these challenging symptoms become a huge factor in placement of a loved one in long term care (LTC) and greatly impact care provided. Too often staff at LTC facilities turn to pharmacologic interventions to treat the behaviors rather than implementing nonpharmacologic interventions. Studies have shown that nonpharmacologic interventions can be effective in behavioral management in LTC facilities without posing the risks of side effects that produce harm or worsen the behaviors in patients with AD. Music therapy has been shown to be an effective intervention in the treatment of agitated behavioral states in patients with AD.

Alzheimer's disease was first discovered over a hundred years ago by a German physician named Alois Alzheimer. It is characterized by cortical atrophy and loss of neurons, particularly in the parietal and temporal lobes of the brain (Porth & Matfin, 2009). With the atrophy that occurs, the ventricles of the brain enlarge from loss of brain tissue and neurofibrillary tangles and plaques begin to cluster around the nerves creating brain and nerve impairment.

AD accounts for 50 to 70 % of dementia cases (Alzheimer's Association, 2007).

Dementia is a general term that refers to progressive, degenerative brain dysfunction, including deterioration in memory, concentration, language skills, visuospatial skills, and reasoning that interferes with a person's daily functioning (Mauk, 2010).

AD is a slow, progressive disease that eventually affects an individual's ability to perform routine activities of daily living (ADL) thus greatly impacting quality of life. According to the Alzheimer's Association (2007) AD is classified by seven stages, Stage 1: No impairment; Stage 2: Very mild cognitive decline; Stage 3: Mild cognitive decline; Stage 4: Moderate Cognitive decline; Stage 5: Moderately severe cognitive decline; Stage 6: Severe cognitive decline; and Stage 7: Very severe cognitive decline. Each stage has descriptions of the behaviors that are experienced by the AD patient.

AD not only affects cognition, it affects an individual's feelings and actions. With progressive deterioration of brain cells symptoms begin to worsen and feelings of frustration, agitation, and anger become apparent. Cohen-Mansfield and Billing (1986) define agitation as inappropriate behavior, verbal or physical, manifested in repetitious behaviors, abusive or aggressive behaviors, and behavior which is inappropriate to social standards. The individual affected can have a wide range of behaviors that make it difficult to interact and effectively communicate. Unfortunately these challenging symptoms become the main factor in placement of a loved one in LTC and may greatly impact care provided.

Many pharmacological and nonpharmacological interventions may be utilized to decrease agitation and behaviors in patients with AD such as: prn medications, redirection, low stimulation environments, and music therapy. Music therapy is defined by the American Music Therapy Association (2010), as the clinical and evidence-based use of music interventions to

accomplish individualized goals within a therapeutic relationship by a credentialed professional. Studies have been performed that have shown music therapy to have positive effects on mood and cognition in patients with AD. "Playing familiar music frequently can significantly improve a patient's mood, alertness, and quality of life" (Beck, 2009, p.159). Studies have shown strong activity in the prefrontal cortex when music has been played. The same "medial prefrontal cortex had been identified in earlier research as one of the last parts of the brain to atrophy as AD progresses" (Beck, 2009, p. 160).

A question arises: Does music therapy decrease agitation in AD patients 65 years and older in long term care facilities? Music therapy has been shown in the review of literature to improve mood and the evidence will be used to design interventions to reduce agitation in a LTC setting. The interventions will be applied to individuals with AD in the LTC setting.

Purpose

The purpose of music therapy is to decrease anxiety and agitation in patients with AD. People with AD show a range of agitated behaviors, including repetitive acts, behaviors inappropriate to social norms, and aggressive behaviors towards self or others (Cohen-Mansfield et.al, 2010). The role of music therapy is to provide comfort and aid in behavioral modification in patients with AD. The goal is to reduce agitation by providing patients with music therapy sessions at routine intervals throughout the week and significantly decrease the amount of prn medications given.

From the review of literature, music therapy has been found to decrease agitation in patients with AD. The intervention proposed as part of this project is to educate nursing students and LTC staff on the importance of the use of music therapy played at routine times throughout the day to decrease agitation in patients with AD.

Second, allow the patients and family members to choose the music based on the patient's preference. Choosing music connected to the individual's personal experience is of paramount importance (Guetin et al., 2009). The expected effect of preferred music listening is dependent on the identification and implementation of music based on older adult's music preferences (Sung, Chang, & Lee, 2010). By giving the patient and/or family members this option it will assist in promoting the successfulness of the music therapy.

Significance

Agitated behaviors have traditionally been managed with the use of psychotropic medications or physical restraints (Sung & Chang, 2005). By using these treatments increased sedation, behaviors, and harm to self or others can occur. These concerns have led to research seeking alternative approaches to reduce the need for chemical or physical restraints in the care of older people with dementia (Sung & Chang, 2005, p.1133). Music has been proven as a successful intervention for the treatment of agitated behaviors.

Theoretical Framework

The theory that most relates to this literature review is Katharine Kolcaba's Comfort Theory. This middle range theory was developed in the 1990's. Kolcaba (1994) defined comfort within nursing as "the satisfaction (actively, passively, or co-operatively) of the basic human needs for relief, ease, or transcendence arising from health care situations that are stressful" (p. 1178). According to Kolcaba's theory patient comfort exists in four contexts: physical, psychospiritual, environmental, and sociocultural.

According to Kolcaba (1994) physiological context affects the client's physical status, such as rest and relaxation, treatment of medical conditions, level of nutrition and hydration, and elimination of wastes. Psychospiritual comfort according to Kolcaba is "combining mental,

emotional, and spiritual components of oneself" (2003, p.34). Kolcaba (2003) goes on to say that the definition has evolved to whatever gives life meaning for an individual and entails self-esteem, self concept, sexuality, and one's relationship to a higher order or being. Environmental comfort pertains to the external surroundings, conditions, and influences (Kolcaba, 1994). Kolcaba (1994) believes that the ambience, temperature, natural light, and availability of nature play a role in this definition. Lastly, Kolcaba (1994) defines sociological comfort as interpersonal, family, and societal relationships including finances, education, and support.

Kolcaba believes in the whole individual and focuses on holistic comfort. Kolcaba (2003, p. 1180) defines holistic comfort as the immediate experience of being strengthened through having the needs of transcendence, relief, and ease met in the four contexts of experience.

Kolcaba believes there are three measures of comfort; technical comfort, coaching, and comfort food for the soul. Technical comfort measures are those interventions that are used to manage pain and maintain homeostasis (Kolcaba, 2003). Coaching measures are interventions that relieve anxiety, instill hope, provide reassurance, listen, and plan realistically for recovery, integration, and/or death (Kolcaba, 2003). Lastly, comfort food for the soul measures are those interventions that according to Kolcaba (2003) "are unexpected by today's patient, but are so very welcome because they entail old fashioned nursing care" (pg. 86). Music therapy is an example of comfort food for the soul.

Patients with AD often lack a sense of comfort due to agitated states. Because we do not have an effective cure that will eliminate the confusion caused by AD or most other brain dysfunction, comforting the confused is a major goal of care (Hoffman & Platt, 2001). The comfort theory can be applied to patients with AD with the use of music therapy.

Music therapy applied at routine times throughout the day in LTC settings will aide in promoting comfort in patients with AD. It will assist in decreasing agitated behavior states and hopefully reduce the use of prn medications.

Methods

A search was conducted using the University of North Dakota Harley French Library. Pub Med and Medline Plus were the main search engines used for literature search and review. The literature reviewed was pertinent to the clinical question. The medical subject headings (MESH) terms used were:

- "agitation" result 2,300
- "music therapy" 7
- "Alzheimer's disease" 53,011
- "behavioral modification" 25
- "psychomotor agitation" 3,806
- "nonpharmacological therapy" 20,203
- "anxiety" 44,336
- "long term care" 10.

Results were limited to the English language, practice guidelines, randomized control trials, and meta-analyses. The search was limited to within the last ten years. A thorough review of the articles was conducted and lead to a total of 20 articles.

To strengthen the search, clinical practice guidelines on Alzheimer's disease were reviewed. The guideline chosen is entitled: *Guideline for Alzheimer's Disease Management* (2008). This guideline was endorsed by the California Department of Health.

Review of Literature

Multiple articles were reviewed that supported the use of music therapy to reduce agitation in patients with AD. The grading schema used was the National Guideline Clearing House. The grading schema used to make recommendations is as follows:

A1: Evidence from well-designed meta-analysis or well-done systematic review with results that consistently support a specific action (e.g., assessment, intervention, or treatment)

A2: Evidence form one or more randomized controlled trials with consistent results

B1: Evidence from high quality evidence-based practice guidelines

B2: Evidence from one or more quasi experimental studies with consistent results

C1: Evidence from observational studies with consistent results (e.g., correlational, descriptive studies)

C2: Inconsistent evidence from observational studies or controlled trials

D: Evidence from expert opinion, multiple case reports, or national consensus reports
(National Guideline Clearing House, 2010).

Articles were analyzed by the above grading schema. The majority of the articles reviewed were graded A2 or C1.

Clinical studies have been performed throughout the years on the role of music therapy in the management of AD. These studies have focused mainly on the neurological impact music therapy has had on patients with AD. There have been two methods of studying music therapy: receptive relaxation and receptive analytical. Receptive relaxation is a controlled method for listening to music, making use of its physiological, psychological, and emotional impact on the individual during treatment for illness or trauma (Guetin et al., 2009). Receptive relaxation is

thought to be similar to the approaches of hypnosis and sophrology along with relaxation in general. According to Guetin et al., (2009) receptive analytical music therapy is aimed at encouraging the expression and development of a thought allowing patients with cognitive disorders to stimulate, use, and discover their remaining abilities. Receptive analytical music therapy is a psychotherapeutic approach encouraging emotional and self-enhancing support (Guetin et al., 2009). Receptive relaxation is used for the treatment of anxiety, depression, and cognitive disorders while receptive analytical is used as a medium for analytical psychotherapy (Guetin et al., 2009). Receptive relaxation is utilized the majority of the time in the treatment of dementia and cognitive disorders.

A randomized control study was used to evaluate the impact of short and medium term music therapy on anxiety disorders in patients with mild to moderate AD at the Les Violettes Nursing Home in Montpellier from September 2007 to April 2008. The sample size was 30; and the patients were split into two groups of 15. Patients and/or family members were able to choose music of their liking. All subjects underwent a clinical evaluation and neuropsychological assessment at day 0 (D0), week 4 (W4), week 8 (W8), week 16 (W16), and week 24 (W24). Results showed a beneficial effect of music therapy on symptoms of anxiety from the 4th week of treatment on. Music therapy confirms the efficacy music therapy has on anxiety and depression (Guetin et al., 2009).

Study performed by Sung et al., (2010) revealed that preferred music listening decreased anxiety in LTC patients with dementia in Twain. Twenty nine participants were selected using the Global Deterioration Scale score of 4-6; displaying symptoms of anxiety reported by nursing staff; 65 years and above, diagnosed with dementia, resided for a minimum of 6 months in the current unit; no hearing impairment; and no obvious symptoms of acute pain. The 29 participants

were given 30 minute music listening sessions twice a week for a total of six weeks. The control group had 23 participants and received only standard care for their anxiety. The results showed that preferred music listening did decrease anxiety. Older adults with dementia, who received six weeks of the preferred music listening intervention, had a reduction of 2 units in the mean anxiety score from pretest to posttest (Sung et al., 2010). The study found that the importance of music in life was positively related to the reduction of anxiety (Sung et al., 2010).

An experimental study by Lin et al., (2011) used a repeated measures and group music therapy on 100 participants of individuals who suffered from dementia in nursing facilities. This study had 49 experimental patients and 51 controlled patients. The participants in the experimental group received a total of 12 thirty minute group music interventions sessions that were twice a week for six consecutive weeks. The control group participated in normal daily activities. The results showed that the experimental group showed better performance at the 6th and 12th session, and at one month after cessation of the intervention based on reductions in agitated behavior in general, physically non-aggressive behavior, verbally non-aggressive behavior, and physically aggressive behavior, while a reduction in verbally aggressive behavior was shown in the 6th session (Lin et al., 2011). The conclusion of the study was that group music intervention alleviated agitated behavior in elderly persons with dementia (Lin et al., 2011).

A review of literature on eight researched based articles by Sung & Chang (2005) found preferred music therapy to be a successful, cost effective intervention for individuals with Alzheimer's type dementia. The research articles were selected on the following criteria, (1) intervention studies of preferred or individualized music, (2) agitated behaviors, (3) people with dementia or Alzheimer's disease (Sung & Chang, 2005, p. 1135). The preferred music intervention demonstrated positive outcomes in reducing the occurrence of some types agitated

behaviors (Sung & Chang, 2005, p. 1135). The studies found that music listening with personal preference generally has a soothing effect on older people with dementia (Sung & Chang, 2005, p. 1137). Two of the studies found significant decrease in agitated behaviors both during and following the music interventions (Sung & Chang, 2005, p. 1138). A significant decrease of agitated behaviors during and one hour after the music interventions was found for four of the five participants in Gerdner and Swanson's study (1993) in this review (Sung & Chang, 2005, p. 1138). In all from this review of literature, music therapy was found to have positive effects in reducing agitated behaviors in individuals with dementia and Alzheimer's disease.

A study by Ziv et al. (2007) showed that music therapy showed a significant decrease in negative behaviors related to agitation when music is played. This study was performed on 28 participants that had medium to advanced states of AD with mini-mental scores of less than 11 out of 30. Participants were observed with and without simulative, familiar background music for 2 months. This study concluded that there was a significant increase in positive social behaviors and a significant decrease in negative behaviors related to agitation when music was played (Ziv et al., 2007, p. 343).

In a study of 39 cognitively impaired dementia patients in a LTC facility music was found to be an effective intervention for agitation. "Music that was carefully matched to residents' interests and backgrounds cut agitation score twice more than classic "relaxation" music and its benefits lasted for up to 1 hour afterward" (Garland et al., 2007, pg. 163).

Zare et. al., (2010) performed a study on the effects of music therapy on reducing agitation in patients with AD. Patients were selected based on DSM IV criteria and Mini Mental Status Examination (MMSE) scores. This study was a qualitative, randomized control study. A total of 26 patients were selected out of a total of four nursing homes. Ten patients were in the

control group and sixteen in the experimental group. The experimental group was divided into four sub-groups: the group that was exposed to listening to preferred music individually, the group that was exposed to group listening to preferred music, the group that was exposed to group listening to nonpreferred music, and the group that was exposed to group singing of preferred music (Zare et.al., 2010). The instruments used in the study were Cohen-Magnified agitation inventory (CMAI) and the MMSE. The study found "music therapy has positive effects on reducing agitation, which is one of the most intrusive behaviors in AD" (Zare et. al., 2010, p. 1301). The study suggests that if nursing homes or other caring centers use music therapy as a daily program for people with AD, it may reduce intrusive behaviors in patients (Zare et. al., 2010, p. 1301).

Brotons & Marti (2003) conducted a study in Barcelona, Spain on 14 patients with AD and 14 caregivers to measure the effects music therapy has had on behavior. The study revealed that the caregivers saw a decrease in the behaviors of the individual with AD. "With regard to the benefits of music therapy on the family caregivers, all the participants agreed that the intervention was positive because it helped them to relax, and 66.7% added that it offered them a pleasant and enjoyable space where they could share and express feelings that had not been able to express before (Brotons & Marti, 2003, p. 144). "Overall music therapy has appeared to be an effective intervention to improve a variety of cognitive, social-emotional, and behavioral skills affected by the dementia process, specifically anxiety, agitation, and restlessness (Brotons & Marti, 2003, p. 139).

A case-control study by Svansdottir & Snaedal (2006) was performed on 46 patients with moderate or severe AD in two nursing homes and two psychogeriatric wards. These 46 patients were randomly assigned to a music therapy group and a control group. The therapy group

received 18 sessions of music therapy three times a week for six weeks. The study showed a significant reduction in activity disturbances in the music therapy group during a 6-week period (Svansdottir & Snaedal, 2006). The behavior was measured with the Behavior Pathology in Alzheimer's Disease Rating Scale (BEHAVE-AD). The conclusion of this study is "music therapy is a safe and effective method for treating agitation and anxiety in moderately severe and severe AD" (Svansdottir & Snaedal, pg. 621, 2006).

An extensive qualitative review of literature of 17 studies was performed by Witzke, Rhone, Backhaus, & Shaver (2008). This review showed that "music interventions are simple, low-cost alternative to traditional management, may include the presentation of recorded music by a variety of caregivers, and are supported by an evidence-based review of literature" (Witzke et al. pg. 50, 2008). "The evidence supports music as a therapeutic nursing intervention that may serve to enhance the quality of life for many clients with Alzheimer's dementia" (Witzke et al. pg. 51, 2008).

A non-randomized experimental design study performed by Ledger & Baker (2010) investigated the long-term effects of group music therapy on agitation levels in nursing home residents with AD. These 26 patients were observed for one full year and provided with weekly music therapy sessions. The findings showed that music therapy was "a safe, useful intervention for reducing existing agitated behaviours when they occurred" (Ledger & Baker, pg. 336, 2010).

Discussion

From the extensive literature review performed, music therapy has been a proven cost effective, easily implemented intervention for the treatment of agitation in patients with AD in the LTC setting. The goal of this project was to provide education to undergraduate nursing

students on the importance of nonpharmacological interventions in the treatment of agitation in patients with AD.

A PowerPoint (ppt) presentation was presented to the undergraduate University of North Dakota (UND) nursing students along with a detailed discussion of the evidence supporting music therapy as an effective intervention. A handout of the ppt presentation was also provided along with a poster about this literature review.

More education should be provided to nurses on nonpharmacological interventions used to treat agitated behavior states. Too often we are quick to "fix" every ailment with medications that can pose worsening side effects that decrease quality of life. Music therapy has been proven time and time again as an effective intervention. It has many uses: pain management, agitation, anxiety reduction, end of life transitioning, thought recollection, etc. It is a successful, easy to implement intervention.

More research should be done on the effectiveness of music therapy to support its use in behavioral management. There are limited studies that are currently available on this topic. With further education and implementation of music therapy hopefully more studies will be implemented to support music therapy in behavioral management.

Conclusion

Research shows that music therapy is an effective intervention for agitation reduction in AD patients. It is easy to apply, cost effective, and no physician order is needed. By implementing music therapy in the long term care setting the goal is to aid in behavioral modification and promote quality of life in patients suffering from AD.

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