

THE IMPACT OF LIVE RELIGIOUS MUSIC VERSUS LIVE SECULAR MUSIC ON  
PRE-WANDERING BEHAVIORS OF PERSONS DIAGNOSED WITH DEMENTIA  
OF THE ALZHEIMER'S TYPE

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This thesis titled

THE IMPACT OF LIVE RELIGIOUS MUSIC VERSUS LIVE SECULAR MUSIC ON  
PRE-WANDERING BEHAVIORS OF PERSONS DIAGNOSED WITH DEMENTIA  
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## **ABSTRACT**

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THE IMPACT OF LIVE RELIGIOUS MUSIC VERSUS LIVE SECULAR MUSIC ON  
PRE-WANDERING BEHAVIORS OF PERSON'S DISGNosed WITH DEMENTIA  
OF THE ALZHEIMER'S TYPE (69 pp.)

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The purpose of this study was to identify the impact of live religious music versus live secular music on pre-wandering and wandering behaviors of persons diagnosed with dementia of the Alzheimer's type. A pretest-posttest control group design with two dependent variables, pre-wandering and wandering behavior was used. The subjects (n = 18) were residents of four skilled nursing facilities who individually participated in five ten-minute music therapy sessions held on five consecutive days. Each subject was randomly selected to participate in either the experimental or control group. In the experimental group, subjects were engaged in music therapy interventions that utilized only religious music. In the control group, subjects were engaged in music therapy interventions utilizing only secular music. Pre-wandering data was collected by frequency count during each music therapy session. The Revised Algase Wandering Scale: Long-term Care Version was used to compare pretest and posttest wandering behavior for three different subscales: persistent walking, eloping behaviors and spatial disorientation. The Mann-Whitney non-parametric statistical test was applied to analyze whether the religious music or secular music had a greater impact on helping to reduce

pre-wandering behaviors. The Wilcoxon Signed Ranks non-parametric statistical test was applied to analyze the differences in the pretest and posttest wandering behaviors on the unit. Analysis revealed no significant difference between religious and secular music in helping to reduce pre-wandering behaviors. However, analysis also revealed that music therapy, regardless of whether it involved religious or secular music, significantly reduced wandering behaviors on the nursing unit. Findings suggest that future research may be warranted to study and compare which music therapy interventions, when paired with religious or secular music, may be most effective at helping to decrease pre-wandering behaviors.

Approved: \_\_\_\_\_

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## INTRODUCTION

Alzheimer's disease has been called "the disease of the century" (Geriatric Resources, 2006). It knows no social or economic boundaries, and is devastating for both victims and their families. Alzheimer's is a form of dementia; a group of conditions that "... destroys brain cells, causing problems with memory, thinking and behavior severe enough to affect work, lifelong hobbies and social life" (Alzheimer's Association, 2008). With an estimated 5.2 million Americans living with Alzheimer's disease, it is the most common form of dementia in the United States and the seventh leading cause of death (Alzheimer's Association, 2008). Alzheimer's disease advances at different rates and its duration can range from three to twenty years. Early onset typically begins after the age of 65, however, "...experts estimate that some 500,000 people in their 30s, 40s and 50s have Alzheimer's disease or a related dementia" (Alzheimer's Association, 2008). Eventually, a person with Alzheimer's disease will need complete care, and if there are no other serious illnesses, the loss of brain function will be the cause of death (Alzheimer's Association, 2008). Even though a definitive diagnosis of Alzheimer's disease is possible only through examination of brain tissue, usually performed during an autopsy, people who are given a probable diagnosis present debilitating symptoms. These symptoms include memory loss, the inability to learn, reason, make judgments, and carry out activities of daily living. Changes in personality and behavior are also common (Geriatric Resources, 2006). There are several economic burdens associated with Alzheimer's disease. According to the prevalence estimates of the 2000 United

States Census, the number of Americans with Alzheimer's will continue to grow. This is, in part, due to the inevitable addition of the baby boomer population to the geriatric sector of American society. It is estimated that 10 million baby boomers will develop Alzheimer's in their lifetime (Alzheimer's Association, 2008). "Without a cure or effective treatments to delay the onset or progression of Alzheimer's, the prevalence could soar to 7.7 million people with the disease by the year 2030... and by 2050, as many as 16 million" (Alzheimer's Association, 2008). An obvious consequence of this growth is a financial strain on the health care system. In 2005, Medicare costs related to Alzheimer's disease were \$91 billion dollars and are expected to rise to \$189 billion dollars by 2015. Similarly, in 2005, state and federal Medicaid spending for nursing home and home care for people with Alzheimer's disease and other related dementias was estimated at \$21 billion dollars. By 2015, that number is expected to increase to \$27 billion dollars (Alzheimer's Association, 2008). Currently, the direct and indirect costs of Alzheimer's disease and related dementias to Medicare, Medicaid, and businesses amount to \$148 billion dollars each year. When asked in an interview about the financial strain of Alzheimer's disease on the healthcare system, Harry Johns, President and CEO of the Alzheimer's Association stated "We must make the fight against Alzheimer's a national priority before it's too late. The absence of effective disease modifying drugs coupled with an aging population makes Alzheimer's the healthcare crisis of the 21<sup>st</sup> century" (Alzheimer's Disease, 2008).

Music therapy has been proven to be a beneficial and cost effective intervention used with patients who have Alzheimer's disease. On August 1, 1991 a congressional

hearing before the Special Committee on Aging, entitled *Forever Young: Music and Aging*, brought national support and attention to the field of music therapy. In his opening statement, Senator Harry Reid, acting chairman of the special committee, stated, “Government does not have a lot of money to spare these days for new programs. Whenever a worthy solution is offered for a major problem, someone always interrupts, ‘How much is it going to cost?’ Music therapy is an innovative approach that won’t widen the deficit, but can help millions of Americans live happier, more fulfilling lives. And we really can get these impressive results as the saying goes, ‘for a song.’” (United States Senate, 1991)

Those “impressive results” are plentiful in music therapy, gerontology, and medical literature. Research has shown that when offered to patients with Alzheimer’s disease, music therapy “...can exert an influence on mood, behavior, speech, interaction with others, and ability to perform activities of daily living” (Chavin, 2002, p.148).

### **Review of Related Literature**

According to the American Music Therapy Association, “...music therapy treatment is efficacious and valid with older persons who have functional deficits in physiological, psychological, cognitive or social functioning” (AMTA, 2006). Even when a person with Alzheimer’s disease may be resistive to other forms of treatment, music is a predictable and familiar form of sensory stimulation that evokes positive responses (2006). There is an abundance of research that validates music therapy as an effective treatment option. Research has shown that music therapy can provide the opportunity for memory recall, positive changes in emotional states, awareness of self, anxiety and stress reduction, a non-pharmacological management of pain, social structure

and interaction and emotional intimacy (AMTA, 2006). The types of music that a music therapist may choose to use within a therapy session can vary. Popular, classical, country, rock, vocal and instrumental music are just some of the genres that are commonly used. It is important to keep in mind, however, that client music preferences can help to determine the most appropriate music selection for treatment (Peters, 2000).

### **A Brief History of Music Therapy and Dementia Literature**

In 1959, Vance Cotter was one of the first to study the impact of music therapy with the geriatric population. The purpose of his study was to “...determine the value of music as an aid in the improvement of undesirable behavior of the geriatric patient” (Maranto & Bruscia, 1988, p.22). The 23 subjects for Vance Cotter’s study were over the age of 65 and were identified as being manic-depressive or as having chronic brain syndrome. Study results indicated that music decreased the undesirable behaviors of residents in a nursing home. Appropriate physical and verbal behavior increased while aggressiveness and physical and verbal hallucinations decreased. Eating habits also improved. Cotter concluded that “...the hospital milieu should take an enthusiastic rehabilitative attitude toward the geriatric patient, and that music should be a part of this therapeutic milieu” (p. 23).

Vance Cotter’s research stood for 26 years as being one of the only music therapy studies that documented the effects of music therapy with members of the geriatric population. In a review of music therapy dementia literature by Brotons, Koger, and Pickett-Cooper (1997), the 26 year gap in dementia research was explained by the fact

that, "...all studies identified as using music/music therapy for people with dementias were published after 1985" (p. 204). Between 1986 and 1997, Brotons, Koger and Pickett-Cooper identified 42 empirical studies that included 30 clinical studies. There were also eight narrative case studies that described non-music objectives that could be taught through music and 19 theoretical/philosophical papers that described and recommended musical techniques as "...an alternative treatment for a variety of therapeutic objectives..." (p. 204).

Fifty percent of the dementia and music therapy research studies published in the *Journal of Music Therapy* and *Music Therapy Perspectives* between 1986 and 1997 were written between the years 1992 and 1994. Some music therapy researchers suggest that the increase in research studies within those two years may have been a direct result of the 1991 congressional senate hearing before the Special Committee on Aging, a hearing that brought national attention and support to the field of music therapy. After the hearing, the United States government allocated special funds to finance music therapy research with the elderly (Brotons, Koger, and Pickett-Cooper. 1997). In 1999, Koger, Chapin, and Brotons published a meta-analysis of music therapy and dementias, confirming the research outcomes of 69 music therapy research articles published since 1985 (Brotons & Marti, 2003). "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, restlessness (Gerdner, 1999), depression withdrawal, disorientation (Ashida, 2000; Kydd, 2001), rapid mood

changes (Gotell, Brown, & Elkman, 2000), short- and long-term memory (Larkin, 2001), and language difficulties (Brotons & Koger, 2000)” (Brotons & Marti, 2003, p. 139-140).

The clinical empirical research studies described in music therapy literature can be organized according to the functional areas of the subjects that are addressed. The functional areas documented in the literature are: participation and preference for music experiences, social emotional skills, cognitive skills and behavior management (Brotons, Koger & Pickett-Cooper, 1997).

### **Participation/Preferences for Music Experiences**

Music therapists continually stress “...the importance of choosing and adapting music activities to maximize participation, and consequently to achieve therapeutic objectives...” (Brotons, Koger, Pickett-Cooper, 1997, p. 214-215). Moore, Staum, and Brotons (1992), note the importance of assessing patients’ music preferences. Norberg, Melin, and Asplund (1986) observed mouth movement, eye opening and blinking, verbal reactions, respiration and pulse rates, and hand and foot movements of two patients in end-stage dementia when stimulated with touch, music, and object presentation. Both of the subjects’ reactions to music were different from their reaction to touch or object presentation. When music was played, one subject appeared to show an orientation response, or awareness of environment, and the other subject appeared to respond with a relaxation response (Norberg, Melin & Asplund, 1986). Clair (1996) studied the effects of singing, reading, and silence on the alert responses of patients with late stage dementia. Twenty-six persons with late stage dementia living in a residential care home

were chosen to participate in the counterbalanced research design study. Each subject participated in four 30 - minute sessions on four subsequent days. Each session consisted of four 2-minute segments of singing, four 2-minute segments of reading and four 2-minute segments of silence. Each session was videotaped and data was collected by observation. The observer who collected the data then determined the number of alert responses of each subject during each condition. Although there was no statistically significant difference between the number of alert responses elicited by the subjects during singing and reading, it was observed that music elicited more alert responses from the patients than either reading or silence.

Several studies have also investigated subject preference and participation among a variety of music activities (Brotons & Pickett-Cooper, 1994; Christie, 1992; Clair and Bernstein, 1990 a,b). Brotons and Pickett-Cooper (1994) studied preference and participation by randomly assigning 33 Alzheimer's patients to five different musical activity groups, with two to four subjects in each group. The five groups were singing, playing instruments, dancing/moving to music, playing musical games and composing/improvising. Data indicated that instrument playing was the activity in which subjects participated more (38.90% of the time) followed by dancing (37.95% of the time). Subjects also participated in playing games (34.15%), singing (32.15%) and, to a lesser degree, composing/improvising (21.80%). Clair & Bernstein (1990b) found that subjects participated longer during interventions in which instruments were played than singing interventions. Mean data scores showed that the subjects participated more when playing instruments that provided vibrotactile stimulation (mean score of 117.70) versus

those that did not provide vibrotactile stimulation (mean score of 99.00). The study also indicated that a subject's singing ability may decrease as dementia progresses.

A 1996 study by Hanson, Gfeller, Woodworth, Swanson & Garand documented that purposeful responses to music occurred more during movement activities than singing activities for subjects in three different stages of cognitive functioning as assessed by the Reisberg Global Deterioration Scale (GDS). The GDS is a tool designed to measure the cognitive functioning of persons with dementia. It also measures the progressive nature of dementia. (Hanson, et al., 1996). The GDS is divided into seven categories that correspond to distinct stages of the dementia process (For a brief description of each stage, see Terminology, p. 25). The GDS subjects who participated in rhythm activities and singing activities were more involved when the activities were less demanding. Participants with the greatest amount of cognitive decline also spent more time engaged in passive disruption during rhythm and singing activities than did the participants who had higher cognitive levels.

The results from a recent research article on the value of accompanying music instruments used to elicit responses from 15 patients with Alzheimer's disease revealed that participation in the study was highest during a cappella singing (63%), followed by djembe accompaniment, (61%) keyboard accompaniment (60%), guitar and djembe accompaniment (57%), then guitar accompaniment (54%), and finally autoharp accompaniment (54%) (Cevasco & Grant, 2006).



### **Social/Emotional Skills**

Individuals who have dementia experience a decline in cognitive and social functioning, thus they participate in fewer purposeful social activities.

“Consequently, it is imperative to examine the extent to which structured music activities can aid in the maintenance and even re-attainment of social skills that were once a part of those people’s repertoire. Application of such activities will potentially delay social withdrawal, enabling patients to continue being part of their social milieu for as long as possible.” (Brotons, Koger & Pickett-Cooper, 1997, p. 217)

In 1989, Olderog-Millard and Smith found that when compared to group discussion, group singing elicited higher vocal/verbal participation, increased sitting during singing, and walking with other people after the singing was over. Pollack and Namazi (1992) obtained similar results in their study when taking pre and post-test observational data on eight subjects participating in six 20-minute individual music therapy sessions. Data indicated a 24% increase in social behavior for the entire group with varying rates of increase for individuals. The social behaviors that increased included talking, vocalizing, gesturing, smiling, touching, humming, singing, and whistling.

Sambandham and Schirm (1995) studied the effects of participation in music activities on communication and socialization skills and the capacity to recall memories. Study results showed that while the 19 subjects talked less during music interventions than before and after music observation periods, they interacted more with one another after the music was over. Memory skills were documented as having improved in

subjects with the lowest cognitive functioning levels. The authors suggested that music may be one form of communication that is preserved in persons with dementia.

### **Cognitive Skills**

A decline in cognitive functioning is an early feature of dementia. With the loss of cognitive skills, agitation and behavior problems become prevalent (Brotons, Koger & Pickett-Cooper, 1997). Some neurological studies have speculated that the "...cognitive processes related to music processing may be preserved, even in the latest stages of the disease. Therefore, music may function as a catalyst to exercise and maintain other parallel, nonmusical processes" (p.223). Very few music therapy research studies specifically address the effect of music on cognitive processes; however, some studies do examine cognitive functioning in persons with Alzheimer's disease as compared to other areas of functioning.

Smith (1986) studied the effect of three different treatment interventions on subjects' cognitive functioning as measured by the Mini-Mental Status Examination (MMSE).

"The MMSE is a brief, quantitative measure of cognitive status in adults. It can be used to screen for cognitive impairment, to estimate the severity of cognitive impairment at a given point in time, to follow the course of cognitive changes in an individual over time, and to document an individual's response to treatment." (Psychological Assessment Resources, 2006)

The three different interventions utilized in Smith's study were reminiscence cued by music, reminiscence cued by verbal interaction and participation in a musical activity. The overall MMSE scores obtained for each subject improved only when following

participation in a musical activity. The scores on the language sub-scale sections of the MMSE improved when following exposure to musically and verbally cued reminiscence treatment interventions.

In a 1991 study by Prickett and Moore, data indicated that 10 subjects remembered song lyrics sung during music therapy sessions better than spoken material. The mean percentage for words sung was 61.9% and the mean percentage for words spoken was 37.4%. Data further indicated that songs familiar during childhood were recalled with greater accuracy than a newly presented song. The mean percentage for recall of familiar songs was 71.8% and the mean percentage for new songs was 42.6%.

### **Behavior Management**

Cognitive dementia is frequently accompanied by several types of behavioral problems that include withdrawal, irritability, depression, fear, anxiety, suspiciousness, aggression, delusions, hallucinations, wandering, pacing and sleeping problems (Cohen et al., 1993). Some music therapy studies have empirically evaluated the use of music for behavior management and control and have shown music to be a promising alternative to chemicals and restraints (Brotons, Koger & Pickett-Cooper, 1997).

A 1993 study by Gerdner and Swanson documented a decrease in agitation during and after music therapy intervention as determined by the Cohen-Mansfield Agitation Inventory (CMAI). The CMAI is a caregiver questionnaire used to assess agitation in elderly persons (Research Institute on Aging, 2006). The amount of decreased agitation, however, varied greatly among the five study participants. The findings of this study

suggested to music therapy researchers that people with dementia have varied musical preferences and that accessing different genres of music may add to the success of the music therapy treatment. The following year, Casby and Holm (1994), gathered data to further support Gerdner and Swanson's results. The results from Casby and Holm's three subject study indicated that over a four-day period, taped classical music and taped preferred music appeared to be effective in decreasing disruptive verbalizations. However, the effectiveness of preferred music to decrease disruptive verbalizations was greater than that of classical music.

Using live music as a music therapy intervention has also appeared to be effective for decreasing agitation. "Brotons and Pickett-Cooper (1996) found that patients were significantly less agitated...during or after, relative to before, music therapy, and that music background did not appear related to effectiveness of treatment" (Brotons, Koger & Pickett-Cooper, 1997, p. 228). The study defined less agitated behaviors as a reduction in pacing, hand wringing, the inability to sit or lie still, rapid speech, psychomotor activity, crying and repetitive verbalizations of distress (Brotons & Pickett-Cooper, 1996).

### **Music Therapy and Wandering**

In music therapy literature, few studies have been published that examine the impact of music therapy on wandering. However, the few studies that examine this relationship document that music therapy is an effective intervention for wandering. In 1993, Fitzgerald-Cloutier reported the effectiveness of therapeutic singing to decrease

wandering behavior in an 81-year old woman with Alzheimer's disease. Fitzgerald-Cloutier compared the length of time the woman spent engaged in music before she began to wander versus the length of time she was engaged in a reading activity before she began to wander. Data indicated that the length of time the woman remained in the music therapy sessions was consistently longer (5.76 minutes longer) than the time she spent in the reading sessions.

In 1993 Groene studied the effect of individual music therapy sessions on the amount of time subjects with Alzheimer's disease remained seated or remained in close proximity to an area of activity. Thirty subjects participated in this repeated measures experimental study and were all randomly assigned to receive seven individual music therapy sessions or seven individual reading sessions. Study results showed that subjects who received music sessions remained seated or remained in close proximity to the area of activity longer than subjects who received reading sessions.

### **Religion and Religious Music**

According to Lipe (2002) the topic of religion has captured the interest of healthcare practitioners and researchers. In her 2002 review of healthcare literature, Lipe identified 52 published articles on the subjects of music, spirituality and health, all written between 1973-2000.

A foundation for spirituality in the theory and practice of music therapy comes from the 1973 music therapy text by Bonny and Savary entitled: Music and Your Mind: Listening With a New Consciousness (Lipe 2002). The authors write, "Religious

experience...designates a continuum of transpersonal experiences, allowing each [individual] to bring to the listening experience his [or her] own ideas about [humanity], nature, God, religion and the transcendent” (Bonny & Savary, 1973, p.128).

In her article, “Let There Be Life: An Approach to Worship with Alzheimer’s Patients and Their Families,” Chaplain Jean Clayton describes how participating in worship services can benefit patients and their families. About one particular worship experience Clayton recalls, “...There was better, more heartfelt singing than we had enjoyed for many months, and I noticed that the wandering, fidgeting, and speaking out that we had been accustomed to all but disappeared. Best of all, those gathered seemed to enjoy themselves” (Clayton, 1991, p.179).

When questioned about the importance of religious music for persons with dementia, Dr. Richard Wetzel, music history professor at Ohio University and scholar of hymnody stated, “...people who grew up with a religious background become what they once were. A reflection on childhood and being associated with religious ideals will come back to them. Hymns are an immediate connection to long term memories that are most often pleasant” (personal communication, October 19, 2006). From a religious perspective, Lynn Miller, pastor at Christ Evangelical Lutheran Church in Athens, OH, believes there are great benefits for people with dementia who have the opportunity to listen to religious music. In an interview, Lynn explained her belief:

“When you give people with dementia the opportunity to experience something that has been woven into the fabric of who they are, like religious music for example, I think it cannot not deeply touch them. Even if people with dementia don’t know the words to Amazing Grace, they know the melody. It is like something reaching through the fog, enveloping them, and giving them a sense of peace. From a faith perspective, music

impacts in a way we can't see. We don't see the heart, the pain, and the moments where they become lucid and can't figure out what is going on around them. I believe that bringing music and music therapy to people with dementia, is overall good healthcare because it takes care of the part we can't see and we tend to forget the parts we can't see." (personal communication, October 20, 2006)

### **Purpose**

The purpose of this study is to identify the impact of live religious music versus live secular music on pre-wandering and wandering behaviors of persons diagnosed with dementia of the Alzheimer's type. The study is designed to answer the following research questions:

1. What is the impact of religious music based therapy sessions (RMBTS) versus secular music based therapy sessions (SMBTS) on pre-wandering behavior of subjects with dementia of the Alzheimer's type over a period of five music therapy sessions?
2. Can RMBTS and SMBTS help to reduce wandering behaviors on the nursing unit of a residential nursing facility?

### **Why Pre-wandering and Wandering Behavior?**

Pre-wandering is a precursor to wandering, a common behavioral change associated with Alzheimer's disease. For the purpose of this study, pre-wandering behavior is defined as a subject's attempt to perform motor activity that takes the individual from a seated position to a position in which contact is no longer made with the seat of the chair. In addition, the individual must also take at least one step to move away from the chair.

The working definition of wandering, as defined by the American Alzheimer's Association is: "aimless or purposeful motor activity that causes a social problem such as getting lost, leaving a safe environment or intruding in inappropriate places" (Alzheimer's Association, 2006). Wandering is often misunderstood by caregivers and can be difficult to manage. Patients who have Alzheimer's disease and wander require intense supervision by nursing home staff because of "...possible injury from falls, exposure to danger, or elopement" (Kiely, Morris, & Algase, 2000, p. 1013). Not all wandering is problematic, however, it can be a risk factor for falling (p.1013). "Nearly 25% of residents experience a serious injury or death as a consequence of wandering" (p.1013). Even though it appears aimless, a person may have reasons for wandering "...such as boredom, tension, hunger, pain, or need for warmth" (Heim, 1986, p. 4). In the past, wandering in nursing homes was often managed by using physical or pharmacological restraints. In 1987, the Omnibus Budget Reconciliation Act prohibited the use of restraints unless a physician was present to assess the need and order restraints for a resident. Since the act was passed, researchers and other professionals who work with Alzheimer's patients have been advocating other methods used to decrease wandering when it becomes a dangerous problem behavior (Hawes, 1997).

In her 1988 article entitled "Wandering," Dorothy Coons, director of Alzheimer's Projects at the University of Michigan stated,



“Physical restraints and over-medication are all too frequently seen as the only solutions to the wandering problem...The use of restraints is one of the most degrading and humiliating interventions currently used in our healthcare system...Over-medication is also damaging. In some instances it causes a disintegration of the personality of the elderly individual and prevents a response to the environment or to other people.” (Coons, 1988, p. 33)

### **Terminology**

Pre-Wandering Behavior – For the purpose of this study, pre-wandering behavior is defined as a subject’s attempt to perform motor activity that takes the individual from a seated position to a position in which contact is no longer made with the seat of the chair. In addition, the individual must also take at least one step to move away from the chair.

Reisberg’s Global Deterioration Scale (GDS) (Reisberg et al., 1982) - The GDS is a tool designed to measure the cognitive functioning of persons with dementia. It also measures the progressive nature of dementia. The GDS is divided into seven categories that correspond to distinct stages of the dementia process:

Stage 1: Normal, no cognitive decline

Stage 2: Forgetfulness, very mild cognitive decline

Stage 3: Confusional, mild cognitive decline

Stage 4: Late confusional, moderate cognitive decline

Stage 5: Early dementia, moderately severe cognitive decline

Stage 6: Middle dementia, severe cognitive decline

Stage 7: Late dementia, very severe cognitive decline

Religious Music – For the purposes of this study, religious music is a genre of music originally intended to be performed as a part of a Christian religious ceremony.

Religious Music Based Therapy Sessions (RMBTS) – In this study, RMBTS are sessions that contain only religious music.

Secular Music – In this study, secular music is any genre of music not originally intended to be performed as a part of a Christian religious ceremony.

Secular Music Based Therapy Sessions (SMBTS) – In this study, SMBTS are sessions that contain only secular music.

Wandering - The working definition of wandering, as defined by the American Alzheimer's Association is: "aimless or purposeful motor activity that causes a social problem such as getting lost, leaving a safe environment or intruding in inappropriate places" (Alzheimer's Association, 2006).

## **METHODOLOGY**

### **Design**

The design of this study is a pretest-posttest control group design with two dependent variables, pre-wandering and wandering behavior. Assessment of pre-wandering behavior occurred during each music therapy session in both the experimental and control groups. Wandering behavior of each subject was assessed before the first music therapy session and again after all five sessions had been completed.

### **Initial Process and Setting**

The researcher contacted nursing home administrators at four skilled nursing facilities in the southeastern Ohio region to obtain consent to implement the current research study. Meetings with each administrator were held either in person or over the phone so that the researcher could explain the study. Administrators then wrote letters to the Ohio University Institutional Review Board (IRB), giving consent for the research to take place at their facilities (See Appendices A – D). Once IRB approval was granted, the researcher held a meeting with the skilled nursing staff at each facility to describe the study and address any questions or concerns. Each music therapy session took place in a room free from outside distractions, typically the subject's own room, a quiet side room, or a hallway on the subject's wing of the residential facility.

### **Subjects**

Three males and 15 females with a mean age of 84.6 years from the four skilled nursing facilities participated in the study. Nine subjects were randomly assigned to participate in the experimental (RMBTS) group and nine subjects were randomly assigned to participate in the control (SMBTS) group. Random assignment of subjects to either group was done by drawing names out of a hat. Every other name drawn was assigned to participate in the RMBTS group. Selection of subjects was based upon the following criterion:

1. A diagnosis of dementia of the Alzheimer's type as indicated by medical records
2. Identification as a wanderer according to skilled nursing staff
3. A past history of being involved in religious activities of the Christian religion
4. Presence of a power of attorney or legal guardian who can complete a religious history intake form and sign a permission form, allowing for participation in the study

## **MATERIALS**

### **Revised Algase Wandering Scale: Long-term Care Version**

The Revised Algase Wandering Scale: Long-term Care Version (RAWS-LTC) is a survey instrument completed by a skilled care nursing staff member who has provided care to a resident with dementia over several recent work shifts (See Appendix G). The survey requires the staff member to rate the frequency of wandering behaviors for the resident in three different subscales: persistent walking, eloping behavior, and spatial disorientation. The rating system is a scale from one to four, with one being “never/unable” and four being “usually.” Scores of the survey are computed by averaging the ratings for all items within the subscales or for the instrument overall. The wandering score for each subject is a number from one to four with lower numbers representing fewer wandering behaviors and higher numbers representing more wandering behaviors. Permission to use the RAWS-LTC for the study was granted by its author, Donna Algase, Ph.D.

### **Religious History Intake and Musical Preference Form**

The Religious History Intake and Musical Preference Form (RHIMPF) is a form created by the researcher to gain information about the religious history of each subject. It was completed by the subject’s power of attorney or legal guardian. Questions on the RHIMPF requested information about the subject’s Christian denominational preference, favorite religious songs, religious performing group experience, and religious activities

that the subject participated in throughout his or her life. A list of preferred secular music was also requested (See Appendix H).

### **Music Therapy Interventions**

Music therapy interventions are a combination of one or more music experiences presented by the music therapist to engage subjects during music therapy sessions. Some of these specific interventions included foot tapping, clapping, instrument choices, humming, music listening, therapeutic instrument playing, interactive singing and song choices (See Appendix I).

### **Procedure**

With researcher assistance, the nursing staff identified residents who met the requirements to be potential subjects by confirming diagnoses of probable Alzheimer's disease and wandering behaviors through medical charts and the GDS. The legal guardian for each resident was then sent an introductory letter and a participation consent form, both to be signed and returned to the researcher in a provided self-addressed and stamped envelope (See Appendices E and F). The consent form outlined the purpose of the study and informed the legal guardian of any potential risks and benefits that the resident might encounter as a result of participating. Along with the letter and consent form, the RHIMPF was also sent and the researcher requested that the legal guardian complete a brief religious history of the resident. Once consent was received for 18 of

the residents, the researcher randomly assigned each resident to be a subject in either the RMBTS (experimental) group or SMBTS (control) group. A schedule was constructed with the nursing staff of each facility to determine when the researcher would come and see each subject for five ten-minute sessions. The day and time of the sessions remained consistent for each subject.

A week before the study began, the researcher went to each facility and trained members of the nursing staff on how to administer the RAWs-LTC and collect the data for each subject. The day before the first session, the researcher asked one member of the nursing staff trained in administering the scale to complete the RAWs-LTC for each subject. The nursing staff member selected was someone who had provided care to the subject over two or more recent shifts. The completed scale indicated the pre-test wandering profile for each subject.

At each facility, all subjects in both experimental and control groups were engaged in five ten-minute individual music therapy sessions. All five sessions for each subject were held on five consecutive days. Each day the researcher greeted the subject and invited him or her to a quiet room free of outside distractions. The structure of each session, the combination of music therapy interventions used, and the accompaniment instruments played by the researcher remained the same in both the experimental (RMBTS) and control (SMBTS) groups. The interventions used were a combination of one or more of the following: clapping, foot tapping, humming, instrument choice, interactive singing, music listening, song choices, or therapeutic instrument playing. The interventions were also ones that have been documented in music therapy and

gerontology literature as being effective when working with persons who have dementia of the Alzheimer's type. Clair (1996), Clair and Bernstein (1990a, 1990b, 1993, 1994) and Clair, Bernstein and Johnson (1995) have documented the use of instrument playing, movement, singing and music listening when studying instrument playing responses, alert responses, agitation behaviors and rhythm playing characteristics of persons with Alzheimer's disease. When studying the influence of participatory peers on motivating group behaviors of persons with Alzheimer's disease, Christie (1995) used singing, instrument playing, movement and listening to music. Hanson et. al. (1996) compared the effectiveness of differing types and difficulty of music therapy programming and used primarily movement and singing intervention. Fitzgerald – Cloutier (1993) and Groene (1993) both studied wandering behaviors of persons with Alzheimer's disease and utilized singing, music listening, movement and instrument playing within their studies.

Accompanying instruments performed by the researcher during each session were the keyboard and the guitar. Acapella singing and singing with accompaniment were also used. The only difference between the content of the experimental (RMBTS) and control (SMBTS) group sessions was the type of music played in each. The RMBTS sessions consisted of only religious music and the SMBTS sessions consisted of only secular music. The repertoire of religious and secular songs chosen for the sessions was based upon the preferred religious and secular music responses given in the RHIMPF (See Appendix J).

Once the subject was seated, the researcher set a stopwatch for ten minutes and began the session. The researcher began each session by stating: "Here are some music



instruments. This is a tambourine, a frame drum, and a buffalo drum. These are maracas and these are choir chimes.” As the researcher said the instrument names, she demonstrated how to play each one. She then continued by saying, “Choose an instrument to play with me or you can clap your hands or tap your toes or sing along while we have music together.” Once a subject made a choice, the researcher then engaged him or her in a music therapy intervention while singing and playing an accompanying instrument. If a subject didn’t make a choice, the researcher continued with the session, but left the instruments on a nearby table in the event that the subject wanted to play along at a later time in the session. The decision to initially offer movement and instrument playing interventions rather than just listening or singing interventions to each subject was based upon research by Clair and Bernstein (1990b) and Brotons and Pickett-Cooper (1994). Clair and Bernstein (1990b) compared singing, vibrotactile and nonvibrotactile instrument playing responses of persons with dementia of the Alzheimer’s type and found that subjects participated significantly longer during vibrotactile instrument playing than in any other activity. Similarly, when studying the preferences of patients with Alzheimer’s disease for singing, instrument playing, dancing/movement, composition/improvisation activities and games, Brotons and Pickett – Cooper (1994) reported that subjects participated significantly longer in playing instruments, dancing and playing games than singing and composition activities.

Within each ten-minute session, the researcher documented, by frequency count, how many times the subject engaged in pre-wandering behavior. Each time the subject no longer made contact with the seat of the chair and took at least one step away from the

chair, the researcher made one tally mark on a data collection form. Each time the subject engaged in pre-wandering behavior, the researcher provided verbal redirection and invited the subject to sit back down and enjoy the music. If the subject made a choice to leave the room, the researcher stopped the stopwatch, escorted the subject back to the area of activity on the unit, said goodbye, and reminded the subject that she would be back the next day to share more music.

The day after each subject's last session, a member of nursing staff who had provided care to the subject over two or more recent shifts completed a post test RAWS-LTC.

## RESULTS

### Analysis of Data

Data collected on pre-wandering behaviors and from the RAWLS-LTC were entered into the Statistical Package for the Social Sciences Version 16.0 (SPSS) for OSX of Macintosh computers. Non-parametric statistics were utilized to analyze the data because the sample size was small for both the experimental and control groups.

### Research Question 1

*What is the impact of religious based music therapy sessions (RMBTS) versus secular based music therapy sessions (SMBTS) on pre-wandering behavior of subjects with dementia of the Alzheimer's type over a period of five music therapy sessions?*

Data on pre-wandering behaviors for each subject in both experimental and control groups during each music therapy session was gathered by frequency count. The difference in the number of pre-wandering behaviors for all subjects over the course of the five music therapy sessions was computed. Mean change scores and standard deviations are shown in Table 1.

Table 1. Descriptive and test statistics for the difference in the number of pre-wandering behaviors for experimental and control subjects over the course of five music therapy sessions.

Group	n	Mean Changes	Std. Deviations	p
RMBTS (Experimental)	9	1.3333	1.28338	.493
SMBTS (Control)	9	1.5000	.51450	

Due to the small  $n$ , a Mann-Whitney test was used to analyze whether RMBTS or SMBTS had a greater impact on helping to reduce pre-wandering behaviors. The Mann-Whitney test is the non-parametric procedure equivalent to the independent samples t-test. As such, it is used to test the differences in the rank order of the responses of two groups. Although each subject in both experimental and control groups did decrease the number of pre-wandering behaviors exhibited over the period of five music therapy sessions, analysis revealed that there was no significant difference in the medians between RMBTS or SMBTS in helping to reduce those behaviors. The individual pre-wandering behavior scores for each subject over the period of five music therapy sessions are displayed in Tables 2 and 3.

Table 2. Pre-wandering scores for all nine RMBTS subjects over a period of five music therapy sessions.

Subject	Session1	Session 2	Session 3	Session 4	Session 5
E1	3	2	2	0	0
E2	1	0	1	0	0
E3	3	1	0	0	0
E4	0	0	1	0	0
E5	1	0	4	2	0
E6	1	0	0	0	0
E7	0	0	0	0	0
E8	1	1	0	0	0
E9	5	3	3	1	1

Table 3. Pre-wandering scores for all nine SMBTS subjects over a period of five music therapy sessions.

Subject	Session 1	Session 2	Session 3	Session 4	Session 5
C1	3	0	2	0	0
C2	0	0	0	0	0
C3	2	2	0	1	0
C4	2	0	1	0	0
C5	0	0	0	0	0
C6	2	2	2	1	0
C7	1	1	1	0	0
C8	0	0	0	0	0
C9	0	0	0	0	0

## Research Question 2

*Can RMBTS and SMBTS help to reduce wandering behaviors on the nursing unit of a residential nursing facility?*

To answer the question, the Revised Algate Wandering Scale: Long –Term Care Version (RAWS-LTC) was utilized in pre-test/post-test form to gather data on the frequency of wandering behaviors among three different subcategories. The three subcategories are: persistent walking, eloping behavior, and spatial disorientation. Each

item on the survey was scored on a scale from one to four with higher numbers indicating more frequent wandering behavior. Scores were computed by averaging the ratings for all items within the subscale or the instrument overall. Due to the small  $n$ , the Wilcoxon Signed Ranks Test was used to analyze the data for this question. The Wilcoxon Signed Ranks Test is a non-parametric procedure (equivalent to the dependent t-test) used to gather information concerning the direction of differences within pairs and the size of those differences. A significant difference in wandering scores between the pre-test and post-test was found. The differences in pre-test and post-test wandering scores for persistent walking are shown in Table 4. The mean and sum of mean ranks for persistent walking are displayed in Table 5.

Table 4. Descriptive and test statistics for the difference in pre-test and post-test wandering scores for persistent walking (PW).

	n	Mean	Std. Deviation	Min.	Max.	Z	p
Pre PW	18	22.6111	4.55217	17.00	33.00	-3.634	0.00
Post PW	18	20.0000	4.36564	14.00	0.00		

Table 5. Mean rank and sum of rank scores for persistent walking (PW).

Post PW – Pre PW	n	Mean Ranks	Sum of Ranks
Negative Ranks	17	9.91	168.50
Positive Ranks	1	2.50	2.50
Ties	0		
Total	18		

The differences in pre-test and post-test wandering scores for eloping behaviors are shown in Table 6. The mean and sum of mean ranks for eloping behaviors are displayed in Table 7.

Table 6. Descriptive and test statistics for the difference in pre-test and post-test wandering scores for eloping behavior (EB).

	n	Mean	Std. Deviation	Min.	Max.	Z	p
Pre EB	18	6.3333	2.19625	4.00	12.00	-2.060	.039
Post EB	18	5.8889	1.90630	4.00	11.00		

Table 7. Mean rank and sum of rank scores for eloping behaviors (EB).

Post EB – Pre EB	n	Mean Ranks	Sum of Ranks
Negative Ranks	5	3.00	15.00
Positive Ranks	0	0.00	0.00
Ties	13		
Total	18		

The differences in pre-test and post-test wandering scores for spatial disorientation are shown in Table 8. The mean and sum of mean ranks for spatial disorientation are displayed in Table 9.

Table 8. Descriptive and test statistics for the difference in pre-test and post-test wandering scores for spatial disorientation (SD).

	n	Mean	Std. Deviation	Min.	Max.	Z	p
Pre SD	18	13.8333	4.92592	7.00	22.00	-3.163	.002
Post SD	18	12.4444	4.56614				



Table 9. Mean rank and sum of rank scores for spatial disorientation (SD).

Pre SD - Post SD	n	Mean Ranks	Sum of Ranks
Negative Ranks	12	6.50	78.00
Positive Ranks	0	0.00	0.00
Ties	6		
Total	18		

The differences in overall pre-test and overall post-test scores for all three subcategories are shown in Table 10. The mean and sum of mean ranks for all three subcategories are displayed in Table 11.

Table 10. Descriptive and test statistics for the difference in overall pre-test and overall post-test scores for all three subcategories.

	n	Mean	Std. Deviation	Min.	Max.	Z	p
Pre Overall	18	42.7778	9.09140	32.00	67.00	-3.734	0.00
Post Overall	18	38.3333	7.08769	29.00	58.00		

Table 11. Mean rank and sum of rank scores for all three subcategories.

Post Overall – Pre Overall	n	Mean Ranks	Sum of Ranks
Negative Ranks	18	9.50	171.00
Positive Ranks	0	0.00	0.00
Ties	0		
Total	18		

Analysis revealed that music therapy, regardless of whether it involved religious or secular music, significantly reduced wandering behaviors on the nursing unit. Furthermore, the pre-test mean wandering scores and post-test mean wandering scores for each subject do correspond to the RAWs-LTC and fall within the scale of one to four, with four indicating a higher frequency of wandering behaviors. Pre-test and post-test mean RAWs-LTC wandering scores for each subject are shown in Table 12.

Table 12. Pre-test mean wandering scores and post-test mean wandering scores for all subjects in both RMBTS and SMBTS.

Subject	Condition	Pre-test Mean Score	Post-test Mean Score
1	RMBTS	2.32	2.00
2	RMBTS	2.63	2.21
3	RMBTS	2.74	2.16
4	RMBTS	1.68	1.53
5	RMBTS	2.53	2.32
6	RMBTS	2.26	2.05
7	RMBTS	1.95	1.74
8	RMBTS	2.21	2.11
9	RMBTS	3.53	3.05
10	SMBTS	2.84	2.47
11	SMBTS	1.84	1.79
12	SMBTS	1.84	1.74
13	SMBTS	1.79	1.68
14	SMBTS	1.74	1.58
15	SMBTS	1.79	1.63
16	SMBTS	2.21	2.11
17	SMBTS	2.37	2.16
18	SMBTS	2.26	2.00

## DISCUSSION

This study was designed to investigate the impact of live religious music versus live secular music on pre-wandering behaviors of persons diagnosed with dementia of the Alzheimer's type. A secondary purpose for this study was to investigate the impact of live music therapy, using religious and secular music, on wandering behaviors occurring on a nursing unit. It was hypothesized that live religious music would help to decrease pre-wandering behaviors more than live secular music. It was also hypothesized that music therapy, whether consisting of religious or secular music, would help to decrease wandering behaviors on a nursing unit.

With respect to the data obtained regarding pre-wandering behaviors, no significant difference was found between RMBTS and SMBTS in helping to decrease those behaviors. This finding does not support the hypothesis. In fact, the maximum number of pre-wandering behaviors exhibited in any one music therapy session occurred during an RMBTS session.

This research outcome may be explained by the fact that the Religious History Intake and Musical Preference Form (RHIMPF) did not actually measure the importance of religious music to each subject's religious practices. The form simply gathered information on favorite hymns, past involvement in religious performing groups and past involvement in other religious affiliated activities. It is possible that while a subject may have had favorite hymns, he or she had not considered music to be a significant part of the worship experience. It was reported that some subjects attended church once or twice

a month while some attended every week and were active in church activities. It is also entirely possible that the legal guardians completing the RHIMPF may have not known the requested information. Rather than consulting with another family member who could have been a more knowledgeable historian, the legal guardians may have simply guessed some of the answers to the questionnaire, unintentionally giving the researcher a false sense of the subject's religious preferences and practices.

In the fall of 2007, the Mayo Clinic published an online article about the benefits of incorporating religious rituals, including religious music and hymns, into the daily routine of someone with Alzheimer's disease in an attempt to help create a bond between patient, family members and friends. The article states "As Alzheimer's disease progresses, recent events become jumbled and hazy. But songs and prayers from childhood often stay firmly rooted in memory long after Alzheimer's takes its toll. You can help by joining your loved one in reciting prayers, perhaps prompting him or her to sing a song — maybe a hymn — known from long ago" (Mayo Clinic, 2007). Scholar of hymnody, Dr. Richard Wetzel also states "people who grew up with a religious background become what they once were...Hymns are an immediate connection to long term memories that are most often pleasant" (personal communication, October 19, 2006.) However, if religious music and religious music rituals were not "woven into the fabric" of a person with Alzheimer's disease during the formative years, it does not seem likely that music would have the same impact on behavior as it would with someone who had an abundance of pleasant long term memories that included religious music.

Two other non-controlled variables that may have influenced the research outcome were the age of the subjects and level of dementia. The mean subject age was 84.6 years with an 18-year age difference between the youngest and oldest subjects. The difference in age of almost two decades may have brought with it a difference in the long-term memories of religious upbringings and the perception of the importance of religion, as it should be incorporated into daily life. Based upon medical records and nursing staff observations, all of the subjects fell between levels five and six on the Global Deterioration Scale (GDS). The differences in cognitive impairment between levels may have directly influenced the nature and extent of pre-wandering behaviors.

One other possible explanation for the research outcome may be that the subjects felt uncomfortable with an unfamiliar person or situation, in this case, the researcher and the music therapy session. Because they did not understand what was happening and were unable to verbally express their feelings, the subjects may have left the room in an attempt to avoid engaging with the researcher. The DBS Productions: Source of Search and Rescue Research Publications and Training Company supports this theory. A recently published article entitled “Wandering Incident Planning and Response” suggests that being in an unfamiliar setting is a trigger for critical wandering. Other common causes that trigger critical wandering include seeing a coat and hat, a confrontational situation, and a change in schedule or routine (2008).

Although data did not reveal a significant difference between religious and secular music in helping to decrease pre-wandering behaviors, it should be noted that the average length of time of an RMBTS session was 7.52 minutes and the average length of

time of an SMBTS session was 5.35 minutes. This finding reveals that although all subjects exhibited pre-wandering behaviors, the RMBTS subjects could be redirected and encouraged to stay in the area of activity more often, resulting in a longer music therapy session. It is possible that the length of RMBTS versus SMBTS may be accounted for by the setting in which the religious and secular songs were originally intended to be sung and the songs' musical characteristics. For example listening to the researcher sing and play *Amazing Grace* on the guitar may have brought back pleasant long-term memories of singing hymns in church, sometimes a rather solemn occasion. The slower tempo may have helped to calm and relax the subject, causing him or her to stay in the session for a longer period of time. Jean Clayton, Chaplain at St. Joseph's Health Center in Ontario, Canada, studied the worship experiences of patients with Alzheimer's disease and their families. She found that familiar religious music helped to reduce wandering, fidgeting and speaking out in church services. The patients also responded with raised levels of interest as worship experiences progressed and stayed in worship for the entire length of the service (1991).

The second research question asked if RMBTS and SMBTS help to reduce wandering behaviors on a nursing unit. Indeed, a significant difference in wandering between pre-test RAWS-LTC scores and post-test RAWS-LTC scores was found, thus supporting the hypothesis. Ninety-four percent of subjects reduced their persistent walking behaviors. Twenty-seven percent of the subjects reduced their eloping behaviors while 72% of the subjects stayed consistent with their eloping behaviors. Sixty-six percent of the subjects reduced their spatial disorientation behaviors while 44% remained

consistent in their spatial disorientation behaviors. One hundred percent of subjects reduced their overall wandering behaviors. These findings are supported by other music therapy studies including those conducted by Fitzgerald-Cloutier (1993) and Groene (1993). Both studies document that when compared to a non-music activity, music therapy was more effective in helping the subjects remain longer in the area of activity and also to spend more time engaged in an activity before beginning to wander.

Supporting Fitzgerald-Cloutier (1993) and Groene's (1993) research, Aldridge (1994) provides anecdotal evidence describing the benefits of active music making for patients with Alzheimer's disease. Aldridge states that active music making provides a form of therapy, which may stimulate cognitive abilities otherwise lost by the disease process. It is suggested that active music making can improve quality of life, creating a sense of belonging and allowing communication with others.

As cognitive impairment is increased however, not all music interventions may be viable options for a therapy session. Lipe (1995) found that as cognitive impairment increased, verbal fluency and singing ability were lost before rhythmic responses. "In fact, rhythmic ability appeared to be preserved, even when overall cognitive ability was severely compromised" (Lipe, 1995, p. 148). Lipe states that the body and its cycles are based on rhythm; therefore rhythm is intrinsic to the human experience. The body's rhythmic responses are more "...grounded in body memory and less dependent on formal socialization and learning" (p. 148). Therefore, rhythmic music interventions that include playing instruments or using body percussion rhythm instruments may be more beneficial for persons in the later stages of the dementia process than singing interventions. From a



medical perspective, Scartelli (1991) states, "...because of the automatic nature of the tasks of the brainstem, response to rhythmic stimuli may be just as automatic given the close location of the initial auditory nuclei to the cardio-pulmonary nuclei in the medulla" (p.35). Therefore, diseases that impair cortical functioning may be less likely to affect the rhythmic responses during musical tasks.

Lipe's (1995) research supports the outcome of the current research study. Due to the progressive nature of the disease process of subjects in the current study, the researcher offered instrument playing and other rhythmic tasks as music interventions, not just singing tasks. Many of the subjects were already displaying a decline in their expressive verbal skills. At the beginning of each session, the researcher demonstrated how to play the rhythm instruments and offered the instruments to the subject. The subjects that took an instrument and began to play along with the researcher remained in the session longer and were more active within the session than subjects who did not play an instrument. In fact, 35% of the subjects who played an instrument remained in each of the therapy sessions for the entire ten minutes. They also demonstrated fewer overall wandering behaviors on the post-test RAWs-LTC.

When studying the wandering behaviors of people with Alzheimer's disease, it is important to remember that not all wandering should be considered negative. In fact, Heim (1986) states that although wandering appears to be aimless, there are several reasons that someone with Alzheimer's disease might wander. Those reasons include "...boredom, tension, hunger, pain, or need for warmth" (p. 4). However, persons with Alzheimer's are not always able to verbally express their needs and may attempt to

wander away from a structured environment in order to fulfill a specific need, therefore increasing their risk of falling. Future research may be designed to study how music interventions may be structured to specifically address the problematic wandering behaviors such as persistent walking, eloping behaviors and spatial disorientation. Discovering specific music therapy techniques that can help to decrease problematic wandering behaviors could further help to relieve caregiver stress, and improve the quality of life for a person with Alzheimer's disease.

### **Limitations**

This study was limited by the small  $n$  who participated in the research. The limitation was due, in part to the number of skilled nursing facilities that supported outside research endeavors and also by the willingness of legal guardians and powers of attorney to complete and return consent forms, allowing their charges to participate in the research.

Four out of five skilled nursing facility administrators who were contacted by the researcher gave permission for the research to take place in their facilities. The researcher then attempted to get permission for a total of at least 30 residents from among the remaining four facilities to be research subjects. Of the 38 consent form and RHIMPF questionnaire packets that were mailed to legal guardians and powers of attorney, only 18 were returned to the researcher by the pre-designated deadline, thus a 47% return response rate.

Several factors may have contributed to this low return response rate including legal guardians and powers of attorney being on vacation, or the skilled nursing facility simply having an incorrect address for which to mail the consent packets. Sugarman, Cain, Wallace, and Welsh-Bohmer (2001) studied the various reasons as to why a proxy may either allow or deny a patient with dementia to participate in clinical research. Reasons that proxies gave for allowing a patient with dementia to participate in research included: a belief in the goodness of research, altruism, and hope of direct or indirect benefits to the patient. The authors also point out that the degree of burden associated with making the decision to allow a patient to participate in research can be influenced by a several factors that include: the risk and nature of the study, the extent to which the patient was able to participate in making the decision and the severity of dementia (2001).

The potential benefits to the subjects who participated in this research study greatly outweighed any of the potential risks. However, the majority of the residents who were invited to participate in the research were either entering or already in the middle stages of the disease process, one factor that Sugarman et al. (2001) cite as raising the degree of burden associated with making the decision to allow a patient to participate in research.

### **Future Research**

It is necessary for any future research to include more subjects so as to further understand the impact of live religious music versus live secular music on pre-wandering

behaviors. Although religion can be a very private and personal matter for some, it should not be forgotten that attending worship services with a congregation is by its very nature, a public act of faith. Therefore, future research may be warranted to study the impact of religious music on pre-wandering behaviors in a small group setting, offering a chance for subjects to experience a familiar worship atmosphere that may be lingering within long-term memories. It may also be beneficial to study and compare which music therapy interventions, when paired with religious music, are most effective at helping to decrease pre-wandering behaviors. Incorporating these suggestions into future music therapy research may someday help to further enhance the quality of life for this vulnerable and growing population.

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**APPENDIX A**

Lanfair Center for Rehabilitation and Nursing Care, Inc.  
1590 Chartwell Street  
Lancaster, Ohio 43130

Ohio University  
Institutional Review Board

March 23, 2007

To Whom It May Concern:

I address you in regards to being contacted by Renata Geyer, Music Therapist, regarding her coming to Lanfair Center for the purpose of conducting a music therapy study. Renata explained the purpose of her study is to better understand the effects of music therapy on residents who have Alzheimer's disease and wandering behaviors. I also gave my permission for her to contact each resident's Power of Attorney to receive permission to work with the residents.

I am supportive of Renata's efforts to work with this very fragile population. Please do not hesitate to contact me with any questions you may have.

Sincerely,

---

Sean Cleary, LNHA Administrator

**APPENDIX B**

Kimes Nursing and Rehabilitation Center  
75 Kimes Lane  
Athens, OH 45701

Ohio University  
Institutional Review Board

March 26, 2007

To Whom It May Concern:

Renata Geyer, a music therapy graduate student at Ohio University, has proposed a collaborative research project with Kimes Nursing and Rehabilitation Center to investigate the impact of live religious music on pre-wandering and wandering behaviors of persons diagnosed with Alzheimer's disease. I agree to this collaboration and have been informed of the procedures and research involved in the project.

Thank you for this opportunity. Please contact me with any questions or concerns.

Sincerely,

---

Lisa Yehl  
Interim Administrator  
Kimes Nursing and Rehabilitation Center

**APPENDIX C**

Hickory Creek Nursing Center  
51 E. 4<sup>th</sup> Street  
The Plains, OH 45780

Ohio University  
Institutional Review Board

March 24, 2007

To Whom It May Concern:

Ms. Renata Geyer has contacted me to obtain permission to perform a music therapy study with some of our residents here at Hickory Creek. She has explained the purpose of the study to be finding out the effects music therapy has on residents with Alzheimer's disease and wandering behaviors. Our facility has an Alzheimer's unit with several residents who wander. We would be happy to have Ms. Geyer perform her study here, and provide short-term therapy sessions to our residents. We will contact each of the residents' POA's in order to receive permission to work with the residents. If you have any questions, you can contact me at (740) 797-4561 ext. 208.

Sincerely,

---

Ashlye Clark, HSRs/AD  
Activities Director

**APPENDIX D**

Four Winds Community  
215 Seth Avenue  
Jackson, OH 45640

Ohio University  
Institutional Review Board

March 27, 2007

To Whom It May Concern:

Renata L. Geyer has explained her project to me and I would like to acknowledge that Four Winds Community would like to assist her in her research project. I understand that Ms. Geyer will provide short-term music therapy sessions to residents who have Alzheimer's disease and those that exhibit wandering behaviors. Ms. Geyer also has permission to contact each resident's responsible party for permission to work with the resident with the understanding that a written confidentiality statement is signed with the facility first.

Yours truly,

---

John D. Evans  
Administrator

## APPENDIX E

### Ohio University Informed Consent Form

**Title of Research:** The Impact of Live Religious Music on the Pre-Wandering and Wandering Behaviors of Persons Diagnosed with Dementia of the Alzheimer's Type

**Principal Investigator:** Renata L. Geyer, Graduate Student, Ohio University

**Department:** Music Therapy

Federal and university regulations require signed consent for participation in research involving human subjects. After reading the statements below, please indicate your consent by signing this form

#### Purpose of the Study

The purpose of this research is to study the impact of live religious music on the pre-wandering and wandering behaviors of persons diagnosed with dementia of the Alzheimer's type

#### Procedures to be Followed

1. Each subject will be randomly assigned to a religious music therapy session group (experimental group) or a secular music based therapy session group (control group) and will participate in five 10 minute individual music therapy sessions.
2. Before each session, the principal investigator will greet the subject and take him or her to a pre-designated place free of distractions within the facility.
3. During each session, the principal investigator will engage the subject in music therapy experiences that may include clapping, foot tapping, humming, instrument choice, interactive singing, music listening, song choice or therapeutic instrument playing. During the sessions, the principal investigator will sing and also be playing one or more of the following instruments: keyboard, guitar or violin.
4. If at any time during the session, the subject wishes to leave, the principal investigator will stop the music and allow that subject to leave the area
5. After each session is over, the principal investigator will escort each subject back to the area of activity and inform a member of the nursing staff that the subject is finished with music therapy for the day.

#### Measurement Tools

The Revised Algate Wandering Scale – Long Term Care Version (RAWS-LTC) will be used to measure each subject's wandering behavior. A member of the nursing staff will complete this quantitative scale for each subject before the first music therapy session and again after the last session. The scale provides the principal investigator with

information about each subject's current wandering habits and documents how often wandering behaviors occur. By comparing each subject's pre-music therapy scale with the post-music therapy scale, the principal investigator will be able to determine if a change in wandering behavior occurred. During the sessions, the principal investigator will take a frequency count of how many times the subject attempts to engage in pre-wandering behavior.

#### Risks and Discomforts

There are no anticipated risks or discomforts as a result of participation in this study

#### Benefits

The music and music therapy experiences utilized may be enjoyed by the subject and may have a calming effect on him or her.

#### Confidentiality and Records

In written and verbal documentation, subjects will be identified through only a group and a number. (Example: Control group 1 or Experimental group 1). The same group and number will be coded on the consent form and the data forms for each subject. Names and/or any other identifying information will not be used. All records and other forms of documentation will be kept in a locked cabinet in the researcher's office. When the research is completed, the researcher will destroy all records and written documentation.

#### Compensation

There is no compensation available for participation in this study

#### Contact Information

If you have any questions regarding this study, please contact Renata Geyer, Graduate Student, Music Therapy Department, Ohio University, (740) 438-7529, or Louise Steele, Research Advisor, Director of Music Therapy, Ohio University, (740) 593-4249

If you have any questions regarding research participant rights, please contact Jo Ellen Sherow, Director of Research Compliance, Ohio University, (740) 593-0664

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I certify that I have read and understand this consent form and agree to allow my charge to participate as a subject in the research described. I agree that known risks to me have been explained to my satisfaction and I understand that no compensation is available from Ohio University and its employees for any injury resulting from my charge's participation in this research. I certify that I am 18 years of age or older. My charge's participation in this research is given voluntarily. I understand that my charge may discontinue participation at any time without penalty or loss of any benefits to which he/she may otherwise be entitled. I certify that I have been given a copy of this consent form to keep for my records.

---

Signature

---

Printed Name

---

Date



**APPENDIX F**

Dear \_\_\_\_\_,

My name is Renata Geyer and I am a board certified music therapist and a music therapy masters candidate at Ohio University. I am working on my master's thesis entitled: The Impact of Live Religious Music on the Pre-Wandering and Wandering Behaviors of Persons Diagnosed with Dementia of the Alzheimer's Type.

I am writing to ask your permission for \_\_\_\_\_ to participate in my research study. The administration at Hickory Creek has approved for me to contact you regarding this study. Enclosed in this letter is also an informed consent document that further explains my study and outlines any potential risks and benefits \_\_\_\_\_ may encounter as a result of participation.

If you give consent for \_\_\_\_\_ to participate, please sign and date one copy of the informed consent form and return it to me in the self-addressed stamped envelope provided. Keep the other copy for your records.

The other document enclosed in this packet of information is a Religious History Intake and Musical Preference Form (RHIMP). If you give consent for \_\_\_\_\_ to participate, please fill out the brief questionnaire to the best of your ability and return it with the signed and dated copy of the informed consent form no later than Wednesday, May 9 2007.

Thank you for your consideration of my request.

Sincerely,

Renata L. Geyer, MT-BC

## APPENDIX G

### Revised Algase Wandering Scale: Long-Term Care Version

**Subject being evaluated:** \_\_\_\_\_

**Person completing this scale:** \_\_\_\_\_

Please circle the number beside the statement that best describes the person's current ability or behavior.

Persons filling out the scales are directed to think of the person they are rating as they are in the present and to reflect on the previous several hours when circling their responses.

	<b>1 never/ unable</b>	<b>2 occasionally</b>	<b>3 regularly</b>	<b>4 usually</b>
1. He/she does a lot of spontaneous walking.	1	2	3	4
2. He/she has reduced the amount of their spontaneous walking.	1	2	3	4
3. He/she walks about aimlessly.	1	2	3	4
4. He/she enters private or unauthorized areas.	1	2	3	4
5. He/she gets lost within the facility.	1	2	3	4
6. He/she cannot locate dining room without help.	1	2	3	4
7. He/she walks around restlessly.	1	2	3	4
8. He/she cannot locate own room without help.	1	2	3	4
9. He/she walks around between awakening and breakfast.	1	2	3	4
10. He/she walks around between lunch and dinner.	1	2	3	4
11. He/she walks around between dinner and bedtime.	1	2	3	4
12. He/she walks around on own.	1	2	3	4
13. He/she paces back and forth.	1	2	3	4
14. He/she cannot locate bathroom without help.	1	2	3	4
15. He/she gets lost.	1	2	3	4
16. He/she attempts to leave approved area.	1	2	3	4
17. While walking alone, he/she bumps into obstacles or other people.	1	2	3	4
18. He/she runs off.	1	2	3	4
19. He/she walks around between breakfast and lunch.	1	2	3	4

**APPENDIX H****Religious History Intake and Musical Preference Form**

Name of Person Filling Out This Form\_\_\_\_\_

Relationship to Subject\_\_\_\_\_

Subject Name\_\_\_\_\_ Age\_\_\_\_ Sex\_\_\_\_ Birth date\_\_\_\_\_

**Subject's Musical History:**

Instruments Played\_\_\_\_\_

Favorite Instruments\_\_\_\_\_

Religious Performing Group Participation \_\_\_\_\_

Favorite Religious Songs\_\_\_\_\_

Favorite Secular Songs\_\_\_\_\_

Secular Performing Group Participation\_\_\_\_\_

**Subject's Religious History:**

Please circle the Christian denomination with which the subject is most closely affiliated:

Baptist      Lutheran      Methodist      Presbyterian      Episcopal      Catholic

Other\_\_\_\_\_

How often does/did the subject attend church? (please circle)

Every week      Every few weeks      Once a month      Once every few months

Please circle the religious activities in which the subject has participated:

Sunday School      Worship Leader      Member of Church Committee

Other – please specify\_\_\_\_\_

## APPENDIX I

### **Music Therapy Intervention Descriptions As Defined By the Music Therapy Department at the Cleveland Music School Settlement**

Clapping - Client response to live or recorded music, with or without specific beats or rhythmic patterns

Foot Tapping – Client response to live or recorded music, with or without specific beats or rhythmic patterns

Humming – Client response to live or recorded music, with or without specific melody, beats, or rhythmic patterns

Instrument Choices – An opportunity for client to select desired instrument(s).

Interactive Singing – The use of singing to promote social interaction or communication between the therapist and client or between clients and/or peers

Music Listening – Live music provided by music therapist (does not require active participation)

Song Choices – An opportunity for client to select desired music

Therapeutic Instrument Playing – The use of instrument-playing to target specific motor movements in order to improve range of motion, flexibility, endurance, and /or strength, and develop functional motor skills

**APPENDIX J**

## Religious Songs

Amazing Grace  
Oh When the Saints Go Marching In  
What a Friend We Have in Jesus  
Jesus Loves Me  
Abide with Me  
Nearer My God to Thee  
In the Garden  
Jesus Savior Pilot Me  
Rock of Ages  
Swing Low Sweet Chariot  
I'll Fly Away  
Onward Christian Soldiers  
God Be With You Till We Meet Again  
How Great Thou Art  
The Old Rugged Cross  
Leaning on the Everlasting Arms  
This Little Light of Mine  
He's Got The Whole World in His Hands  
Give Me That Old Time Religion

## Secular Songs

You Are My Sunshine  
Let Me Call You Sweetheart  
Daisy, Daisy (Bicycle Built for Two)  
Five Foot Two Eyes of Blue  
Makin' Whoopee  
Ain't She Sweet  
Carolina Moon  
For It Was Mary  
How Ya Gonna Keep Em' Down on the Farm  
Take Me Out to the Ballgame  
Beautiful Brown Eyes  
Show Me the Way to Go Home  
Don't Sit Under The Apple Tree  
School Days  
Beer Barrel Polka  
I'm Forever Blowing Bubbles  
My Wild Irish Rose