

RUNNING HEAD: PERCEPTIONS OF EFFECTS OF ENVIRONMENTAL SOUND

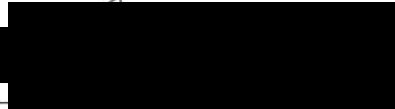
MUSIC THERAPISTS' PERCEPTIONS OF THE EFFECTS OF ENVIRONMENTAL SOUND  
ON SKILLED NURSING FACILITY RESIDENTS WITH DEMENTIA

by

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A Thesis  
Submitted in Partial Fulfillment  
Of the Requirements for the Degree of  
Master of Music Therapy  
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May 2013

  
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# PERCEPTIONS OF EFFECTS OF ENVIRONMENTAL SOUNDS

## ABSTRACT

The purpose of this descriptive survey study was to investigate music therapists' perceptions of environmental sound on skilled nursing facility residents with dementia. Participants (N=43) were Board-Certified Music Therapists who work, or have worked, in skilled nursing facilities, and members of the American Music Therapy Association. A total of 15 questions were devised and electronically mailed to participants. Survey questions were categorized as follows: (i) demographic information of participants; (ii) music therapists' awareness of environmental sound (iii) what type of facility the participants currently work or have worked in with adults with dementia; (iv) environmental sounds heard regularly in facility; (v) what time of day/during what period these sounds are heard; (vi) typical behaviors of adults with dementia; (vii) perceived opinion on relationship between increase of environmental sounds and increase in resident behavior; (viii) the music therapists' role in reducing environmental sound and the facility's policies on this matter, or lack thereof. Results revealed that an overwhelming 81.4% (n=35) were "Very aware" of environmental sounds in their facility, while 16.3% (n=7) were "Somewhat aware", and only 1 (2.3%) respondent was "Not aware". In regards to the perceived relationship of increased environmental sound and increased negative behavior, the study found that (n=1) respondent said the relationship is 'highly unlikely', while 14% (n=6) said that the relationship is 'somewhat likely', 37.2% (n=16) said likely, 44.2% (n=19) highly likely, and (n=1) respondent chose 'no answer'. Overall, the results favored a likely relationship between perceived increased environmental sound and increased negative behavior. This study also indicated that 83% (n=36) of participants work or have worked at facilities where there is no enforced policy on regulating the sound environment. Participants were asked to provide music therapy interventions that they use with addressing negative

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behaviors in adults with dementia. Limitations and implications for further research are noted.

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### ACKNOWLEDGEMENTS

First and foremost, I'd like to acknowledge the influence of my Lord and Savior, Jesus Christ, on my life. He has been my Rock, hope, strength, and peace on this incredible journey, and I know He always will. "...But those who hope in the LORD will renew their strength. They will soar on wings like eagles; they will run and not grow weary; they will walk and not be faint." –Isaiah 40:31.

I would like to thank my supportive and loving parents who have remained at my side with abundant and continuous encouragement. My family and friends have impacted my life in such a positive way that has left me eternally grateful.

Thank you to every professor, teacher, advisor, colleague, and elder who has ever spoken words of encouragement, wisdom, and guidance into my life. Those encounters never go unnoticed.

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## CHAPTER 1

## INTRODUCTION

Dementia is a progressive and degenerative neurologic disease. The symptoms include a severe decline in the person's cognitive functioning and ability to properly perceive the surrounding environment. "Alzheimer's disease and related dementias significantly change how people interpret what they see, hear, taste, feel, and smell" (Bakker, 2003, pp. 46). When residents living with dementia in a skilled nursing facility become over-saturated with stimuli from their surrounding environment, their inability to properly perceive what is happening around them may result in negative behaviors such as agitation, anxiety, loud vocalizations, and physical aggression. Although many professionals in the field feel these behaviors are a direct result of the physiology of the progressing disease, which in some cases may be true, the reality is the environment is most often not conducive to the ever-changing functioning levels of the person with dementia. Alzheimer's Australia (2004) and Dewing (2009) stated that of all the stimuli, noise has the most significant and damaging effect on people with dementia. Frequently, sounds influencing the environment of a skilled nursing facility are staff-induced and unintentional. Such examples include, but are not limited to, machines crushing pills, televisions, carts delivering food onto units, the movement of furniture, staff interactions, chair alarms, etc. Topf (2000), a leading researcher in the effects of noise levels in intensive care units, deems noise levels in a hospital as a form of environmental pollution. Nursing staff are most likely unaware of the disrupting aural atmosphere their actions create, and often unaware of the consequences of an over-stimulating environment. Understanding these associations may shed light to its influence on residents' negative behaviors, and include a better comprehension of prevention, as well as the maintenance of a therapeutic environment (Bakker, 2003).

“Music Therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program” (American Music Therapy Association, 2012). The use of music therapy with adults with dementia can provide an outlet for self-expression, and verbal and nonverbal communication when no other medium is successful, deep into the late stages of the disease. Music also lends itself to providing structured programs for those with milder deficits, which allows for managed use of their time and less wandering. One of the most powerful and studied aspects of music and dementia is the use of preferred music of a person with dementia’s younger years. The familiarity of the music provides a container of comfort and safety during an otherwise dark time of confusion and disorientation. Music therapy can also provide relaxation and alter mood and behaviors that are common result of the disease. Families and close loved ones of a person with dementia can also benefit from music therapy sessions. An intimacy and bond that may have otherwise been withdrawn due to the disease is created and, subsequently, renew joy and a meaningful time spent together.

The music therapist working with patients with dementia has an important role to play. According to the American Music Therapy Association’s Standards of Clinical Practice Footnotes, Section xii, ‘safety’ is defined as the “Avoidance of harm through structuring care processes, supplies, equipment, and the environment to reduce/eliminate client and staff injuries, infection, and care errors. A safe auditory environment includes protecting clients from continued exposure to loud sounds. For example, continued exposure to sound levels above 85 dB TWA (Time Weighted Average) for more than 8 hours can result in hearing loss” (American Music Therapy Association, 2012). By understanding the environment’s impact, as well as having a heightened awareness to this issue, music therapists and caregivers may be able to



provide each person with a more therapeutic environment and ultimately, improve the overall quality of care. I believe that as makers of therapeutic sound, music therapists should take a leading role in developing awareness within the geriatric community, and educating caretakers of patients with dementia. Music therapists' perceptions of the sound setting could help caretakers understand and implement healthier, more peaceful sound environments for adults with dementia.

#### Purpose

The purpose of this descriptive survey study was to investigate music therapists' perceptions of environmental sound on skilled nursing facility residents with dementia. To uncover these perceptions, data was collected through an electronic survey given to board-certified music therapists who have clinical experience in the skilled nursing facility setting. It is the aim of the researcher to shed light and bring awareness of this issue to caretakers, thus increase the quality of life for nursing home residents with dementia.

#### Research Questions

The research questions are of this study are:

- (1) What are the environmental sounds music therapists commonly hear on a daily basis?
- (2) When are they heard most frequently?
- (3) How do music therapists feel environmental sound impacts resident behavior?
- (4) How do music therapists deal (or have dealt) with this issue in their clinical setting?

## CHAPTER 2

## REVIEW OF RELATED LITERATURE

The purpose of this literature review is to synthesize the research on this topic to formulate suggestions for music therapists and professionals at skilled nursing facilities. In this literature review, I will describe studies that explain relationships between environmental stimuli, most specifically sound, and behaviors of people living with dementia. In the first section, I will describe research on the correlation between noise and sleep patterns of patients in a hospital Critical Care Unit (CCU) (Topf, 2000; Hilton, 1987). In the second section, I will describe literature reviewed by researchers in the field on dementia's impact on sensory loss (Dewing, 2009; Bakker, 2003). In the third section, I will describe research on the physical and social environments of skilled nursing facilities and special memory care units (Whall, A.L., Black, M.E., Groh, C.J., Yankou, D.J., Kuperschmid, B.J., & Foster, N.L., 1997; Zeisel, J., Silverstein, N. M., Hyde, J., Levkoff, S., Lawton, M. P., & Holmes, W. 2003; Slaughter, Calkins, Eliasziw, Reimer, 2006; Bicket, Samus, McNabney, Onyike, Mayer, Brandt, Rabins, Lyketsos, Rosenblatt, 2010). In the final section, I will suggest implications of these studies. It is my hope these suggestions for practical application may help care providers understand how the environment impacts people suffering from dementia.

## Noise and Sleep Patterns of Patients in Critical Care Units

Skilled nursing facilities are not the only healthcare facilities that experience unintentional, negative effects due to the sound environment. The following studies (Hilton, 1987 and Topf, 2000) describe the impacts of sound in critical care units of hospitals. Hilton (1987) conducted a study using small microphones on patients' headboards for 24 hours to measure sound decibels. Topf (2000) designed and expanded a model to reduce ambient

stressors in patients as a result of the sound environment. These studies are adaptable and transferable to the study of environmental sound in a skilled nursing facility setting.

In a critical care supplement to the American Journal of Nursing, Hilton (1987) describes the effects noise has on a nursing unit based on a small study conducted in six units of three metropolitan hospitals. She shares some evidenced-based research regarding the correlation between noise and sleep. Sound becomes noise at 35 to 40 decibels (Hilton, 1987). “Noise can induce chronic fatigue, can enhance pain perception at an average of 50 decibels, and potentially hearing defects” (p. 59). Noise not only has physiological effects, but it also creates psychological affects on a person such as increased irritability and agitation, and altered perceptions (Hilton, 1987). For the treatment, the researcher recorded sound levels for 24 hours by placing a microphone at the head of the patients’ beds. After two, 3-hour observations and verbal interventions from the patients on their perceptions of sound levels, it was found that sound levels were above recommended levels even at night. The researcher observed staff interactions as well as the noises created by hospital equipment: paper ripping, chairs/stools, garbage can, phone ringing, monitor alarm, IVAC alarm, and bedrails moving up/down. Patients interviewed by the researchers commonly said the environment was generally quiet except for shift changes. The researcher states one positive effect noted and that was that the noise helped distract from the pain (Hilton, 1987). The researcher makes suggestions and implications for hospital care givers for reducing sound. Lowering the volume on telephone ringtones will decrease the decibel levels, and being mindful of the type of equipment a hospital purchases can provide the staff with efficient tools, but remaining audibly safe. The author also suggests providing patients with ear phones to muffle sound as well as providing preferred music to offer distraction from the environment. The seemingly obvious suggestions, that requires mentioning,

is to lower the speaking voices of staff on the units. This implication is strongly recommended during overnight overs when patients are sleeping. Though the findings are informative, the sample was small and results may not be generalizable.

In efforts to improve the quality of care given in hospital settings by providing effective interventions to those suffering from high levels of noise in a Critical Care Unit (CCU), Topf (2000) expanded on her original, evidence-based, environmental stress model: Enhancement of Person-Environment Compatibility (EP-EC). The EP-EC, an intervention model to reduce ambient stressors, was created as a response to requests to modify the hospital environment for patients who develop, while admitted, personal stressors admitted due to the environment. The researcher defined stressors as “events with the capacity to cause stress that include major personal and cataclysmic events” (p. 521). Topf consulted the literature and added to the EP-EC personal variables that he believed influence patients’ reactivity to environmental stress. For example caregivers can provide patients instruction in personal control (behavior, decisional, cognitive, or cognitive-behavioral) to reduce ambient stressors. Though these strategies may be helpful, Topf suggests it is preferable to prevent ambient stressors from occurring in the first place. The researcher suggests nurses do further research in their clinical settings on the impacts of hospital noise on their patients. For example, as implemented in the Hilton (1987) study, taking a noise meter to patients’ bedside to measure the noise levels surrounding them, as well as giving the patient a questionnaire survey to assess subjective noise-stress and sleep. Due to the significant amount of quantitative research behind the environmental stress model, and the correlation between hospital noise and patient stressors, this study contributes strong evidence about the relationship between environmental sound and stress.

Hilton (1987) and Topf (2000) both recognized the impacts of sound environment and the

stress it creates for the patient. Their suggestions and implications were almost identical in nature: giving questionnaires to patients on their perceptions of the sound environment and using bedside microphones to measure the amount of sound are good markers for addressing the severity of noise on a hospital unit. Topf (2000) had significantly more literature in her study on previous research related to this topic. Hilton (1987) was an older study and was perhaps a pioneer in the research of this topic for their time.

### Dementia and Sensory Loss

Sensory stimulation not only impacts patients in hospital settings, it also effects nursing home residents suffering from dementia. Dementia creates disorientation in a person, and if an environment that doesn't support their changing functioning, this could potentially disrupt their lives by adding more disorientation. Often times, there are techniques to prevent further disorientation. In this section, these studies (Dewing, 2009, Bakker, 2003) describe the effects of sensory stimulation on persons with dementia and offer suggestions to care givers as to how to limit the sensory environment to appropriate levels of stimulation.

According to Dewing (2009), "Sensory stimulation can have a significant effect on the wellbeing of people with dementia" (pp. 34). Noise and light, said to be the most "obvious sources of sensory stimulation" were qualitatively examined in this article. Hearing loss is a natural occurrence with increasing age, but for someone with dementia, this could add frightening misperceptions in their environment. Dewing (2009), found research by Cmiel, C., Karr D., Gasser, D. (2004) to support that "background noise such as telephones and machines, trolleys and other pieces of equipment can impact sleep patterns, and disturb rest and relaxation" (p. 35). These influences carry heavier outcomes when continued for prolonged amounts of time. Such outcomes include "increase in memory loss and other cognitive functions, increased

agitation, and less tolerance for pain and feelings of isolation” (p. 35). When sudden, abrupt noises occur, startle reflexes create various physiological responses, which also activate and increase disorientation in a person with dementia (p. 35). Dewing (2009) postulates, “recognizing that most noise in an environment is produced by staff is often the first step to modifying noise levels” (p. 37). The implications of this article include gaining the attention of nursing to believe in the power of environmental stimulation through oral and visual presentations of research on this topic. The author further states that simply investigating in tools that measure your facility’s noise and light levels is a great way to get a baseline of environmental stimulation. This is a strong article because it provides credible research in a published source, supporting the correlation between the sensory environment and its impacts on people with dementia.

In a review of research and personal suggestions, Bakker (2003) also discussed environmental factors and sensory stimulation. This article studied each sensory marker and gave practical considerations for the best, therapeutic environment for the person suffering from dementia. Starting with vision, the author gave a suggestion to keep the surrounding environment small, and uncluttered. This will help provide clearer navigation for the person with dementia. She also suggested providing strong color contrasts in day-to-day objects such as utensils and tabletops. “Excess noise can result in confusion, over-stimulation, and difficulty communicating” (p. 48). In a person with dementia, the inability to accurately interpret what they hear can potentially lead to auditory hallucinations. The author suggests a facility should invest in acoustical panels, upholstered furniture, drapes with lining, and consider renovating larger rooms into smaller rooms (Bakker, 2003). Some people with dementia find comfort in light, therapeutic touch. Bakker (2003) feels that adults in advanced stages of dementia “find

tremendous comfort from holding a stuffed animal close to their body” (p. 49). As part of the decline in a person with dementia, the desire for food intake decreases, thus eliminating the proper nutrients from being absorbed in the body. The author suggests small rooms with square tables and place mats “define person territory and may reduce the frequency of people taking their tablemate’s wares by mistake” (p. 50). The primary implication of this article is to provide caretakers with suggestions of an appropriate living environment for a person with dementia. All five senses are addressed by describing the influence dementia has on each, as well as how to compensate for each of the sensory losses.

Dewing (2009) and Bakker (2003) both discussed and reviewed literature on the correlation between sensory stimulation and dementia. Their findings were similar in that sensory markers such as noise, light, vision, taste, and touch, are all impacted by the degenerative symptoms of dementia. Through personal advice as an environmental gerontologist, Bakker (2003) offered suggestions to improve the environment of a skilled nursing facility to make it the healthiest setting for those suffering from dementia.

### Physical and Social Environments

Creating a safe, healthy, and appropriate sensory environment can be done by building a structure with the best adaptations. If a facility cannot financially afford to remodel, there are other cost-effective techniques to minimize inappropriate sensory stimulation. In this section, I will first discuss research on alternative techniques on the social environment when administering care to a resident with dementia (Whall, A.L., Black, M.E., Groh, C.J., Yankou, D.J., Kuperschmid, B.J., & Foster, N.L., 1997). The physical environment will be looked at based on behaviors of a person with dementia in traditional institutional facilities compared to that of a resident with dementia of special care facility (Zeisel, J., Silverstein, N. M., Hyde, J.,

Levkoff, S., Lawton, M. P., & Holmes, W. 2003; Slaughter, S., Calkins, M., Eliasziw, M., & Reimer, M., 2006). Lastly, the environment of an Assisted Living will be examined, including the residents' behaviors as a result of the physical environment (Bicket, M. C., Samus, Q. M., McNabney, M., Onyike, C. U., Mayer, L. S., Brandt, J., & Rabins, P., 2010).

Medicinal treatments and physical restraints as approaches to reduce negative behavior are becoming more restricted in nursing home care and the need for more humane treatments has increased (Whall, A.L., Black, M.E., Groh, C.J., Yankou, D.J., Kuperschmid, B.J., & Foster, N.L., 1997). In this study, the researchers examined the effect of natural environmental sounds and pictures to decrease agitated behavior in nursing home residents with dementia during the administering of personal care. There were 31 participants with dementia from 5 different nursing homes. The participants were divided into two groups: 15 in the natural experience group and 16 in the usual care group. The Cohen-Mansfield Agitation Inventory (CMAI) was used to measure patient behavior throughout the study. Including baseline, there were three treatments (showers) given over the course of a week. The nursing aids ( $n = 10$ ) gave one baseline shower to both groups before beginning the treatment. In the natural environment group, songs of birds and streams of water were played while pictures of animals were displayed for the participants to see. The nursing aids would ask direct questions to the participants regarding the music or pictures and were instructed only to discuss the natural environment. Each shower was averaged to be around 7- 10 minutes. The results supported a significant decrease in agitated behaviors in the treatment group as shown by the CMAI measurements between baseline and T1. There was not as a significant decrease between T1 and T2. Limitations for this study were found due to the lacking of aggression items on the CMAI scale. The researchers proposed the Ryden Aggression Scale to be used in future studies. Other



limitations included the non-randomized participation and generalizability issues. Though this article provided a resourceful intervention to decreasing agitated behaviors during showering, the article was weak because of the small treatment group ( $n = 31$ ). Zeisel, Silverstein, Hyde, Levkoff, Lawton, & Holmes, (2003) studied the correlation between behavioral health and environment of Alzheimer's special care units. The aim of this study was to measure the associations between physical design of special care units (SCU) and the incidence of negative behaviors in those with dementia. The researchers developed the Environment-Behavior Factors model to measure these findings. Using purposeful sampling, 15 SCUs, which included 457 residents, participated in this study across New England and eastern New York. There were multiple tools to measure behavior and environment. These tools included, the Cohen-Mansfield Agitation Inventory (CMAI), the Multidimensional Observation Scale for Elderly Subjects, and the BEHAVE-AD Psychotic Symptom List. There were three types of variables: resident characteristics, nonenvironmental facility characteristics, and environmental characteristics. According to these variables and the tools used to measure, results showed associations between behavioral health and the physical environment of SCU. It was found that "environments conventionally designed for the cognitively able appear to put stress on the cognitive abilities of those with Alzheimer's" (Zeisel, et al, 2003, p. 709). A limitation of this study is the possibility of "unspecified factors" not included in the Environment- Behavior Factors model. There was also limited variability that may have influenced the data. Suggestions for further research are mentioned. The large participation sampling and extensive usage of various tools to measure data made this a strong article.

Indeed, the physical environment influences the wellbeing of a person with dementia. A special care facility is designed to meet the specific needs of a person with dementia and create

the best therapeutic environment. The following article compared the environments of a special care facility (SCF) and traditional institutional facilities (TIFs). Part of a longitudinal study on the quality of care in residents with dementia, A cross-sectional comparative analysis was used for one SCF and 24 TIFs (Slaughter, S., Calkins, M., Eliasziw, M., Reimer, M., 2006). Multiple measurements were used: Special Care Unit Environmental Quality Scale (SCUEQS), Composite Above Average Quality Score (CAAQS), (TESS-2+), and Models of Care Instrument (MOCI). Based on only the TESS-2+ and MOCI, a differentiation was made between the SCF and TIFs. Interestingly, the TESS-2+ found a significant negative finding: the SCF was noisier than the TIFs (Slaughter, et al, 2006). “Evidence in the literature supports the value of a low-stimulus, comfortable environment using multisensory modalities” (p. 1440). As noted by authors, “one of the major strengths of this study was the inclusion of a comparison group consisting of multiple sites” (p. 1440). The authors also noted a limitation that is related to the use of the MOCI tool-it is an instrument still in development and was not validated before use (Slaughter, et al. 2006). Implications suggest future research to determine how to assess both SCFs and TIFs for the best possible environment for residents with dementia.

Skilled nursing facilities are not the only settings where people with dementia reside and are influenced by their environment. Assisted living (AL) facilities are becoming a more popular trend towards end-of-life care. In the following study by Bicket, Samus, McNabney, Onyike, Mayer, Brandt, & Rabins, (2010), the researchers examined the physical environment of an AL and how it influences neuropsychiatric symptoms (NPS), quality of life (QOL), and fall risk of demented and non- demented residents living in an AL. Due to the limited research in AL settings, these researchers aimed to quantify their findings to provide insight to this population. Participants in this cross-sectional study included a random sample of current residents living in

30 AL facilities in central Maryland. Two groups were randomly selected: 13 large facilities and 17 small facilities. For every large facility there were 15 participants, and for the small facilities, all residents were asked to participate. To measure data, the Therapeutic Environmental Screening Scale for Nursing Homes and Residential Care (TESS-NH/RC) was used, and modified to fit the AL physical environment (AL-EQS) (Bicket, et al. 2010). Results indicated two negative correlations. The first was a strong negative correlation between the Neuropsychiatric Inventory (NPI) score and AL-EQS. The second negative correlation came with fall risk. The AL-EQS was positively associated with the Alzheimer's Disease Quality of Life score. These findings suggest that the physical environment of AL facilities who embrace "resident dignity" have a "lower occurrence of NPS and higher occurrence of QOL in residents, particularly those without dementia" (Bicket et al, 2010, p. 1052). Implications include conducting a longitudinal study to further investigate and understand this issue. This study was included a large sampling which offered opportunity for more generalizability. A limitation was found in the observation process, which potentially created observer biases (Bicket, et al, 2010).

These researchers all agreed that the physical and social environment impacts a person with dementia. Based on data by Bicket, et al, (2010), the negative strong correlation between the Neuropsychiatric Inventory and the assisted living physical environment, behaviors result as a result as a poorly designed physical environment. Though this study was conducted in an assisted living facility, skilled nursing facilities can use this research as a guide to assessing their own environment. In the study by Slaughter et al. (2006), the researchers discovered the special care facility, a facility designed specifically for those with dementia, was noisier than the traditional institutional facility. This discovery is alarming, as the environment for a person with dementia should be most carefully structured with low stimulation. Whall et al. (1997) found

that stimulation used in an appropriate manner, is effective in calming agitated behaviors during personal care. The intentional and proper use of natural environmental photos and sounds gives the right amount of stimulation to the resident for quality care administration, as well as engaging in a task in a healthy manner.

### Implications

Overall, the research reviewed suggests there are correlations between the environment of a person with dementia and their resultant behavior. Throughout the analysis of these studies, the researchers have given practical applications for caregivers of people with dementia. For example, Bakker (2003) provided environmental techniques/adaptations for each sensory marker (sound, vision, touch, taste, and smell) such as sound-proofing materials for walls, floors, and ceilings. She also suggested using contrasting colors on table tops to distinguish personal place settings. Hilton (1987) suggested simply keeping the staff conversations to low volumes, most specifically during night ours when patients are sleeping. Common themes throughout the research with dementia care reflect the design of the facility is what sometimes creates behavioral problems, not the dementia alone (Bakker, 2003; Dewing 2009; Whall et al., 1997; Zeisel et al., 2003). Suggested adaptations, such as the use of natural elements during the administering of personal care as a cost-effective solution, were given for caregivers to help create a more therapeutic environment for those living with dementia (Whall, *et al* 1997; Zeisel et al., 2003). Relating skilled nursing home research to that of noise in a hospital setting has resulted in very similar findings: patients experience increased irritability and agitation, and altered perceptions (Hilton, 1987; Topf, 2000). The ideas, techniques and adaptations are transferable, thus researchers should consult with each other on their findings. Practitioners and caregivers should continue to apply suggestions provided by these researchers, and might also

consider conducting similar quantitative research to collect more objective findings. This type of quantifiable evidence might help support the argument that environmental aural stimulus contributes to behaviors of adults with dementia in nursing homes, and that professionals and administrators might benefit from training that assist them in minimizing negative effects of aural stimulus in the environment.

Based on these related studies, the present study aims to identify the sounds heard by music therapists in a skilled nursing facility and the perceived impacts those sounds may have on residents with dementia.

## CHAPTER 3

### METHOD

#### Participants

The participants in this study were board-certified music therapists who have had past or current experience working in a skilled nursing facility or related setting with residents with dementia. These music therapists were also members of the American Music Therapy Association (AMTA). Based on these criteria, 199 music therapists were invited to participate via email.

#### Survey Instrument

The instrument used in this study was Survey Monkey.com®, an online survey tool that creates and sends free surveys, polls, questionnaires, customer feedback, and market research. A total of 15 questions were created by the researcher for this survey (please see Appendix B). The survey questions consisted of five sections based on the following research questions: 1) demographic information, 2) What are the environmental sounds music therapists commonly hear on a daily basis?, 3) When are they heard most frequently?, 4) How do participants feel environmental sound impacts resident behavior?, 5) How have participants dealt with this issue as a music therapist in this setting? These 15 survey questions were composed by the researcher's subjective opinions related to the sound environments of skilled nursing facilities she has worked for, the type(s) and frequency of behaviors from residents with dementia, and what she has attempted to do as a music therapist to bring awareness to this issue.

### Procedure

This descriptive study was designed to collect electronic survey responses of music therapists' perceptions on sound environment and the behavior of a nursing home resident with dementia. After obtaining approval from the Human Subjects Review Board at the State University of New York at Fredonia, the American Music Therapy Association was contacted to acquire permission to access the email addresses of Board-Certified Music Therapists who work, or have previously worked, in clinical settings with residents with dementia. After receiving approval from the AMTA, the participants were contacted by email to invite them to take part in this research survey, conducted through the instrument, Survey Monkey.com ®. Following the invitation, which included a link to the survey, an electronic consent was given to every participant (see Appendix). In the electronic consent, prospective participants were assured that the survey data would be used for educational purposes and will be kept completely confidential (no names or personal information were collected), and that the results and findings would be used to further educate caretaking professionals on the issue of sound environment, and thus, increase the quality of care given to the people with dementia. Participants had two weeks to complete the 15-item survey (see Appendix B), that took about five to ten minutes to complete. One week after sending the initial invitation, a reminder email was sent to inform the participants that they had one more week to complete the survey.

## CHAPTER 4

## RESULTS

Of the 199 individuals who were invited via email to participate in this study, N=43 (21.6%) responded. The respondents included 3 (7%) males and 40 (93%) females. The majority (65.1%) of the participants fell between the ages of 23-35 years old (n=28). The rest were as follows: n=10 (23.3%) between the ages of 36-50; n=4 (9.3%) between 51-64; n=1 (2.3%), 65 and older. Participants were Board-Certified Music Therapists. Thirty-nine (90.7%) categorized themselves as professional members of the American Music Therapy Association (AMTA), and four (9.3%) stated they were student/graduate student members. Participants belonged to the following AMTA regions: Mid-Atlantic (n=12), Great Lakes (n=9), Midwestern (n=7), New England (n=6), Southeastern (n=5), and Western (n=4). When asked how many years in the field, 22 (51.2%) participants responded with experience of less than five years, 13 (30.2%) responded with 6-15 years, 6 (14%) between 16-25 years, and 2 (4.7%) between 26-44 years. These 43 music therapists had past or current experience working with residents with dementia in the following clinical settings: Skilled Nursing Home- Specialized Memory Care Unit (n=26; 60.5%), Assisted Living- Specialized Memory Care Unit (n=15; 34.9%), Adult Day Care- Specialized Memory Care Unit (n=7; 16.3%), Skilled Nursing Home (n=29; 67.4%), Assisted Living (n=17; 39.5%), and Adult Day Care (n=9; 20.9%). Others (n=12; 27.9%) included hospice (n=2), in-home care (n=2), children's medical (n=2), hospital (n=2), rehabilitation (n=1), Autism/behavioral elementary classroom (n=1), health and wellness community center (n=1), and transitional care (n=1). Two of the respondents who selected "other" mentioned that their experience in either a skilled nursing facility or assisted living, was a past job and they included their current, unrelated population clinical setting.



Table 1

*Demographic information of participants*

Question	Responses <i>n responses</i> (%)				
Age	18-22 0 (0%)	23-35 28 (65.1%)	36-50 10 (23.3%)	51-64 4 (9.3%)	65+ 1 (2.3%)
Gender	Male 3 (7%)	Female 40 (93%)			
AMTA Membership Category					
	Professional 39 (90.7%)	Associate 0 (0%)	Student/Graduate Student 4 (9.3%)	Retired 0 (0%)	
	Inactive 0 (0%)	Affiliate (Educational Affiliate) 0 (0%)		Patron 0 (0%)	Honorary Life 0 (0%)
Region	Great Lakes 9 (20.9%)	Mid-Atlantic 12 (27.9%)	Midwestern 7 (16.3%)	New England 6 (14%)	Southeastern 5 (11.6%)
	Southwestern 0 (0%)	Western 4 (9.3%)	Outside of the United States 0 (0%)		
Years in the Field	<5 years 22 (51.2%)	6-15 years 13 (30.2%)	16-25 years 6 (14 %)	26- 44 years 2 (4.7%)	45+ years 0 (0%)
Clinical Setting					
	Skilled Nursing Home- Specialized Memory Care Unit				26 (60.5%)
	Assisted Living- Specialized Memory Care Unit				15 (34.9%)
	Adult Day Care- Specialized Memory Care Unit				7 (16.3%)
	Skilled Nursing Home				29 (67.4%)
	Assisted Living				17 (39.5%)
	Adult Day Care				9 (20.9%)
	Other				12 (27.9%)

The aim of this research was to examine music therapists' perceptions of the sound environment in their clinical setting. To measure their perceptions, the researcher first asked, based on the given scale, how aware the participants were of environmental sound in their facility. An overwhelming 81.4% (n=35) responded with "Very aware", 16.3% (n=7) were "Somewhat aware", and only 1 (2.3%) respondent was "Not aware" (as shown in Table 2 below).

Table 2

*Music therapists' perceptions*


---

 Awareness of environmental sound in facility

Not aware 1 (2.3%)	Somewhat aware 7 (16.3%)	Very aware 35 (81.4%)
-----------------------	-----------------------------	--------------------------

---

The survey asked the participants to identify the sounds most typically heard in their facility's environment, and when they occur most frequently. Table 3 shows more specifically the sounds that are most commonly heard by the researcher's personal working experience. This particular survey question allowed the participants to select all sounds they hear/have heard in their setting from the list provided, as well as a text box for any specific sounds not mentioned by the researcher. The results revealed that vocal resident behavior (42), staff talking (42), and televisions (42) were the highest causes of environmental sounds. Following close by was a generic 'music' category (40), which included radios, CDS, and live music. Also, chair alarms (35), the moving of tables and chairs (34), medical equipment (31), overhead paging speakers (31), and pill-crushing (26) were all identified as sounds heard in their environment. Others included: door alarms (3), call-light beepers (3), telephones (3), staff pagers (3), doors slamming (2), dogs barking (2), visitors (family, children, volunteers) (2), elevators (2), cleaning and

vacuuming (2), stuffed toys that play music (1), WanderGuard® alarms (1), HVAC units (1), staff cooking (1), clocks ticking in patients' rooms (1), and printers (1).

Table 3

*Environmental Sounds*


---

Sounds heard on a day-to-day basis in facility

Vocal resident behavior	42 (97.7%)
Staff talking	42 (97.7%)
Televisions	42 (97.7%)
Music (i.e. radios, CDs, live music)	40 (93%)
Chair alarms	35 (81.4%)
The moving of tables and chairs	34 (79.1%)
Medical equipment	31 (72.1%)
Overhead paging speakers	31 (72.1%)
Pill-crushing	26 (60.5%)
Other (please specify)	11(25.6%)

---

The frequency and time of day in which these sounds were perceived to be most prevalent, was also explored (refer to Table 4). The results revealed that 72.1% of participants (n=31) observed the highest amount of environmental sound occurred during the afternoon (noon- 6:00PM) hours, while the least amount (n=6; 14%) occurred during the evening hours (6PM-midnight). 51.2% (n=22) stated that the majority of environmental sounds transpired between the morning hours of 6AM-noon. No participants felt the night hours (midnight-6AM) had the highest amount of environmental sound.

Table 4a

*Time of day sounds are heard*


---

Time of day with the highest amount of environmental sound		
Morning (6AM-Noon)	Afternoon (Noon-6PM)	Evening (6PM-Midnight)
22 (51.2%)	31 (72.1%)	6 (14%)
Night (Midnight-6AM)		
0 (0%)		

---

Next, participants were asked to identify the structured period of the day that they felt they heard the most sound. The researcher categorized these periods based on personal working experience as the top three structured intervals of the day (Activities, Mealtimes, and Transitions from meals). The results indicated that ‘Activities’ (n=29; 67.4%) reflected the highest response, while ‘Transitions from meals’ came in close with 58.1% of respondents (n=25). ‘Mealtimes’ showed the period of the day with the perceived lowest amount of environmental sound (n=16; 37.2%) (as shown in Table 4b).

Table 4b

*Time of day sounds are heard*

## Structured period of the day when sounds are heard the most

---

Mealtimes	Transitions from meals	Activities
16 (37.2%)	25 (58.1%)	29 (67.4%)

---

The third portion of the survey study dealt with identifying the typical negative behaviors often observed of persons with dementia. Table 5 illustrates the types of negative behaviors observed by the participants. The survey question also allowed the participants to select all behaviors they see in their setting, as well as a text box for any specific behaviors not mentioned by the researcher. Others included: agitation (3), restlessness/fidgeting/ attempts to stand or escape the environment (3), anxiety (1), and withdrawal (1).

Table 5

*Behaviors of residents with dementia*

## Commonly observed negative behaviors in residents with dementia

Increase in disorientation	38 (88.4%)
Decrease in appetite	13 (30.2%)
Weepiness/crying	22 (51.2%)
Shouting/yelling	36 (83.7%)
Cursing	19 (44.2%)
Spitting	7 (16.3 %)
Physical aggressiveness	18 (41.9%)
Other (please specify)	7 (16.3%)

On a scale of 1 to 5, 1 being ‘highly unlikely’ and 5 being ‘highly likely’, participants were asked to rate their of perception of the likelihood of a relationship existing between an increase in environmental sound and an increase in negative resident behaviors. Results revealed that one (2.3%) respondent said the relationship is ‘highly unlikely’, while six (14%) said that the relationship is ‘somewhat likely’, sixteen (37.2%) said likely, nineteen( 44.2%) highly likely, and one (2.3%) respondent chose ‘no answer’.

Table 6

*Sounds and behaviors*


---

Participants' perception on whether there is a relationship between increase in environmental sounds and an increase in negative resident behaviors

highly unlikely 1 (2.3%)	unlikely 0 (0%)	somewhat likely 6 (14%)	likely 16 (37.2%)	highly likely 19 (44.2%)
no answer 1 (2.3%)				

---

Finally, in the last section of the survey, participants were asked how they deal or have dealt, with the occurrence of an increase in environmental sound in their facility. The researcher inquired about the role of the music therapists in their facility by asking if they have taken an active part in maintaining a healthy sound environment. The survey question asked participants have ever made suggestions to staff about being aware of environmental sound. 76.7% (n=33) participants said "Yes", while 23.3% (n=10) said "No". The researcher asked the participants if their facility enforces policies on limitations of environmental sound. Predominantly, 83% (n=36) respond with "No", and only (n=7) (16.3%) responded that their facility does enforce limitations on environmental sound. For those who said, "Yes", they were asked to explain what their facility did to enforce the policy. Of the seven "Yes" responses, there were six participants with similar responses, and two other participants with different answers. Please see Table 7b for these open-ended responses.

Table 7a

*Music therapists' role and facility role in maintaining a healthy sound environment*


---

Has the music therapist ever made suggestions to staff about being aware of environmental sound?

Yes 33 (76.7%)                      No 10 (23.3%)

---

Does the facility of each participant enforce limitations of environmental sound? If "yes", please explain.

Yes 7 (16.3%)                      No 36 (83%)

---

Table 7b

*Music Therapists' open-ended responses to facility environmental sound enforcement*


---

(a) No overhead/PA paging (or very limited use) allowed in facility. Almost all responses indicated that this policy is not enforced strictly, with no repercussions of said policy should it be broken.

(Summary of 6 responses)

(b) "TV stations, music/radio, and movies must all be preapproved. Nurses complete their 'reports' in a smaller, quieter room off the nurses' station. Activity staff are allowed to bring loud residents to the nurses' station if they are 'disrupting' the other residents' environment."

(1 response)

(c) "There are stoplights on some of the units that show the volume of the environmental sound. If it's green it's okay, if it's yellow it's starting to become too loud, and if it's red it's too loud and the level needs to be lowered. There are also set quiet hours. Staff are told to turn off loud things and to keep voices down. The stoplight just adds a visual component for people to be able to tell it's getting too loud."

(1 response)

---

Lastly, participants were asked to identify one successful music therapy intervention they believe decreases negative behaviors of residents with dementia as a result of an increase in environmental sounds. Thirty-nine (n=39) participants responded to this survey question. Of the

39, one participant responded simply with “No correlation”. Four chose to skip this question. Examples of the 38 responses included: “TIMP: Therapeutic Instrumental Music Performance”, “using the Iso-principle”, “simply engaging the resident in 1:1 singing”, “personalized music programs via mp3 player and headphones”, and “singing familiar songs” (see Appendix D for full list of shared music therapy interventions).



## CHAPTER 5

## DISCUSSION, LIMITATIONS, AND IMPLICATIONS

The aim of this present study was to answer the research questions related to music therapists' perceptions of the sound environment and its potential impact on residents with dementia. Those research questions were:

- (1) What are the environmental sounds music therapists commonly hear on a daily basis?
- (2) When are they heard most frequently?
- (3) How do music therapists feel environmental sound impacts resident behavior?
- (4) How do music therapists deal (or have dealt) with this issue in their clinical setting?

The results of this present study drew several conclusions. As previous research indicates (Bakker, 2003; Dewing, 2009; Whall, A.L., Black, M.E., Groh, C.J., Yankou, D.J., Kuperschmid, B.J., & Foster, N.L., 1997; Zeisel, J., Silverstein, N. M., Hyde, J., Levkoff, S., Lawton, M. P., & Holmes, W. 2003; Slaughter, S., Calkins, M., Eliasziw, M., & Reimer, M., 2006), it is important that music therapists (as well as other caretakers) are aware of their surrounding environment when treating nursing home residents with dementia. By doing so, they can create the best therapeutic environment appropriate for the sensory needs of those residents. Results in this present study confirmed this notion with an overwhelming 81.4% (n=35) "very aware" of environmental sounds in their facility. Therefore, this study found that music therapists, who are essentially providers of therapeutic sound, seem to be observant and cognizant of their surrounding sound environment.

Interestingly, the results revealed that the environmental sounds most commonly heard (n=42; 97.7% of respondents) were vocal resident behavior, staff talking, and televisions. Following close behind was actually music (outlined as: radios, CDs, live music) at 93% (n=40).

While these sounds in isolated context and appropriate volume are not necessarily harmful, perhaps the cacophony of these sounds mixed with loud volume may create sensory over-stimulation in residents with dementia. Similarly, the time of day when the most environmental sound occurs may help prevent potential sensory over-stimulation as well. The afternoon hours of noon to 6:00 PM (n=31; 72.1%) and during activities were indicated to be the times of day when the highest amount of environmental sound was observed. With this helpful clue, staff and caretakers can correspondingly have a heightened awareness during these particular times of the day. It is also important to denote that the respondents recognized transitions from mealtimes (n=25; 58.1%) as the structured period of the day with the second highest amount of environmental sound. As research indicates, disorientation is one of the most commonly observed behavioral symptoms of dementia (n=38; 88.4%). Too much or inappropriate sensory stimulators such as sound, can create confusion in a person with dementia. If it occurs during transitions between structured periods of the day, the potential for an even more increased disorientation is a risk due to falls and other negative physiological and psychosocial outcomes (Bakker, 2003; Dewing, 2009).

A third conclusion drawn from the results of this study, is that there seems to be somewhat of an agreement on the potential relationship between increased environmental sound and increased negative behavior found in residents with dementia. The data revealed that most participants (81.4%; 37.2% “likely”, and 44.2% “highly likely”) did perceive a relationship between an increase in environmental sound and the increase of negative behavior.

A final conclusion to this study is the distressing rate of enforced environmental sound policies in skilled nursing facilities. Results indicated that 83% (n=36) of participants work or have worked at facilities where there is no enforced policy on regulating the sound environment.

Those who did belong to facilities that have enforced policies shared those regulations. The most common response (n=6) included a policy where there was little-to-no usage of the overhead/PA paging system. Almost all responses indicated that this policy is not strictly enforced, with no repercussions if said policy should be broken. One of the respondents who had an interesting enforced policy, described it in detail:

“There are stoplights on some of the units that show the volume of the environmental sound. If it's green it's okay, if it's yellow it's starting to become too loud, and if it's red it's too loud and the level needs to be lowered. There are also set quiet hours. Staff are told to turn off loud things and to keep voices down. The stoplight just adds a visual component for people to be able to tell it's getting too loud.”

Another respondent offered their facility's policy:

“TV stations, music/radio, and movies must all be preapproved. Nurses complete their 'reports' in a smaller, quieter room off the nurses' station. Activity staff are allowed to bring loud residents to the nurses' station if they are 'disrupting' the other residents' environment.”

These suggestions may lend themselves to other facilities in need of a sound environment policy. When the survey asked if the participant had ever made suggestions to staff about being aware of environmental sound, 76.7% (n=33) said yes. That is an encouraging number considering the lack of enforcement by most facilities.

Lastly, the participants were asked to identify one successful music therapy intervention they use to change negative behavior as a result of too much environmental sound. One respondent simply replied with “no correlation”. It is noteworthy that respondents had the option to skip this question and four of them did. One response was particularly unique:

“We have a Snoezelen room that is soundproof and it has a Somatron chair. We take residents who are over-stimulated from excess environmental sound into that space where it is controlled sound. We provide relaxation music, or have them sit in the Somatron chair where relaxing or preferred music plays through its speakers. This has been very effective.”

The 38 participant responses to the music therapy successful interventions can be grouped into four categories: music therapy improvisatory experiences, re-creative experiences,

and reception experiences, plus one category that provided a non-music therapy intervention: “Turn off the T.V.” See Appendix D for complete list of responses.

### Limitations

After analyzing data, there were several hiccups that led to limitations within this study. First, there was some ambiguity in the survey questions. In survey question six (see Appendix B), two of the respondents who selected “other” mentioned that their experience in either a skilled nursing facility or assisted living, was a past job and they included their current, unrelated population clinical setting (i.e. children’s medical, health and wellness center, and autism/behavioral elementary classroom). It is assumed by the researcher that these participants used their knowledge of this topic based on their past experiences with this population and not to their current setting. Perhaps a more efficient way of asking the question would have been something to the effect of: “What type of facility do you currently work or have previously worked in with the dementia population?”

In survey question ten, no participants (n=0) felt the night hours (midnight-6AM) had the highest amount of environmental sound. This is mostly likely due to the notion music therapists do not work during those hours and therefore, do not experience what may happen during that time frame. Perhaps this option was not needed due to the nature of a music therapist’s working schedule.

Regarding survey question 12, it would be interesting to know why those who selected “likely” didn’t chose “high likely”- what defined the difference in correlation in the minds of those respondents? What was the deciding factor that made them lean towards a lesser-likely relationship?

Question 13 asked the participant to provide a music therapy intervention, yet some

responses were non-musical interventions, others were not interventions at all.

Additional limitations include the timing in that the survey was administered: the survey took place towards the end of the fall semester for most students, as well as during the holiday season for music therapists. Participants may have opted out of taking the survey due to the busy holiday season. Similarly, there may have been more respondents if the allotted time was greater than two weeks. The demographic results revealed that there were four student participants. The researcher clumped student and graduate student together in one category; however, the study required that the participants be board-certified. Though graduate students are likely eligible with their credentials, it is unknown whether or not non-board-certified participants took the survey.

#### Implications for Future Research

This present study could be used as a building block and baseline for future research. It would be interesting to measure the sound frequencies and volumes within the environments of various facilities with residents with dementia at different points of each day. The results could potentially target a more objectifiable answer to when the highest amount of environmental sound is prevalent, and even what those sounds are. Furthermore, the researcher could record the types, frequencies, and severities of behaviors in residents with dementia in correlation with the presence of environmental sound. This study was aimed at music therapists, but it would also be beneficial to gather these same questions and administer them to other disciplines. A cross-sectional and comparative study may reveal differences in how other professions perceive environmental sound. It would be interesting to further study music therapists' opinions on taking a more active role in monitoring a therapeutic sound environment as part of their job description. A secondary gain of this would be that the awareness would spread not only to

music therapists, but to nurses, social workers, nurses' aides, housekeepers, etc. Perhaps the results of this present study, along with future research, could move this issue forward into a continuum of change in facilities across the country. The desired outcome would be a more appropriate, therapeutic environment for those living with dementia.

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APPENDICIES

APPENDIX A

Consent Form

Dear Music Therapist:

My name is Renee Bapst. I am a graduate student in the music therapy program at the State University of New York at Fredonia. I am conducting a research study regarding music therapists' perceptions of the effects of environmental sound on skilled nursing facility residents with dementia. Data will be used as an educative and informative tool for caretakers, which may improve the quality of life in each and every resident suffering from dementia. I hope to present the results as a written and/or aural presentation for other music therapists, health care professionals, and related organizations.

If you are a music therapist who has worked in the past or is currently working with skilled nursing facility residents with dementia, I invite you to participate in my study via SurveyMonkey.com®. The 15-item survey will take approximately 5-10 minutes to complete. If you are interested in participating, please follow the link for the survey before November 23, 2012. Six months after I collect data, the survey link will be deleted. The resultant data will be stored in a locked filing cabinet for three years, and then destroyed after that time. All answers will remain confidential, and participation is voluntary.

To help protect your confidentiality, the surveys will not contain personal information that will identify you. In the survey, I will not ask you personally identifying information such as your name, contact information, or IP address. All data will be stored in a locked protected format for three years, and will at that point be destroyed.

Participating in this survey might make you sensitive to the issues of quality of life, dignity, and negligence within this working environment. As a result of the increased sensitivity and awareness to this issue, it may be emotionally upsetting to some people. If you experience emotional upset, please contact a counselor or your direct supervisor. Should you choose, or should any item make you uncomfortable, you may skip any item, and may stop taking the survey at any time; I will not use the information you provided.

Should you have questions arise related to the survey, you may direct them to me at the contact information below, or to my graduate advisor, Dr. Joni Milgram-Luterman, at Milgram-Luterman@fredonia.edu or by phone at 716-673-4648. You may also contact the Human Subjects Administrator, Maggie Bryan-Peterson, in the Human Subjects Review Board office at 716-673-3528 or by email at Maggie.Bryan-Peterson@fredonia.edu. This study has been reviewed and approved by the SUNY Fredonia Human Subjects Review Board.

This is an electronic consent. Please select your choice below.

Clicking on the "agree" button below indicates that:

you have read the above information

you voluntarily agree to participate in the study

you are at least 18 years of age

If you choose not to participate, do not click agree. You may now close out of your browser.

Thank you for your consideration and time.

Thank you, in advance, for your time and participation,

Renee Bapst, MT-BC, NMT  
Graduate Student  
State University of New York at Fredonia  
School of Music  
baps3115@fredonia.edu

APPENDIX B

Study Survey Questions

\*For the purposes of this study, “environmental sound” is defined as any external, auditory stimulus that is occurring on a day-to-day basis in your workplace facility.

1. What is your gender?  
male  
female
2. What is your age?  
18-22  
23-35  
36-50  
51-64  
65+
3. What is your AMTA Membership Category?  
Professional  
Associate  
Student/Graduate Student  
Retired  
Inactive  
Affiliate (Educational Affiliate)  
Patron  
Honorary Life
4. How many years have you been in the field?  
<5 years  
6-15 years  
16-25 years  
26- 44 years  
45+ years
5. In what AMTA region do you currently work?  
Great Lakes  
Mid- Atlantic  
Midwestern  
New England  
Southeastern  
Southwestern  
Western  
Outside of the United States
6. What type of facility do you work in? Please check all that apply.  
Skilled Nursing Home- Specialized Memory Care Unit  
Assisted Living- Specialized Memory Care Unit  
Adult Day Care- Specialized Memory Care Unit

Skilled Nursing Home  
Assisted Living  
Adult Day Care

Other \_\_\_\_\_

7. How aware do you feel you are of environmental sound in your facility?  
1- not aware  
2- somewhat aware  
3- very aware
  
8. Please check all of the sounds you hear in your facility on a day-to-day basis:  
Televisions  
Music (radios, CDs, live entertainers)  
Overhead paging speakers  
Pill- crushing  
Staff talking  
Chair alarms  
Medical equipment  
The moving of tables and chairs  
Vocal resident behaviors  
Other: \_\_\_\_\_
  
9. During which of the following times do you hear these sounds the most?  
Mealtimes  
Transitions from meals  
Activities  
Other \_\_\_\_\_
  
10. What time of day do you feel has the highest amount of environmental sound?  
Morning (6 am- noon)  
Afternoon (noon- 6 pm)  
Evening (6 pm- midnight)  
Night (Midnight- 6 am)
  
11. What type of negative behaviors do you frequently see in your clients with dementia?  
Increase in disorientation  
Decrease in appetite  
Weepiness/ crying  
Shouting/ yelling  
Cursing  
Spitting  
Physical aggressiveness  
Other \_\_\_\_\_



12. Please rate on a scale of 1 (highly unlikely) to 5 (highly likely, 6 if you prefer not to answer).

Based on your own experience, how would you rate the correlation between an increase in environmental sounds and an increase in negative resident behaviors?

- 1 highly unlikely
- 2 unlikely
- 3 somewhat likely
- 4 likely
- 5 highly likely
- 6 no answer

13. Identify one music therapy intervention that you have found successful at decreasing negative behaviors that are a result of an increase in environmental sounds.

---

14. Have you ever made suggestions to staff about keeping environmental sound levels down?

- Yes
- No

15. Does your facility enforce limitations of environmental sound? If so, please briefly explain their policy and any repercussions should this policy be violated.

- Yes
- No

APPENDIX C

HUMAN SUBJECTS COMMITTEE APPROVAL LETTER

Email Approval from Human Subjects Review Committee at SUNY Fredonia

November 19, 2012

Ms. Bapst and Dr. Milgram-Luterman --

Thank you for your revised application for your proposed research titled "Music Therapists' Perceptions of the Effects of Environmental Sound on Skilled Nursing Facility Residents with Dementia." Your revisions have answered the concerns of the Committee. This e-mail is your approval and your research may proceed as described.

As a reminder, you must comply with Part D of the Campus Policies on Human Subjects requiring notification at the time data collection begins and when it is done. You may accomplish this with a simple e-mail to me.

Thank you for keeping the high standards relating to research and the protection of human subjects on the Fredonia campus. Best wishes on your research.

Maggie Bryan-Peterson  
Human Subjects Administrator

APPENDIX D

Survey Question 13: Music Therapy Interventions

*Below are 38 participant responses to music therapy interventions that have successfully worked at decreasing resident behavior. Results are taken directly from survey question.*

- 1) “Changes in space regarding where I am or how close I am to client/increasing or decreasing the stimulus.”
- 2) “Relaxation interventions.”
- 3) “Reminiscing.”
- 4) “Engaging the person in a 1:1 music therapy session in a quiet space.”
- 5) “Reminiscing with the group; having the group share verbally about specific experiences.”
- 6) “Total engagement: sing-along accompanied with a physical movement.”
- 7) “Performing Live Music with the residents after shutting off as much external sounds as possible (using the Iso-principle).”
- 8) “Personalized music programs via mp3 player and headphones.”
- 9) “Improvisation on non pitched rhythm instruments.”
- 10) “Unfortunately, I am only there for one client a week. When I have the opportunity to see her in a public area, engaging other members to participate decreases the level of agitation on the unit.”
- 11) “Basically any musical intervention that is loud enough to mask the environmental sounds. Flute in particular is loud enough and soothing as well to not only the client, but also the staff and other residents.”
- 12) “Engaging them in singing with me.”
- 13) “Providing familiar songs with a strong rhythmic component and eliminating extraneous noise.”

- 14) "Distraction."
- 15) "Music-listening."
- 16) "Presentation of music at approximately 60 bpm."
- 17) "Simplifying the sound to just guitar and voice, using the Iso-principle where the music begins in upbeat 2/4, and then decrease to a slow waltz using familiar music."
- 18) "Removing a resident from the environment to a quiet area (such as their room) and singing acapella to them, soothing, age-appropriate songs, particularly ones that the resident is familiar with. Reducing agitation, anxiety, and overall noise level is often solved with removing the resident from the environment that is causing the increased sounds."
- 19) "Sing-a-long groups with piano accompaniment, moving from faster tempos at the beginning of the group, moving down to slower tempos by the end of the group."
- 20) "Turn off the TV."
- 21) "Matching the pitch and/or rhythm of the music presented to the most intrusive sound-trying to "normalize" the sound through incorporating it into the music."
- 22) "Sing with NO instruments, at patient's eye-level, making eye contact, maybe gentle touch."
- 23) "Speaking/singing right at the clients face to get the individual's attention."
- 24) "Instrument-playing."
- 25) "TIMP- Therapeutic Instrumental Music Performance."
- 26) "Working 1:1 to redirect a resident yelling out by engaging in singing."
- 27) "Playing in a sound container, like ostinatos and predictable rhythms."
- 28) "We have a Snoezelen room that is soundproof and it has a Somatron chair. We take

residents who are over-stimulated from excess environmental sound into that space where it is controlled sound. We provide relaxation music, or have them sit in the Somatron chair where relaxing or preferred music plays through its speakers. This has been very effective.”

- 29) “Try to eliminate sounds as effectively as possible (close doors, relocate to another room). Once I lower the level of stimulation, I often play lightly for a little bit without vocals to refocus the session.”
- 30) “Singing familiar songs, listening to familiar music.”
- 31) “Using sudden, loud, toned vocalization directed at someone who is agitated/aggressive to serve as a distraction and to help stop the negative behavior. Then redirect them to a positive experience using music/singing as the transition tool.”
- 32) “Engage in active music-making.”
- 33) “First, remove to a quieter area. Validate resident’s current emotional state by singing familiar songs at the same intensity. Then, gradually soften the music until resident displays signs of a calmer state.”
- 34) “Softly picking the guitar for transitions.”
- 35) “Use music to mask sounds, with hand-held percussion, sing-along, etc. This also provides outlet for excess energy that the noise seems to generate. In 1:1’s, I try to provide a quiet environment by closing door and placing sign on door to limit admittance, as well as providing calming music interventions.”
- 36) “1:1 session in a private room with the door closed- singing familiar songs with simple or no accompaniment.”
- 37) “Soft acappella singing, sometimes just on a vowel sound. Most successful 1:1 or very

small group.”

38) “Trying to mask environmental sounds by matching the music to the sound pitch, tempo, volume, etc. as much as possible. I actually did my music therapy internship final project on this subject, and found that music added to the environment tended to have a calming effect in the environment, and decreased overall environmental sounds. Resident behavior also improved greatly. So glad you’re researching this important topic!”