Comparing Live and Recorded Music and the Changes of Mood and Self-Perception for Elderly Older Adults.

THESIS

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By

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ABSTRACT

This study looked at differences between live and recorded music in the assisted living population by splitting participants into two groups. One group listened to live music and the second group listened to the recorded version. The focus of this study was looking at observable differences using the Observed Emotion Rating Scale and how the participants were feeling when listening to the music using the General Self-Rated Health Questions. The results suggested that there are differences in participation and mood between the two groups and participants reported that they felt better when they listened to the live music. This research will be able to assist assisted living facilities in determining activities for their residents and stresses the impact of musicians in their community.
Acknowledgments

I would like to thank Dr. Dabelko-Schoeny for her help in completing this.
Also, to Westminster-Thurber Community for their support.
Finally, to the Columbus Dulcimer Group for playing wonderful music.
Vita

May 2009 ........................................ Cedar Park High School

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Fields of Study

Major Field: Social Work
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CHAPTER 1: INTRODUCTION

Because of aging Baby Boomers and increasing life expectancy, the elderly population is expected to double by the year 2050 (Ortmann, Velkoff, & Hogan, 2014). With the population getting older, there has been more emphasis on services for older adults to get the care they need to monitor health problems, cognitive difficulties, and receive assistance with activities of daily living. It is estimated that 70% of people over age 65 will need some form of long term care during their lifetime (U.S. Department of Health & Human Services., 2014).

It has been well documented that music can be a useful form of therapy when working with people who have Alzheimer's disease and other dementias (Vink, Bruinsma, & Scholten, 2013). Music is used because it is something that everyone enjoys and experiences on a regular basis that is cheap to acquire and can be used over and over again. Certain songs or the voices of musicians that people have listened to throughout their lives can be a reminder of past experiences (El Haj, Fasotti & Allain, 2012; Foster & Valentine, 2001; Simmons-Stern, Budson & Ally, 2010). It has also been shown to reduce stress, agitation, anxiety, and depression in the AD population (Guétin, Portet, & Picot, et al, 2009; Sung, Chang, & Lee, 2010; Gerdner, 2000; Kemper & Danhauer, 2005).
While many people have AD, most long term care facilities are integrated and includes people with and without AD. Data from the CDC on state regulated residential care facilities found that roughly 42% of residents had AD (Caffrey, et al., 2012). This study aims to look at how music affects the assisted living population as a whole. Particularly, if there is any difference in providing live music or recorded music as these interventions may affect people in different ways such as levels of alertness, participation, and mood. This knowledge would be able to assist providers when scheduling activities for residents in the future.
Chapter 2: REVIEW OF THE LITERATURE

While recognizable music may be helpful due to familiarity, live music may be more noticeable and increase participation. Holmes, Knights, Dean, Hodkinson, and Hopkins (2006) compared 30 minutes each of live music, recorded music, and silence in randomly assigned order for dementia patients who have apathy, which was identified using Marin’s criteria for apathy (Sergio et al., 2001). Video was recorded of the participants which was used to rate participants using Dementia Care Mapping. The results showed that the recorded music was just as interactive as silence, but there was an increase in interest and engagement when there was live music (Holmes, Knights, Dean, Hodkinson & Hopkins, 2006).

Gotell, Brown & Ekman, (2009) videotaped persons with severe dementia doing their daily routine in three conditions, the everyday normal condition, music that the participants enjoyed playing in the background, and a singing caregiver. The researchers then watched the videos and documented the verbal communication and body language. The results concluded that the participants were able to communicate more with background music and singing. The participants appeared to be more aware and less aggressive when doing their daily routine (Gotell, Brown & Ekman, 2009).

A study in the Netherlands tested if live music could improve quality of life in both dementia and severe dementia patients. The dependent variables were participation,
with subscales of human contact and care relationship, and mental wellbeing which was described with positive and negative emotions. Singers from a foundation performed for ten patients at a time for about 45 minutes in the nursing home. They interacted with the audience and encouraged participation. On a scale of 1-3, with one being a decrease, two being no change, and three being an increase, there was an overall change in participation (M=2.20, SD= 0.233) and mental wellbeing (M=2.18, SD=0.273) (Van der Vleuten, Visser & Meeuwesen, 2012).

Lee, Chan, and Mok (2010) studied the effects of music on quality of life for older adults in an Adult Day Care Facility. Participants were randomly assigned and given the SF-36 Questionnaire every week for four weeks. The most statistically significant results were in the physical functioning subscale where the music (M=36.1, SD = 14) was much higher than the no music control group (M=16.5, SD=20.8). Differences between the groups in the other subscales were especially noticeable in the final week of assessments (Lee, Chan, & Mok, 2010).

Most research in this area focuses on the use of music with people who have dementia or other cognitive difficulties and to reduce related behavioral symptoms such as agitation and apathy. This study plans to build on previous research by looking at if there is a difference between recorded and live music for improving mood and participation in the overall assisted living population, and not just those who have cognitive difficulties, to see if there is more benefit to having one or either form of music when planning future activity programs.
Chapter 3: METHODS

SAMPLE

For this study 13 participants were recruited, split into two groups of eight with three participants participating in both groups. Participants were recruited at Westminster-Thurber Community with the assistance of the activities staff who invited and brought the residents to the activity room where the music was played. Upon arrival to the room where the musicians would play, researchers met with the first eight participants who came into the room and explained the study. Signed consent was received from every participant. Each participate received an identification number to protect their privacy. The two groups (live music versus recorded music) were both held at the same time on the same day of the week, but each group was on a separate week.

INSTRUMENT

Demographic data was collected by giving participants a demographic form to fill out with researchers assisting them as needed. The questions asked were their age, gender, race, and if they have ever played a musical instrument or participated in other musical activities in the past. Participants were also asked the General Self-Rated Health question: “In general, would you say your health is...?” to determine their Self Perceived Health. This is measured using a Likert Scale with category ranging from Excellent, Very Good, Good, Fair, or Poor (DeSalvo et al., 2006).
The Observed Emotion Rating Scale (Formally known as the Philadelphia Geriatric Center Affect Rating Scale) is a tool developed to assess positive and negative affect through observation was also utilized. The scale consists of five moods: Pleasure, Anger, Anxiety/Fear, Sadness, and General Alertness which are defined by behaviors that would fit under each category. In addition, the researchers collected information when participants were sleeping during the intervention groups. The ratings are also determined by length of time the behavior was occurring. These include: Not in View, Never, Less Than 16sec, 16-59 sec, 1-5min, and more than five minutes (Lawton, Van Haitsma & Klapper, 1996). The researchers used timers to time the music and rated each participant accordingly.

The reliability of this measure was tested by 243 two observer ratings of AD participants in each mood category. It was found to have high Kappa scores (.76 - .89). The validity was completed by calculating the mean of each category at 16 different times and looking for correlations between the category and its related mood in the Multidimensional Observation Scale for Elderly Subjects, the Cohen-Mansfield Agitation Inventory, and the Adult Personality Rating Scale. Each scale was completed by both an Activity Therapist and a Relative with the results showing similar scores (Lawton, Van Haitsma & Klapper, 1996).

PROCEDURES

After completing consent forms and demographic forms, including the General Self-Rated Health Question, the first group was played live music on the lap dulcimer performed by the Columbus Mountain Dulcimer Group. The researchers sat on either
side of the participation group and observed participants watching the musicians performing. It is noted that in addition to the eight participants, there were other people who attended the group to listen to the music. After waiting two minutes at the start of the program, the researchers rated each participant over a ten minute period using the Observed Emotion Rating Scale. After this was completed, the musicians continued playing their concert while the researchers recorded it using a high quality recorder.

There were six musicians representing the Columbus Dulcimer Group. They began the concert by introducing the residents to the dulcimer and its history which interested the participants as many have never seen a dulcimer before. The musicians played traditional folk music that is not well known aside from You Are My Sunshine. Before each song the musicians introduced the title, the background, and some lyrics of each song in order to give the participants a better understanding of the music and to add participation.

After the music, the researchers asked each participant to follow up with how they were feeling using the General Self-Rated Health Question.

The researchers then converted the recording into a CD that included introductions and other speaking that the musicians did in order to make the musical experience for the second group as similar as possible to the first.

The second group went through the same process as the first group, except they listened to the CD. Volume was adjusted to be at an audible but comfortable volume. It should be noted that during the listening session, there were three instances when the DVD player skipped causing brief, approximately three second skips in the presentations.
CHAPTER 4: RESULTS

There was a total of 16 people in the study (n =16). Three people participated in both groups. The mean age was 76 (SD=17.4) with ages ranging from 44 – 96. The majority of the total participants were Caucasian (75%) and Female (87.5%). 68.8% reported that they had played an instrument and 81.3% reported having participated in music related activities such as band or choir (See Table 1).

Table 1: Demographics

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>&gt;60</td>
<td>12.5%</td>
<td>2</td>
</tr>
<tr>
<td>60-70</td>
<td>25.1%</td>
<td>4</td>
</tr>
<tr>
<td>70-80</td>
<td>6.3</td>
<td>1</td>
</tr>
<tr>
<td>80-90</td>
<td>25.2%</td>
<td>4</td>
</tr>
<tr>
<td>90&lt;</td>
<td>31.5%</td>
<td>5</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Caucasian</td>
<td>75</td>
<td>12</td>
</tr>
<tr>
<td>African American</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Female</td>
<td>87.5%</td>
<td>14</td>
</tr>
<tr>
<td>Male</td>
<td>12.5%</td>
<td>2</td>
</tr>
<tr>
<td>Instrument</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Yes</td>
<td>68.8%</td>
<td>11</td>
</tr>
</tbody>
</table>
For the General Self-Rated Health Questions, participants circled the number that they most identified with: 1 = Excellent, 2=Very Good, 3=Good, 4=Fair, and 5=Poor.

Everyone participated except for three people after the recorded music group. A T-Test comparing the two groups for before the music, $t (14) = -1.6$, $p = .128$, was not significant. The health question answers collected after the music, $t (11) = -2.78$, $p = .018$, suggesting that there is some statistical significance between the two groups after the music.

While participants are not going to get healthier from listening to music, it may have improved their mood which makes their perception of how they feel more positive. The results suggest that the participants felt better after the live music ($M=1.87, SD=.83$) when compared to before the live music ($M=2.25, SD=.88$). The opposite occurred with the recorded music group where they felt better before the music ($M=2.87, SD=.64$) than they did after ($M=3.2, SD=.83$). (See Table 2 and Chart 1).

Table 2: General Self-Rated Health

<table>
<thead>
<tr>
<th># of Subjects Feeling</th>
<th>Live</th>
<th>Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
</tr>
<tr>
<td>Excellent</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Very Good</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Good</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fair</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>No Answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
For the Observed Emotion Rating Scale, researchers rated the participants by observation. The ratings correspond with the duration of observed moods: 1= Never, 2= Less than 16 sec, 3=16-59sec, 4= 1-5 minutes, and 5=more than 5 min. The Anger and Sadness measures were not noticed in either group. The Anxiety was noted for one participant in the recorded group. Most of the participants were noted as showing signs that put them in the Alertness and Pleasure categories. For the Pleasure category, a completion of an independent T-Test did not show any significance, $t(14) = 1.857$, $p = .084$. The means of both groups suggest that the live group ($M=3.5$, $SD=1.85$) showed more signs such as singing and tapping their foot for a longer period of time when compared to the recorded group ($M=1.87$, $SD=1.64$).
Table 3: Observed Emotion Rating Scale: Pleasure

<table>
<thead>
<tr>
<th># of Participants</th>
<th>Live</th>
<th>Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 5 Minutes</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>1-5 min</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>16-59 sec</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&lt;16 sec</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Never</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

Alertness was not statistically significant either (f (14) = .741, p=.084). The live group (M=4, SD=1.85) showed more signs that they were paying attention when compared to the recorded group (M=3.37, SD=1.5) who looked around the room more.

Table 4: Observed Emotion Rating Scale: Alertness

<table>
<thead>
<tr>
<th># of Participants</th>
<th>Live</th>
<th>Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 5 Minutes</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>1-5 min</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>16-59 sec</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&lt;16 Sec</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Never</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
CHAPTER 5: DISCUSSION

This study was meant to look at differences between the use of live and recorded music in the assisted living population. While the results weren’t statistically significant, the trends in the data suggest that individuals experience more positive mood and perceived health when listing to live music, compared to recorded music. These findings are consistent to what has been done in previous research.

The live music group reported that they felt better after the music and were more involved. Some reasons for this include that the Columbus Dulcimer Group was interactive and introduced the song and its background before playing each song. Many of the group members had not even heard of a dulcimer and were interested in learning more about it. The musicians also sang some of the lyrics beforehand to give the residents words to sing along with. The dulcimer group was met with loud applause after every song and many of the participants reported that they were very happy after the concert.

The recorded group did not make as much of an impact even though the musicians’ introductions and lyrics were still included on the CD. Some distractions occurred including the CD player skipping a few times and a cat wandered in the room. Many group members were focused on other things in the room. Some participants talked during the songs and others slept through the entire thing. There was much less singing and tapping feet and at least half of the group showed signs of boredom. At the end of the
CD, some participants reported feeling bored and one participant who attended both groups wrote on her survey that the recorded music was not comparable to the live music.

This study suggests that participants do not find recorded music to be as interesting as live music. While a person can only listen to music that is recorded, live music offers more of an experience. During live music the audience can see the musicians playing their instruments and may feel like they are more able to participate and contribute to the music being played through clapping and singing. This participation could also improve interpersonal connections with other members of the audience as they are participating together. These interactions can be considered more of a social experience rather than just passive listening such as in the recorded music group.

These differences between live and recorded music could be kept in mind when planning activities for the residents to get them involved. Social Workers working in assisted living facilities may be able to have the role as advocates for music programs for their residents. Another benefit of this is that it offers a sense of community. Not only for the residents who participate in listening to music together, but also for the musicians who come to the facilities to play. Social Workers may also be able to assist in forming this connection between musicians and residents.

Some potential limitations were present in this study. There could have been some bias when the researchers used the Observed Emotion Scale such as the researchers unconsciously rating more positively to support the hypothesis. It is possible that the participants could have been feeling differently than what the researchers observed. An example of this is that sleeping doesn’t always mean boredom, but can also mean they are
more relaxed, or it could have nothing to do with the music such as feeling drowsy from medications or not sleeping well. In order to improve rater bias and increase accuracy, it would be useful to use a video recording so the researchers can collaborate more on the observations and increase inter-rater reliability.

It would also help to get more subjective information from the participants in order to get more perspective on how they feel. Further assessing information such as if they are familiar with the music played and what they thought about the music can be important indicators of how the participants felt about it. It could also be useful to determine if they were familiar with dulcimers and if they come from Appalachian ancestry as this group may find the dulcimer has extra significance to them.

Future research could include using more recognizable music that most people know such as You Are My Sunshine. This could increase participation if people know the lyrics. There may also be some differences in the instrument being played, especially if it is an instrument that people in the audience can relate to if they played it in the past or are more familiar with the instrument. Also, as this research included both education about the songs and the music itself, it may be important to study if this interaction with the musician or music alone makes more of an impact. Finally, cognition could be another factor as it was observed that people with lower levels of cognition may enjoy the recorded music more than someone who is higher functioning.

This study shows that live music may make a big difference in the lives of people living in assisted living however, more research is needed to assess the impact. As this was a small group, future research could look at a larger, more culturally diverse group of
participants to determine if culture plays a role in the type or impact of music. More long term studies may also be justified. Furthermore, the Observed Emotion Scale is limited in the emotions and behaviors that it measures so it may be useful to look at other behaviors that are not mentioned on the scale such as sleepiness and boredom to name a few. Regardless of these limitations, this study shows promise for the use of music programing in the future to benefit residents.
REFERENCES


16


APPENDIX A: DEMOGRAPHICS

Participant # _____

1. What is your age?________

2. What is your gender?
   1. Female
   2. Male

3. What race do you identify as?
   1. White/Caucasian – Non-Hispanic/Latino
   2. Hispanic or Latino
   3. Black/African American
   4. American Indian and Alaskan Native
   5. Asian
   6. Native Hawaiian and other Pacific Islander
   7. More than one race

4. Have you ever played a music instrument?
   □ No       □ Yes

5. Did you ever participate in any musical activities? (ex: band, choir)?
   □ No       □ Yes
6. In general, would you say your health is… *circle one number*

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**STOP HERE**

Please wait until after the music has ended to complete the final question on the next page.