

**From Dark Days to Musical Ends:**

**A Case Study on the Effects of a Musical Social Event on the Wellbeing of Geriatric Populations with Dementia**

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SPRING 2024

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A thesis submitted to the Honors Program at Southern New Hampshire University to complete HON 401, and as part of the requirements for graduation from the Honors Program

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### **Abstract**

Dementia is one of the leading diagnoses of senior citizens. While scientists have started to discover the causes of dementia, there is no cure. Therapists and families turn to compassionate care for their loved ones with a dementia diagnosis during their final years. Music therapy is an upcoming field of therapy established in the 1970s. In recent years, therapists have started to use music therapy as a form of compassionate care. There have been minimal studies conducted to examine the effects of music therapy on the well-being of geriatrics with dementia. Through this study, caretakers of geriatrics with dementia will observe residents over 10 days surrounding a music therapy session. Via self-reported notes or interviews, the observations will be collected and analyzed to determine if there is a significant effect on the well-being of geriatrics with dementia due to music therapy. Through tagging of positive and negative well-being traits, it was concluded that there was not a significant increase in positive well-being. However, there does appear to be a skew in the data due to an increase in residents being observed after music therapy that had negative well-being traits. Comments from a second participant indicate that there may be a correlation between sleep and mental reset canceling out the positive effects of music therapy overnight. This study did not explore this correlation but foresees a possible correlation that could aid in the interpretation of this study in the future.

*Keywords:* music therapy, geriatric, care-taker observation, well-being, dementia

## FROM DARK DAYS TO MUSICAL ENDS

Dementia is a deadly mental disease that is taking the senior population by storm. It is not just the individual who is swept up in the complications of dementia, but the family as well. Dementia is defined as a general term for a class of diseases characterized by “the impaired ability to remember, think or make decisions that interfere with doing everyday activities.” (Centers for Disease Control and Prevention, 2019) In 2014 the CDC cited that there were 5 million adults ages 65+ living with Dementia, and the number is expected to increase reaching 14 million by 2060 (Centers for Disease Control and Prevention, 2019). If a person diagnosed with dementia has 3 additional close family members, society observes at least 20 million people affected by dementia, and this number increases to at least 56 million people by 2060. Dementia can have different levels of severity depending on the specific type of dementia. The most common forms of dementia are Alzheimer’s disease, vascular dementia, Lewy body dementia, frontotemporal dementia, mixed dementia, and reversible causes of dementia. Unfortunately, most cases of dementia have an unspecified diagnosis and can be more difficult to treat.

According to Metro Music Therapy, over 1.6 million people are recipients of music therapy (Metro Music Therapy, 2021). Music therapy is defined as the clinical and evidence-based use of music interventions to accomplish an individual goal by a credentialed professional (American Music Therapy Association). Studies have been conducted to see if music therapy is a viable form of therapy to use as palliative care for those with dementia. The resounding answer is that music therapy is an excellent form of therapy to use with dementia patients. Numerous

sources have cited that the music experienced by those with dementia had an improvement in well-being sometimes so much so that they were able to be removed from antianxiety medications.

### **Personal Narrative**

I am one of those family members who had a loved one with dementia. Both of my great-aunts have unspecified dementia and my grandfather had Lewy body dementia. It felt like the end of the world when my grandfather was diagnosed with Lewy body Dementia. Only 4.2% of dementia cases are Lewy body specific (Lewy Body Dementia Association). It was 2019 when he received his diagnosis and he passed in 2021. In 2 short years, I went from an elderly grandfather who was having trouble remembering things, to a grandfather who slept 95% of the day, was hallucinating old friends, constantly shaking, couldn't eat or do other daily functions on his own, or even remember who I was. Before I went on what turned out to be my last trip to see my grandfather, my dad showed me a video on music therapy for people with dementia. Those in the video wore headphones and listened to music from their young adult years. The elderly people lit up, began to move, and were very emotional. National Public Radio did a piece on one of the women in the video who listened to Swan Lake due to her past career as a ballet dancer and her recollection of the entire dance (Tsioulcas, 2020). I then wondered if music therapy could provide similar effects on my grandfather.

Before my next visit, I bought a simple CD player and collected some of his favorite music that was recommended by the family. When we arrived at the facility, they wheeled my grandfather in, and I still can't shake the feelings of heartbreak that I felt when I saw how severe

his dementia had progressed. I knelt beside him and told him I was going to put some music on for him. Soon enough he was awake and alert for the first time in months. What shocked us even more was what he did next. He spoke, and he said “I love you” for the first time in a long time. My family was so emotional, seeing that what I had done worked. After I had returned home, my grandmother and his nursing staff would continue to play music for him. They often noted how it was a good tool to use whenever he was restless and needed to calm down. He passed away peacefully on September 24, 2021.

The goal of this research is to further expand the knowledge of music benefitting those with dementia. While it is not possible to conduct a full analysis of the effects of music therapy during a person’s time with dementia, this study has been formulated to examine small-scale music therapy. Through this study caregivers of residents to observe residents with dementia over ten days. During these 10 days, there will be three (3) days of per-event observation, the event (group music therapy session), and then three (3) days of post-event observation. The event will be a group music therapy session led by certified music therapists from Granite State Music Therapy. The music therapists already have a connection with Rockingham County Rehabilitation and Nursing Center. After each observation period, participants will be asked to send in self-reported notes that include their observations. After all observations and remarks have been collected, transcripts will be uploaded to Taguette to identify common themes and aid in overall qualitative analysis (Rampin, R., & Rampin, V. n.d.). Through this study, it will be proven that music-based social events have a positive effect on the well-being of people with dementia.

## Literature Review

While reviewing the literature on this study, articles were located that reviewed social connections and dementia studies, studies conducted with people with dementia and caregivers on the effects of social events, effects of music therapy on people with dementia, and a web app that allows senior citizens and caregivers to connect online and play games. Twelve published articles were located that included health benefits, music therapy, and dementia. All twelve of the articles found psycho-biological mechanisms that assisted in overall health and seven of the twelve also included the central stress pathways benefitting from music therapy for those with dementia (Stiller et al., 2021). Dr. Gary Kerr of Scotland conducted a study to see if in-person and online social events had similar effects on the well-being of those with dementia. The study concluded that the social events boosted a sense of well-being, confidence, and established an appreciation for the topics covered in said social events (“Digital Social Events”, 2022). Two longer-term studies eight weeks and ten weeks were carried out with individuals with dementia who were repeatedly exposed to music therapy. In the eight-week study, behavior, and psychological symptoms were monitored and it was concluded that those with high amounts of music therapy usage had lowered agitation and apathy (Dahms, Eicher, Haesner and Mueller-Werdan 2021). The ten-week study yielded similar results measuring well-being via the Observable Well-being Living with Dementia Scale (OWLS). Out of all the participants involved, 48% had an increase in well-being (Madsø, Molde, Hynninen and Nordhus 2022). The game platform was a study conducted on a website called OldBirds. The purpose of the website is to allow senior citizens to connect with their caregivers when they are home alone and other senior citizens to boost socialization. The study concluded that digital systems have the potential

for success, especially in times when remote interaction is required if social interaction is to occur in general (Leinonen, Firouzian, Partanen and Pulli 2019). Thus, the literature supports the hypothesis that a music-based social event will increase the well-being of senior citizens with dementia.

One additional search of “music therapy and dementia and caregiver and observation”, yielded only 30 articles from those search terms. Of those 30 results, only 2 matched the parameters of the study. The term caretaker gave zero results. The first study was a case study of six (6) individuals with dementia and four (4) caretakers. These participants were enrolled in a music-making program and observed for any moments in which the dementia patient had an “affirming music as a medium to connect people living with dementia with their own life story, other people, and the environments in which music-making takes place”. These connections allow for an improvement in the well-being of the geriatrics with dementia (Dowlen, R 2022). The second study observed dementia patients over a ten (10) week-long music therapy program. The observations were coded using two (2) different scales. “Within sessions, we found a 48% increase in well-being, and a 32% increase in sociable interaction during music therapy.” (Madsø, K. G., Molde, H., Hynninen, K. M., & Nordhus, I. H. 2022). This study directly correlates to the parameters of this study but called for additional studies to be conducted. Overall, there is a large lack of studies conducted that focus on the merging of music therapy, dementia, well-being, caretakers, and observation.

**Materials and Methods**

**Pilot Study**

This section reviews a pilot study that examines the effects of music therapy in a 2-hour before and after window. The entire pilot study was conducted by the researcher using personal observations. Following this, the procedure for the study is outlined, and planned interpretations of the data are discussed.

Three weeks before the study took place, a pilot study was conducted to help inform the researcher of the potential outcomes of the study, test the proposed methodology, and gain insight into the music therapy sessions. All notes were taken by hand and no participant information was collected. The observations of the resident before, during, and after the music therapy event can be viewed in *Table 1*.

**Table 1**

*Observations of Residents Collected During the Pilot Study*

Resident Number	Before Music Therapy	During Music Therapy	After Music Therapy
1	Needed to have a routine, sat at a specific chair at a specific table, went over daily schedule several times	Alert and focusing on the music therapist, playing along to music with a shaker, copying the moves of the music therapist	Calm and alert
2	Constantly moving, asking for coffee repeatedly, can't choose one singular seat	Alert and focusing on the music therapist, playing along to music with a shaker, copying the moves of the music	Constantly moving, talking, walking up and down the hall



3	-	therapist, did not walk around Alert and focusing on the music therapist, playing along to music with a shaker, copying the moves of the music therapist	Calm and alert
4	-	Alert and focusing on the music therapist, playing along to music with a shaker	Calm and alert

Resident Number	Before Music Therapy	During Music Therapy	After Music Therapy
5	-	Alert and focusing on the music therapist, playing along to music with a shaker, copying the moves of the music therapist	Laughing more, moving, and talking to other residents
6	-	Alert and focusing on the music therapist, playing along to music with a shaker, copying the moves of the music therapist	Calm and alert, talking to others
7	-	Alert and focusing on the music therapist, playing along to music with a shaker, copying the moves of the music therapist	Calm and alert
8	Reading song descriptions on the TV, talking to self, making remarks about the pictures on the TV, taking care of a baby doll	Observed music therapy from a distance	Calm, alert, taking care of baby doll
9	Talking out loud to no one in particular, remarks that they are aware they may imagine things	Alert and focusing on the music therapist, playing along to music with a shaker, copying the moves of the music therapist	Calm and alert
10	-	Alert and focusing on the music therapist, playing along to music with a shaker, copying the moves of the music therapist	Calm and alert, talking to others
11	Patient when waiting for a drink and snack, was civil, had a clear and	Alert and focusing on the music therapist, playing along to music with a shaker, copying the	-

	coherent conversation with the staff	moves of the music therapist, singing along with the songs they knew	
12	Brought to music therapy, not awake or alert, with limited movement	Awake and alert, tap along to the songs they recognize	Semi-awake and alert

*Note.* Dashes indicate the resident was not present during the observation time.

The researcher arrived 2 hours before music therapy to conduct observations to conduct initial observations of the residents. A general theme of the residents being calm, not engaged in any activities or socially, and general confusion was noted. As the day progressed and music therapy was better understood as the next activity, residents began to socialize, become more alert, and shift their focus to the upcoming activity.

The music therapy session lasted for 50 minutes with 12 residents present. According to staff, this was a low attendance session with an average attendance of around 18 to 20 residents. During the music therapy session, residents were seated in a circle with a music therapist standing in the middle of the circle walking around. The music therapist played guitar and led the residents through 10 songs from the 1940s – 1960s. The residents had the choice of playing shaker eggs during 5 of the songs to help with mobility, minor physical exercises, rhythm exercises, and mimicry. Residents were noted to be alert, engaged, and generally happy during music therapy.

After the music therapy session, residents returned to normal activities before lunch. 3 residents were notably more social and engaged with peers. 7 residents were calm and more alert than before music therapy. During lunch 20 residents were present, actively eating, and had minimal socialization with peers. After lunch, almost all residents returned to their rooms.

The pilot study concluded that there is a difference between residents before and after music therapy during a 2-hour before and after window. Before music therapy residents were confused, emotionless, disengaged, and were not socializing. After music therapy, residents were calm, more oriented, engaged, and had greater socialization with peers.

### **Study Subjects:**

Who are the desired subjects:

- Full-time faculty/staff members of Rockingham County Rehabilitation and Nursing Center
- Have worked at Rockingham County Rehabilitation and Nursing Center for at least 1 year
- Work directly with residents with a diagnosis of dementia

How to find participants:

- A letter of invitation will be sent out facility-wide via email
- The letter will include the outline of the study, desired participants of the study, time commitment, and contact information if interested in participating

How participants were selected:

- Any interested participants will email the contact information in the letter of invitation with their name, title, length of time working at the facility, and if they work directly with residents with a diagnosis of dementia

- If an interested participant meets the desired subject criteria, the participant will be requested to complete a consent form
- Upon receipt of a completed consent form the participant will be included in the study

**Tools Used:**

- Letter of invitation (see **Appendix A**)
- Consent Form (see **Appendix B**)
- Participant Instruction Packet (see **Appendix C**)
- Email Reminders (see **Appendix D**)
- IRB approved set of pre-musical social event informal interview questions (see **Appendix E**)
- IRB approved set of post-musical social event informal interview questions (See **Appendix F**)

**Process:**

1. Meet with Kenneth Wing of Rockingham County Rehabilitation and Nursing Center about the study premises, learn about the facility, staff, clients
2. Meet with the activity director and or music therapist of Rockingham County Rehabilitation and Nursing Center to identify what event will be used for the study
3. Request a letter from Kenneth Wing that includes his knowledge of the study, and approval for the study to be hosted at the facility

4. With the letter, consent forms, and all supplemental materials (**see appendices**), submit to the IRB
5. Once the study is IRB approved, send a letter (**see Appendix A**) to the faculty/staff of the facility with an outline of the project, an invitation to participate, and instructions to contact the student researcher if interested
6. Email interested participants consent form (**see Appendix B**), physical copies will also be available with the director Kenneth Wing
7. Upon receipt of the completed consent form, an email will be sent with the participant instruction packet (**see Appendix C**), and physical copies will be available with the director Kenneth Wing
8. Meet with participants upon request to go over any questions about the study before it begins
9. One (1) week before pre-event observation begins, send a reminder email (**see Appendix D**) to participants of the pre-event observation and highlight important information from the participation packet
10. Have participants observe residents with dementia for 3 days
11. On day 3 of the 3-day observation period pre-music-based social event, send email reminders (**see Appendix D**) about informal interviews
12. Either Visit the facility and conduct informal interviews (**see Appendix E**) with participants to collect observations from the pre-event period or receive self-reported notes of observations and remarks from the pre-event period
13. After informal interviews or notes of observation and remarks are completed and collected, send email reminders about the musical social event (**see Appendix D**)

14. The day of the musical social event, visit the facility and observe the event
15. After the musical social event, send an email reminder that the following 3-day period is the post-event period and to record observations (see **Appendix D**)
16. On day 3 of the 3-day observation period post-music-based social event, send email reminders (see **Appendix D**) about informal interviews
17. Upon completion of the 3-day observation period, visit the facility to conduct post-event interviews and collect observations (see **Appendix F**) or receive self-reported notes of observations and remarks from the post-event period
18. After all interviews and notes are completed and collected, compile all observations and interview answers into a document to highlight central themes of the pre and post-event observations
19. Send an email thanking participants for their participation in the study (see **Appendix D**)
20. Based on the highlighted central themes, formulate a qualitative analysis in which a generalized conclusion can be drawn in which music therapy does or does not improve the overall well-being of geriatrics with dementia based on caretaker observation.

### **Data Analysis Process:**

1. Compile answers from pre- and post-unstructured interviews and self-reported notes on observations and remarks (see Table 2)
2. Upload answers to Taguette (Rampin, R., & Rampin, V. n.d.), a free qualitative analysis software
3. In Taguette, highlight and code the answers from unstructured interviews (see Table 3)
4. Upon completion of coding, export codebook

5. Compare pre- and post-qualitative analysis to see if a generalized conclusion can be drawn in which music therapy does or does not improve the overall well-being of geriatrics with dementia based on caretaker observation (see Table 4).

## Data

**Table 2**

*Observations collected from a participant over the 10-day study*

Resident	Before Event 2/27/24	Just Prior to Event 3/1/24	During Event 3/1/24	After the Event 3/4/24
A	Not engaged, did not appear happy or sad, just going with the flow of the day, preparing for lunch	Seemed distraught, red eyes, withdrawn, sitting alone away from peers, furrowed eyebrows, looked grumpy	Slowly became more engaged, started smiling and laughing, using on hand to pat their leg to the beat, big smile, waiving hand in air, kept eye contact with music therapist, very engaged	Sitting alone, flat affect, not engaging with peers, participated in planned activities
B	Sitting at table, not smiling, talking with other residents at table	Sitting at table with two peers, not smiling, blank stare	Singing along, answering questions about the music, singing in the blanks of the song by memory, smiling, laughing	Sitting in room alone, not engaging with others, required prompting to participate in programs
C	-	Sitting at table with two peers, not engaged, silent	Singing along, toe tapping, no facial changes but was actively participating	Alone in room, not engaging with others, observed activity but did not participate
D	-	Sitting at table with two peers sipping coffee, observing others	Smiling, head bobbing, engaged, guessing song names and verses	Sitting alone in dining room, not engaging with others, flat affect
E	Pacing up and down hallway, asking lots of questions (Can I have some gum? Can I have coffee? Snack?) Difficult to re-direct	Pacing hallways, lots of questions, difficult to re-direct	Clapping, sat for the whole event, smiling, laughing and engaged	Engaging in restorative program, once back they were observed to pace the halls and ask a lot of questions

Resident	Before Event 2/27/24	Just Prior to Event 3/1/24	During Event 3/1/24	After the Event 3/4/24
F		Walking floor, communicating with peer, very confused of where they are and what they should be doing	Sang along quietly, leg tapping to the beat	Sitting alone, talking to staff, stating "I do not know what I should be doing"
G	Sitting in their wheelchair staring out	Sitting in their wheelchair, very quiet, staring off, not interacting with anyone	Became actively engaged, singing, laughing along, foot tapping, even answered a question	In room, participating in ADL's
H	-	Sitting alone, not engaged, quiet	Engaged the entire time, sang all the songs, active participant	In room, reading a magazine, enjoying independent leisure
I	-	-	Rarely if ever talks, they began singing the song once the music therapist stated we are singing this one next	-
J	-	-	Rarely communicates verbally, answered a question during the group accurately	-

*Note.* Dashes indicate the resident was not present during the observation time. All content in the table was collected and written by the participant and not edited for grammar or context.



Table 3

*Observations collected from a participant after going through the Taguette software for analysis*

Resident	Before Event 2/27/24	Just Prior to Event 3/1/24	During Event 3/1/24	After the Event 3/4/24
A	Not engaged [not engaged], did not appear happy or sad [emotionless], just going with the flow of the day, preparing for lunch	Seemed distraught [agitated], red eyes, withdrawn, sitting alone away from peers [not engaged, not socializing], furrowed eyebrows, looked grumpy [angry]	Slowly became more engaged, started smiling and laughing [happy], using on hand to pat their leg to the beat, big smile, waving hand in air, kept eye contact with music therapist, very engaged [engaged]	Sitting alone, flat affect, [emotionless] not engaging [not engaged] with peers, participated in planned activities
B	Sitting at table, not smiling, talking with other residents at table [socializing]	Sitting at table with two peers [socializing], not smiling, blank stare [emotionless]	Singing along, answering questions about the music [engaged], singing in the blanks of the song by memory, smiling, laughing [happy]	Sitting in room alone, not engaging with others [not socializing, not engaged], required prompting to participate in programs
C	-	Sitting at table with two peers, not engaged [not engaged], silent	Singing along [engaged], toe tapping, no facial changes but was actively participating [emotionless]	Alone in room, not engaging with others [not socializing, not engaged], observed activity but did not participate
D	-	Sitting at table with two peers [socializing] sipping coffee, observing others	Smiling [happy], head bobbing, engaged [engaged], guessing song names and verses	Sitting alone in dining room, not engaging with others [not engaged], flat affect [emotionless]
E	Pacing up and down hallway, asking lots of questions (Can I have some gum? Can I have coffee? Snack?) Difficult to re-direct	Pacing hallways, lots of questions, difficult to re-direct	Clapping [happy], sat for the whole event, smiling, laughing and engaged [engaged]	Engaging in restorative program, once back they were observed to pace the halls and ask a lot of questions [not engaged]
Resident	Before Event 2/27/24	Just Prior to Event 3/1/24	During Event 3/1/24	After the Event 3/4/24

F	-	Walking floor, communicating with peer [socializing], very confused of where they are and what they should be doing [confused]	Sang along quietly, leg tapping to the beat [engaged]	Sitting alone [not engaged], talking to staff, stating "I do not know what I should be doing" [confused, socializing]
G	Sitting in their wheelchair staring out [not socializing, not engaged]	Sitting in their wheelchair, very quiet, staring off, not interacting with anyone [not engaged]	Became actively engaged [engaged], singing, laughing along [happy], foot tapping, even answered a question	In room [not socializing, not engaged], participating in ADL's
H	-	Sitting alone, not engaged [not engaged], quiet	Engaged the entire time, [engaged] sang all the songs, active participant	In room [not socializing], reading a magazine, [engaged] enjoying independent leisure [calm, peaceful]
I	-	-	Rarely if ever talks, they began singing the song once the music therapist stated we are singing this one next [engaged]	-
J	-	-	Rarely communicates verbally, answered a question during the group accurately [engaged]	-

Note. Dashes indicate the resident was not present during the observation time. All content in the table was collected and written by the participant. Items highlighted in yellow were picked up for pertaining to a category highlighted in pink.

**Table 4**

*Emotional Trait Count Over the 10-day Study*

Trait	Before MT	Just Before MT	During MT	After MT
Agitated		1		
Alone				
Angry		1		
Calm				1
Confused		1		1
Emotionless	1	1	1	2
Engaged			10	1
Happy			5	
Interesting				
Not Engaged	2	4		6
Not Socializing	1	1		4
Peaceful				1
Socializing	1	3		1

*Note.* MT = music therapy

### Discussion

Looking at Table 2, some basic observations can be made before going through the coding program Taguette. First, all residents attend music therapy, with no gaps in data on any resident observed during music therapy. Additionally, at a glance, it appears that all residents were engaged during music therapy. The large gap in observations 3 days before music therapy makes it more difficult to properly interpret the data. Only 4 residents were present during the time of observation out of the 10 observed residents. Of the six residents who don't have data from 3 days before music therapy, there is data from 3 days after music therapy. With only 4 out of 10 complete observations, the sample pool is very small. Complete observations are defined as observations of residents in all 4 time periods, before, just before, during, and after.

Table 3 is the same information as Table 2 although there is the addition of the highlights from Taguette and the category placement. The piece of the observation that was picked up by the software for matching a category is highlighted in yellow. The category the text matches appears directly after the text in brackets highlighted pink. Some observations are not highlighted due to the observation not matching a category that was included in the search criteria.

Categories included in the search criteria are agitated, alone, angry, calm, confused, emotionless, engaged, happy, interesting, not engaged, not socializing, peaceful, and socializing. These categories can be divided into 2 overarching umbrella categories positive well-being and negative well-being. Positive well-being included the categories calm, engaged, happy, interesting, peaceful, and socializing. Negative well-being included the categories agitated, alone, angry, calm, confused, emotionless, not engaged, and not socializing.

Table 4 shows the counts of each category during the study. Only the emotionless category repeats during all 4 time periods. Not engaged, not socializing and socializing were the only categories to repeat 3 of the 4 times during the study. All other categories occurred only 1 or 2 times. Engaged was at its peak during music therapy, with all 10 residents displaying the attitude. Not engaged at the second highest at 6 residents, 3 days after music therapy. Happy was the third highest with 5 residents displaying the emotion during music therapy. Not engaged and not socializing are also of note with 4 residents displaying the attitude at the same time. The categories of alone and interesting were not recorded during the study or analysis.

Observing just the periods before music therapy and after music therapy the heart of the study is measured. Before music therapy had 1 positive well-being tag and 4 negative well-being tags. After music therapy had 4 positive well-being tags and 13 negative well-being tags. However, there does appear to be a skew in the data due to an increase in residents being

observed after music therapy that had negative well-being traits. There were only 4 residents to tag observations of before music therapy and 8 residents to tag observations of after music therapy. If going off of the observations of all 10 residents, it would be concluded that music therapy did not have a positive effect on well-being in contrast a negative well-being effect may be concluded. With an increase of only 3 positive well-being tags and 9 negative well-being tags.

With an interest in how the increase in participants skewed the counts of positive well-being and negative well-being accounts, the tags were recounted using only the participants that had been present both before music therapy and after music therapy. The before-music therapy counts remained the same with 1 positive well-being tag and 4 negative well-being tags. After music therapy tags shifted to 0 (zero) positive well-being tags and 7 negative well-being tags. This had a decrease of 1 positive well-being tag and an increase of 3 negative well-being tags. The ratio of positive well-being tags to negative well-being tags remains equal at a 1:4 ratio.

In direct contrast to the positive and negative well-being tags on observations from a participant in the study, a second participant included this quote in their self-reported answers to the example informal interview questions included in the participant information packet (see Appendix C)

“Music is one activity that most of the residents enjoy and will engage in, whether it’s to sing along or get up and dance. Some residents may be quiet and not socialize before the music begins but are in better spirits, smiling, relaxing, and socializing after a music activity.”

This quote more closely aligns with the data collected during the pilot study rather than the 10-day study. The effects of music therapy appear to only last for the day that the music therapy

occurred. Then when residents go to sleep the body does maintenance including storing short-term memories from the day into long-term memory. Thus, a sort of reset occurs in which the residents revert to the tendencies of before music therapy. While this study did not examine the possible correlation between the effects of sleep, brainwaves, and body resets, there may be an unestablished correlation between well-being effects after music therapy and the resetting of the body during sleep. It can be foreseen that a correlation could aid in the interpretation of this study in the future.

### **Conclusion**

This study examined the effects of well-being after a music therapy session on a group of 10 residents with dementia. Only 1 participant provided observations on the 10 residents and a second participant provided a quote that directly conflicted with the analysis of observations. Data analysis and tagging of positive and negative well-being traits concluded that there is not a significant increase in well-being after music therapy. In contrast, the quote stated that there is an increase in well-being after music therapy. The literature reviews of related studies examining geriatrics with dementia, well-being, and music therapy conclusively stated that music therapy had a positive effect on geriatrics with dementia. Comparing the pilot study to the 10-day study, it is noted that music therapy has a short-term positive effect on well-being. This research did not find a commonality that could be foreseen as a reason behind the differences in well-being hours after music therapy on the same day versus 3 days later.

A plausible reason for the difference in well-being hours after music therapy versus days after music therapy could be the effects sleep has on the body. Sleep and the stages of REM have

different effects on the mind which can be altered in patients with dementia. Therapeutic interventions can be forgotten overnight due to dementia and the sleep cycle. This study could not further examine the effects of sleep on the continued benefits of music therapy over several days but believes there is potential in the research.

Overall, it can be concluded that music therapy has a significant increase in well-being over a short-term period. After 3 days the effects of music therapy “wear off” and the resident returns to their usual tendencies with a neutral or negative well-being. Future repeats of this study would benefit from conducting the observations at multiple facilities to increase the number of residents being observed and more elaborate recruiting to have a larger number of participants observing residents. In conclusion, music therapy was effective in improving well-being, however, further research is needed to measure the effects of long-term music therapy.

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## Appendix A

Subject: Invitation to participate in a research project on **Effects of a Musical Social Event on the Wellbeing of Geriatric Populations with Dementia**

October 23, 2023

Dear valued employee of Rockingham County Rehabilitation and Nursing Center,

My name is Olivia Gage and I am an undergraduate in the Honors Program at Carleton University. I am working on a research project under the supervision of Dr. Hendery.

I am writing to you today to invite you to participate in a study entitled “**From Dark Days to Musical Ends: A Case Study on the Effects of a Musical Social Event on the Wellbeing of Geriatric Populations with Dementia.**” This study aims to better understand the relationship between music therapy and its effects on the well-being of geriatric populations with dementia.

This study involves observing residents over two 3-day periods, two 15-minute interviews, and the participation in a music-based social event. All study involvement will take place in a mutually convenient, safe location. With your consent, interviews will be audio-recorded. Once the recording has been transcribed and verified, the audio recording will be destroyed.

Being in this type of study involves some risk of minor discomforts that can be encountered in daily life, such as fatigue, stress, and concerns about the type of relationships with your dementia residents. Being in this study would not pose a risk to your safety or well-being. Care will be taken to protect your identity. This will be done by keeping all responses anonymized and allowing you to request that certain responses not be included in the final project. All resident information will be kept anonymous and any accidental mentioning of identifying data will not be included.

You are under no obligation to participate in this research and your decision will have no impact on your role at Rockingham County Rehabilitation and Nursing Center. You may withdraw from the study without penalty at any time during the study period, during interviews, and up to one month after the completion of the second interview by emailing [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu). If you choose to withdraw, all the information you have provided will be destroyed.

This study is completely voluntary; there will be no reimbursement or payment for time.

All research data, including audio and any notes, etc. will be encrypted/password-protected. Any hard copies of data including any handwritten notes will be kept in a locked cabinet. Research data will only be accessible by the researcher and the research supervisor Dr. Hendery.

This research has been cleared by Southern New Hampshire University Research Ethics Board Clearance # IRB-FY2023-62

If you have questions regarding your rights as a research participant or any concerns regarding this project, you may report them – confidentially, if you wish – to the University Campus Institutional Review Board Chairperson at **IRB@snhu.edu**

If you would like to participate in this research project or have any questions about the research, please contact me at **olivia.gage@snhu.edu** or **603-913-7920**. I will reach out with a few questions to ensure you are qualified for this study.

Sincerely,

Olivia Gage

### **FAQ: Some Questions That You Might Have About the Study**

#### **Q: Who is being asked to participate?**

**A:** I am looking to work with Full-time faculty/staff members of Rockingham County Rehabilitation and Nursing Center, who have worked at Rockingham County Rehabilitation and Nursing Center for at least 1 year and work directly with residents with a diagnosis of dementia

#### **Q: Do I have to participate?**

**A:** No. You are under no obligation to participate in this research and your decision will have no impact on your role at Rockingham County Rehabilitation and Nursing Center. You may withdraw from the study without penalty at any time during the study period, during interviews, and up to one month after the completion of the second interview by emailing [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu).

#### **Q: What exactly is involved?**

**A:** In this study, you will be asked to observe the residents you directly work with who have a diagnosis of dementia before and after a music-based social event. There is a 3-day period before the event for observation and 3 days after the event for observation. A participant does not need to observe for all 3 days, the purpose of the 3 days is to allow for a participant to have a shift during these 3 days in which they can observe the residents with dementia without needing to alter their schedule. Observations are informal notes about the mood, livelihood, participation in events, and overall well-being of a client on a typical day. After each observation period, a 15-minute interview will be conducted to collect observations.

**Q: How long will it take?**

**A:** Participation in this study should take no more than 6 hours over 10 days. 2 hours total of observation before the event, 15 minutes for pre-event informal interview, 1 hour of event participation, 2 hours total of observation after the event, and 15 minutes for post-event informal interview.

**Q: What are the benefits of participating in the study?**

**A:** People involved in studies typically find the work of the study interesting and obtain a positive experience of having their opinions and perspectives heard during an interview. By participating in this study, you will be assisting in the expansion of the field of music therapy concerning geriatric and dementia studies. However, if you do not feel comfortable at any time you are free to withdraw from the study.

**Q: What if I would like to participate in the study but am unable to attend the event or interviews?**

**A:** If you are interested in the study but have a conflict with the proposed schedule and participation requirements, please email [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu) to set up alternative participation plans.

**Q: Will my information be kept confidential?**

**A:** Yes. Care will be taken to protect your identity. This will be done by keeping all responses anonymized and allowing you to request that certain responses not be included in the final project. All resident information will be kept anonymous and any accidental mentioning of identifying data will not be included. Additionally, all research data, including audio and any notes, etc. will be encrypted/password-protected. Any hard copies of data including any handwritten notes will be kept in a locked cabinet. Research data will only be accessible by the researcher and the research supervisor Dr. Hendery.

**Q: Who is doing the research?**

**A:** Olivia Gage, an undergraduate student at Southern New Hampshire University is completing the research under the supervision of Professor and Psychology Department Chair Dr. Michael Hendery. Olivia is an Honors Program student interested in researching the relationship between music therapy and its effects on the well-being of geriatric populations with dementia to shape her future career as a Mental Health Counselor for geriatric populations with dementia.

**Q: Do I get to keep a copy of this information letter and the consent form?**

**A:** Yes, you will be provided a copy of the information letter and consent form.

## Appendix B



### **Southern New Hampshire University Institutional Review Board**

#### **Informed Consent Form for *From Dark Days to Musical Ends: A Case Study on the Effects of a Musical Social Event on the Wellbeing of Geriatric Populations with Dementia***

You are being invited to participate in a research project conducted by **Olivia Gage**, who is an **undergraduate student** at Southern New Hampshire University.

You are invited to participate in a research study about **the benefits of a music-based social event on the well-being of senior citizens with Dementia.**

In this study, **you will be asked to observe the residents you directly work with who have a diagnosis of dementia before and after a music-based social event.** There is a 3-day period before the event for observation and 3 days after the event for observation. A participant does not need to observe for all 3 days, the purpose of the 3 days is to allow for a participant to have a shift during these 3 days in which they can observe the residents with dementia without needing to alter their schedule. Observations are informal notes about the mood, liveliness, participation in events, and overall well-being of a client on a typical day. After each observation period, a 15-minute interview will be conducted to collect observations. **The total time commitment to this study is no more than 6 hours over 10 days.**

Being in this type of study involves **some risk of minor discomforts that can be encountered in daily life, such as fatigue, stress, and concerns about the type of relationships with your dementia residents. Being in this study would not pose a risk to your safety or well-being.** People involved in studies typically find the work of the study interesting and obtain a positive experience of having their opinions and perspectives heard during an interview. By participating in this study, you will be assisting in the expansion of the field of music therapy concerning geriatric and dementia studies. However, **if you do not feel comfortable at any time you are free to withdraw from the study.**

If you have decided to participate in this project, please understand that your **participation is voluntary and that you have the right to withdraw your consent or discontinue participation at any time with no penalty. You also have the right to refuse to answer any question(s) for any reason with no penalty.**

**In addition, your privacy will be maintained in all publications or presentations resulting from this study.** With your consent, interviews will be audio-recorded. Once the recording has been transcribed and verified, the audio recording will be destroyed. In publication, this will be done by keeping all responses anonymized and allowing you to request that certain responses not be included in the final project. All resident information will be kept anonymous and any accidental mentioning of identifying data will not be included. Additionally, all research data, including audio and any notes, etc. will be encrypted/password-protected until destroyed. Any hard copies of data including any handwritten notes will be kept in a locked cabinet. **Research data will only be accessible by the researcher and the research supervisor Dr. Hendery.**

If you have any questions regarding this project, you may contact the researcher at **olivia.gage@snhu.edu**. If you have questions regarding your rights as a research participant or any concerns regarding this project, you may report them – confidentially, if you wish – to the University Campus Institutional Review Board Chairperson at [IRB@snhu.edu](mailto:IRB@snhu.edu)

A copy of this consent form will be provided to you.

I understand the above information and voluntarily consent to participate in the research.

Signature of Participant: \_\_\_\_\_ Date: \_\_\_\_\_

IRB Approval Number: IRB-FY2023-62 \_\_\_\_\_ IRB Expiration Date: \_\_11-14-2024\_\_\_\_\_

**Appendix C**

**Participant Information Packet**

Dear Participant,

Thank you so much for taking the time to participate in the study “From Dark Days to Musical Ends”. The purpose of this packet is to provide you with all the information necessary for being a participant. In this packet, I will provide a **summary of the research I am trying to accomplish, a timeline of the study, observation recommendations, examples of questions I will ask during the informal interview, and an outline of the parameters of well-being.**

Should you have any questions about the contents of this packet, please email [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu)

**Packet Contents:**

Research Summary.....Page 2  
Project Timeline.....Page 3  
Observation Recommendations.....Page 4  
Interview Example Questions.....Page 5  
Outline of Well-Being Parameters.....Page 5



**Research Summary:**

The purpose of “From Dark Days to Musical Ends” is to study the relationship between music therapy and its effects on the well-being of geriatric populations with dementia. My original version of this study intended to work with residents who had a dementia diagnosis and interview them before and after a music-based social event and complete a dementia quality of life scale to determine the effects of a music-based social event on geriatrics with dementia. After a denied IRB proposal, meeting with my research supervisor, and meeting with the chair of IRB I shifted my study to work with the caretakers of geriatrics with dementia.

Through caretaker observation before and after a music-based social event, I hope to prove through qualitative analysis that there is a positive effect on the well-being of geriatrics with dementia after participation in a music-based social event.

All participants will be **asked to observe the residents you directly work with who have a diagnosis of dementia before and after a music-based social event.** There is a 3-day period before the event for observation and 3 days after the event for observation. A participant does not need to observe for all 3 days, the purpose of the 3 days is to allow for a participant to have a shift during these 3 days in which they can observe the residents with dementia without needing to alter their schedule. Please see the associated section below for more information about the timeline of the study. Observations are informal notes about the mood, liveliness, participation in events, and overall well-being of a client on a typical day. Please see the associated section below about observation notes for more information. After each observation period, a 15-minute interview will be conducted to collect observations. Please see the example interview questions section below for an idea of how the interview will be conducted. **The total time commitment to this study is no more than 6 hours over 10 days.**

**Project Timeline:**

This study is designed to be completed over the course of 10 days not including the selection of participants. The timeline for this study is based on approval from the facility and the Institutional Review Board.

*Once the study is IRB-approved:*

*Day 0:* Send email reminder for pre-event observation period starting tomorrow

*Day 1:* First day of the pre-event observation period\*

*Day 2:* Second day of the pre-event observation period\*

*Day 3:* Third and final day of the pre-event observation period\*

*Day 4:* Informal interviews are conducted with participants to collect observations

*Day 5:* Music-based social event takes place and send an email reminder of the post-event observation period starting tomorrow

*Day 6:* First day of the post-event observation period\*

*Day 7:* Second day of the post-event observation period\*

*Day 8:* Third and final day of the post-event observation period\*

*Day 9:* Informal interviews conducted with participants to collect observations

*Day 10:* Additional time for informal interviews if unable to be completed (make-up day)

\* Participants do not need to observe over all 3 days, the 3 days are created to ensure that anyone interested in participating in the study can do so without changing their work schedule

Ex. A participant can observe on day 2, attend the event, and observe on day 8 and this would be considered full participation in the study

**Note:** If you signed up with an alternative interview schedule, please refer to the timeline outlined in the email exchange with [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu)

### **Observation Recommendations:**

The observations collected during this study are meant to be similar to any progress/decline observations that would be provided to a family upon request. I am not looking for a detailed journal of observations about each resident you work with. These observations should be general and not include any identifying information about a resident. Journals will be provided to make keeping track of observations easier. Your notes may use identifying info to help keep your residents straight, but no identifying information may be provided when providing the observations to the researcher. Below are some categories of observations, examples of what behavior is included in the category, and a sample observation that would be provided to the researcher.

#### *Observation Categories with examples:*

*Mood:* Happy, Sad, Irritated

*Alertness:* Highly alert, semi alter, not alert

*Talkativeness:* Highly talkative, not talkative

*Appetite:* Eating normal, eating little

*Sleep:* sleeping at night, sleeping during the day

*Engagement in activities:* participates in no activities, participates in 1 or 2 activities

*Engagement with others:* socializes with other residents, socializes with caretakers

*Active:* are they active during times when they should be, are they distant and out of touch with people

*Pleasant or Combatant:* are they generally easy or difficult to work with

*Mobility:* can they move on their own easily, do they need assistance with activities

#### *Example Observation:*

One resident (resident A) was generally sad, not talkative, and was semi-engaged before the music-based social event. They were highly alert but did not enjoy their environment and were found to be socially isolating themselves. They would sleep at night, have a normal appetite, and be pleasant to work with.

After the social event, Resident A was emotionally neutral and would talk to others when engaged. They would participate in 1 or 2 activities and were pleasant with others at activities. They continue to be highly alert, sleeping at night, and having a normal appetite.

**Informal Interview Question Examples:**

The purpose of the informal interview is to provide an opportunity to collect observations from participants in a conversational manner. The list of questions below are examples of the questions that may be asked to help formulate a general idea about the state of residents before and after the music-based social event.

What is your name?

What is your position at Rockingham County Rehabilitation and Nursing Center?

How many hours per week do you spend working directly with residents?

What types of diseases or disorders do you typically work with?

Could you describe to me the average mood of the residents you work with?

Could you describe to me the average engagement in the activities offered by the residents you work with?

Could you describe to me any differences you noticed in the residents before and after the music-based social event?

**Outline of Well-Being Parameters:**

“From Dark Days to Musical Ends” is looking into the well-being of geriatrics with dementia. Well-being is talking about the overall health and comfort of a resident. The list below is of aspects of life that are included in the term well-being.

Well-being includes but is not limited to:

- Welfare
- Health
- Happiness
- Comfort
- Quality of life

Read the article below for more on well-being:

[What Is Well-Being? Definition, Types, and Well-Being Skills | Psychology Today](#)

## **Appendix D**

### **Email reminders for participants**

#### ***1 Week Before Study Begins:***

Dear Participant of “From Dark Days to Musical Ends”,

This is a friendly reminder that one week from today the study will begin. I would recommend reviewing the observation section of the participant packet before the study begins. All observations are meant to be general and no identifying information from observations should be provided to the researcher.

Here is an example observation for the pre-music-based social event:

One resident (resident A) was generally sad, not talkative, and was semi-engaged before the music-based social event. They were highly alert but did not enjoy their environment and were found to be socially isolating themselves. They would sleep at night, have a normal appetite, and be pleasant to work with.

If you have any questions about the study, please email [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu) or call 603-913-7920

Sincerely,

Olivia Gage

***On Day 3 of the 3-Day Observation Period:***

Dear Participant of “From Dark Days to Musical Ends”,

I hope the observation period for the pre-music-based social event is going well. This is a reminder that informal interviews for the pre-event period will be conducted tomorrow.

If you have any questions or concerns, please do not hesitate to contact me at [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu) or 603-913-7920

Sincerely,  
Olivia Gage

***After completion of informal interviews before music-based social event:***

Dear Participant of “From Dark Days to Musical Ends”,

Thank you for completing the informal interviews for the pre-event observation period. This is a reminder that the music-based social event will occur tomorrow. If you are available to attend the event, please do so to assist in your observations of your residents. I will be at the event to conduct my observations as well.

If you have any questions or concerns, please do not hesitate to contact me at [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu) or 603-913-7920

Sincerely,  
Olivia Gage

***After the conclusion of the music-based social event:***

Dear Participant of “From Dark Days to Musical Ends”,

This is a friendly reminder that tomorrow starts the 3-day post-event observation period. I would recommend reviewing the observation section of the participant packet. All observations are meant to be general and no identifying information from observations should be provided to the researcher.

Here is an example observation for the post-music-based social event:

After the social event, Resident A was emotionally neutral and would talk to others when engaged. They would participate in 1 or 2 activities and were pleasant with others at activities. They continue to be highly alert, sleeping at night, and having a normal appetite.

If you have any questions about the study, please email [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu) or call 603-913-7920

Sincerely,

Olivia Gage

***On day 3 of the 3-day post-music-based social event:***

Dear Participant of “From Dark Days to Musical Ends”,

I hope the observation period for the post-music-based social event is going well. This is a reminder that informal interviews for the post-event period will be conducted tomorrow.

If you have any questions or concerns, please do not hesitate to contact me at [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu) or 603-913-7920

Sincerely,

Olivia Gage

*After the completion of the study:*

Dear Participant of “From Dark Days to Musical Ends”,

I am writing to express my gratitude for your participation in this study. Due to the selfless work of individuals such as yourselves, our geriatric population is being compassionately supported. By participating in this study, you are assisting in the research on the relationship between music therapy and its effects on the well-being of geriatric populations with dementia.

As a final reminder, as a participant, you can withdraw from the study for up to one month after the completion of the final informal interview.

If you are interested in a copy of the completed study, please email [olivia.gage@snhu.edu](mailto:olivia.gage@snhu.edu)

Once again, thank you for your participation in “From Dark Days to Musical Ends”

Sincerely,

Olivia Gage



## Appendix E

The following is a list of questions to be used for the informal interview in conjunction with the study: *From Dark Days to Musical Ends: A Case Study on the Effects of a Musical Social Event on the Wellbeing of Geriatric Populations with Dementia*. This list of questions will be used for the pre-event informal interviews.

### Interviewer statement:

Thank you for coming in to complete the informal interview for the pre-event portion of the study. Before we begin, I would like to ask if I have your consent to record audio from this interview. I would like to remind you that I do not want any information that may identify any resident or could be a breach of HEPPA or any other confidentiality agreement. If any response includes this information by accident, it will not be included in the study. You have the right as a participant to not answer a question, please state that you do not wish to answer a question if this is the case and I will move on to the next one. Are you ready to begin?

1. What is your name?
2. What is your position at Rockingham County Rehabilitation and Nursing Center?
3. How many hours per week do you spend working directly with residents?
4. What types of diseases or disorders do you typically work with?
5. Could you describe to me the average mood of the residents you work with?
6. Could you describe to me the average engagement in the activities offered by the residents you work with?
7. Could you describe to me the average engagement with others by the residents you work with?
8. Could you describe to me the average activity of the residents you work with?
9. Could you describe to me the average alertness of the residents you work with?
10. Could you describe to me any other elements of well-being that you observed in the residents you work with?
11. Do you have anything else that you would like to share with me?

**Please note** that prompts include but are not limited to: Could you tell me more about that? Why was it special? Why do you believe this occurred? may be used to help move the conversation along and attain a full answer to each question.

## **Appendix F**

The following is a list of questions to be used for the informal interview in conjunction with the study: *From Dark Days to Musical Ends: A Case Study on the Effects of a Musical Social Event on the Wellbeing of Geriatric Populations with Dementia*. This list of questions will be used for the post-event informal interviews.

### **Interviewer statement:**

Thank you for coming in to complete the informal interview for the pre-event portion of the study. Before we begin, I would like to ask if I have your consent to record audio from this interview. I would like to remind you that I do not want any information that may identify any resident or could be a breach of HEPPA or any other confidentiality agreement. If any response includes this information by accident, it will not be included in the study. You have the right as a participant to not answer a question, please state that you do not wish to answer a question if this is the case and I will move on to the next one. Are you ready to begin?

1. What is your name?
2. What is your position at Rockingham County Rehabilitation and Nursing Center?
3. How many hours per week do you spend working directly with residents?
4. What types of diseases or disorders do you typically work with?
5. Could you describe to me the average mood of the residents you work with?
6. Could you describe to me the average engagement in the activities offered by the residents you work with?
7. Could you describe to me the average engagement with others by the residents you work with?
8. Could you describe to me the average activity of the residents you work with?
9. Could you describe to me the average alertness of the residents you work with?
10. Could you describe to me any other elements of well-being that you observed in the residents you work with?
11. Could you describe to me any differences you noticed in the residents before and after the music-based social event?
12. Do you have anything else that you would like to share with me?

**Please note** that prompts include but are not limited to: Could you tell me more about that? Why was it special? Why do you believe this occurred? may be used to help move the conversation along and attain a full answer to each question.