

**The use of music therapy in treatment for seniors with dementia: An evaluation of effectiveness in
treatment**

*Research Question: To what extent is music therapy an effective
treatment option for senior citizens with dementia?*

Subject: Psychology

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Introduction

This paper will be exploring the research question: *To what extent is music therapy an effective treatment option for senior citizens with dementia?* This paper will be classifying senior citizens as a person over the age of 65. The next two sections will define and explore music therapy and dementia in relation to this paper.

Music Therapy

Music therapy, defined by the American Music Therapy Association, is “the clinical and evidence-based use of music interventions to accomplish individualized goals” (American Music Therapy Association, n.d.). It is an established health profession, and can be used to address the physical, emotional, cognitive, and social needs of individuals. Music therapy was first explored as a viable treatment option in the early twentieth century, during an increase in demand for musicians in hospitals following World War II as an influx of returning veterans started seeking treatment. By the 1950’s full time paid positions were available for music therapists (American Music Therapy Association, n.d.). Music therapy is now widely available and is used to treat conditions from pain to depression.

Music therapy is practiced for both physical and emotional benefit. On a physical level music is a collection of vibrations, which have been shown to stabilize disoriented rhythmic brain activities in the thalamus and outer cortex, which are prominent in diseases like Parkinson’s and fibromyalgia. Music also provides people with an outlet for emotions, increasing the ability of the immune system and decreasing stress. Music therapist, Melanie Kwan, has said that active music engagement allows patients to reconnect with the healthy parts of themselves, even in the face of suffering (Novotney, 2013).

Music therapy is a personal process, and is subjective to all involved. This paper will explore a variety of different music therapy techniques in relation to dementia, evaluating the use of music therapy as a whole in the treatment of seniors with dementia.

Dementia

Dementia refers to a set of symptoms including difficulty thinking, problem solving, using language, and memory loss. It mainly affects people over the age of 65, and the likelihood of developing it increases with age. Dementia in senior citizens is often caused by Alzheimer's, which is a result of a buildup of known amyloid plaques and neurofibrillary tangles. Plaques are "abnormal clusters of chemically 'sticky' proteins called beta-amyloid that build up between nerve cells" (Alzheimer's Association, n.d.). The brain is connected through nerve cells, called neurons, that communicate with each other. Plaques block this communication causing reduced brain function. Neurofibrillary tangles form in dying cells, and are twisted fibers of the protein tau. In a normal brain tau aids in the transportation of essential nutrients. However, in the brain of someone with Alzheimer's tau forms tangles that block essential nutrients and supplies, ultimately resulting in the death of brain cells (Alzheimer's Association, n.d.). The damage initially takes place in the hippocampus, an area of the brain essential in forming memories, but as it spreads to other areas concentration, language, visuospatial and orientation problems develop. Mood changes, apathy, and irritability are also often seen. In the later stages, it is common to see more physical changes as the damage effects motor functions (Alzheimer's Society, 2016).

To treat these symptoms a wide variety of drug and non-drug treatments can be used. However, in a clinical review of evidence for the use of pharmacological treatment of neuropsychiatric symptoms of dementia it was concluded that pharmacological therapies were not effective and many of the drugs increased risk of stroke (Sink, Holden, & Yaffe, 2005). These negative side effects have urged both patients and medical professionals to look into non-drug treatments. One of them has been music therapy because of the premise that "as a person's ability to understand verbal language diminishes, the ability to process music is retained by a part of the brain last to deteriorate" (Cooke, Moyle, Shum, Harrison, & Murfield, 2010, p. 906).

Evaluating the effectiveness of music therapy for patients is important not only because of the side effects pharmaceuticals can have, but the steady increase of people predicted to develop dementia. The United States Census Bureau estimates that by 2050 there will be 115 million people diagnosed with dementia, a number more than triple the 35 million diagnosed in 2012 (Scommegna, 2012). As a global society, we need to effectively deal with this increase, implementing treatment options that provide patients the greatest benefit. This could help to increase quality of life for millions of people as the disease continues to rise in numbers, and would allow for the reduction of harmful, and expensive pharmaceuticals in the management of the disease.

Evidence showing strengths for the use of music therapy as a treatment model

The use of music therapy has been shown through research to be effective in treatment for symptoms of dementia. Music therapy, used in either group or individual settings, can reduce aggression, improve cognitive function, and decrease hallucinations. Additionally, it has been shown to improve communication between patient and caregiver, leading to a greater quality of life.

Agitation, decreased cognitive function, and hallucination are all common symptoms seen in dementia that music therapy has shown to help decrease. One study conducted in Italy evaluated the effectiveness of group cycle session music therapy on these symptoms. The study took place from March to November 2007 within five Italian nursing homes. Sixty patients diagnosed with dementia were selected and randomly assigned to either a control (standard care only) or experimental group. All patients gave informed consent, and received standard care including education and entertainment. The experimental group completed three cycles of 12 music therapy sessions. Thirty-minute session occurred in groups of three, three times a week. Between each cycle of twelve sessions a one month wash out period occurred. During these videotaped sessions, the group and therapist practiced improvisation. A

music therapist blind to the study then evaluated the tapes. The study completed analysis using the Neuropsychiatry Inventory (NPI) before and after treatment. The NPI evaluates twelve categories of behavior disturbance including apathy and agitations that create what is called a total score. While the global scale did not change significantly between the control and experimental groups, the individual items of delusions, agitation, and apathy significantly improved within the experimental group. The difference between the before and after NPI sub scores for the experimental group was 1.86 for delusions, 1.77 for agitation, and 1.24 for apathy. For the control group the difference was 0.65 for delusions, 0.87 for agitation, and 0.58 for apathy, showing the effectiveness of cycle music therapy in treating these symptoms. A table detailing the NPI sub scores for all categories tested can be found in **appendix 1** (Raglio et al., 2010).

This study presents ethical dilemmas, limitations, strengths. In terms of ethics, while consent was given, it was not given directly from the subjects being tested, but from a proxy, as it was deemed subjects were not able to give their own consent. This could have led to subjects being tested unethically, however music therapy does not have a risk of causing harm and research is extremely important to increase its effectiveness, limiting the impact of this ethical dilemma. In terms of limitations, the randomization of the study was not standardized, and the baseline NPI scores for the control and experimental groups were slightly different, affecting the comparability of the two groups. The study had strengths as well, that included a sufficiently large sample size, and the utilization a widely known outcome measure, the NPI. In addition to this, the music therapists completing the assessment of subjects were blinded to the aim of the study leading to more reliable results than if the study was completed without blinding.

Another study that showed significant decrease in agitation through music therapy was conducted in Norway under Hanne Mette O. Ridder, a music therapist and professor of psychology at Aalborg University. Its aim was to evaluate the role individual music therapy could have in decreasing

agitation symptoms. Data was collected from 14 different nursing homes; 10 in Norway and 4 in Denmark. Forty-two patients, diagnosed with moderate to severe dementia, were studied and were randomly assigned to a control or music therapy group, with subjects switching treatments halfway through the study. Individual music therapy was conducted biweekly for 6 weeks, by trained music therapists of Norwegian standard. The sessions included improvisation, singing, dancing, listening, or other activities, which the therapist documented after the session. Agitation levels were assessed three times during the study using the CMAI nursing home form. The form assesses 29 agitation behaviors, looking at if they are aggressive, nonverbal, or physical. Additionally, each behavior has a seven-point frequency scale, and a five-point disruptiveness scale. During the course of the study the CMAI frequency score increased by 0.46 during standard care, but dropped by 2.96 during music therapy. Additionally, the disruptive CMAI sub score also increased in standard care (3.26), while there was a 3.51 decrease during music therapy. After the six-week period a therapist recorded that a patient had said she was less aggressive, happier and was smiling more often. Additionally, it was reported that after the study the same patient used music to calm herself down when she was agitated, supporting the effectiveness of music therapy in decreasing agitation. In **appendix 2** three graphs looking at the CMAI scores and quality of life during the duration of the study can be viewed. (Ridder et al., 2013).

Consent presented an ethical dilemma in this study as well. There was limited mention of consent, meaning it could have similar issues as those explained for the previous study. Additionally, it is important to note that while this study did meet ethical requirements in Denmark and Norway, these may be different than those currently set in America. This study also had limitations. The CMAI requires that a proxy caregiver fill out information, and these caregivers were not blinded to the experiment, possibly skewing results. Additionally, this study collected information about the psychotropic medication subjects were taking throughout the experiment. However, it was reported this information was difficult to collect, and the study could not determine the extent to which the changes in

medication influenced the results. Despite this, the study did have strengths increasing the reliability of the results seen. The sample used was sufficiently large at 42, increasing the reliability of statistical tests. Additionally, the study allowed for every subject to complete both conditions, which improved the ability to compare results at the end of the study and also ensured subjects would not be excluded from potentially beneficial treatment.

Finally, music therapy has shown to improve patient's communication, specifically verbalization. A study conducted in an urban area of Sweden evaluated the effect of caregivers singing to communicate during morning care situations. The study focused in using the practice of Music Therapeutic Caregiving (MTC). Twelve patients were nominated by the head nurse at the homes being evaluated, but the study was only able to fully test ten patients, four men and six women, as two patients died during data collection. All patients were diagnosed with severe dementia (PWD) as indicated by their initial Mini-Mental State Exams. For one month caregivers and patients, who were organized in pairs, were videotaped during their normal morning routines, once per week. Then the next month, after caregivers were trained in MTC, the same process occurred, but with the caregivers implementing the MTC. Because the amount of footage was so large the researchers decided to analyze footage related only to the dressing of patients' upper bodies, as it was determined this was the activity that required the most communication (Hammar et al., 2011). Qualitative content analysis was used on this footage and the specific steps used for this can be found in **appendix 3**. There were five generic categories that were created pertaining to the ordinary morning situations: "(1) Caregivers provide instructions – PWDs respond actively and comply; (2) Caregivers provide instructions and PWDs respond at different paces; (3) Caregivers provide instructions – PWDs respond in an incongruent manner; (4) Caregivers provide instructions – PWDs respond with confusion; and (5) Caregivers provide instructions – PWDs respond with resistance and aggression" (Hammar et al., 2011, p. 162). Only three generic categories were created pertaining to the morning routines with MTC: "(1) Caregivers invite

communication – PWDs respond actively and comply; (2) Caregivers invite communication – PWD's respond with resistance or in incongruent manner; and (3) Caregivers and PWDs communicate mutual relaxation and well-being" (Hammar et al., 2011, p. 164). It was observed that during the ordinary morning routines the patients encountered difficulties in communicating and interpreting, in both verbal and non-verbal expression. Additionally, caregivers and patients avoided eye contact during the ordinary routine. However, in the routine where MTC was implemented it appeared that the caregivers seemed more interested in communicating with the patients. Additionally, the patients were deemed to be more active in getting dressed as well as communicating with their caregiver, demonstrating again the benefit music therapy can have on communication skills for someone with dementia (Hammar et al., 2011).

This qualitative study also presents strengths and limitations. In terms of strengths, the design of the study allowed for thorough review of video footage multiple times, allowing for more accurate results to be drawn. Additionally, in completing the qualitative content analysis, researcher triangulation was utilized, as all themes had to be agreed upon by all four researchers involved. Despite these strengths, the study also presented limitations. Because of its qualitative nature, the study had a small sample size, possibly allowing for groups of people to be under represented and causing inaccurate conclusions. Additionally, because subjects knew they were being observed and videotaped they could have altered their behavior, producing unreliable results. This study, like the previous, also presented ethical limitations as proxy consent was obtained for all subjects.

Evidence showing the limitations of music therapy as a treatment model

While research has shown the benefits of music therapy in a variety of situations, other research has demonstrated that music therapy has little effect on the treatment of seniors with dementia. No study found for this paper cited a negative effect on patients, but a handful did have results that demonstrated no significant effect compared to other enriching activities. Additionally, research that has supported the use of music therapy has also mentioned the limitation of how long music therapy can have an impact, or if it can have an impact once therapy is stopped.

In 2009 Marie L. Cooke, a social researcher working at Griffith University in Brisbane, conducted a study comparing the effect of music therapy to other enriching activities. Its aim was to explore the effect music had on agitation and anxiety of older people that had dementia. To complete the study forty-six patients were randomly assigned to one of two groups. Both groups completed the music intervention and the reading control conditions. A more detailed diagram showing how this design was completed can be viewed in **appendix 4** under table 1. Both activities occurred for forty minutes in the morning, three times a week. In between conditions there was a five-week washout period, aimed at preventing any crossover effects. The music intervention condition included thirty minutes of musical led sing-a-long activities and then ten minutes of prerecorded instrumental tracks for listening. The reading condition included forty minutes of interactive reading, quizzes, and joking around. At the baseline, mid-point, and post-intervention, shown in **appendix 4**, participants were assessed using the CMAI, describing earlier in the Ridder study, and the RAID. The RAID is a self-reporting instrument designed to measure anxiety symptoms of those with dementia. Eighteen symptoms were evaluated, each scored from one to three, and then a total score was calculated. Higher scores indicated the subject had more anxiety (Cooke et al., 2010).

After the exam scores were analyzed, it was concluded that the study did not find a significant effect from the music program on agitation and anxiety in patients. In both groups, the overall mean agitation score fell under two, meaning there was a low occurrence of it. More detailed results of the mean RAID sub scores and confidence intervals can be seen in **appendix 4** under table two (Cooke et al., 2010). This study shows that there can be times where music therapy is an ineffective treatment for dementia.

This study had many strengths, as it utilized a randomized cross-over design. This allowed subjects to be studied in detail for six months, and under both conditions, so that no subject was denied potentially helpful treatment. Additionally, the sample size of the study was sufficiently large, sitting at forty-seven subjects. Despite these strengths the study did have a few limitations. The study assessed agitation through the responses of caregivers on the CMAI-CF, while anxiety was self-assessed using the RAID. This could have influenced the results of both categories in ways that would not have existed if subjects or caregivers had solely reported for both measures. In terms of ethics the study presents similar issues as the others, as proxy consent was used in cases where subjects were not able to provide their own consent.

In 1998, Robert Groene II, a psychologist working at the University of Missouri-Kansas City, conducted a study showing similar results. The aim of this study was to examine the efficiency of individual therapy sessions on the responses of patients with dementia. Throughout the study seven patients were subject to a total of twenty-nine sing-a-long and exercise sessions. All the activities completed by participants had some form of music therapy incorporated into them. The sing along sessions consisted of live guitar and singing, while the exercise condition had participants perform an exercise session listening to music. Six of the participants had moderate to severe dementia, and the one remaining subject, who was not diagnosed with dementia, acted as a control. While the study was looking more into the individual activity and what effect the therapist had, it did note that the six

dementia participants as a whole purposefully responded more during the exercise sessions than they did the signing (Groene et al., 1998).

The main limitation of this study was its extremely small sample size. In addition to this the study did not use any widely used outcome measure, or a thorough qualitative analysis method. The study was also aimed at evaluating the effect of the music therapist on subjects rather than the use of music therapy. Despite these limitations, the study was a pioneer study evaluating the use of music therapy in patients with dementia. Its preliminary findings, inspired further research to be completed, leading to the current larger degree of knowledge and studies completed on the topic.

The Raglio study described in the section supporting the use of music therapy for patients with dementia (p. 6-7) also lends itself to similar results. The study collected data on two groups of patients, one of which participated in only standard care, and one which participated in standard care with three cycles of twelve music therapy sessions. Explained prior, the study did show a reduction in delusion, apathy, and agitation sub scores of the NPI, however the final total NPI score did not differ between the groups. Additionally, depression, anxiety, and irritability decreased equally in both the control and experimental group. While the overall conclusion of the study was that music therapy was an effective treatment for seniors with dementia, it is important to note the limitation that music therapy did show; it could not alleviate all symptoms (Raglio et al., 2010). An evaluation of this study can be found on page 6 where the study was originally discussed, and a table of the individual NPI sub scores can be viewed under **appendix 1**.

Another limitation research has shown is how long the effects of music therapy, if there are any, can last. One study exhibiting this was an addendum to the previously described Raglio 2010 study. This study aimed to provide more information about the results of the first study, by conducting NPI tests after the initial post intervention test, looking at the prolonged effect music therapy has on the patients tested. The addendum concluded that music therapy did have a positive impact on the NPI scores

compared to the control group. However, after the music therapy was concluded and the 6th and 7th scores were collected the two group's scores eventually moved back to around the same level. Diagrams showing the detailed and complete transition of the scores can be seen in **appendix 5** (Raglio et al., 2012). This study demonstrates that while music therapy can have a positive effect, this effect does not always last when treatment is not taking place, placing a limitation on its use.

Similar to the original study, this addendum had similar ethical issues as proxy consent was used. Again, it is important to mention that even though subjects could not offer their own consent, any testing and therapy completed had no chance of causing harm, limiting this ethical issue's impact. Because the procedure was the same as the original study it presented the same strengths and limitations in design. The only difference in the addendum was that subjects were tested more times, generating more NPI scores over a period of time and producing results that gave a larger picture on the long-term impact of music therapy.

Conclusion:

In evaluating the research presented, music therapy has been shown to have a variety of effects when used as treatment for seniors with dementia. In some instances, it appears that it decreases levels of agitation and anxiety, and increases communication skills. In other studies, it has been determined to have little, if no impact on the treatment of seniors with dementia. On balance, it appears that there is not a strong consensus as to whether music therapy is beneficial. There are more studies that seem to point towards the positive effects of music therapy, but there are equally reliable studies on the other side contradicting the positive results seen. One thing the research does lend itself to is that music therapy cannot necessarily treat dementia, but is rather more effective in the *individualized management* of symptoms. It is because of this and the slight lean towards the positive effects of music

therapy that leads to the conclusion that music therapy to a moderate extent is a viable *individual* “treatment” option for seniors with dementia.

In addition to this broad conclusion there is also more specific conclusions that can be drawn from evaluating the research. For instance, it can be concluded that the inconclusive effect of music therapy can be seen on an international level. The studies evaluated in this paper originated from a wide variety of European countries, as well as America. Additionally, the majority of the studies that were evaluated appeared to be very reliable, leading to the conclusion that their findings can generalize the effect of music therapy on dementia to a greater scale. The quantitative studies used widely recognized outcome measures, and utilized randomized designs to the best of their ability. The qualitative studies evaluated utilized triangulation and thorough content analysis techniques, all pointing towards the reliability of the results seen.

This paper also examined studies utilizing a wide variety of music therapy treatment methods, and it appears that no one treatment method produced results that out did another treatment method. Studies utilizing a variety of treatment methods all presented similar results. Because of this, it can be concluded that the type of music therapy used in treatment does not have an impact on the effectiveness of its treatment of dementia. This lends itself well to the disease, as dementia is a very personal disease, just as music therapy is a very personal treatment, so no one treatment method can prove to be effective in every situation.

Because of the inconclusive and individual nature of music therapy it seems that conducting further research on the topic would be beneficial. In doing further research more specific symptoms of the disease could be explored, leading research to come to a more decisive conclusion on what symptoms could be improved with music therapy. Additionally, further research could explore different treatment methods in a more direct manner. While the treatment method did not seem to make an impact in this evaluation of research, it seems likely that as research continues clinical music therapy

could have a greater impact on patients than caregivers singing to their patients at specific times.

Finally, more research could lend itself to determining what patients could benefit the most from music therapy, helping healthcare facilities distribute their resources effectively. This is something that could become important in helping to manage dementia symptoms, as the number of people developing the disease is projected to rise.

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Appendix 1

Table 2. Mean NPI subscale scores in experimental and in control group: significance of the differences among T0, T1, and T2 evaluations.

NPI test	Before treatment (T0)	End of treatment (T1)	4 weeks after end of trial (T2)	MANOVA	Significant <i>post hoc</i> contrasts
Experimental group					
Hallucinations	1.00	0.61	0.82	0.13	
Delusions	2.00	0.14	0.75	6.06**	T0–T1: $p = 0.002$
Depression	2.13	1.00	1.36	6.94**	T0–T1: $p = 0.001$ T0–T2: $p = 0.003$
Agitation	3.13	1.36	1.57	8.95***	T0–T1: $p = 0.003$ T0–T2: $p < 0.001$
Euphoria	0.67	0.04	0.04	1.17	
Anxiety	2.63	0.96	1.00	14.06***	T0–T1: $p < 0.001$ T0–T2: $p < 0.001$
Apathy	2.17	0.93	0.71	5.17**	T0–T1: $p = 0.036$ T0–T2: $p = 0.021$
Disinhibition	0.57	0.29	0.71	0.48	
Irritability	2.33	0.82	1.21	3.54*	T0–T1: $p = 0.029$
Aberrant motor activity	2.70	2.14	1.89	1.22	
Appetite and eating	0.17	0.21	0.29	0.45	
Night time behaviour disturbances	0.97	0.36	0.36	1.58	
Control group					
Hallucinations	1.66	1.39	1.15	1.43	
Delusions	2.76	2.11	1.88	2.45	
Depression	2.41	1.54	1.35	4.11*	T0–T2: $p = 0.015$
Agitation	3.87	3.00	2.92	1.47	
Euphoria	0.83	0.64	0.69	0.60	
Anxiety	3.07	2.11	1.77	3.91*	T0–T2: $p = 0.029$
Apathy	2.83	2.25	1.69	2.23	
Disinhibition	0.57	0.54	0.77	0.34	
Irritability	3.83	2.79	2.08	4.94**	T0–T2: $p = 0.014$
Aberrant motor activity	3.93	2.21	1.85	9.26***	T0–T1: $p = 0.005$ T0–T2: $p = 0.003$
Appetite and eating	0.27	0.29	0.08	0.49	
Night time behaviour disturbances	1.20	0.57	1.04	1.79	

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

(Raglio et al., 2010)

Appendix 2

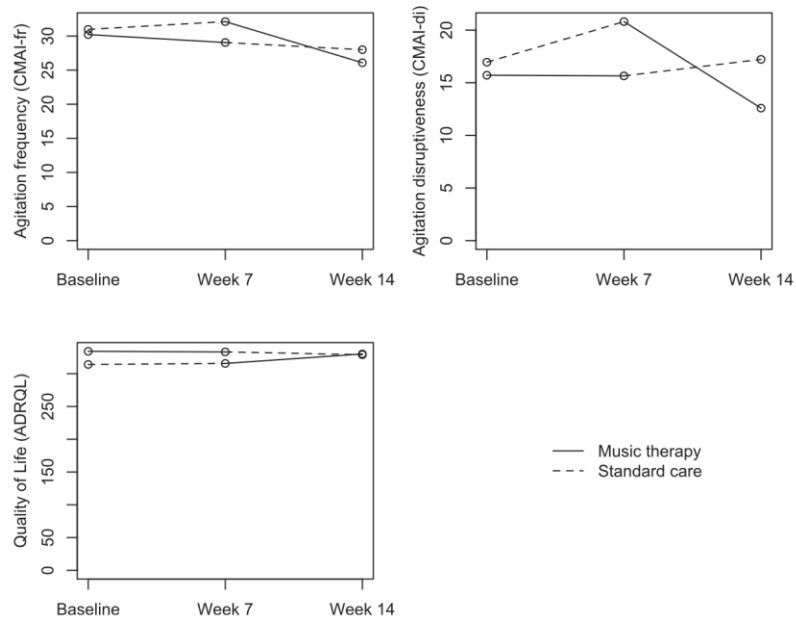


Figure 2. Mean scores for Agitation frequency (CMAI-fr), Agitation Disruptiveness (CMAI-di) and Quality of Life (ADRQL) during music therapy or standard care.

(Ridder et al., 2013)

Appendix 3

(1) Viewing the VIOs	All VIOs in their entirety were viewed several times to get an overall understanding of the verbal and nonverbal communication between the PWDs and the caregivers.
(2) Transcribing the VIOs	The sequences of 'dressing the upper body' of the PWDs was chosen to analyse, and the verbal communication (speech, sounds, singing) and nonverbal communication (body movements, eye movements, and eye contact) of the VIOs were transcribed into text.
(3) Coding	The transcriptions were read thoroughly, and codes that consisted of contents related to the study's aim were denoted, first in the margins of the transcriptions while reading the transcripts and then on a coding sheet to prepare for building subcategories.
(4) Building subcategories	The codes were interpreted and abstracted and grouped under higher-order headings into subcategories, depending on similar events and incidents in the codes.
(5) Building generic categories	Sub-categories were analysed according to similarities and differences, and through interpretation and abstraction, generic categories were developed. The abstraction to higher-order headings should, according to Elo & Kyngäs (22), continue as far as reasonable and possible for the data. For this study, the generic category was the highest possible level of abstraction, and the analysis of the 'usual' morning care situations generated five generic categories, while the analysis of the morning care situations with Music Therapeutic Caregiving generated three generic categories. The generic categories are presented in the results.

VIO, video observation; PWD, persons with dementia.

(Hammar et al., 2011)

Appendix 4

Table 1:

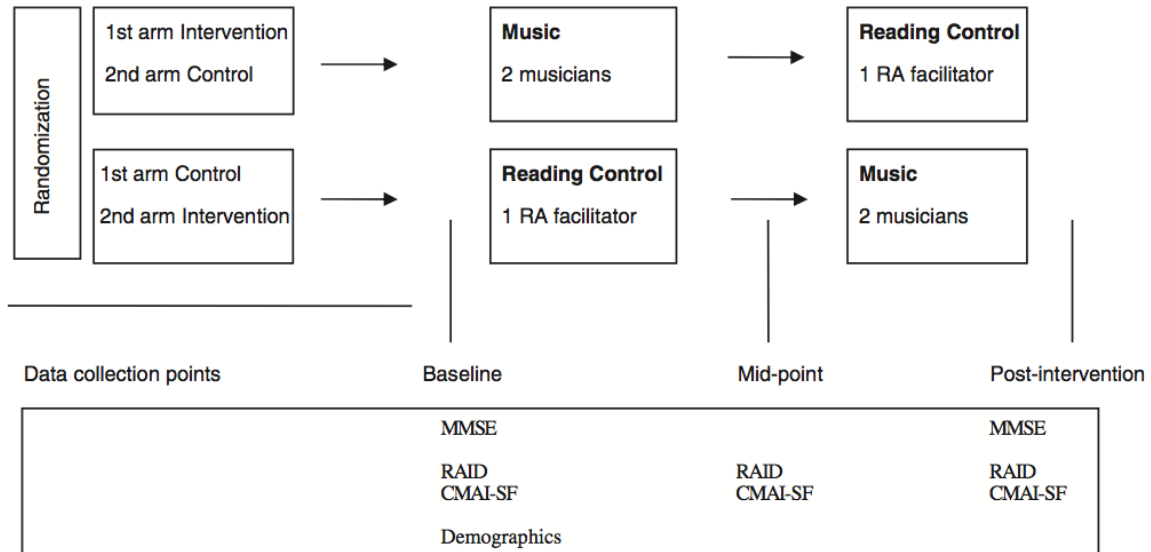


Table 2:

Table 2. Mean and 95% confidence intervals (95% CI) of baseline, mid-point and post-intervention CMAI-SF and RAID scores by music intervention and control groups.

Measure	First arm allocation	Baseline		Mid-point (after the first intervention arm)		Post-intervention (after the second intervention arm)	
		Mean	(95% CI)	Mean	(95% CI)	Mean	(95% CI)
Agitation: Overall	Music	1.66	(1.42, 1.91)	1.67	(1.49, 1.85)	1.65	(1.38, 1.91)
	Control	1.54	(1.32, 1.77)	1.66	(1.37, 1.96)	1.70	(1.44, 1.97)
Agitation: Physical aggression	Music	1.29	(1.08, 1.50)	1.57	(1.28, 1.86)	1.47	(1.09, 1.86)
	Control	1.33	(1.08, 1.59)	1.46	(1.18, 1.75)	1.45	(1.17, 1.73)
Agitation: Verbal aggression	Music	1.39	(1.20, 1.58)	1.43	(1.23, 1.63)	1.50	(1.28, 1.72)
	Control	1.35	(1.12, 1.57)	1.43	(1.19, 1.68)	1.65	(1.33, 1.98)
Agitation: Physical non-aggression	Music	1.78	(1.41, 2.16)	1.67	(1.45, 1.88)	1.71	(1.39, 2.03)
	Control	1.61	(1.35, 1.87)	1.66	(1.35, 1.97)	1.69	(1.34, 2.03)
Agitation: Verbal non-aggression	Music	2.10	(1.68, 2.52)	2.01	(1.72, 2.31)	1.86	(1.38, 2.34)
	Control	1.84	(1.41, 2.27)	2.10	(1.61, 2.60)	2.03	(1.65, 2.41)
Anxiety	Music	6.17	(3.24, 9.09)	7.58	(4.51, 10.66)	7.50	(3.88, 11.12)
	Control	8.22	(4.31, 12.13)	11.26	(7.95, 14.57)	9.26	(5.58, 12.94)

Note: Intention to treat analysis with a multiple imputation method ($n=47$).

(Cooke et al., 2010)

Appendix 5

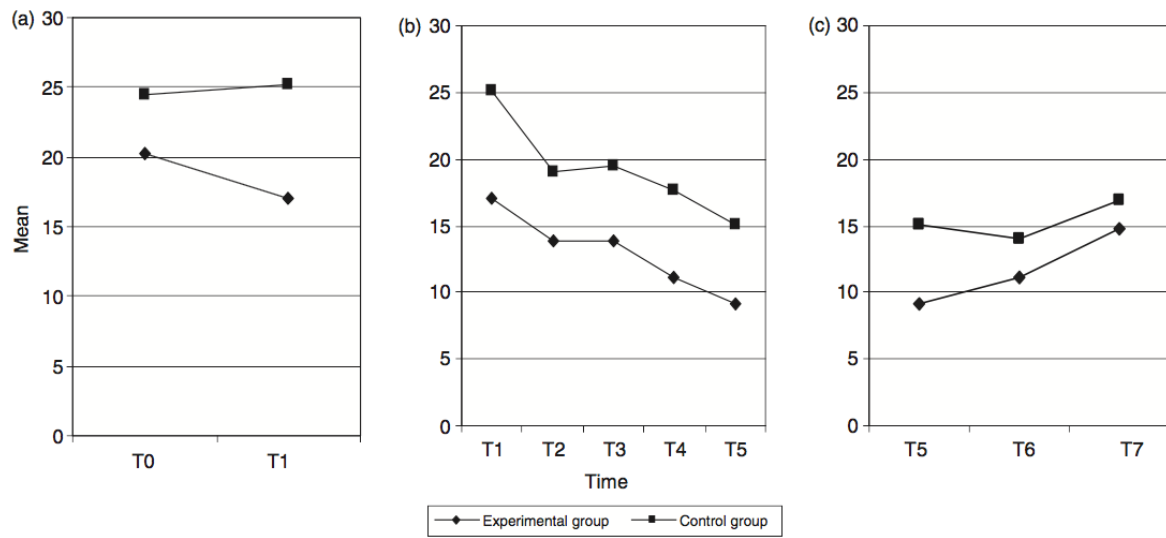


Figure 1. Comparisons of the average NPI global scores in the experimental and control group over time.

(Raglio et al., 2012)