

Silver Memories Research Program

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Abstract

The management of dementia related behaviours is an ongoing challenge for carers. Silver Memories is a 24/7 nostalgia radio program providing Reminiscence Therapy for patients living with dementia in aged care facilities in Australia. In 2016, Dr Catherine Travers, Research Manager School of Health and Rehabilitation Sciences, University of Queensland, with funding from the Federal Department of Health, began a 12 month research program. The research was designed to evaluate the impact of Silver Memories on the wellbeing and quality of life dementia sufferers. A total of 74 residents from 16 aged care facilities across metropolitan and regional centres in New South Wales and Queensland participated in the research program. The measures were Quality of Life (QoL) – nursing home version; the Geriatric Depression Scale – 5 (GDS) and the Cohen Mansfield Agitation Inventory (CMAI) - aggression and agitation.

The results demonstrated statistically significant improvements in participants' quality of life, depression, aggression and agitation over a 12-month period following the introduction of the Silver Memories Nostalgia Radio program.

A chronic disease of the 21st century

Dementia is the single greatest cause of disability in people aged 65+ years and the second leading cause of death in Australia [1] Of the 13,126 people who lost their lives to dementia in 2016, 64 percent were women.[2]

The health, social and economic costs associated with supporting people with dementia are significant and forecast to rise sharply as our population ages. In 2018, dementia is estimated to cost Australian taxpayers more than \$15 billion. By 2025, the total cost of dementia is predicted to increase to \$18.7 billion and to \$36.8 billion by 2056. [2]

The personal costs are more difficult to quantify. Memory loss, difficulty performing familiar tasks, confusion about time and place, and changes in mood and behaviour can cause distress for dementia sufferers and their loved ones.

More than 90 percent of people with dementia also experience agitation, aggression, apathy and depression. Carers report these dementia symptoms to be the most challenging to manage.

Silver Memories as Reminiscence Therapy

In 2007, Brisbane-based community radio station 4MBS introduced *Silver Memories*, a 24 hours a day/7 days nostalgia radio program that focuses on music from the 1940s to the 1970s.

Established to address the important issue of social isolation and depression in Aged Care, *Silver Memories* provides a non-pharmacological tool for the management of dementia related behaviours.

Based on Reminiscence Therapy principles, Silver Memories is guided by evidence-based research, including two previous research programs specifically focused on the Silver Memories program [3] [4]. There is a large and growing body of international

research showing the positive effect of music on the brain, and the role of music reminiscence therapy for the management of dementia.

In 2016, the Federal Government's Department of Health commissioned this 12-month research program to evaluate the impact of *Silver Memories* on people living with dementia in aged care facilities.

Research Program

The research was undertaken by Dr Catherine Travers, Rehabilitation Sciences, from the University of Queensland. Dr Travers is a Research Fellow with the Centre for Research in Geriatric Medicine at the University of Queensland. Dr Travers is a Clinical Psychologist and her research interests include dementia and interventions to improve older people's quality of life including those living with dementia

Population

A total of 74 residents from 16 aged care facilities across metropolitan and regional centres in New South Wales and Queensland participated in the research program. A range of facility demographics and corporate entities were selected. The service was provided to the aged care facilities free of charge to ensure all facilities maintained the same initial value perception.

Each facility had 5 residents who participated in the evaluation, except for one facility that had three participants. The majority of participants were female (n = 49; 66.2%) and participants' ages ranged from 52-100 years with the average age being 82.8 years (Standard Deviation = 8.5). All had dementia that required a higher level of care necessitating them living in the aged care residence. Unfortunately, five participants died over the course of the evaluation.

Design and duration

The research was designed to evaluate the impact of *Silver Memories* on the wellbeing and quality of life dementia sufferers, as well as symptoms of aggression and agitation observed by a staff member who knew the residents well.

Three validated questionnaires were developed to assess depression, quality of life and behaviour using the following assessment instruments:

- Geriatric Depression Scale – 5 (GDS)
- Quality of Life (nursing home version) (QoL)
- Cohen Mansfield Agitation Inventory (CMAI) - aggression and agitation.

The survey answers required either a yes/no response or a sliding scale to remove subjectivity and allow for easy comparison of participants over the time period.

The survey data was collected at baseline (before program commencement), and at regular three monthly intervals for the following twelve months in 12 facilities:

- T1: Term 1 - 3 months
- T2: Term 2 - 6 months
- T3: Term 3 - 9 months
- T4: Term 4 - 12 months.

Within four facilities (18 participants), the data was collected across 6, rather than 12 months, with data being collected at baseline, and at 6, 12, 18 and 24 weeks following baseline. For consistency, only the baseline, 12 week (3 month) and 6 month data were included in the analysis.

Paired t-tests were performed to assess whether there were changes over time for each of the outcome measures. The data was analysed using SPSS for Windows version 24 (IBM®, 2016).

Results

As illustrated in Table 1 below, there were significant improvements in participants' quality of life, depression, aggression and agitation over a 12-month period following the introduction of the *Silver Memories* Nostalgia Radio program.

Table 1. Results of baseline and follow-up assessments: Silver Memories

Assessment Time / Instrument	Baseline	3 months (T1)	6 months (T2)	9 months (T3)	12 months (T4)
Geriatric Depression Scale (GDS)[#]					
Average (Mean)	2.16	2.58	1.73	0.66	0.35
Standard Deviation (SD)	1.63	1.17	0.98	1.29	0.71
Range of scores	0 - 5	1 - 5	1 - 4	0 - 5	0 - 3
Number of participants (N)	70	66	48	47	47
Quality of Life (QoL)^{##}					
Mean	34.35	36.57	38.57	40.72	42.02
SD	8.46	7.73	8.60	7.34	6.88
Range	21 – 58	25 – 56	18 – 59	25 - 59	26 - 59
N	68	65	65	47	47
Cohen Mansfield Agitation Inventory (CMAI)[‡] - Aggressive Behaviour					
Mean	5.94	5.32	4.97	4.81	4.44
SD	2.43	1.84	1.64	1.44	1.04
Range	4 - 14	4 - 12	4 -12	4 - 10	4 - 8
N	71	68	65	47	47
CMAI - Physically nonaggressive behaviour (e.g. general restlessness)					
Mean	8.86	7.57	6.55	6.50	5.98
SD	4.02	3.52	2.08	2.37	1.53
Range	5 - 22	5 -18	5 -13	5 - 14	5 – 10
N	69	65	64	6	46
CMAI - Verbally agitated behaviour (e.g. yelling)					
Mean	8.58	7.43	6.78	6.74	6.02
SD	3.91	3.32	2.50	2.34	1.53
Range	5 – 18	5 - 18	5 – 16	5 -14	5 -11
N	71	68	65	47	47

[#]Geriatric Depression Scale – higher scores indicate more symptoms of depression;

##Quality of Life – higher scores indicate better QoI;

*CMAI – higher scores indicative greater levels of agitation or aggression

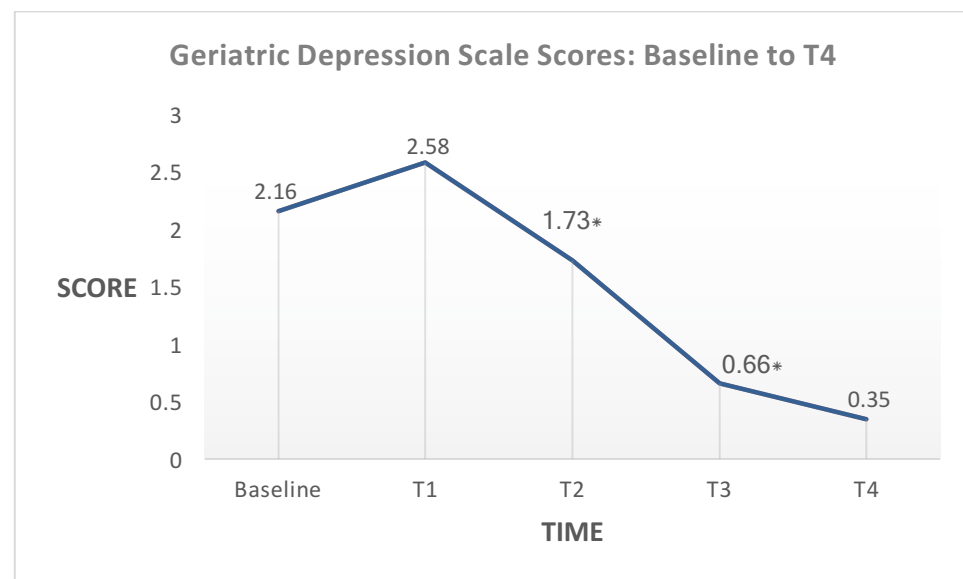
Geriatric Depression Scale (GDS)

The 5-item Geriatric Depression Scale specifically investigates how the individual feels about their life and existence while living with dementia. The yes/no questions were asked by carers at the facilities, thereby ensuring the participants were comfortable with the interviewer. This five question survey records how the individuals feel within themselves as well as their thoughts about their immediate environment.

The items are:

1. Are you basically satisfied with your life?
2. Do you often get bored?
3. Do you often feel helpless?
4. Do you prefer to stay at home rather than going out and doing new things?
5. Do you feel pretty worthless the way you are now?

Participants' scores on the GDS improved significantly from T1 to T2 ($p < 0.05$), and from T2 to T3 ($p < 0.001$). Overall, the improvement from baseline to T4 was also significant ($p < 0.001$) with the effect size being large (0.98). Figure 1 shows GDS scores over time.



*Significant improvement in score from previous timepoint

Figure 1. Geriatric Depression Scores over 12 months

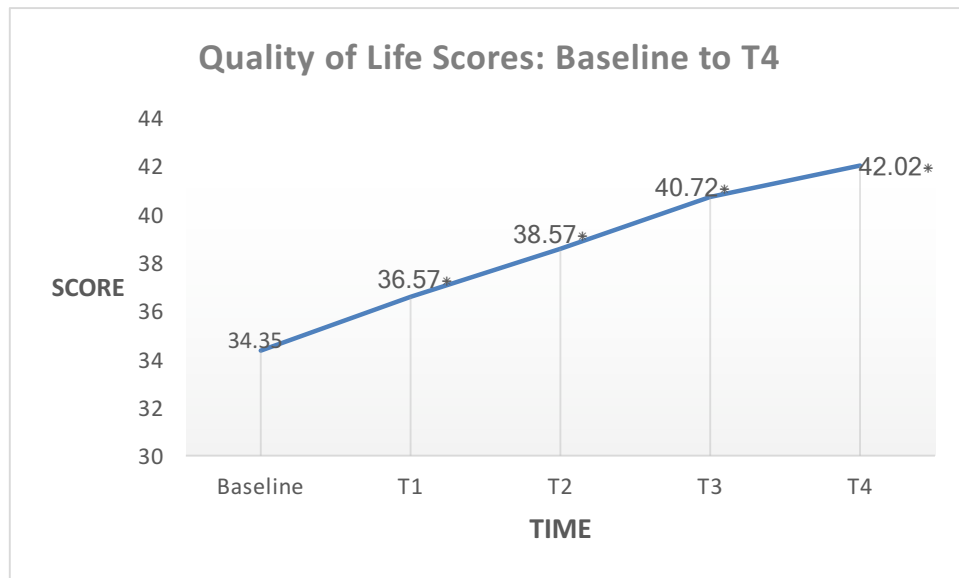
Quality of Life– Nursing Home Version

This Quality of Life questionnaire tracks the residents' responses about a wide group of subjective elements of their lives. This rating system limited responses to poor, fair, good, and excellent.

Examples of the areas that were rated included physical health, energy and mood, as well as relationship-based areas such as family, friends and staff. Other areas included residents' ability to control their own lives including keeping busy, taking care of themselves and making their own choices.

The results of this test demonstrated a lineal increase in the perceptions of themselves as well as their external relationships. Participants' quality of life improved steadily and consistently over the 12 months. Scores improved significantly from

baseline to T1 ($p < 0.05$), from T1 to T2 ($p < 0.05$), from T2 to T3 ($p < 0.001$) and from T3 to T4 ($p < 0.05$). Overall, the change from baseline to T4 was significant ($p < 0.001$) with the effect size being large (0.82). Figure 2 shows the scores over time.



*Significant improvement in score from previous timepoint

Figure 2. Quality of Life scores over 12 months

Cohen Mansfield Agitation Inventory (CMAI)

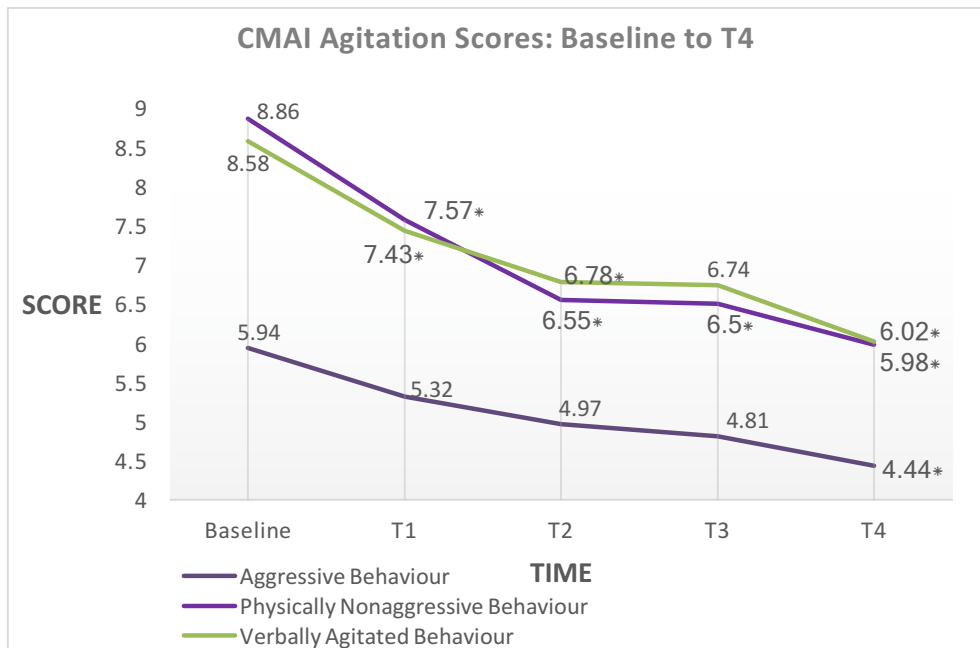
This is a short form of a more standard form that, unlike the other two surveys, was filled out based on the observations of aged care staff. The 14 question survey involved a more direct recording of negative behaviours ranging from the inappropriate through to the annoying as well as hiding things and complaining.

The five levels of scale for this survey related to number of times that negative behaviours occurred— from never through to a few times per hour or continuously for half an hour.

Participants' scores on the measure of physically aggressive behaviour (e.g. hitting) showed a significant improvement from T3 to T4 ($p < 0.05$) and from baseline to T4 ($p < 0.001$) with the effect size being medium (0.69).

Scores on the measure of physically nonaggressive behaviour (e.g. pacing, wandering) improved significantly from baseline to T4 ($p < 0.001$) with the effect size being large (0.80). The improvement was steady and continuous with scores illustrating significant improvement across all timepoints: from baseline to T1 ($p < 0.05$), from T1 to T2 ($p < 0.05$), from T2 to T3 ($p < 0.05$) and from T3 to T4 ($p < 0.05$).

Participants' scores on the measure of verbal agitation improved significantly from baseline to T1 ($p < 0.05$), from T1 to T2 ($p < 0.05$), and from T3 to T4 ($p < 0.05$) T4 ($p < 0.001$). Overall, the improvement was baseline to T4 was significant with the effect size being medium (0.72).



*Significant improvement in score from previous timepoint

Figure 3. Aggression and agitation scores over 12 months

Conclusion

The results indicate *Silver Memories* is an effective intervention for improving the quality of life and reducing negative symptoms in people living with dementia in residential aged care facilities. Over the 12 month period, there were statistically significant improvements on all three measures – Quality of Life, Depression and agitation.

References

- [1] Australian Bureau of Statistics (2017) Causes of Death, Australia, 2016 (cat. no. 3303.0)
- [2] The National Centre for Social and Economic Modelling NATSEM (2016) Economic Cost of Dementia in Australia 2016-2056
- [3] Travers, Catherine and Bartlett, Helen (2010) 'An Exploratory Study of Carers' and Care Staff's Perspectives of Silver Memories —A Unique Radio Program for Older People', Activities
- [4] Down Memory Lane, Dr Libby Flynn, University of Queensland, 2017(unpublished)