



WESTERN SYDNEY
UNIVERSITY

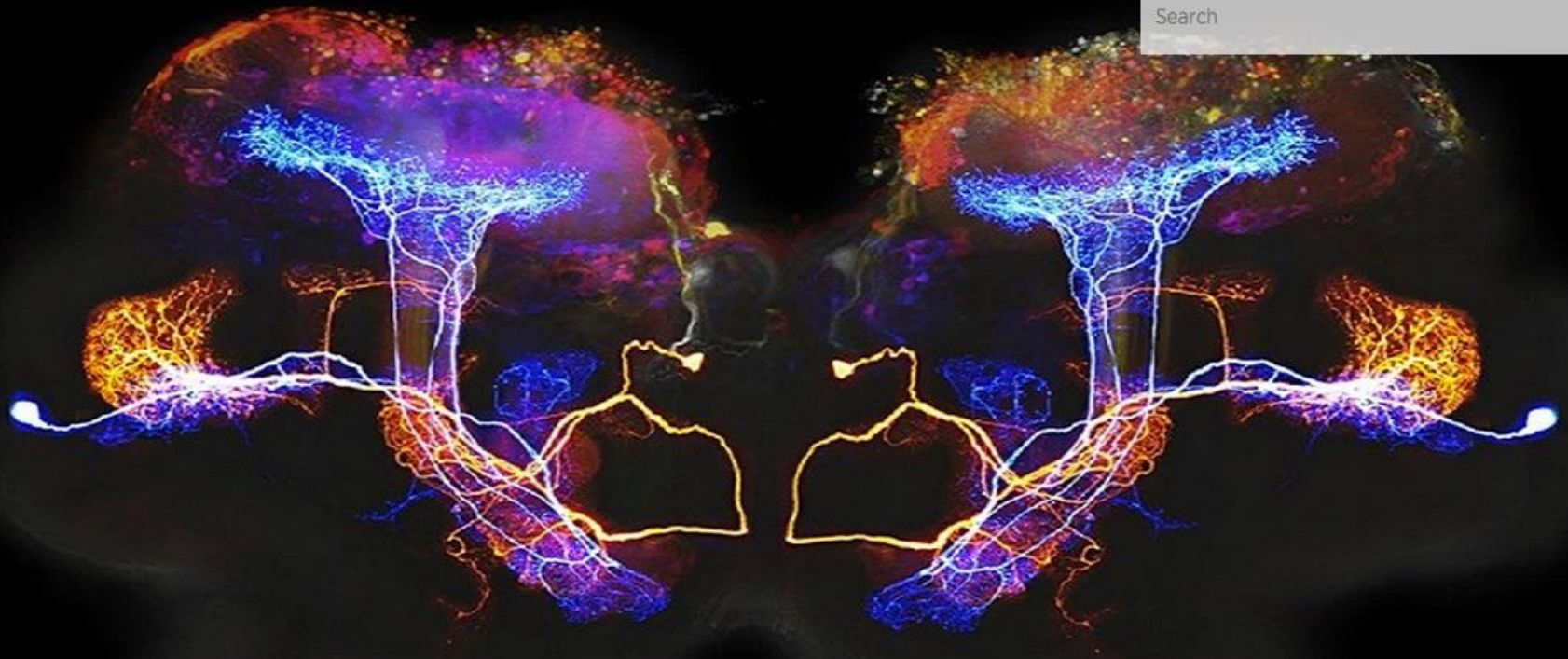
Music as ‘Medicine’ for People with Dementia

Dr. Sandra Garrido

MARCS Institute for Brain, Behaviour & Development

Western Sydney University

Search



Biomedical Engineering &
Neuromorphic Systems (BENS)

Music Cognition and Action

Speech and Language

Multisensory Communication

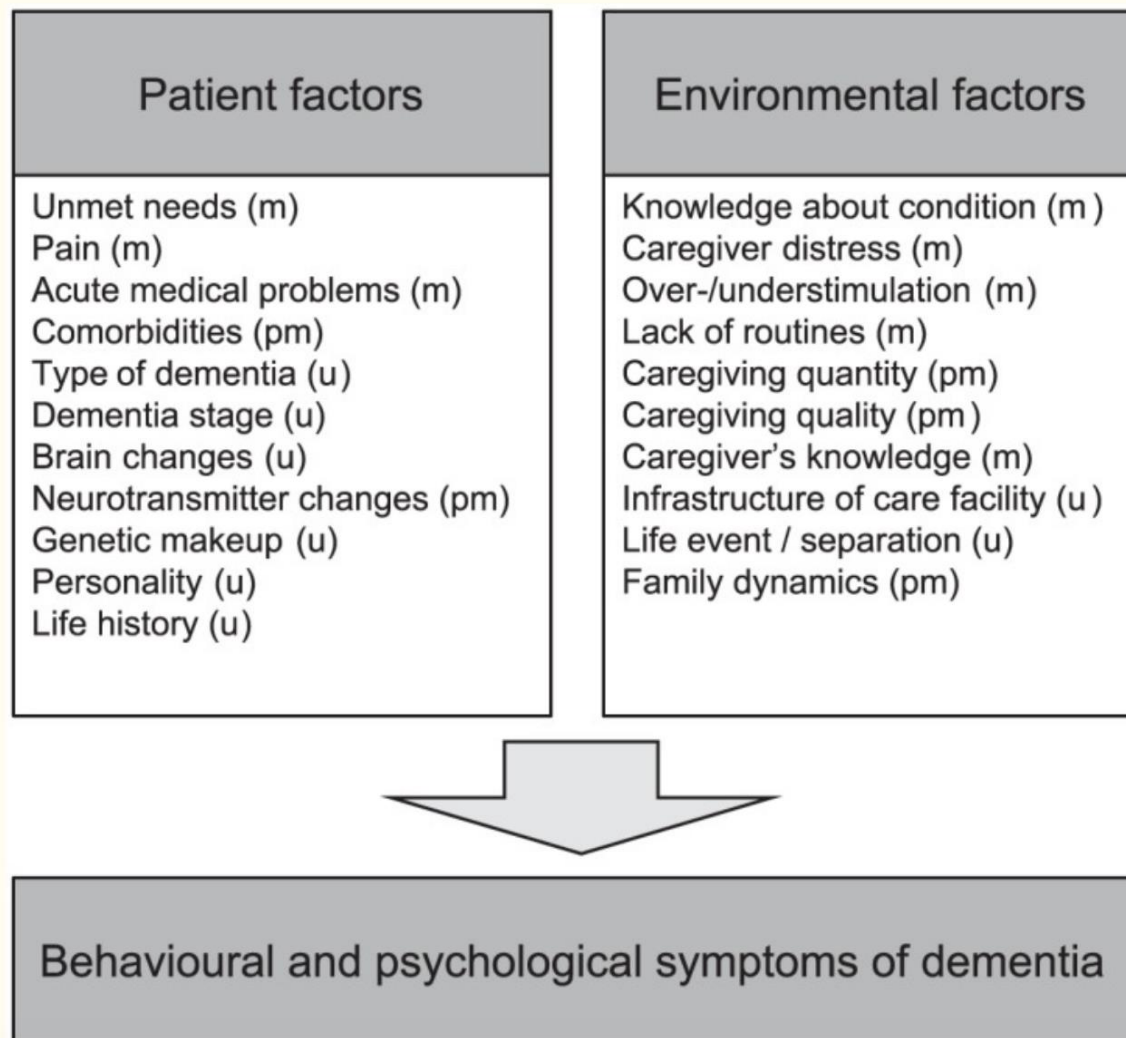
Human-Machine Interaction

Behavioural & Psychological Symptoms of Dementia



- Depression affects between 20-60% of people with dementia
 - Strong evidence of a bi-directional relationship: depression both a risk factor and an early warning sign
- Agitation occurs in up to 80% of people with dementia
- B&P symptoms of dementia:
 - Accelerate cognitive and physical decline
 - Have the greatest effect on quality of life
 - Compound stress on caregivers and health services

Etiopathogenesis of BPSD



Pharmacological Treatments



- Antidepressants, anxiolytics, antipsychotics, benzodiazepines
- Problems:
 - Complex etiopathogenesis makes treatment complex
 - Multiple co-morbidities & polypharmacy
 - Side-effects such as nausea & insomnia (Caltagirone et al. 2005)
 - Not always effective in diminishing symptoms (Sacchetti et al. 2010)
 - Associated with severe adverse clinical events such as increased confusion or death (Arzemia et al. 2011).

International Recommendations



- Ouslander J, Bartels S, Beck C, et al. Consensus statement on improving the quality of mental health care in US nursing homes: management of depression and behavioral symptoms associated with dementia. J Am Geriatr Soc 2003; 51: 1287–1298. – **Nonpharmacological treatments are effective for treating major depression in people with dementia; for people with minor depression they should be a *first-line* treatment.**
- S3-Leitlinie Demenzen. In: Deutsche Gesellschaft für Neurologie (German Society for Neurology), HRSG; Leitlinien für Diagnostik und Therapie in der Neurologie, www.dgn.org/leitlinien “**As far as the clinical situation permits, all available and usable psychosocial interventions should be exhausted before any pharmacological intervention is considered**”
- Caltagirone C, Bianchetti A, Di Luca M, et al. Guidelines for the treatment of Alzheimer's disease from the Italian Association of Psychogeriatrics. *Drugs Aging*. 2005;22(Suppl 1):1-26. – “**In general non-pharmacological approaches are the first-line treatment for BPSD, but when symptoms are severe or persistent medication is clearly indicated**”

Comparative Efficacy of Interventions for Aggressive and Agitated Behaviors in Dementia: A Systematic Review and Network Meta-analysis

Jennifer A. Watt, MD, PhD; Zahra Goodarzi, MD, MSc; Areti Angeliki Veroniki, PhD; Vera Nincic, PhD; Paul A. Khan, PhD; Marco Ghassemi, MSc; Yuan Thompson, PhD; Andrea C. Tricco, PhD; Sharon E. Straus, MD, MSc

[Article, Author, and Disclosure Information](#)

FULL TEXT



MORE ▼

Abstract

Background: Both pharmacologic and nonpharmacologic interventions are used to treat neuropsychiatric symptoms in persons with dementia.

Purpose: To summarize the comparative efficacy of pharmacologic and nonpharmacologic interventions for treating aggression and agitation in adults with dementia.

Data Sources: MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, CINAHL, and PsycINFO between inception and 28 May 2019 without language restrictions; gray literature; and reference lists scanned from selected studies and systematic reviews.

Study Selection: Randomized controlled trials comparing interventions for treating aggression and agitation in adults with dementia.

Conclusion: Nonpharmacologic interventions seemed to be more efficacious than pharmacologic interventions for reducing aggression and agitation in adults with dementia.

“ My mother had already lost her power with the dementia and then we are throwing into the mix medication that is taking away her capacity to deal with this dementia.”

According to a new report from Human Rights Watch, cases like this are widespread across the aged care sector.

Australian director at Human Rights Watch Elaine Pearson said academic research funded by the government shows a disturbing pattern.

“In some of those studies, a third of people in nursing homes are on sedatives, 32 per cent are on antipsychotic drugs, they're taking these drugs every day,” she said.

“While we documented this problem in 35 facilities we know that is just scratching the surface of this problem.”



<https://www.sbs.com.au/news/his-mum-lost-her-power-to-dementia-the-nursing-home-s-medication-made-it-even-worse>

The government introduced regulations to clamp down on the use of chemical restraints earlier this year.



But Human Rights Watch is now calling for the practice to be outlawed completely.


"We found that older people were being given drugs to control their behaviour for the convenience of staff, not for any medical purpose," Bethany Brown, a HRW researcher on the report, said.

" We want the Australian government to prohibit chemical restraint in aged care facilities and sanction facilities that engage in this practice.

**[@hrw](#) [@_ADAAustralia](#) [@Bethany_L_Brown](#)
pic.twitter.com/Tyt6dt2z5V"**

— Elaine Pearson (@PearsonElaine) [October 16, 2019](#)

The report links the use of chemical restraints to a lack of staffing, and staff training in nursing homes.

- 
- There is an important need for aged care staff to have access to cost-effective, time effective, non-pharmacological strategies for managing BPSD

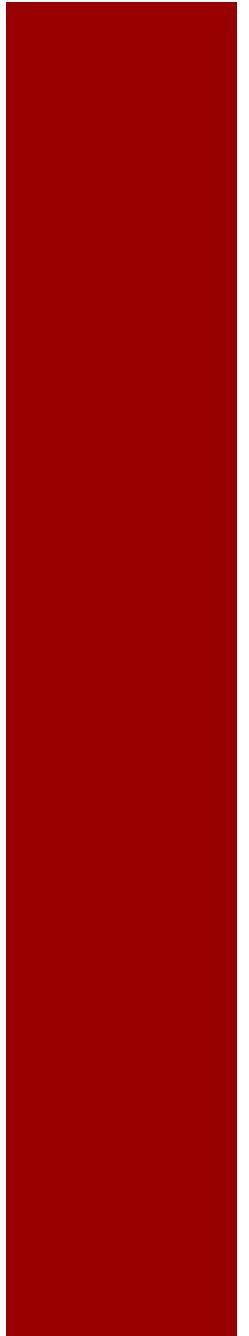
Music & Dementia



- Music therapy – trained therapist, programs tailored to both needs and taste of patient
- A continuum of music use for health & wellbeing



Playlist Interventions



Systematic Review



- Garrido S, Dunne L, Chang E, et al. The use of music playlists for people with dementia: A critical synthesis. *Journal of Alzheimer's Disease*. 2017;60:1129-42:
 - Reviewed 28 studies using pre-recorded music with people with dementia
 - Pre-recorded music can be effective in reducing a variety of affective and behavioural symptoms, in particular agitation, even where a trained music therapist is not present.
 - Results were not universally positive, suggesting the need for closer investigation of variables that influence individual response
 - Communal listening to pre-recorded music is less effective than personalised playlists


```
graph TD; A[Researcher or caregiver selected] --> B[Target specific psychological symptoms]; A --> C[Don't account for individual taste]
```

Researcher or caregiver
selected

Target specific
psychological
symptoms

Don't account for
individual taste

```
graph TD; A[Participant Selected (favourite music)] --> B[Don't target specific psychological symptoms]; A --> C[Account for individual taste];
```

Participant Selected
(favourite music)

Don't target specific
psychological
symptoms

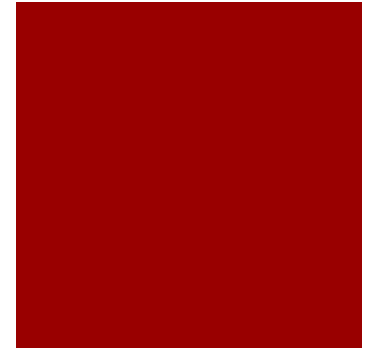
Account for
individual taste

Combining individual taste with a symptom-targeted approach



- Guetin S, Porter F, Picot MC, et al. Effect of music therapy on anxiety and depression in patients with Alzheimer's type dementia: randomised, controlled study. *Dement Geriatr Cogn*. 2009;28(1):36-46.

- Music-care:
 - Produces individualized playlists designed to shape moods according to an inverted U-curve – music initially calms the listener and then gradually increases arousal
 - Based on evidence-based music therapy principle: iso-principle



- A further need existed to:
 - Further investigate variables that may influence the effect of music on individuals with dementia
 - Develop best-practice guidelines for staff in aged care to use music for managing the behavioural & psychological symptoms of dementia

Aims



- To investigate the effect of musical features such as tempo, mode, and lyrics on mood of people with dementia
 - To investigate how psychological symptoms and mental health history influences affective response to music
-
- Garrido S, Stevens C, Chang E, et al. Music and dementia: Individual differences in response to personalized playlists. *Journal of Alzheimer's Disease*. 2018;64(3):933-41.
 - Garrido S, Stevens C, Chang E, et al. Music and dementia: Musical features and affective responses to personalized playlists. *American Journal of Alzhiemers and Other Dementias*. 2019;34(4):247-53.

Participants

- 99 people with dementia recruited from 8 residential aged care facilities
- 67 females, 32 males
- 54% did not play a musical instrument or sing; 70% said music had been important in their life



Procedure

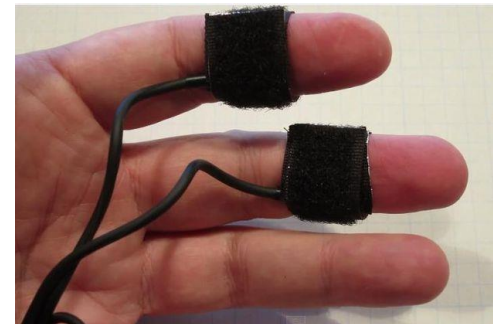
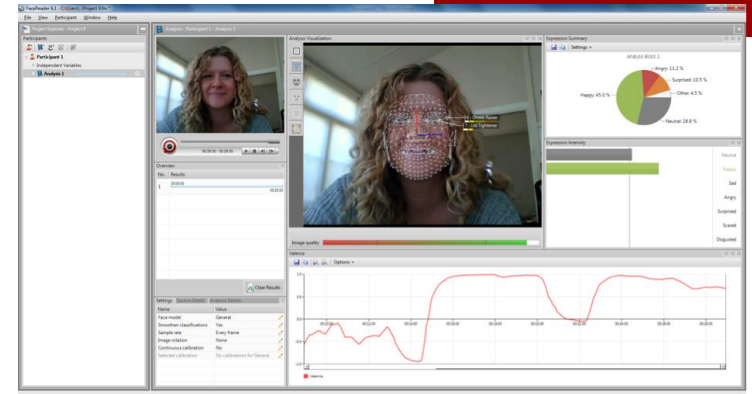
1. Pre-screener assessed cognitive functioning, depression, agitation, apathy, musical preferences and experience
2. Randomised to 3 of 12 musical conditions

		Lyrics		
		None	Positive	Negative
Major key	Fast tempo			
	Slow tempo			
Minor key	Fast tempo			
	Slow tempo			

3. Measures of mood, valence and arousal taken at baseline and during music listening

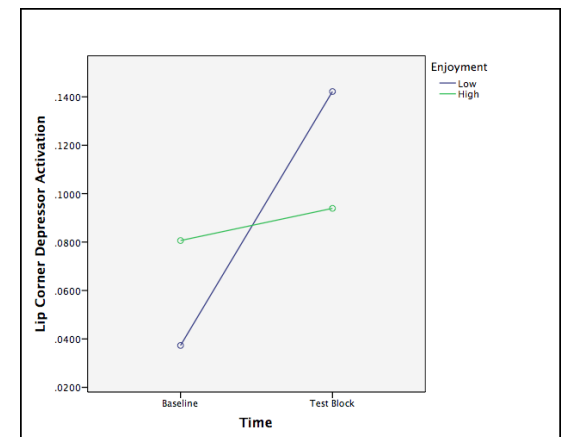
Outcome Measures

- Valence measures:
 - FaceReader
- Arousal measure:
 - Galvanic skin response
- Self-reported enjoyment
- Behavioural ratings



Results

- DV of AU15 (lip corner depressor) increased activation over time for minor modes $p < .001$, $\eta p^2 = .1$
- DV of GSR Peak amplitude increases over time for fast tempos $p = .013$, $\eta p^2 = .06$
- This was associated with low self-reported enjoyment
- No significant interaction with lyrics



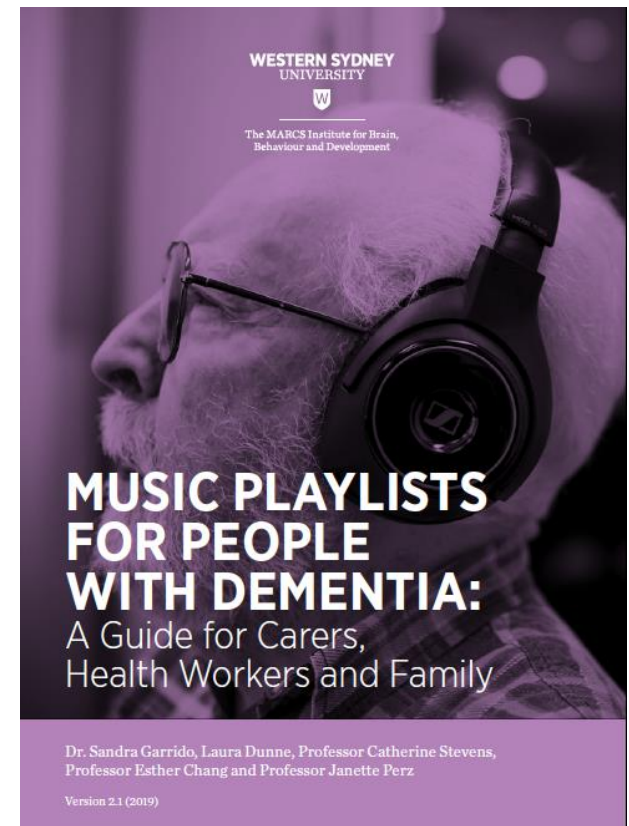
Summary



- Tempo has an effect on arousal levels
- Minor modes can induce a negative affective response
- People with a history of depression were more likely to respond adversely to the music
- People who were withdrawn or apathetic gained the most benefit
- People with fronto-temporal dementia or dementia with lewy-bodies gained more benefit than people with AD

Best Practice Guidelines for Music in Aged Care

- Our experimental studies formed the basis for the development of *Best Practice Guidelines for Music Use in Aged Care* in collaboration with end users.
- The guidelines demonstrate how to identify individuals who are vulnerable to negative responses, how to monitor and manage these responses
- Make suggestions about how to integrate music into individual care plans to manage particular challenges to care.



Trial of Guidelines in Australia



- 8 residential aged care homes; 9 people in home-care
- Used the guidelines to develop personalised playlists to address particular challenges to care
- Significant changes to agitation and aggression and withdrawn low moods, increased alertness from pre-to post listening sessions
- Carers reported using music as a first-line treatment to reduce agitation and falls
- Carers reported other benefits including increased social engagement and management of particular care challenges such as hospital visits and personal care

How do aged care homes currently use music?



- Surveyed 46 aged care workers in Sydney Australia, conducted in-depth interviews with 5
- Results:
 - Formal music therapy was the least frequent form of musical engagement (15.2%)
 - Communal listening to pre-recorded music is among the most common forms of musical engagement (52.2%)
- Barriers to more effective use of music:
 - Funding
 - Resistance to concept of formal music therapy among residents
 - Time commitments for staff
 - Staff knowledge

Garrido S, Dunne L, Perz J, et al. The use of music in aged care facilities: A mixed methods study. *Journal of Health Psychology*. 2018;15:765-76.

Next steps...



- Working in collaboration with The Dementia Centre (HammondCare) – works with 90% of aged care facilities in Australia
- Developing an online training program for aged care staff to increase awareness about the potential for music to serve as a potential first line treatment for BPSD – ***music as medicine not as entertainment***
- Investigating inter-cultural groups and hospital contexts