Barriers and facilitators to implementing playlists as a novel personalised music intervention in public healthcare settings in New South Wales, Australia

Tara Dimopoulos-Bick[A,G], Kim E. Clowes[B], Katie Conciatore[C], Maggie Haertsch[D,E], Raj Verma[A] and Jean-Frederic Levesque[A,F]

[A]Agency for Clinical Innovation, Level 4, 67 Albert Avenue, Chatswood, NSW 2057, Australia.
[B]Concord Repatriation General Hospital, Sydney Local Health District, Hospital Road, Concord, NSW 2139, Australia.
[C]Blacktown and Mount Druitt Hospitals, Western Sydney Local Health District, 18 Blacktown Road, Blacktown, NSW 2148, Australia.
[D]Arts Health Institute, 246 Forbes Street, Darlinghurst, NSW 2010, Australia.
[E]Present address: Australian Community of Practice in Research in Dementia, University of Newcastle, University Drive, Callaghan, NSW 2308, Australia.
[F]Centre for Primary Health Care and Equity of University of NSW, Level 3, AGSM Building, UNSW Sydney, Sydney, NSW 2052, Australia.
[G]Corresponding author. Email: tara.dimopoulosbick@health.nsw.gov.au

Abstract. Listening to personalised music is a simple and low-cost intervention with expected therapeutic benefits, including reduced agitation, stress responses and anxiety. While there is growing evidence for the use of personalised music as a therapeutic intervention, there has been little investigation into processes and strategies that would support the implementation of playlists. The aim of this study was to identify the perceived barriers and facilitators to implementing personalised playlists on a large scale in public healthcare settings. A mixed-methods approach was used to evaluate the feasibility of the intervention in 21 different acute, sub-acute and primary healthcare settings in New South Wales (NSW), Australia, between June 2016 and June 2017. Data collection included 153 survey responses (staff $n = 35$, patients $n = 49$ and family members $n = 69$), six focus groups (staff $n = 21$) and an analysis of 37 documents. Data sources were systematically categorised using a Policy Analysis Framework. Facilitators included the use of implementation leads and volunteers, a high level of staff engagement and the integration of music selection and playlist development into routine clinical practice. Barriers included ongoing and unexpected funding, time to prepare playlists and staff turnover. The results from this study support the feasibility and acceptability of implementing playlists in different healthcare settings.

Additional keywords: individualised music, patient experience, personalised playlists, therapeutic music.

Introduction

In 2016, there were ~354 000 people living with dementia in Australia, with estimates suggesting this number will increase to 900 000 by 2050 (Australian Institute of Health and Welfare 2016). This has led to a range of recommendations and guidelines for the prevention, risk reduction and ongoing management of dementia. Among these recommendations is a growing focus on interventions including the therapeutic use of personalised music to improve symptoms associated with dementia and wellbeing (Hsu *et al.* 2015).

Personalised music is defined as: 'music that has been integrated into a person's life and is based on personal preference' (Gerdner 2012). Several studies have illustrated the therapeutic benefits of personalised music, including a reduction in agitation, stress responses and anxiety, and improved mood and patient and staff engagement (Sung *et al.* 2010; Martin *et al.* 2016; Park *et al.* 2016; de la Torre-Luque *et al.* 2017). A Cochrane systematic review published in 2017 reported that 17 randomised control trials found music-based interventions for people living with dementia had little or no effect on improving emotional wellbeing, behavioural problems or cognitive abilities. However, only five of the 17 trials delivered personalised music-based interventions (van der Steen *et al.* 2017).

What is known about the topic?

- There are known therapeutic benefits of listening to personalised music for patients living with dementia.

What does this paper add?

- To our knowledge, this is the first study to implement playlists as a personalised music intervention on a large scale in public health in Australia.

Results from a recent Australian review of 28 studies found that pre-recorded music was effective in reducing affective and behavioural symptoms with people with dementia. This result was consistent even when a trained and registered music therapist was not present (Garrido *et al.* 2017).

Most of the studies available address the therapeutic benefits of listening to personalised music for people living with dementia. The Gallagher (2011) and Sung *et al.* (2010) studies found that local leaders, prompts and reminders, and training were effective strategies to support the implementation of playlists. However, there remains a paucity of literature on the implementation of playlists as a personalised music intervention, especially in healthcare settings such as inpatient aged care, nursing homes or community-based, long-term care.

This study assessed barriers and facilitators associated with the implementation of personalised playlists in a variety of healthcare settings. This study offered the first opportunity to explore the implementation of playlists for people with and without dementia in acute, sub-acute and primary healthcare settings in NSW, Australia.

Methods

The personalised music intervention was implemented in 21 metropolitan and rural healthcare settings in NSW Health from June 2016 to June 2017 (Table 1).

A mixed-methods approach was used to evaluate the feasibility of implementing playlists as a personalised music intervention in acute, sub-acute and primary healthcare settings in NSW Australia.

There were three main sources of data collection: (1) surveys with patients, family members and staff; (2) focus groups with staff; and (3) a document analysis.

Eight of the 21 sites administered feedback surveys between April 2017 and May 2017. The survey questions examined the experiences of using playlists with closed questions and a Likert-type scale for responses. There were several additional free-text boxes for comments.

Semi-structured focus groups were used to explore perceived barriers and facilitators to implementation of personalised playlists in the local settings. All implementation leads and multidisciplinary team members involved in implementation were invited to participate in a focus group. Participants were recruited through an email invitation, and selection was based on a willingness to participate, consent and availability. Data were collected from six focus group discussions conducted in November and December 2016. Each focus group ran for

~90 min and was either conducted in person ($n = 3$) or via teleconference ($n = 3$).

An analysis of existing documents relating to the intervention and the study was conducted by one investigator in February 2018. Document materials included background papers, application forms, operational documents and templates, site progress reports and meeting notes from the implementation and evaluation governance committee.

Focus group results were recorded, transcribed and an inductive thematic analysis was used to identify the main themes and relevant quotes related to implementation barriers and facilitators. Survey data were collected through specialist Customer Experience Management (CEM) software. The responses were imported into and analysed using Microsoft Excel (Microsoft Corporation, Redmond, WA, USA). The quantitative analysis was mainly descriptive and included frequencies across sites. All data sources were categorised retrospectively using the Policy Analysis Triangle Framework developed by Walt and Gilson (1994).

This was a quality assurance activity and ethical approval was deemed not necessary by application to the National Health and Medical Research Council, Ethical Considerations in Quality Assurance and Evaluation Activities and the NSW Health Quality Improvement and Ethical Review: A Practice Guide for NSW.

Results

In total, 21 staff participated in the focus groups; 153 surveys were completed by 49 patients, 69 family members and 35 staff; and 37 documents were included in the final analysis.

The results are presented within the Policy Analysis Triangle Framework: context, content, process and actors (Walt and Gilson 1994). A summary of the perceived barriers and facilitators are shown in Table 2. The following results section also presents the perceived benefits of the intervention, including patient experiences of health care.

Perceived benefits of the intervention

A total of 76% ($n = 37$) of patients reported that listening to their personalised playlist made a positive difference to their healthcare experience. One patient stated:

> It enables me to have space for my own thoughts and to keep positive [Patient].

Overall, 57% of patients ($n = 28$) indicated they 'very much' enjoyed having their own music available during their hospital stay.

Families were involved in identifying and selecting preferred music for their loved one's playlist, with 71% of patients ($n = 35$) saying their families helped with choosing music. Headphone splitters allowed the patient and family members to listen to music together.

> When he first came into hospital, I kept getting phone calls and I would have to rush in to settle him down, but with his music playing, there was a sense of ease, you could tell the difference straight away [Daughter].

Less than half of family members surveyed (41% or 28 of 69 responses) indicated they felt the intervention made a difference

Table 1.   New South Wales healthcare settings

Healthcare setting	Type of care	Number (n) of sites	Location
Dementia care	Social support and respite for patients with moderate to advanced dementia	1	Metropolitan ($n=1$)
Inpatient aged care	Acute and sub-acute specialist support for patients with dementia, delirium, mental illness and cognitive impairment for a prolonged length of stay	6	Metropolitan ($n=5$); Rural ($n=1$)
Multipurpose services	Healthcare facilities providing rural communities with a combination of emergency, acute, community-based and residential aged care services	7	Rural ($n=7$)
Palliative care	Specialist inpatient facility with outpatient services for patients with malignant or non-malignant conditions and end-of-life care	1	Metropolitan ($n=1$)
Mental health	Inpatient and community support for patients with mental health issues or illness and cognitive impairment	4	Metropolitan ($n=4$)
Trauma services	Adult and paediatric major trauma services for critically injured patients from resuscitation through to rehabilitation and discharge	1	Rural ($n=1$)
Residential aged care	Residential homes providing residential aged care, palliative care, secure dementia care and respite care for patients ≥ 65 years	1	Metropolitan ($n=1$)

Table 2.   Summary of key implementation facilitators and barriers

Facilitators	Barriers
• Training and practical support	• Streaming platforms
• Implementation leads	• Funding (re-accreditation, downloading music, iPod and headphone replacements)
• Integration into routine clinical practice	• Equipment storage, distribution, hygiene and safety
• Staff engagement	• Time to prepare playlists
• Observation of beneficial outcomes	• Accessing music in different languages
• Volunteers	• Staff turnover

to their family member's experience in hospital, by selecting either 'yes, very much' or 'yes, quite a bit' on the surveys.

Context

The impetus for the study was to evaluate the feasibility of implementing playlists as a novel and low-cost personalised music intervention to improve how patients perceived and experienced their health care.

Personalised playlists as an intervention, is a form of systemic change where music is recognised as valuable in routine health care. In Australia, health and aged care provider, HammondCare, piloted a personalised music intervention as part of an integrated program using music to engage people with dementia (HammondCare 2018). Similarly, BaptistCare residential services used personalised music playlists to improve quality of life, wellbeing and mood for people living with dementia (BaptistCare 2018).

In NSW Health, there was some initial resistance to the intervention from registered music therapists. Music therapists raised concerns that staff implementing the intervention would lack formal education in music facilitation and selection, and this could affect their ability to establish playlists based on established therapeutic practice.

There is a distinct difference between the work of a music therapist who is looking to provide specific therapeutic benefits through music listening or making and the use of personalised playlists. The intervention used in this study was confined specifically to the provision of the patient's favourite and preferred music, which normally they would have access to in their own environment. The use of music in everyday life does not require a qualification or particular expertise to administer. Using music therapists to provide personalised playlists is not scalable. It is, however, recommended that music therapists support staff when implementing the intervention, and also provide advice on the use of music for particular patients on a referral basis.

Length of stay influenced implementation of the intervention and also sustainability. The intervention was more effective in settings such as multipurpose services, inpatient aged care and residential aged care, where the length of stay for patients exceeded 4 days. This allowed time for staff to explore music preferences and feelings, as well as modify playlists and the frequency and duration of music sessions. Generally, no modifications were made to playlists after 10 days. Length of stay was also associated with greater integration of personalised music into routine clinical practice and higher levels of family involvement.

Linking implementation to other initiatives also enhanced implementation and sustainability; for example, seven of the sites were multipurpose services, which provide rural communities with a combination of emergency, acute, community and residential aged care services. The multipurpose services aligned the intervention to existing initiatives to promote principles of care and the provision of a home-like environment for people in residential aged care services.

Structural barriers emerged for 9 of the 21 sites in relation to information and technology, including: installing and downloading iTunes through Apple Music media library with restrictions on the NSW Health network; not having access

to suitable music technology platforms including digital music services; and the domestic versus enterprise use of music including technical and legal aspects of downloading music. In some sites, Internet access was restricted to designated positions and this caused delays in downloading music and developing the playlists.

Content

The specific intervention was the development of personalised playlists with music selection reflecting the preferences of the patient. The intervention was delivered using iPods, headphones and by downloading music through Apple iTunes.

Preferred music was determined through a music questionnaire, self-reported measures and observations of patient responses to music, including non-verbal cues, vocal responses and body movement. There was no evidence-based protocol (Gerdner 2012) or specific requirements around when or how often to implement a playlist.

Implementation sites were required to complete a certification program and they received an equivalent of 9 h of training and practical support. The training and support focussed on how to select preferred music and develop personalised playlists; how to set up and maintain a site-ready music library; and the legal and technical aspects of downloading music and processes for equipment storage, distribution, hygiene and safety. Sites also had access to implementation webinars, online support and a virtual community of practice (Music and Memory 2018).

One staff member from each site was nominated to be the implementation lead. The implementation lead's role was to champion the intervention and work with their local multidisciplinary team to introduce and embed the processes and strategies required to implement personalised playlists.

Process

Training

A perceived implementation barrier for staff was the availability, timeliness and format of training. Just over half (51%, or 18 of 35) of the staff survey responses indicated that the training prepared them either 'quite well' or 'very well' for their role in implementing personalised music. One staff participant said:

> More support and training for team members and staff on the ward including video recorded forums is required. (Some staff) never had time at work to participate [Staff].

Integration into routine clinical practice

A key facilitator for implementation was the integration of protocols for the selection of music and the development of playlists within existing clinical practices including assessment, care planning and daily care practices. For example, most sites incorporated the completion of the music questionnaire into the assessment process when a patient was admitted to the healthcare service. This integration also increased engagement and support from staff.

Engagement with medical staff ensured playlists were documented in care plans and could be used when a patient

transferred to a different ward in the hospital or to residential aged care. Another type of integration was the inclusion of playlists in discharge summaries to ensure patients could continue to listen to their playlist at home.

Funding

Sites were not required to pay the accreditation fee for the personalised music intervention throughout the duration of the experiment. The cost for re-accreditation following the 12-month experiment was considered a barrier for sites.

The songs for each playlist were downloaded through the Apple Music media library, iTunes, and each site was given a A$150.00 iTunes voucher at the start of the experiment. The estimated cost of a personalised playlist was A$20.00 based on 10 songs per playlist. Sites were required to source additional funding for the intervention to be sustainable.

Instead of deploying re-useable headphones, most sites were required to purchase single-person-use-only headphones, as per the NSW Health Infection Prevention and Control Policy. This was another ongoing cost not factored into the local site budgets.

Equipment

Equipment storage, distribution, hygiene and safety were perceived implementation barriers. Sites were required to develop storage and distribution systems to manage equipment. This included: installing purpose-built storage cupboards with hooks to secure iPods and cable locks for the computers; installing extra power points to support mass recharging of iPods; engraving iPods with a name and serial number; maintaining registers to manage and track distribution; and developing equipment handover procedures.

Time to prepare playlists

One of the main barriers to implementing personalised music was the time required to establish a personalised playlist. The estimated time to select and download preferred music was 2 h for each playlist. This caused several workflow challenges in shorter length of stay care settings compared with long-term care. One participating staff member said:

> I guess if you want to make it work and you want to make it meaningful, you have to allow the staff who were doing the detective work time (*selecting and downloading preferred music), and I would suspect that would be easily a couple of hours with each resident, and time to come back and double check [Staff].

Staff reported that it was difficult and more time was required to develop and translate personalised playlists for patients from non-English speaking backgrounds who had preferences for music in different languages.

Actors

Staff

An important facilitator to implementing the intervention was the high level of engagement and commitment from staff. The emotional effect was an intrinsic motivator, which was

enhanced when staff observed the direct benefits of personalised music.

> I've been involved in many projects and this is the most enjoyable, and what I see as one of the most worthwhile I've ever done [Staff].

Most of the staff surveyed (80% or 44 of 55 responses) indicated they felt 'yes, very much' or 'yes, quite a bit' that the intervention helped to build rapport between patients and staff.

> I found it beautiful to see the patients interacting with the staff and they were much more comfortable and happier when they were listening to music [Staff].

Staff turnover was reported as a barrier, as it increased the burden on implementation leads to train and support new staff. One staff member said:

> My site struggled as team members dropped out. Some had other commitments or moved to other wards. I am the sole person setting up the devices so establishing a fixed team (each with an individual role) is definitely needed from the start [Staff].

Volunteers

Many sites used volunteers to implement the intervention, and this increased the sense of community within the healthcare setting. Volunteers completed music questionnaires with patients and families, developed playlists, downloaded songs and maintained the equipment. Staff indicated they felt less overwhelmed with the intervention when implementation was supported by volunteers.

> As with any acute facility, time to prepare and facilitate the introduction of (the intervention) is often fraught with challenges, our volunteers have the time to assist this process greatly. Dedicated volunteers are very beneficial [Staff].

Discussion

Results from this study present the barriers and facilitators to implementing playlists as a novel personalised music intervention in 21 healthcare settings in NSW. The study highlights that listening to personalised playlists is an inexpensive and viable intervention for patients in acute, sub-acute and primary healthcare settings in NSW.

However, to facilitate sustainable implementation, the barriers identified must be addressed in a systematic way. The barriers that need to be addressed include: access to streaming platforms, funding and the allocation of time and resources to develop personalised playlists.

Different live streaming platforms could be used to improve efficiencies in the playlist development process and reduce cost. There also needs to be a clear allocation of roles and responsibilities within the multidisciplinary team, including dedicated staff to establish personalised playlists. The results from this study suggest that volunteers are a critical part of the multidisciplinary team and could have a line of responsibility for the implementation of personalised music. The need to take into account the human factors when implementing a fairly simple intervention is clearly outlined in this study.

Several structural barriers emerged in relation to installing and downloading Apple iTunes. This is more likely to be a barrier specific to NSW Health given the restrictions on the network. Alternative music devices and the option of being able to play music on alternative audio devices are important considerations in future applications of personalised music. Understanding how technological hurdles may impede the service delivery flow is therefore a key factor related to the implementation of personalised music.

This study demonstrated the importance of integrating music selection into routine clinical practice to enhance sustainability. This could be further enhanced by adopting an organisational-wide approach to completing the music questionnaire for all admissions and recording music preferences in the Electronic Medical Record.

Organisational leadership, resources and support are critical to the success and sustainability of personalised music playlists. On a local level, linking the development of playlists to other initiatives, staff engagement and the use of champions and volunteers would contribute to sustainability.

Greater investment and resources are needed to develop the evidence-base and position personalised music and the use of playlists as an effective intervention for enhancing patient outcomes, experience and person-centred care. It would also be advantageous to conduct further research to compare people of similar age with mild cognitive impairment, dementia or normal functioning because they may experience differences in accessing their personalised playlists and require different levels of support. The cost-effectiveness of the intervention needs to be evaluated to increase utilisation, support and funding for the integration of playlists as a personalised music intervention into routine clinical practice.

Conflicts of interest

Maggie Haertsch was formerly CEO of the Arts Health Institute (AHI). AHI initiated the Music & Memory program in Australia from the USA. AHI had the exclusive licence for the intervention and was paid to accredit and support all sites involved in study.

Acknowledgement

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