Music-Based Interventions in the Acute Setting for patients with Dementia – protocol for a systematic review

Lídia Sousa¹,², Orii Mcdermott³,⁴, Justine Schneider⁵ and Lia Fernandes¹,²,⁶

Abstract

Population ageing and the exponential rise in dementia prevalence make it imperative to rethink dementia care. The utilization of non-pharmacological interventions to promote wellbeing and manage behavioral and psychological symptoms is increasingly recommended. Music-based interventions have been stated as promising options, according to recent studies, conducted in long term care setting.

There seems to be a gap in the literature regarding its utilization in the acute setting, with patients with dementia. We intend to perform a pioneer review combining evidence from individual studies in a systematic approach with clear, transparent and rigorous criteria, complying with the PRISMA checklist. The publication in advance of literature review protocols, preferentially including detailed search queries, is highly recommended, in order to ensure clarity and rigor of the process and to inform the scientific community about work in progress. In this stance, we present the protocol for a literature review that we believe will be very informative both for clinical and academic purposes.

Keywords: Dementia; Music; Hospital; Behaviour and Psychological Symptoms; Cognition; Well Being.
Introduction

As a result of population ageing, dementia became a worldwide public health priority. Estimates are that 47 million people live with dementia across the world [1], with its prevalence expected to double every 20 years, reaching 65.7 million in 2030 and 115.4 million in 2050 [2]. People living with dementia have an increased risk of hospitalization [3-6], in the context of both functional and cognitive deficits [7]. At any time, around 25% of acute hospital beds are occupied by patients with dementia (PWD) [8]. Acute hospital admissions are especially critical events for someone with a significant cognitive impairment. Behavioural and Psychological Symptoms of Dementia (BPSD), like agitation, arise commonly in this context [9] and when poorly managed can lead to increased likelihood of medical complications, prolongation of admissions, and family distress [10]. Despite the lack of regulatory approval, the limited efficacy and the high risk of adverse side effects, antipsychotic, sedative/hypnotic medications and physical restraint, have traditionally been used to manage BPSD [10-15].

Recent studies, conducted mainly in the community and residential long-term care settings, showed promising results regarding the use of psychosocial interventions to manage challenging behaviors in PWD [16]. In fact, international guidelines already recommend that nonpharmacological strategies should most often be used as first line approaches to manage BPSD [17-20].

The use of music and its elements seems particularly interesting in this context. Music is part of every culture, being intrinsic to human nature [21,22]. It is widely available and inclusive, being suitable even to patients with advanced stages of dementia, giving them an extraordinary opportunity to communicate and re-connect with the external world, at a nonverbal level, when spoken language is impaired [23]. Recent health economic studies have also reported Music-based interventions (MbI) to be relatively inexpensive alternatives, among nonpharmacological interventions [24-25].

Regardless of the small number of trials conducted so far and the lack of high-quality longitudinal studies, there is already evidence to sustain that music-based interventions, like Music-therapy (MT) and other less strictly defined therapeutic music activities [26] have a positive effect in mood and behavioral alterations in PWD, at least in the short term [27-30]. Notwithstanding most studies have been conducted in other settings, we believe that the use of MbI in the acute setting holds great potential. MbI could help achieving a better quality and more humanizing dementia care and by reducing the occurrence of secondary events associated with physical and pharmacological approaches, could even help reducing costs associated with the admissions. There has been a growing interest in this field and recent studies report encouraging results [31-35]. To the best of our knowledge, this is the first systematic literature review aiming at summarizing the existent knowledge regarding the use of MbI, in the acute setting, with PWD.

Definitions

Throughout this document, the following terms are always used with the specific meaning here described.

Music-based interventions: Music Therapy and other Therapeutic Music Activities that do not require the involvement of a music therapist.

Music therapy: the use of music by a qualified music therapist in a systematic way to accomplish individualized goals, presupposing the establishment of a therapeutic relationship.

Therapeutic Music Activity: any activity where music or its elements are used to achieve health benefits.

Acute setting: acute tertiary hospitals and other health care institutions delivering short-term medical care with the purpose of assessment and/or treatment. Thus, excluding long-term care institutions like care homes and nursing homes.

Review Aim and Objectives

The primary objectives for this systematic review are: (1) to systematically locate, assess and report studies that have used MbI with PWD, in the acute setting; (2) to describe the types of MbI used; (3) to describe how were the interventions developed by the researchers; (4) to describe and critically analyse reported result.

As a secondary objective, the author’s aim at developing a broader knowledge, regarding the use of Music-based interventions, that could inform the development of a feasible and effective intervention, to help prevent and manage agitation in PWD, in the acute hospital setting.

Review questions

1. Which types of MbI have been used in the acute settings with PWD, and how were they administered?
2. How were the MbI developed by the researchers?
3. Which were the outcomes of interest and reported results of the studies?

Methods

The present protocol complies with the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-p) 2015 checklist (Shamseer et al., 2015) [36] and is registered at PROSPERO - International prospective register of systematic reviews, with the registration number 81698. The review will comply with the PRISMA checklist (Moher, Liberati, Tetzlaff, & Altman, 2009) [26]. The evaluation of complex psychosocial interventions is a challenging task, and there is no ideal methodological structure to do so. A Narrative Synthesis, combining the evidence from individual studies with different methodologies in a clear, transparent and rigorous way, was the...
method of choice to accommodate methodological diversity. The first stage of this review was the mapping of the available evidence. Expert’s consultations were made to ensure the relevancy of the review and the adequacy of the methodology.

The second stage will include a systematic search across a broad range of electronic databases (Embase, PubMed, PsycINFO, ASSIA and Humanities Index) and a general search engine (TRIP Database). The key-words used for this search are described on Table 1. No restrictions on language or date of publication will be applied. Electronic search will be concluded by the 22nd of January 2019. A non-automated search in relevant music therapy journals will be conducted as well. Snowballing process and author searching will be used to identify additional papers. Finally, grey literature will also be screened.

The resulting data from this process will be summarized in a systematic approach to produce a synthesis of existing evidence on the use of Music-based Interventions, with patients with Dementia, in the acute setting.

The inclusion criteria and search strategy adopted are based on the PICOS question, shown in table 2.

**Inclusion criteria:**
- Participants must be people living with dementia and/or experiencing an episode of delirium;
- Main intervention tested must be a music-based intervention;
- Intervention performed in the acute setting, without restrictions regarding the motive or department of admission of the participants;
- Articles must present original empirical evidence using qualitative and/or quantitative research methods. No further restrictions based on study design will be made;
- Articles written in any language;
- No restrictions will be made regarding publishing date.

**Exclusion criteria:**
- Participants without dementia and/or delirium;
- Other interventions being administered simultaneously in the study;
- Interventions performed in long-term care setting.

Articles will be screened independently by two members of the review team. The initial screening process will be based on title and abstract reading. The full text of selected articles will be evaluated independently. In case of disagreement between the two reviewers, a third member of the team will be consulted.

Extracted information from articles meeting the inclusion criteria will include: Authors; Year; Country; Setting (type of hospital; type of ward and specific place where intervention took place on the ward e.g.: infirmary, private room); Study design; Study population (recipients of the intervention); Sample size; Type of MbI used; Intervention coordinator and other professionals involved in the intervention; Protocol of administration of the intervention (frequency, duration and dose of the intervention); Criteria for administering the intervention (e.g. fixed schedule vs administration on demand should specific symptoms arise); Endpoints of the study; Outcome measures; Results; Method of development of the intervention; Author’s conclusions.

The quality of the included articles will be assessed by two of the reviewers using the Downs and Black (1998) checklist for randomized and non-randomized studies [37]. In case of disagreement between the two reviewers, a third member of the team will be consulted. Agreement between reviewers will be calculated and explored.

**Final Remarks**

Developing and evaluating complex psychosocial inter-

### Table 1. Detailed Search queries according to databases.

<table>
<thead>
<tr>
<th>Database</th>
<th>Search Queries</th>
</tr>
</thead>
<tbody>
<tr>
<td>PsycINFO; Embase</td>
<td>exp Dementia/ exp Alzheimer Disease/ (dement* or alzheimer*).ti,ab. acute confusion.mp. or confusion/ or acute confusion/ or delirium/ acute confusional state.mp. delirium.mp. or delirium/ 1 or 2 or 3 or 4 or 5 or 6 hospital admission.mp. or hospital admission/ inpatient.mp. or hospital patient/ hospital management/ or hospital department/ or hospital.mp. or hospital/ or general hospital/ or hospital care/ or aged hospital patient/ or hospital admission/ or hospital readmission/ or mental hospital/ or geriatric hospital/ 8 or 9 or 10 music.mp. (mp=ti, ab, ot, nm, hw, kf, px, rx, ui, sy, tc, id, tm, tn, dm, mf, dv, kw, fs) music therapy/ or music/ or music.mp. music interventions.mp. 12 or 13 or 14 7 and 11 and 15</td>
</tr>
<tr>
<td>ASSIA; Humanities Index</td>
<td>ab(Dementia OR spatiotemporal Dementia OR AIDS Dementia Complex OR Dementia, Vascular OR Dementia, Multi-Infarct/ OR shiv associated dementia OR multifont dementia OR DEMENTIA WITH Lewy BODIES OR VASCULAR DEMENTIA OR Alzheimer Disease OR Alzheimer* OR cognitive impairment OR Acute Confusional state OR Acute Confusion OR Delirium)) AND ab((music* intervention* OR music* therap*) OR music*) AND (hospital management/ OR hospital department/ OR hospital.mp. OR hospital OR general hospital/ OR hospital care/ or aged hospital patient/ OR hospital admission/ OR hospital readmission/ OR mental hospital/ OR geriatric hospital/ OR inpatient OR hospital patient/ OR hospital admission/)</td>
</tr>
</tbody>
</table>
Music-Based Interventions in the Acute Setting for patients with Dementia – protocol for a systematic review

**Table 1. PICOS question elements.**

<table>
<thead>
<tr>
<th>Population</th>
<th>Intervention</th>
<th>Control</th>
<th>Outcomes</th>
<th>Study Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with a diagnosis of dementia of any type and/or delirium</td>
<td>Music-based intervention (MT or TMA)</td>
<td>Treatment as usual (TAU); Other non-pharmacological interventions, like active engagement in social contact; or no control.</td>
<td>Behavioural and Psychological symptoms; Quality of life; Cognition; Use of psychotropic medication and/or Physical restraint. Carers burden and/or satisfaction with the intervention.</td>
<td>Studies reporting original empirical evidence using qualitative and/or quantitative methods. No further restrictions based on study design.</td>
</tr>
</tbody>
</table>

MT: music therapy; TMA: therapeutic music activities; TAU: treatment as usual.

In regards to MbI, there are not yet high-quality longitudinal studies clearly demonstrating how and why it worked with PwD, despite the positive effects evidenced in mood and behaviour in the short term [27].

With this review, the authors aim at gaining understanding on the possibility of use of MbI with PwD in the acute setting, drawing inference from a range of disciplines and different studies.

**Competing interests**

The authors declare no existing competing interests.

**References**


19. IPA IPA. The IPA Complete Guides to BPSD 2012.


