INTERNATIONAL JOURNAL OF
CLINICAL NEUROSCIENCES
AND MENTAL HEALTH

REVIEW PROTOCOL

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

Lídia Sousa[1,2], Orii Mcdermott[3,4], Justine Schneider[5] and Lia Fernandes[1,2,6]

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.

[1] Faculty of Medicine, University of Porto, Porto, Portugal. [2] CINTESIS - Center for Health Technologies and Services Research, University of Porto, Porto, Portugal. [3] Division of Psychiatry and Applied Psychology, School of Medicine, University of Nottingham, United Kingdom. [4] Department of Communication and Psychology, Aalborg University, Denmark. [5] Mental Health and Social Care School of Sociology & Social Policy, University of Nottingham, United Kingdom. [6] Psychiatry and Mental Health Department, Centro Hospitalar de São João, Porto, Portugal.

Correspondence: Lídia Sousa

Faculty of Medicine of Porto University, Alameda Prof. Hernâni Monteiro, 4200-319 Porto, Portugal

E-mail address: lidiasousa99@gmail.com

Citation: Sousa et al. Music-Based Interventions in the Acute Setting for patients with Dementia – protocol for a systematic review. International Journal of Clinical Neurosciences and Mental Health 2020; 7:1

Received: 15 May 2019; Accepted: 4 Jul 2019; Published: 23 Jan 2020

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.

Table 1. Detailed Search queries according to databases.

PsycINFO; Embase
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
ASSIA; Humanities Index
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 OR hospital/ OR general hospital/ OR hospital care/ OR aged hospital patient/ OR hospital admission/ OR hospital preadmission/ OR mental hospital/ OR geriatric hospital/ OR inpatient OR hospital patient/ OR hospital admission/)
PubMed
("Dementia"[Mesh] OR "Alzheimer Disease"[Mesh] OR "Dementia, Vascular"[Mesh] OR "Dementia, Multi-Infarct"[Mesh] OR "AIDS Dementia Complex"[Mesh] OR "Frontotemporal Dementia"[Mesh] OR "Lewy Body Disease"[Mesh]) OR ("Delirium" [Majr] OR "Confusion"[Majr]) AND ("Music"[Mesh] OR "Music Therapy"[Mesh] OR music* OR music* intervent*) AND ("Hospital Departments"[Mesh] OR "Emergency Service, Hospital"[Mesh] OR "Secondary Care Centers"[Mesh] OR "Hospitals"[Mesh] OR "Hospital Units"[Mesh] OR "Inpatients"[Mesh])

Final Remarks

Developing and evaluating complex psychosocial inter-

Table 1. PICOS question elements.

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

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

ventions with an evidence base is extremely difficult. 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

1. WHO. Call for action by the participants of the first World Health Organization ministerial conference on global action against dementia. Geneva, 2015:2. Available at: http://www.who.int/mediacentre/news/releases/2015/action-on-dementia/en/. Accessed October 27, 2017.
2. Wimo A, Winblad B, Jonsson L. An estimate of the total worldwide societal costs of dementia in 2005. Alzheimers Dement. 2007;3(2):81-91. https://doi.org/10.1016/j.jalz.2007.02.001
3. Chodosh J, Seeman TE, Keeler E, Sewall A, Hirsch SH, Guralnik JM, et al. Cognitive decline in high-functioning older persons is associated with an increased risk of hospitalization. J Am Geriatr Soc. 2004;52(9):1456-62. https://doi.org/10.1111/j.1532-5415.2004.52407.x
4. Phelan EA, Borson S, Grothaus L, Balch S, Larson EB. Association of incident dementia with hospitalizations. JAMA. 2012;307(2):165-72. https://doi.org/10.1001/jama.2011.1964
5. Lyketsos CG, Sheppard JM, Rabins PV. Dementia in elderly persons in a general hospital. Am J Psychiatry. 2000;157(5):704-7. https://doi.org/10.1176/appi.ajp.157.5.704
6. Bynum JP, Rabins PV, Weller W, Niefeld M, Anderson GF, Wu AW. The relationship between a dementia diagnosis, chronic illness, medicare expenditures, and hospital use. J Am Geriatr Soc. 2004;52(2):187-94. https://doi.org/10.1111/j.1532-5415.2004.52054.x
7. Zhu CW, Cosentino S, Ornstein K, Gu Y, Andrews H, Stern Y. Use and cost of hospitalization in dementia: longitudinal results from a community-based study. Int J Geriatr Psychiatry. 2015;30(8):833-41. https://doi.org/10.1002/gps.4222
8. Holmes J, House A. Psychiatric illness predicts poor outcome after surgery for hip fracture: a prospective cohort study. Psychol Med. 2000;30(4):921-9. https://doi.org/10.1017/S0033291799002548
9. Sampson EL, White N, Leurent B, Scott S, Lord K, Round J, et al. Behavioural and psychiatric symptoms in people with dementia admitted to the acute hospital: prospective cohort study. Br J Psychiatry. 2014;205(3):189-96. https://doi.org/10.1192/bjp.bp.113.130948
10. McConnell ES, Karel MJ. Improving Management of Behavioral and Psychological Symptoms of Dementia in Acute Care: Evidence and Lessons Learned From Across the Care Spectrum. Nurs Adm Q. 2016;40(3):244-54. https://doi.org/10.1097/NAQ.0000000000000167
11. Schneider LS, Tariot PN, Dagerman KS, Davis SM, Hsiao JK, Ismail MS, et al. Effectiveness of atypical antipsychotic drugs in patients with Alzheimer's disease. N Engl J Med. 2006;355(15):1525-38. https://doi.org/10.1056/NEJMoa061240
12. Ballard C, Waite J. The effectiveness of atypical antipsychotics for the treatment of aggression and psychosis in Alzheimer's disease. Cochrane Database Syst Rev. 2006(1):CD003476. https://doi.org/10.1002/14651858.CD003476.pub2
13. Gallini A, Andrieu S, Donohue JM, Oumouhou N, Lapeyre-Mestre M, Gardette V. Trends in use of antipsychotics in elderly patients with dementia: Impact of national safety warnings. Eur Neuropsychopharmacol. 2014;24(1):95-104. https://doi.org/10.1016/j.euroneuro.2013.09.003
14. Foebel AD, Onder G, Finne-Soveri H, Lukas A, Denkinger MD, Carfi A, et al. Physical Restraint and Antipsychotic Medication Use Among Nursing Home Residents With Dementia. J Am Med Dir Assoc. 2016;17(2):184 e9-14. https://doi.org/10.1016/j.jamda.2015.11.014
15. Smeets CHW, Gerritsen DL, Zuidema SU, Teerenstra S, van der Spek K, Smalbrugge M, et al. Psychotropic drug prescription for nursing home residents with dementia: prevalence and associations with non-resident-related factors. Aging Ment Health. 2017:1-9. https://doi.org/10.1080/13607863.2017.1348469
16. Livingston G, Kelly L, Lewis-Holmes E, Baio G, Morris S, Patel N, et al. Non-pharmacological interventions for agitation in dementia: systematic review of randomised controlled trials. Br J Psychiatry. 2014;205(6):436-42. https://doi.org/10.1192/bjp.bp.113.141119
17. Kales HC, Gitlin LN, Lyketsos CG. Assessment and management of behavioral and psychological symptoms of dementia. BMJ. 2015;350:h369. https://doi.org/10.1136/bmj.h369
18. Reus VI, Fochtmann LJ, Eyler AE, Hilty DM, Horvitz-Lennon M, Jibson MD, et al. The American Psychiatric Association Practice Guideline on the Use of Antipsychotics to Treat Agitation or Psychosis in Patients With Dementia. Am J Psychiatry. 2016;173(5):543-6. https://doi.org/10.1176/appi.ajp.2015.173501
19. IPA IPA. The IPA Complete Guides to BPSD 2012.

20. NICE. Dementia: supporting people with dementia and their carers in health and social care - Clinical Guideline. National Institute for Health and Care Excelence; 2006.

21. Sacks O. The power of music. Brain. 2006;129(Pt 10):2528-32. https://doi.org/10.1093/brain/awl234

22. Biley F. The effects on patient well-being of music listening as a nursing intervention: a review of the literature. Journal of Clinical Nursing 2000;9:668±77. https://doi.org/10.1046/j.1365-2702.2000.00392.x

23. McDermott O, Orrell M, Ridder HM. The importance of music for people with dementia: the perspectives of people with dementia, family carers, staff and music therapists. Aging Ment Health. 2014;18(6):706-16. https://doi.org/10.1080/13607863.2013.875124

24. Bellelli G, Raglio A, Trabucchi M. Music interventions against agitated behaviour in elderly persons with dementia: a cost-effective perspective. Int J Geriatr Psychiatry. 2012;27(3):327; author reply 8. https://doi.org/10.1002/gps.2775

25. Livingston G, Kelly L, Lewis-Holmes E, Baio G, Morris S, Patel N, et al. A systematic review of the clinical effectiveness and cost-effectiveness of sensory, psychological and behavioural interventions for managing agitation in older adults with dementia. Health Technol Assess. 2014;18(39):1-226, v-vi. https://doi.org/10.3310/hta18390

26. Moher D, Liberati A, Tetzlaff J, Altman DG, Group P. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Med. 2009;6(7):e1000097. https://doi.org/10.1371/journal.pmed.1000097

27. McDermott O, Crellin N, Ridder HM, Orrell M. Music therapy in dementia: a narrative synthesis systematic review. Int J Geriatr Psychiatry. 2013;28(8):781-94. https://doi.org/10.1002/gps.3895

28. Vasionyte I, Madison G. Musical intervention for patients with dementia: a meta-analysis. J Clin Nurs. 2013;22(9-10):1203-16. https://doi.org/10.1111/jocn.12166

29. Ueda T, Suzukamo Y, Sato M, Izumi S. Effects of music therapy on behavioral and psychological symptoms of dementia: a systematic review and meta-analysis. Ageing Res Rev. 2013;12(2):628-41. https://doi.org/10.1016/j.arr.2013.02.003

30. Chang YS, Chu H, Yang CY, Tsai JC, Chung MH, Liao YM, et al. The efficacy of music therapy for people with dementia: A meta-analysis of randomised controlled trials. J Clin Nurs. 2015;24(23-24):3425-40. https://doi.org/10.1111/jocn.12976

31. Thomas KS, Baier R, Kosar C, Ogarek J, Trepman A, Mor V. Individualized Music Program is Associated with Improved Outcomes for U.S. Nursing Home Residents with Dementia. Am J Geriatr Psychiatry. 2017. https://doi.org/10.1016/j.jagp.2017.04.008

32. Osman SE, Tischler V, Schneider J. 'Singing for the Brain': A qualitative study exploring the health and well-being benefits of singing for people with dementia and their carers. Dementia (London). 2016;15(6):1326-39. https://doi.org/10.1177/1471301214556291

33. Raglio A, Bellandi D, Baiardi P, Gianotti M, Ubezio MC, Granieri E. Listening to music and active music therapy in behavioral disturbances in dementia: a crossover study. J Am Geriatr Soc. 2013;61(4):645-7. https://doi.org/10.1111/jgs.12187

34. Gomez Gallego M, Gomez Garcia J. Music therapy and Alzheimer's disease: Cognitive, psychological, and behavioural effects. Neurologia. 2017;32(5):300-8. https://doi.org/10.1016/j.nrleng.2015.12.001

35. Hsu MH, Flowerdew R, Parker M, Fachner J, Odell-Miller H. Individual music therapy for managing neuropsychiatric symptoms for people with dementia and their carers: a cluster randomised controlled feasibility study. BMC Geriatr. 2015;15(1):84. https://doi.org/10.1186/s12877-015-0082-4

36. Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015;350:g7647. https://doi.org/10.1136/bmj.g7647

37. Downs SH, Black N. The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions. J Epidemiol Community Health. 1998;52(6):377-84. https://doi.org/10.1136/jech.52.6.377