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BENEFITS OF SINGING IN THE DEMENTIA CONTEXT

Los beneficios del canto en el contexto de las demencias

Melissa Mercadal-Brotons
Music therapist CBMT
Senior President of the World Federation of Music Therapy.
Academic Director of ESMUC (Barcelona. Spain)..
Lecturer at the Music therapy master degree of the Universidad Internacional de La Rioja, Spain.
https://orcid.org/0000-0002-7685-4294

ABSTRACT

Background: Pharmacological treatments for managing dementia symptoms have shown limited effectiveness. Psycho-social interventions are typically considered the first option. Recent research highlights singing as a particular beneficial activity for people with dementia. **Objective:** The objective of this paper is to present a narrative synthesis of the existent literature from January 2019 to June 2024 on the contributions of singing with people with dementia and their family caregivers. **Method:** A data base search was conducted across three databases: PubMed, PsycINFO, and ScienceDirect. Manual searches were also performed in Voices: A World Forum for Music Therapy issues from January 2019 to June 2024, as well as on ResearchGate. This descriptive review included quantitative, qualitative and mixed methods studies. **Results:** Nine studies met the inclusion criteria. Narrative syntheses revealed five main outcome areas: engagement (musical and social), cognitive function (including reminiscence), depression and positive feelings or emotions (as part of well-being), quality of life, and caregiving relationship and/or experience of caring. **Conclusions:** The results of this review highlight the potential benefits of singing in the well-being of individuals with dementia and their family caregivers, as well as the importance of continued investigation in this field.

Keywords: music therapy, singing, dementia.

RESUMEN

Antecedentes: Los tratamientos farmacológicos para manejar los síntomas de la demencia han mostrado una efectividad limitada por lo que las intervenciones psicosociales suelen ser la primera opción. Investigaciones recientes destacan el canto como una actividad particularmente beneficiosa para las personas con demencia. **Objetivo:** El objetivo de este artículo es presentar una síntesis narrativa de la literatura existente desde enero de 2019 hasta junio de 2024 sobre las contribuciones del canto en personas con demencia y sus cuidadores familiares. **Método:** Se realizó una búsqueda en tres bases de datos: PubMed, PsycINFO y ScienceDirect. También se realizaron búsquedas manuales en "Voices: A World Forum for Music Therapy" desde enero de 2019 hasta junio de 2024, así como en ResearchGate. Esta revisión descriptiva incluyó estudios cuantitativos, cualitativos y de métodos mixtos. **Resultados:** Nueve estudios cumplieron con los criterios de inclusión. La síntesis narrativa identificó cinco áreas principales de impacto: compromiso/participación (musical y social), función cognitiva (incluyendo reminiscencia), depresión y sentimientos o emociones positivas (como parte del bienestar), calidad de vida, y la relación de cuidado y/o la experiencia de cuidado entre la persona con demencia y el cuidador. **Conclusiones:** Los resultados de esta revisión destacan los posibles beneficios del canto en el bienestar de las personas con demencia y sus cuidadores familiares, así como la importancia de continuar investigando en este campo.

Palabras clave: musicoterapia, canto, demencias.

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Correspondence
melissa.mercadal@unir.net

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BACKGROUND

The World Health Organization (WHO), in its recent report, revealed that to date, a total of 55 million individuals have been diagnosed with dementia, with approximately 10 million new cases of dementia occurring each year worldwide. Dementia is a syndrome characterized by the progressive deterioration of cognitive function, often accompanied by changes in mood, emotional control, behavior, or motivation.

Moreover, this is a devastating condition that significantly impacts family members and society as a whole (WHO, 2023).

Psychosocial interventions for people with dementia

Due to the limited effectiveness of pharmacological treatments in managing dementia symptoms, non-pharmacological techniques are typically the first option before considering adjuvant pharmacological treatments (Muengtaweepongsa & Choolam, 2021). The therapeutic benefits of music-based interventions, such as listening to music, singing, and playing instruments, are well-established in elderly care, particularly for individuals with dementia (Mercadal-Brotons et al., 2021). These interventions are commonly used by music therapists and have been adopted by other various health professionals. They serve as non-pharmacological or psychosocial approaches for patients with Alzheimer's disease and related dementias (ADRD) to address cognitive and neuropsychiatric symptoms (NPS) such as memory problems, language difficulties, disorientation, executive function impairments, anxiety, depression, and agitation with. In addition to addressing areas affected by the disease, these therapies aim to improve quality of life (QoL) (Fang et al., 2017; Hanser, 2021; Leggieri et al., 2019).

Music therapy

Music therapy, a credentialed profession that requires academic training in working with clinical populations and applying clinical and evidence-based practices, has been used for many years with people living with dementia (PwD) (Fang et al., 2017). It addresses therapeutic goals across physical, cognitive, emotional, and social domains. Credentialed music therapists, by definition and training, are skilled in achieving treatment objectives through various musical techniques, including singing, playing instruments, improvising, and listening to music. In recent years, research has started focusing on specific aspects of music therapy, such as particular techniques, to determine the most effective outcomes for PwD.

Singing, on people with dementia (PwD) has been a major target of recent research. Benefits of singing for health and well-being have been reported for the general population (Daykin et al., 2018) as well as for individuals with various mental health or neurological conditions (Monroe et al., 2020). Several studies have also examined singing programs specifically for people living with dementia (Unadkat et al., 2017). However, there are few studies comparing the effects of different music activities on specific outcomes for PwD. Such studies are crucial for identifying the most effective and suitable interventions for various types and stages of dementia.

Singing is one of the most popular and frequently used active music intervention technique employed by music therapists to achieve therapeutic goals for people with dementia (Unadkat et al., 2017). This is partly because individuals with dementia often retain their singing abilities and can participate in singing even in the later stages of the condition (Smith et al., 2022). Despite memory loss, they can recognize melodies and lyrics of familiar songs (Tsoi et al., 2018) and learn new songs (Baird & Samson, 2015). Additionally, engaging in music activities with caregivers or care partners, such as choral singing, has been shown to improve social engagement and cognitive functions, enhance acceptance of the diagnosis, increase energy, reduce stress and anxiety, and alleviate depressive symptoms (Thompson et al., 2021).

Although several scoping and systematic reviews have addressed singing groups for people with dementia and their caregivers or relatives, this paper aims to provide a narrative synthesis of the existing literature from January 1, 2019, to June 30, 2024, on the impact of singing with people with dementia and their family caregivers. The specific questions this project seeks to answer are:

1. What outcomes have been measured in the existing literature?
2. What does the literature reveal about the effectiveness of singing for these outcomes?

To achieve this objective, both quantitative and qualitative research will be reviewed to gain a comprehensive understanding of how singing may benefit people with dementia and their caregivers.

Materials and Method

Search strategy

An electronic database search (PubMed, PsycINFO, and ScienceDirect) was conducted using the keywords: (*singing OR *choir singing) AND (*dementia). Manual searches were also performed in Voices: A World Forum for Music Therapy issues from January 2019 to June 2024, as well as on ResearchGate. A total of 162 articles were identified.

Inclusion/exclusion criteria

- Articles must have been published between January 2019-June 2024 and written in English or Spanish.
- Articles must have been published in peer-reviewed journals.

- People with dementia and/or their caregivers must have participated in singing as an active activity (not as a passive activity, such as being sung to), and the implementation of the activity had to be clearly described.

- Studies could include quantitative, qualitative data, or both.

Articles were excluded in any of the following conditions were given:

- Case reports, conference papers, personal opinions, and research proposals for which studies had not yet been conducted.

- Mixed groups (people with dementia as well as individuals with other diagnoses), where the results between the groups were not differentiated.

- Studies involving multiple musical interventions where singing was featured but not the main focus, or where the percentage of time singing in the program was unclear.

- Studies with no clear focus on the effect, impact or experience of the singing on or for the participants.

- Studies that featured carer-directed singing (i.e., where a carer sings to a person with dementia to assist during care routines).

The review is reported according to the PRISMA statement (Moher et al., 2009).

Selection process

Search results from each database and manual search were exported into an Excel spreadsheet. After duplicates were removed, the author screened the titles and abstracts for eligibility. Articles that appeared eligible based on title/abstract were then reviewed in full.

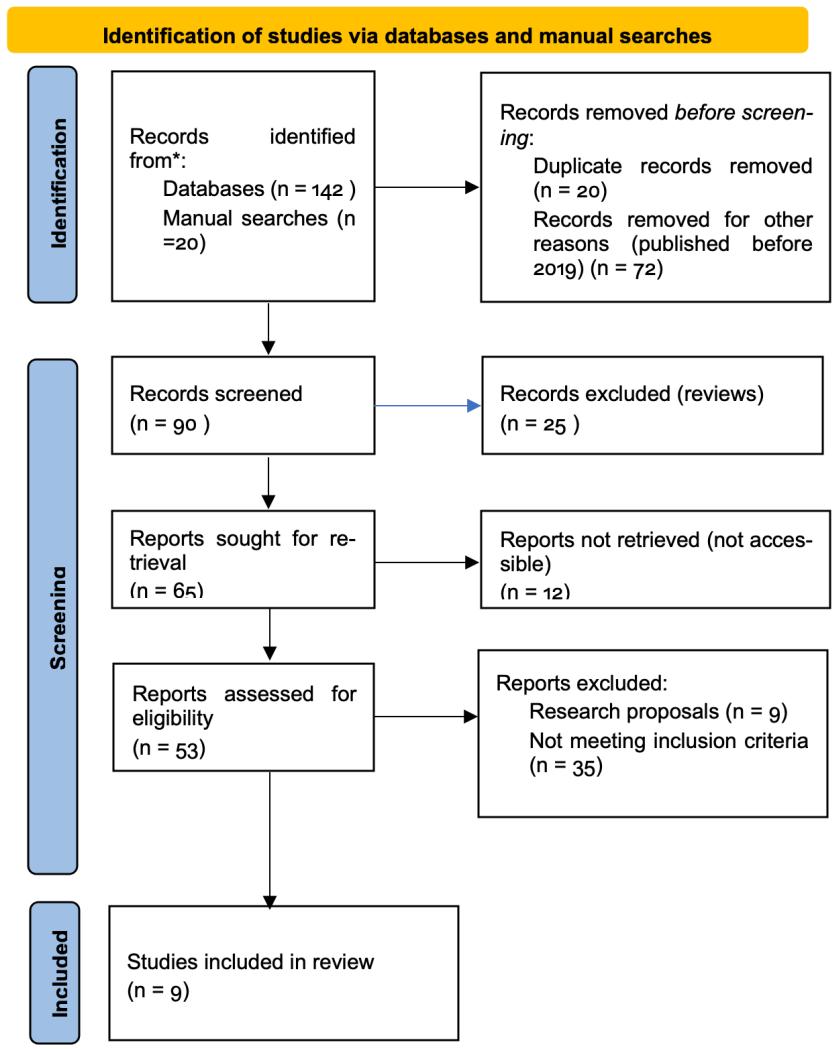
The PRISMA Flow chart was used to illustrate the search strategy and selection process of the sources included in this review (as well as the number of sources) (Figure 1).

The systematic review has included the following phases:

- Article search in databases and manual searches.
- Exclusion due to duplication and other criteria.
- Review of all the eligible articles, followed by further exclusions.
- Analysis of the results.

Figure 1.

PRISMA Flow Chart.



Critical appraisal

The methodological quality of the included sources was not evaluated, as the primary objective of this paper was to analyze the contributions and effects of singing on people with dementia and their family caregivers.

Data extraction and management

The sources that met the inclusion criteria were exported to Mendeley desktop version 1.19.8 where all references were managed.

The author extracted relevant data from publications using a standardized form. Each article was analyzed according to the following fields: author/year/country/design, diagnosis/stage/age, sample size, intervention/number of sessions and length, context/facilitator, and outcomes (see Table 1). Qualitative data were also collated.

RESULTS

A total of 53 studies were initially eligible for inclusion after

Tabla 1.
Studies characteristics.

Author/Year/ Country/Design	Diagnosis/Stage/ Age	Sample size	Intervention/# Sesions/Lenght	Context/Facilitator	Outcomes
Evans et al./2019/UK/ Pre-post (medidas cuantitativas + cualitativas)	ADRD /various stages/ $\bar{x}$ = 79.6	20 PwD	MMMRP (singing songs on specific themes)/ 7 sessions (weekly)/1h.	Not specified/Trained leader	Engagement (↑), reminiscence (↑), social interaction (↑)
Tamburry et al., 2019/ Canadá/Pre-post (cuantitativo)	ADRD/Mild-moderate/ $\bar{x}$ = 77.4	54 (PwD + caregivers + high school students)	Intergenerational choir/ weekly for 2-3 seasons/ 2h.	Community/Professional conductor	Cognitive funtion (=), depressive symptoms (↓)
Feng et al./2020/ Singapur/RCT (cuantitativo)	Older people/ with cognitive complaints/ $\bar{x}$ = 71	93 (47 to the CSI; 46 to the ECD)	Choral singing for two-years (weekly) vs. education on cognitive decline/1h.	Community living/ Professional musicians	Cognitive function (=), brain aging (=).
Clark et al./2020/ Australia/Pre-post (cuantitativo + cualitativo)	ADRD + family caregivers/Various stages/ $\bar{x}$ = 77 (PwD); $\bar{x}$ = 67 (caregivers)	16 (8 PwD + 8 family caregivers)	Therapeutic songwriting/6 sessions (weekly)/ 1 h.	Community aged care support facilities or residential aged care homes/ Professional music therapists	Quality of the Caregiver–Patient Relationship (=); Depression in Dementia (↓); QoL (=)
Lee et al., 2020/Irlanda/ Fenomenológico	ADRD /(early stage) + family caregivers.	7 (3 PwD + 4 family caregivers)	Group singing/ 6 sessions (weekly) 1h.	Community arts/ Professional music therapist	Social connection; happiness and rejuvenation; reconnection with the self; supporting the carer-cared for relationship →well-being
Baker et al., 2022/ Australia/RCT (cuantitativo)	ADRD + depression/ Various stages/ $\bar{x}$ = 86.5	214 PwD	Recreational choir singing(MIDDEL) vs. GMT/ 39 -78 sessions (1-2 sessions per week for 6 months)/45min.	Residential care home/ Community musicians-Professional music therapists	Depression (↓) , NPS (↓) , QoL. (↑)
Walker et al., 2022/UK/ Caso múltiple (cuantitativo)	ADRD/Mild-moderate/ ??	15 PwD	Community singing group vs. music listening/ 1 session/ 1 h.	Residential care home/ Experienced choral conductor	EDA (↑), HR (↑), movement and engagement (=), ST (=)
Downson et al./2023/ UK/Pre-post (medidas cuantitativas + cualitativas)	ADRD (various types of dementia/mild & moderate) & care partners/ $\bar{x}$ =81.06	30 (16 PwD + 14 carers)	Online singing group/10 sessions (weekly) /1h.	Community/2 Community musicians	QoL (↑), depression (↓) musical engagement, caring relationship (↑), experiences of caring (↑)
Reschke-Hernández et al., 2023/USA/RCCT (cuantitativo)	ADRD/ Various stages/ $\bar{x}$ =84.13	32 PwD	Singing-based intervention vs. verbal discussion/ 6 sessions (3 x week)/ 25 min.	Residential care home / Professional music therapists	Feelings (↑), positive emotions (↑)[1], and social engagement (↑), → psychological well-being

Note: Groups vs. individual; online vs. in-person; PwD: People with Dementia; ADRD: Alheimer's disease and related dementias; QoL: Quality of Life; NPS: Neuropsychiatric Symptoms; MMMRP: Musical Memories Reminiscence Programme; CSI: Choral singing intervention; HEP: Health Education Program MTx: Music therapists; ↑Increase, ↓Decrease; = No change; EDA: Electrodermal activity; HR: Heart rate; ST: Skin temperature; RCT: Randomized controlled trial; ECD: Education on cognitive decline; GMT: Group music therapy; RCCT: Randomized clinical crossover trial.
[1] Especially pleasure.

removing duplicates and excluding those published before 2019. Of these, nine of the articles were eliminated because they were research proposals, not completed studies. An additional 35 studies were excluded for not meeting inclusion criteria. The nine studies included in this review were conducted in different countries: Australia, Canada, Ireland, Singapore, and the UK. These studies comprised one multiple case study design, three randomized control trials (RCTs), four within-subject design study (pre-post), and one phenomenological study. A summary of the studies (in chronological order) can be found in Table 1.

Participants: Diagnosis and stage

The total number of participants across the included studies was 481 which included people with dementia or with some type of cognitive difficulty, and in some cases, their family caregivers. One study also involved high school students. The types of dementia varied and included Alzheimer's disease, vascular dementia, mixed dementia and frontotemporal dementia. The stages of dementia among participants in the different studies ranged from mild to severe. It is important to note that, although participants' cognitive status and dementia severity were reported in most studies, this information was not consistently documented.

Singing as intervention

Active singing was the music intervention that was used in the various studies as it is the topic of this paper. The active singing activities included group singing, either in person or online, participation in a recreational choir, therapeutic songwriting that also incorporated singing, and an intergenerational choir. These groups either included only PwD or both PwD and their caregivers. As previously mentioned, one study also included high school students.

Methodological aspects of the intervention: Context, sample size, # of sessions, length

Of the nine studies analyzed, five recruited participants from residential care homes, one from a community arts center, two from the community, and one did not specify the source.

In all studies, singing took place in groups ranging in size from 7 to 54 participants. In studies with more than 54 participants, they were divided into smaller groups for the intervention. The number of sessions varied widely, from 1-2 sessions to weekly sessions over 2-3 seasons, although the total number of sessions was not always specified. The length of the singing sessions was more consistent across studies, with most lasting 1 hour.

Facilitators

The singing interventions were facilitated by two types of professionals including: music therapists (in 4 studies), and musicians (5 studies).

Outcomes

As mentioned in a previous section, three of the studies used a mix of quantitative and qualitative measures (Clark et al., 2020; Dowson et al., 2023; Evans et al, 2019). All studies except Lee et al., 2020, which used a phenomenological approach, included standardized measures. Five main outcome categories were identified: engagement (musical and social), cognitive function (including reminiscence), depression and positive feelings or emotions (as part of well-being), quality of life, and caregiving relationship and/or experience of caring.

Four studies measured social and/or musical engagement (Dowson et al., 2023; Evans et al., 2019; Walker et al., 2022), three measured cognitive function (including reminiscence) (Evans et al., 2019; Feng et al., 2020; Tamburry et al., 2019), five measured depression or positive feelings and emotions (Baker et al., 2022; Clark et al., 2020; Dowson et al., 2023; Reschke-Hernández el al., 2023;Tamburry et al., 2019); and three measured quality of life (QoL) (Baker et al., 2022; Clark et al., 2020; Dowson et al., 2023).

The three studies that also included family caregivers, measured caregiving relationship and/or experience of caring (Clark et al., 2020; Dowson et al., 2023; Lee et al., 2020). The study by Walker et al., (2022) also measured physiological responses such as heart rate, electrodermal activity and skin temperature. As shown in Table 1, the majority of the studies reported improvements in all the outcome measures. In two of the studies, there were not changes from pre-to-post intervention in cognitive function (Feng et al., 2020; Tamburry et al., 2019), the quality of the caregiver-patient relationship (Clark et al., 2020), and movement and engagement (Walker et al., 2022).

Qualitative data of the included studies were collected through interviews and focus groups. The main outcome categories identified were: Quality of Life (QoL), psychological well-being, cognition, engagement, activities of daily-living, and family caregiver outcomes.

Four of the studies analyzed compared singing with other type of interventions: education on cognitive decline (Feng et al., 2020), group music therapy (Baker et al., 2022), and verbal discussion (Reschke et al., 2023). The results of Feng et al. (2020) indicated that choral singing is at least as beneficial as education on cognitive decline in improving cognitive health in aging, in addition to being fun and motivating. Baker et al. (2022) compared recreational group singing with group music therapy for depression and quality of life (QoL).

The results show higher positive effects of recreational group singing in reducing symptoms of depression, with benefits lasting even after the intervention was completed. Similarly, group singing was effective in reducing neuropsychiatric symptoms and improving QoL. Reschke-Hernández et al. (2023) compared a singing-based music therapy intervention with verbal discussion on social

and emotional wellbeing (feelings and emotions) and social engagement in PwD. As predicted by the authors, singing had positive effects on feelings, emotions, and social engagement, especially for participants with moderate dementia, indicating the potential of this type of intervention to enhance psychosocial well-being.

It is important to note that the study by Walker et al. (2023) was the only one that included physiological measures. The aim of these two linked multiple-case studies was to observe the physiological responses of people at different stages of dementia during two music-based activities: a community singing group and music listening. During the community singing group, electrodermal activity (EDA) and heart rate (HR) increased, which the authors suggest indicates increased arousal and enjoyment. HR and skin temperature (ST) were higher during faster music and EDA was influenced by different musical tempos.

DISCUSSION

The importance of implementing evidence-based music interventions for people with dementia and their family caregivers to provide the best therapeutic experiences is paramount. The results of this descriptive synthesis of articles published between January 2019 and June 2024 appear to confirm the findings of previous reviews (Thompson et al., 2021) which highlight the positive impact of singing on the lives of people with dementia and their caregivers. These benefits are particularly evident in emotional well-being, including factors such as engagement, maintaining social interactions, and fostering positive feelings and emotions, all of which contribute to an improved quality of life.

Depression is one of the most common comorbidities associated with dementia (Tamburry et al., 2019). Its effects are well-documented, and when combined with dementia, it negatively impacts patient well-being and significantly reduces quality of life. Some studies indicate that people with dementia who also have depression, transition to care homes more quickly than those without depressive symptoms (Thomson et al., 2021).

It is noteworthy that three of the studies analyzed incorporated both, quantitative and qualitative data, while one study (Lee et al., 2020) utilized only qualitative data. The qualitative data offers additional context and insights into participants' perspectives, which, when combined with quantitative data, enhances the understanding of participants' experiences and the benefits from singing. However, it is important to emphasize that findings from Lee et al., 2020, were consistent with those of the studies that included quantitative data.

The current review has several limitations that should be considered when interpreting these findings. The number of studies meeting the inclusion criteria is relatively small. Additionally, the heterogeneity among the studies–regarding design, intervention type, types and stages of dementia, dosage, and professional profile of those conducting the groups–complicates the ability to draw definitive conclusions.

CONCLUSIONS

It is evident that group singing and community choirs for PwD and their caregivers are becoming increasingly popular and established across various countries as a means to promote health and well-being. Experiences that involve both PwD and their caregivers provide a unique opportunity to caregivers for shared meaningful moments and potentially transform relationship dynamics (Thompson et al., 2021).

All the studies reviewed in this paper highlight that singing, whether within a music therapy setting or as a community recreational activity, can significantly enhance the well-being of people with dementia. It achieves this by boosting I activation, enhancing mood (improving positive feelings and emotions), promoting musical and social engagement, reducing symptoms of depression, and supporting the caregiver-care recipient relationship. Additionally, singing is both enjoyable and motivating. Collectively, these factors contribute to the overall quality of life for people with dementia and their caregivers, potentially prolonging cognitive health, maintaining independence, and delaying the need for long-term care.

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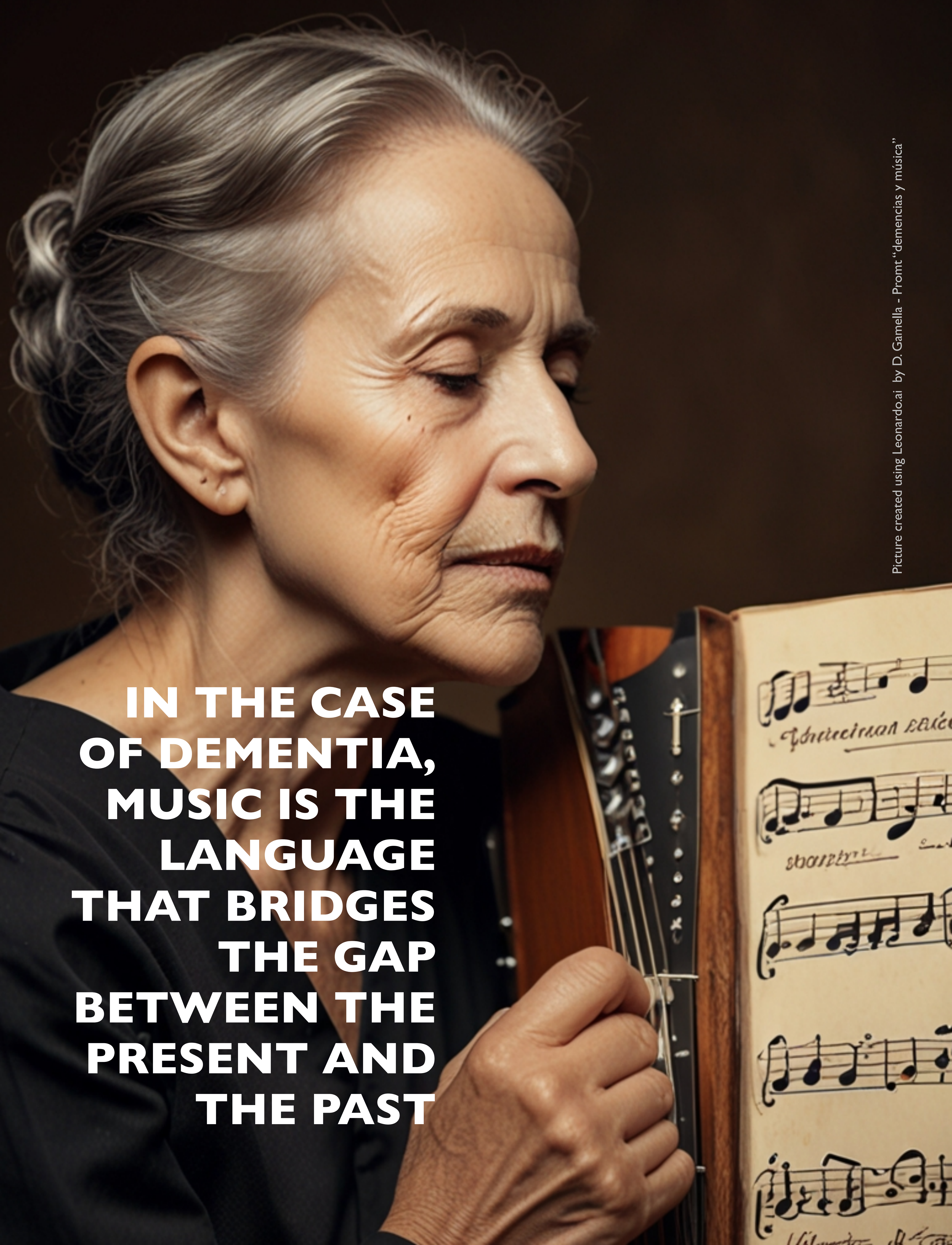

Picture created using Leonardo.ai by D. Gamella - Promt “demencias y música”