INTERNATIONAL SEVEN JOURNAL
OF MULTIDISCIPLINARY
ISSN: 2764-9547

MUSIC THERAPY AS AN IMPORTANT TOOL FOR THE TREATMENT OF PATIENTS WITH ALZHEIMER'S DISEASE

A MUSICOTERAPIA COMO UMA IMPORTANTE FERRAMENTA PARA O TRATAMENTO DOS PACIENTES COM ALZHEIMER

LA MUSICOTERAPIA COMO UNA HERRAMIENTA IMPORTANTE PARA EL TRATAMIENTO DE PACIENTES CON ENFERMEDAD DE ALZHEIMER

https://doi.org/10.56238/isevmjv5n2-036

Receipt of originals: 03/19/2026 **Acceptance for publication:** 04/19/2026

Maria Vitória Carneiro Pollini Carrara Rodrigues[1], Jonathas William de Morais[2], Bianca S. Costa[3], Sabrina de Azevedo[4], Victória Borella Leite[5], Yngrid Isabelli Leal[6], Júlia Vieira de Freitas Lima[7], Lorena Pereira Resende de Carvalho[8], Kaique César de Paula Silva[9], Marcos da Cunha Lopes Virmond[10]

ABSTRACT

Introduction: Alzheimer's disease (AD) is a progressive neurodegenerative disorder that affects memory and cognition, being one of the main causes of cognitive decline in older adults, and is associated with executive dysfunction and functional loss. Music therapy emerges as a non-pharmacological treatment alternative to reduce some symptoms experienced by patients with AD, including anxiety, agitation, and depression.

Objective: To identify the role of music therapy as a complementary tool in the treatment of Alzheimer's disease.

Methodology: The study was structured based on the SANRA methodology (Scale for the Assessment of Narrative Review Articles). Articles were obtained from the databases Regional Portal of the Virtual Health Library, LILACS, PubMed, and SciELO, and selected according to the proposed inclusion and exclusion criteria.

[1] Medical Student. Universidade Nove de Julho. E-mail: maria.carrara.1324@uni9.edu.br
Orcid: https://orcid.org/0009-0005-8970-7823 Lattes: https://lattes.cnpq.br/0809778806878330
[2] Medical Student. Universidade Nove de Julho. E-mail: jonathaswilliamdemorais@gmail.com
Lattes: https://lattes.cnpq.br/7703944749141213
[3] Medical Student. Universidade Nove de Julho. E-mail: bsilvacosta12@gmail.com
Lattes: https://lattes.cnpq.br/0527196404290382
[4] Medical Student. Universidade Nove de Julho. E-mail: sabrinadazevedo2001@gmail.com
Lattes: http://lattes.cnpq.br/5635724049593815
[5] Medical Student. Universidade Nove de Julho. E-mail: victoriaborella@outlook.com
Lattes: https://lattes.cnpq.br/0308042210785192
[6] Medical Student. Universidade Nove de Julho. E-mail: Yngrid.isabelli.leal@hotmail.com
Lattes: https://lattes.cnpq.br/0629454747158071
[7] Medical Student. Universidade Nove de Julho. E-mail: Jjvlima34@hotmail.com
Lattes: https://lattes.cnpq.br/8658378511665818
[8] Medical Student. Universidade Nove de Julho. E-mail: lorenacarvalho@uni9.edu.br
Lattes: http://lattes.cnpq.br/4372855714444228
[9] Dr. Professor. Universidade Nove de Julho. E-mail: Kaiquecesar@alumini.usp.br
Lattes: http://lattes.cnpq.br/5135251114792750
[10] Dr. Professor. Universidade Nove de Julho. E-mail: virmondmarcos@gmail.com
Lattes: http://lattes.cnpq.br/8494064152695188

Results: Seven articles were selected, including randomized clinical trials, experimental studies, and observational studies, all of which demonstrated benefits of music therapy on Alzheimer's disease symptoms.

Discussion: Music therapy has shown promise as a complementary approach in the treatment of AD, demonstrating positive effects on cognition, behavior, and communication in patients. However, its effectiveness varies according to professional training, study context, and type of intervention, suggesting the need for further research with larger samples and standardized methodologies.

Conclusion: Music therapy is a therapeutic approach for AD that offers cognitive, emotional, and social benefits to patients. It improves quality of life and alleviates symptoms such as agitation, anxiety, and depression by creating emotional connections and stimulating memories and cognitive functions in a safe and personalized manner. Thus, music therapy has shown promising results, suggesting that music can activate memories, improve communication, and delay the progression of cognitive deficits.

Keywords: Music Therapy. Complementary Therapies. Alzheimer's Disease. Cognitive Disorder.

RESUMO

Introdução: A Doença de Alzheimer (DA) é uma doença neurodegenerativa progressiva que afeta a memória e cognição, sendo uma das principais causas de deterioração cognitiva em idosos, sendo associada a disfunção executiva e perda funcional. A musicoterapia surge como uma alternativa de tratamento não farmacológico para reduzir alguns sintomas que acompanham pacientes com DA, dentre eles ansiedade, agitação e depressão.

Objetivo: Identificar o papel da musicoterapia como ferramenta complementar para o tratamento de Alzheimer.

Metodologia: O estudo foi estruturado a partir da metodologia SANRA (Scale for the Assessment of Narrative Review Articles),. Os artigos foram obtidos nas bases de dados Portal Regional da Biblioteca Virtual em Saúde, LILACS, PubMed e SciELO, e selecionados com base nos critérios de inclusão e exclusão propostos.

Resultados: Sete artigos foram selecionados, sendo estudo clínico randomizado, estudo experimental e estudo observacional, os quais demonstraram benefícios da musicoterapia nos sintomas da Doença de Alzheimer.

Discussão: A musicoterapia tem se mostrado promissora para complementar o tratamento da DA, demonstrando efeitos positivos na cognição, comportamento e comunicação de pacientes. No entanto, a eficácia varia de acordo com a formação dos profissionais, o contexto dos estudos e o tipo de intervenção, sugerindo a necessidade de mais pesquisas com amostras maiores e metodologias padronizadas.

Conclusão: A musicoterapia é uma abordagem terapêutica para a DA que oferece benefícios cognitivos, emocionais e sociais aos pacientes. Ela melhora a qualidade de vida e alivia sintomas como agitação, ansiedade e depressão, ao criar conexões emocionais e estimular memórias e funções cognitivas de forma segura e personalizada.

Dessa forma, a musicoterapia tem mostrado resultados promissores, sugerindo que a música pode ativar memórias, melhorar a comunicação e retardar o avanço dos déficits cognitivos.

Palavras-chave: Musicoterapia. Terapias Complementares. Doença de Alzheimer. Transtorno Cognitivo.

RESUMEN

Introducción: La enfermedad de Alzheimer (EA) es una enfermedad neurodegenerativa progresiva que afecta la memoria y la cognición, siendo una de las principales causas de deterioro cognitivo en adultos mayores, y está asociada con disfunción ejecutiva y pérdida funcional. La musicoterapia surge como una alternativa de tratamiento no farmacológico para reducir algunos síntomas que presentan los pacientes con EA, entre ellos la ansiedad, la agitación y la depresión.

Objetivo: Identificar el papel de la musicoterapia como herramienta complementaria en el tratamiento de la enfermedad de Alzheimer.

Metodología: El estudio se estructuró a partir de la metodología SANRA (Scale for the Assessment of Narrative Review Articles). Los artículos fueron obtenidos de las bases de datos Portal Regional de la Biblioteca Virtual en Salud, LILACS, PubMed y SciELO, y seleccionados con base en los criterios de inclusión y exclusión propuestos.

Resultados: Se seleccionaron siete artículos, incluyendo ensayos clínicos aleatorizados, estudios experimentales y estudios observacionales, los cuales demostraron beneficios de la musicoterapia en los síntomas de la enfermedad de Alzheimer.

Discusión: La musicoterapia ha demostrado ser prometedora como enfoque complementario en el tratamiento de la EA, mostrando efectos positivos en la cognición, el comportamiento y la comunicación de los pacientes. Sin embargo, su eficacia varía según la formación de los profesionales, el contexto de los estudios y el tipo de intervención, lo que sugiere la necesidad de más investigaciones con muestras más amplias y metodologías estandarizadas.

Conclusión: La musicoterapia es un enfoque terapéutico para la EA que ofrece beneficios cognitivos, emocionales y sociales a los pacientes. Mejora la calidad de vida y alivia síntomas como la agitación, la ansiedad y la depresión al crear conexiones emocionales y estimular la memoria y las funciones cognitivas de manera segura y personalizada. De este modo, la musicoterapia ha mostrado resultados prometedores, sugiriendo que la música puede activar recuerdos, mejorar la comunicación y retrasar la progresión de los déficits cognitivos.

Palabras clave: Musicoterapia. Terapias Complementarias. Enfermedad de Alzheimer. Trastorno Cognitivo.

1 INTRODUCTION

Alzheimer's Disease (AD) is a progressive neurodegenerative condition, marked by a gradual development that is often barely noticeable in the early stages, which is characterized by the gradual deterioration of cognitive functions, affecting crucial aspects such as memory, thinking and behavior. This type of dementia is one of the leading causes of cognitive impairment in the elderly, posing a significant challenge for both patients and their families and healthcare providers. The progressive nature of the disease results in a growing loss of abilities, directly impacting patients' quality of life and requiring effective therapeutic approaches [1] [2].

With the aging of the global population, which already has more than 900 million elderly people, it is verified that the prevalence of AD is increasing, currently affecting more than 46 million individuals. This number is expected to grow to approximately 131.5 million by 2050, resulting in a significant economic impact, with an estimated global cost of 818 billion dollars. Recent studies

reveal that the risk of AD increases with age and is particularly high in women. The approach recommended by health organizations is to personalize treatment to meet the specific needs of each patient, with the aim of slowing disease progression, maintaining functionality, improving quality of life, reducing stress on caregivers, and reducing the economic impact on families [2].

Available pharmacological treatments for Alzheimer's disease, such as anticholinesterase drugs and memantine, have shown limited and variable efficacy in modulating the cognitive and neuropsychiatric symptoms associated with the disease. Anticholinesterases, including donepezil, rivastigmine, and galantamine, work to increase acetylcholine levels in the brain, which may provide a temporary improvement in cognitive function and memory. Memantine, an N-methyl-D-aspartate (NMDA) receptor antagonist, is used to treat more advanced forms of the disease and may help reduce neuropsychiatric symptoms, such as agitation and delusions. However, even with these options, the benefits are often modest and variable among patients. These drugs often fail to comprehensively address the complexity of patients' needs, particularly in advanced stages of the disease [3].

In addition, the side effects and limited efficacy of pharmacological treatments highlight the need for complementary approaches that can offer more holistic and effective support. The progressive deterioration of cognitive and behavioral functions in

Alzheimer's disease requires a multifaceted approach, which goes beyond the capabilities of conventional treatments. This scenario has driven the growing interest in non-pharmacological strategies, such as music therapy, which have shown potential to improve the quality of life and well-being of Alzheimer's patients [3].

Music therapy is a therapeutic approach that uses music to promote the physical, mental, and emotional well-being of individuals, based on evidence that demonstrates the effectiveness of musical principles in promoting the integral health of patients [1].

This therapy has the ability to engage patients in activities that do not depend on deteriorated cognitive functions and that can stimulate areas of the brain that are still preserved. Using music as a therapeutic tool can provide significant emotional and cognitive benefits, helping to reduce symptoms such as agitation, anxiety, and depression, as well as promoting better communication and social interaction. Given the limitations of pharmacological treatments, music therapy offers a valuable alternative, potentially capable of meeting the complex and diverse needs of patients with Alzheimer's Disease, by

while promoting a more patient-centered and personalized approach to care and treatment [4].

In a scenario where verbal communication and episodic memory are compromised due to a progressive decline in cognitive abilities, as in Alzheimer's disease, music therapy emerges as an alternative. Music has the unique ability to access areas of the brain that remain relatively preserved even in advanced stages of the disease, providing a bridge to memory and emotions. Through musical activities such as listening, singing, and playing instruments, patients can experience a form of nonverbal communication that can bring up memories and feelings from the past, providing relief and a sense of connection [1].

Studies show that singing and listening to music daily improve general cognition, orientation, attention, executive function, and mood, as well as having the possibility of promoting a temporary improvement in short- and long-term memory [3].

Despite advances in research on music therapy as a complementary intervention, there are still divergences in the literature regarding its impact on the different cognitive domains (such as anxiety, depression, memory, language, and spatial orientation) affected by Alzheimer's Disease (AD). In addition, there is no consensus on which stages of the disease respond most effectively to music therapy. These gaps highlight the need

for more standardized studies that allow a more accurate evaluation of the efficacy of music therapy in its clinical application.

Thus, our study aims at the role of music therapy as a complementary tool to the treatment of AD, through the induction of significant improvements in cognitive function and neuropsychiatric symptoms of patients with AD and whether these improvements vary according to the stage of the disease. Through the analysis of the results obtained in scientific studies, it is intended to provide insights that can contribute to the development of therapeutic strategies adapted to the individual needs of patients.

2 METHODOLOGY

This is a descriptive literature review, with analysis of articles and other relevant sources, conducted following the SANRA (Scale for the Assessment of Narrative Review Articles) methodology [5], which all 6 items were met [5]. The initial question for him to develop this work

later it was: "Can music therapy really be able to significantly improve the clinical practice of Alzheimer's patients?".

Inclusion Criteria

The criteria defined for inclusion were: articles published between May 2015 and March 2023 with the expectation that more recent studies better address this relationship between music therapy and Alzheimer's dementia; written in English, as the greatest availability of these articles is in this language and; which correlate Alzheimer's and music therapy. In addition, the types of studies selected were: randomized clinical study, observational study, and experimental study due to the high comparability and lower risk of bias of these study designs, in addition to the solidity of the evidence presented.

Exclusion Criteria

The exclusion criteria defined were: articles that addressed the theme but not centrally, that is, it was not the primary objective of the text; works with a publication time of more than 10 years and articles in languages other than English. This decision was made by all authors due to the belief in the evolution of therapeutic techniques in recent years, in addition to the objective of finding, in the scientific literature, the maximum current evidence on this topic being a priority.

Search Strategy

To carry out the selection of articles in a more comprehensive way, DeCS/MeSH, an integrating component of the Virtual Health Library (VHL), was used. Thus, the keywords "Music Therapy" and "Alzheimer's" were used.

The databases used were: Regional Portal of the Virtual Health Library, LILACS, PubMed (MEDLINE) and SciELO. These databases participated in the construction of this article because they are a reference in health research with a strong emphasis on evidence-based medicine. Search strategies can be certified below:

PubMed: The search expression with the keyword and the Boolean operator "AND" was used, resulting in "Music Therapy AND Alzheimer", on August 20, 2024, which returned a total of four articles. The language filter (English) has been added resulting in only 1 article for the selection.

SciELO: The descriptors with the Boolean operator "AND" were used, originating the expression "Music Therapy AND Alzheimer", on August 20, 2024, which resulted in 2 articles. Therefore, it was not necessary to apply any filters.

VHL: Only the keyword "Music Therapy" was searched, which resulted in a total of 5,192 articles, so the following filters were applied, on September 14, 2024, to objectively reduce this number: database- MEDLINE and LILACS, main subject- Alzheimer's disease, type of study- controlled clinical study, observational study and qualitative research, Language - English and year interval of publication - in the last 10 years (2014-2024), which resulted in 16 articles.

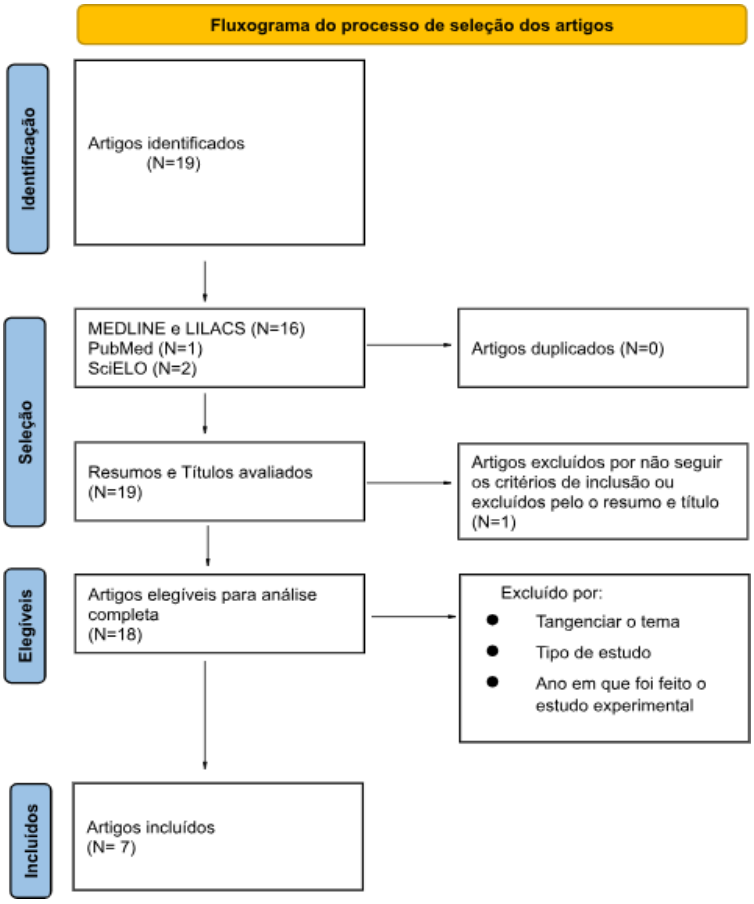
Selection procedures

After complete selection in the aforementioned databases, two authors independently evaluated each work, following the following trajectory: reading the title, reading the abstract, and reading the full article. The authors analyzed all articles within 15 days, a period dedicated to including or excluding the works based on the criteria already established. Subsequently, a meeting was scheduled to consider which articles would be used in the construction of this review. Both had to explain the reason for choosing or excluding such a text, so the authors agreed in the majority, however there were conflicts, requiring the participation of the third reviewer to avoid bias.

Outcome: seven articles were included and 12 articles were excluded. Figure (1) illustrates this process:

Figure 1

Flowchart in the article selection process



Data Extraction Procedure

In the data extraction process, 2 pairs -independently- used a table in Microsoft® Word® v.2020 [6] software to extract and organize the following information from the included articles: Authors' names, article title, place where the study took place, methods, and main results.

3 RESULTS

The seven selected articles include a randomized clinical trial, an experimental study and an observational study, which applied self-assessment tests about music therapy as a treatment for Alzheimer's disease.

INTERNATIONAL SEVEN JOURNAL
OF MULTIDISCIPLINARY
ISSN: 2764-9547

Table 1

Selected sources of evidence

Author and year of publication	Article Title	Place and year of study	Methods	Results
M. Gómez Gallego, et al. (2017)	Music therapy and Alzheimer's disease: Cognitive, psychological, and behavioral effects	Region of Murcia - Spain year 2015	They selected residents of two geriatric residences, with criteria for possible Alzheimer's disease. The division was carried out into two groups, separated based on the CDR scale, into mild (25) and moderate (17), totaling 45 individuals. Deaf or aphasic patients were excluded. The MMSE, NPI, HADS and IB tests were applied. Two weekly sessions of 45 minutes were held for 6 months.	In both groups there was: significant increase in MMSE score, progressive improvement in cognition, marked decrease in total NPI scores, effects on disinhibition The improvement in anxiety was more significant in mild cases of AD, while memory, orientation, and depression had more positive effects on mild and moderate dementia (HADS scale).
Ellen M. McCreedy, et al. (2019)	Measuring Effects of Nondrug Interventions on Behaviors: Music & Memory Pilot Study	United States Year 2018	This study was carried out in 4 long-term care homes, with 34 active residents. Inclusion criteria were: Have lived at least 90 days from January 1, 2018, have an active diagnosis of dementia, and have moderately to severely compromised daily decision-making. A favorite song of the patient between his 16-26 years old, used at times of the day when problematic behaviors appear. Evaluated by the direct observation of residents by ABMI, by the interview of team members about the behaviors of the residents that were analyzed by the CMAI. This process took place for 6 months.	The study showed greater reductions in agitated behaviors (anxiety) through direct observation on residents, moderate reductions in these same behaviors were noticed through the interview with the team. No significant reductions were noted across the available administrative data (MDS-ABS score at baseline = 0.7 [SD = 1.5]; MDS-ABS score at follow-up = 0.6 [SD = 1.6])
Sara Osman, et al. (2014)	Singing for the Brain': A qualitative study exploring the health and well-being benefits of singing for people with dementia and their carers	United Kingdom year 2014	A qualitative study with a total of 10 semi-structured interviews, with 20 participants consisting of patient-caregiver pairs, used to collect in-depth information about the experiences of people with dementia and their caregivers.	The study identified six main themes. The "Singing to the Brain" program showed greater benefit in patients with mild to moderate Alzheimer's, promoting social inclusion, reducing symptoms of apathy, anxiety and isolation, in addition to strengthening bonds, stimulating memory and facilitating the acceptance of the diagnosis. However, the different stages of dementia were not taken into account in relation to symptom alleviation.

Juliette Palisson, et al. (2015)	Music enhances verbal episodic memory in Alzheimer's disease	France, year 2015	Twelve patients with mild Alzheimer's and 15 healthy controls learned texts in three conditions: sung, spoken with silent film, and spoken alone. Immediate recall was measured after 5 minutes. The task included 30 tests where participants identified whether two successive musical excerpts were the same or different, with a difference in note.	The study showed that music coding was the most effective for improving learning and verbal recall, both in healthy patients and in patients with mild Alzheimer's disease (AD). Music provided greater accuracy and quantity of words remembered, especially in late recall. There was no significant difference in the number of intrusions between the control group and patients with mild Alzheimer's. This study did not assess moderate or severe AD.
Mariângela Aleixo, et al (2022)	Active music therapy in dementia: results from an open-label trial	Brazil year 2022	The sample included patients and caregivers from CDA/IPUB-UFRJ. Thirteen women (N = 13) made up the final sample and were diagnosed with Alzheimer's disease (N = 10), vascular dementia (N = 2), and mixed dementia (N = 1), in mild (N = 11) and moderate (N = 2) stages. The mean age was 60 years and schooling was at least 4 years. Subjects underwent music therapy once a week for 60 minutes over a 12-week period. The caregivers, family members or not, were at least 18 years old and had 4 years of schooling or more. Both needed to have functional hearing, with or without hearing aids.	Patients with mild dementia demonstrated greater independence in the proposed activities, with active engagement in singing and use of instruments, preserving musical memory and showing greater ease in social interactions. In these individuals, a significant reduction in anxiety symptoms was observed, with a large effect size and moderate improvement in motor behavior, although without overall statistical significance in the total NPI score. In moderate cases (N = 2), the response was variable: one patient actively participated, while another needed continuous support, indicating that this group depends on adaptations and individualized support, and the gains may be more subtle or uneven.
Séverine Samson, et al (2015)	Efficacy of music interventions in dementia: methodological requirements of non-pharmacological trials.	France, year 2015	They were separated into two studies, the first only patients with moderate to severe stages of dementia were included. In the second, we increased the sample size, but both studies were used: receptive (listening to music or tasting recipes) and productive criteria (clapping or singing to music or preparing a recipe) were alternated, and in study two, we also measured cognitive, functional, and behavioral aspects.	The findings of this study suggest that music was more effective than cooking, proving the emotional state of people with PCD dementia. In general, the novelty of study 2 was its finding that activities other than music can also improve the well-being of PWD and their caregivers.
Gómez-Gallego M, et al (2021)	Comparative Effectiveness of Active Group Music Intervention Versus Group Music Listening in Alzheimer's Disease	Region of Murcia - Spain. July 30, 2021	The study was conducted in six nursing homes in the Murcia region, with residents diagnosed with mild or moderate stage Alzheimer's disease, according to the CDR. Participants were randomly allocated per household into three groups: active music intervention (AMI), receptive music intervention (RMI), and control (nature videos). The interventions took place twice a week for three months. The AMI group performed activities such as singing, rhythmic exercises, dancing and musical quizzes, while the RMI group only listened to songs selected according to previous preferences. The control intervention involved only visualization of	After the intervention, the mean MMSE scores and the mean BI scores increased significantly in the AMI group, while they decreased in the RMI and the control group, and the BI control group also decreased. ANCOVA (statistical measure) revealed that there was no significant difference in the mean ST change scores between the groups. Regarding behavioral disorders, mean NPI scores decreased significantly in the AMI group, did not change in the RMI group, and increased in the control group after the intervention.

			videos without music. Standardized measures of cognition (MMSE), neuropsychiatric symptoms (NPI), mood (GDS), functionality (Barthel) and motor function (Tinetti) were applied, assessed before and after the intervention.	

Source: The authors

In this regard, the tools used to measure the effects of music therapy in patients with Alzheimer's disease are summarized in Table 2.

Table 2

Study instruments for music therapy in patients with Alzheimer's disease

Instrument	Summary
MMSE - Used in the study by M. Gómez Gallego, et al. (2017)	Quick questionnaire that evaluates orientation in time and space, attention, verbal memory, language and motor skills. Total scores range from 0 to 30 points (orientation [0-10], memory [0-6], attention [0-5], and language—motor skills [0-9]).
Barthel index- used in the study by Samson, Séverine et al. (2015) and M. Gómez Gallego, et al. (2017)	This is a useful tool to assess patients' ability to complete 10 basic activities of daily living (feeding, bathing, personal care, clothing, bowel, bladder, toilet use, transfers, mobility, and stairs). Scores range from 0 (fully dependent) to 100 (independent).
RCT- used in the study by Samson, Séverine et al. (2015)	randomized controlled trials (RCTs) provide the best evidence for the efficacy of nonpharmacological treatments
TS- used in the study by Gómez-Gallego M et al.(2021)	Tinneti Scale - This scale was used to evaluate the effects of the interventions on the motor function of the residents. It consists of two subscales: balance test (9 items) and gait test (8 items). Items are scored from 0 to 1 or 2, with higher scores indicating better function. The total ST score is the sum of the balance test score (range 0 to 16) and the gait test.
NPI- used in the study by Gómez-Gallego M et al. (2021) and M. Gómez Gallego et al. (2017)	This tool assesses 10 domains of behavioral function: delusions, hallucinations, depression, agitation, irritability, anomalous motor behavior, anxiety, aggression, apathy, and disinhibition. The frequency of each of these symptoms is assessed on a 4-point scale, while severity is assessed on a 3-point scale.
MMSE- used in the study by Gómez-Gallego M et al. (2021)	Mini Mental State Examination - evaluates changes in global cognition and is one of the most widely used cognitive tests for dementia and easy to apply. Total scores range from 0 to 30, with higher scores indicating better global cognition.

GDS- used in the study by Gómez-Gallego M et al. (2021)	Geriatric Depression Scale - evaluates the effect of interventions on the affective state of residents. This version has been validated in patients with dementia. Possible scores range from 0 to 15, with higher scores indicating more depressive symptoms.
HADS - Used in the study M. Gómez Gallego et al. (2017)	Anxiety and Depression Scale. This 14-item questionnaire includes 2 subscales with 7 items each (anxiety and
Instrument	Summary
	depression). The frequency of each item is assessed on a 4-point Likert scale (0-3); Each subscale is assessed from 0 to 21 points, with higher scores indicating greater symptom severity.
CDR - Used in the study M. Gómez Gallego et al. (2017) https://linhasdecuidado.saude.gov.br/portal/demencia/avaliacathe-clinic-of-dementia/	Dementia Clinical Rating Scale. They have the following categories: Memory, orientation, judgment /problem-solving, community affairs, home/hobbies and personal care as independently as possible (from each other). The attributable scores are: 0 - 0.5 - 1 - 2 - 3.
ABMI - Ellen M.McCreedy et al. (2019)	Agitated Behavior Mapping Instrument (ABMI) - Records the number of times 14 specific verbal and physical agitated behaviors occurred (ranging from 0 to 140, with higher scores indicating more agitated behaviors (within 3 minutes of observation)
CMAI - Ellen M.McCreedy et al. (2019)	Cohen-Mansfield Agitation Inventory (CMAI) - Interview with nursing staff members living with the resident to ask how often 29 agitated behaviors occurred in the previous week. The answer options for each item ranged from never (1) to several times per hour (7); The total score ranged from 29 to 203, with higher scores indicating more agitated behaviors.
MSD - Ellen M.McCreedy et al. (2019)	Minimum Data Set (MDS) - Includes four items related to the frequency of (1) physical behavioral symptoms directed at others; (2) verbal behavioral symptoms directed at others; (3) other behavioral symptoms not directed at others; and (4) behaviors related to resistance to necessary care. Frequency in the previous week is reported as: behavior not displayed (0); behavior occurred from 1 to 3 days (1); behavior occurred from 4 to 6 days (2); or behavior occurred daily (3).

Source: The authors

4 DISCUSSION

Among the seven articles evaluated, five demonstrated a positive correlation between music therapy and the treatment of people with Alzheimer's, highlighting improvements in language recall and communication. In the United States, the experimental study by Gallego and García (2017) included 42 older adults with mild

(CDR1) or moderate (CDR2) AD, with a predominance of women and low education. Music therapy improved cognition (Mini mental status examination), especially memory, orientation and language, with a greater effect in the CDR1 group. Symptoms such as delusions, irritability, anxiety and depression improved in the CDR2 group according to the HADS (anxiety and depression scale). There was no significant impact on functioning (BI) or statistical improvement of depression in the moderate group. These

data reinforce the hypothesis that the stage of AD influences the type and intensity of the therapeutic response to music therapy [2].

In Spain, a study [7] similar to the previous study was conducted. It was noted that the agitated behavior of the elderly with AD was mitigated, and this effect was verified through interviews with each participant of the study. This pilot study highlighted the need to focus on songs preferred by older adults in the 20s and 30s, increasing the chance of retrieving autobiographical memories. However, there was difficulty in knowing the favorite music of these elderly people due to the lack of contact with family members and the reduced number of participants (25 people) was also a limiting factor.

These results hypothesize that personalization of music interventions, especially using meaningful music from patients' past, may be a crucial factor in the effectiveness of music therapy. However, the limitation of small samples and the difficulty in obtaining personal information about patients' musical preferences indicate the need for more robust methods to collect this data, possibly involving interviews with family members or caregivers [7]. The choice of music that is important, in some way, for the patients, can stimulate the therapeutic effects and, thus, promote greater commitment and identification with the applied therapy. The emotional connection with the songs can facilitate engagement in the sessions and enhance the therapeutic effects, especially in aspects such as emotional well-being and stress reduction. Considering that the evocation of memories is one of the central mechanisms of music therapy, it is expected that its impact on cognition will vary according to the stage of AD and the patient's ability to access musical memories of the past [8].

In Norway, they conducted a randomized clinical trial with adults with mild Alzheimer's disease or mild cognitive impairment. This study showed a significant correlation between music therapy and improved brain plasticity, resulting in cognitive benefits in individuals at risk for Alzheimer's. However, the effectiveness of the intervention can vary between individuals, and many do not respond as well as others.

The study highlighted the need for trained professionals, which can be a challenge in some institutions, as well as financial obstacles [8].

Thus, it is possible to hypothesize that music therapy is more effective in the early stages of AD, when there is greater cognitive reserve and brain responsiveness. The variation in therapeutic response among patients reinforces the need to outline profiles that benefit most from the intervention. At the same time, structural limitations, such as the shortage of specialized professionals and funding, show themselves Barrier to a Implementation more especially in countries with fewer resources [8].

In the United Kingdom, a qualitative study observed that not all patients feel comfortable participating in music therapy sessions, which can compromise therapeutic results. However, those who actively participated demonstrated greater benefit, suggesting that the patient's emotional and physical engagement is critical to the success of the intervention. In addition, the lack of technical training among caregivers was pointed out as an obstacle, indicating that professional training can be a determining factor for the effectiveness of music therapy in different stages of AD [9].

In Brazil, they conducted an open-label trial that revealed that active music therapy can be effective in improving the quality of life of patients with dementia and Alzheimer's. It was noted that active music therapy favored improvements in communication, social interaction, and the reduction of anxiety and agitation in patients with Alzheimer's. The article suggests that active music therapy can have a significant positive impact, due to patients' greater independence in language and motor activities [7].

The most qualified professionals, especially those with advanced training or specializations, tend to demonstrate greater competence in the application of music therapies, leading to better clinical outcomes. This is particularly relevant in clinical contexts such as the treatment of mental illness, where the therapist's experience can directly impact the patient's progress and response [9]. In addition, systematic reviews suggest that the effectiveness of music therapy interventions may vary depending on the level of preparation and the therapist's approach. These studies indicate that the training of these music therapy facilitators can influence the therapeutic results, which recommend that the variation in the results between different studies may be linked to the level of training of the professionals [10] [11].

The context in which the study is conducted can also have a major influence on the results. Research conducted in countries with better health conditions, such as Spain,

may show more positive results compared to regions with fewer resources, such as parts of Africa [12]. Access to quality health care and the availability of resources to implement interventions can be an important differentiator for the success of therapies. This is an issue widely discussed in systematic reviews and reports on global health inequalities, such as the article that deals with global disparities in the implementation of innovative treatments [13]. Furthermore, the duration of the interventions cannot be ignored. Shorter programs may not allow enough time for changes significant aspects are observed in cognitive and behavioral aspects. The study [7] showed an immediate reduction in patients' agitation using personalized music, while longer research, such as that of [8], which evaluated changes in brain plasticity over the course of a year, revealed more complete results. This indicates that the duration of the intervention may be essential to achieve deeper and longer-lasting effects.

Finally, the type of musical intervention also influences the results. The study [11] highlighted that active interventions, in which patients participate directly in the creation of music, showed more expressive results than passive interventions, in which they only listened to music. Active music therapy seems to stimulate more intensely areas of the brain linked to cognition and motor skills, helping to explain its greater therapeutic potential. Similarly, [14] they demonstrated that associating music with active activities, such as singing, improved episodic memory in Alzheimer's patients, which suggests that active engagement is a key factor in the success of interventions.

5 CONCLUSION

The findings of this study indicate that music therapy may represent a promising complementary strategy in the care of patients with Alzheimer's disease, contributing to cognitive and emotional improvements. It was observed that the effects of the musical intervention vary according to the stage of the disease, being more evident in certain cognitive domains in patients with mild dementia, while neuropsychiatric symptoms, such as irritability and delusions, showed a greater reduction in moderate stages.

Although the results are positive, their interpretation should consider methodological limitations present in part of the studies analyzed, such as small sample sizes, absence of a control group, or lack of standardization in the application of interventions. In addition, factors such as the type of approach used (active or receptive),

the duration of the sessions, the institutional context, and the training of the professionals involved seem to directly influence the therapeutic outcomes.

Thus, the importance of new studies with robust designs is reinforced, which consider the severity of the disease as a variable of interest and systematically evaluate the effectiveness of music therapy in different scenarios. The continuity of these investigations is essential to better understand the scope and limitations of this intervention in the treatment of Alzheimer's disease.

The present study has some limitations, such as the small number of experimental studies and other studies that make direct comparisons between music therapy and Alzheimer's disease. In addition, there was a restriction regarding the language, with the inclusion only of studies published in English, due to the limited availability of studies in other languages. There is also a low geographic diversity in the places where the research is conducted, predominantly conducted in European countries, which may compromise the generalization of the findings to other sociocultural and health realities.

REFERENCES

American Music Therapy Association. (2024). About music therapy and AMTA. Disponível em: https://www.musictherapy.org/about/

Liang, J., Xu, Y., Lin, L., Jia, R. X., Zhang, H. B., Hang, L., et al. (2018). Comparison of multiple interventions for older adults with Alzheimer disease or mild cognitive impairment. Medicine (Baltimore), 97(20).

Gómez-Gallego, M., & Gómez-García, J. (2017). Music therapy and Alzheimer's disease: cognitive, psychological, and behavioural effects. Neurología, 32(5), 300–308.

Garcia-Casares, N., Moreno-Leiva, R. M., & Garcia-Arnes, J. A. (2017). Music therapy as a non-pharmacological treatment in Alzheimer's disease: a systematic review. Revista de Neurología, 65(12), 529–538.

Baethge, C., Goldbeck-Wood, S., & Mertens, C. (2019). SANRA—a scale for the quality assessment of narrative review articles. Research Integrity and Peer Review, 4(1), 5. https://doi.org/10.1186/s41073-019-0064-8

Microsoft Corporation. (2020). Microsoft® Word® (Version 2020) [Software]. Redmond, WA: Microsoft.

McCreedy, E. M., Weinstein, B. E., Chodosh, J., Leland, N. E., & Ganz, D. A. (2019). Measuring effects of nondrug interventions on behaviors: Music & Memory pilot study. Journal of the American Geriatrics Society, 67(10), 2134–2138.

Flo, B. K., Skjesol, O. S., Larsen, T., Reitan, S. K., Vangberg, T. R., Aarsland, D., et al. (2022). Study protocol for the Alzheimer and music therapy study. PLoS One, 17(6), e0269189.

Osman, S. E., Tischler, V., & Schneider, J. (2016). “Singing for the brain”: a qualitative study exploring the health and well-being benefits of singing for people with dementia and their carers. Dementia, 15(6), 1326–1339.

Aleixo, M. A. R., Oliveira, L. M. B., Quevedo-Ramírez, A., Jaramillo-Dent, D., & Silva, R. H. A. (2022). Active music therapy in dementia: results from an open-label trial. Jornal Brasileiro de Psiquiatria, 71(2).

Gómez-Gallego, M., Gómez-García, J., & Romero-Ayuso, D. (2021). Comparative efficacy of active group music intervention versus group music listening in Alzheimer’s disease. International Journal of Environmental Research and Public Health, 18(15), 8067.

American Music Therapy Association. (2021). Music therapy for adults with mental health and substance use conditions. Disponível em: https://www.musictherapy.org/assets/1/7/FactSheet_Music_Therapy_for_Adults_with_Mental_Health_and_Substance_Use_Conditions_2021.pdf

Edwards, J. (2015). Conceptualizing music therapy. Oxford: Oxford University Press.

Palisson, J., Roussel, M., Le Gall, D., & Gissot, V. (2015). Music enhances verbal episodic memory in Alzheimer’s disease. Journal of Clinical and Experimental Neuropsychology, 37(5), 503–517.