

Music Therapy as a Communication Tool: A Therapeutic Approach to *Dementia* Symptoms

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Abstract: *Music therapy has become in the last decade one of the most robust non-pharmacological interventions dedicated to people with dementia, especially in Alzheimer's disease, due to its ability to restore forms of communication in a context marked by severe language impairment. This paper examines the scientific literature published between 2020–2025, integrating data from meta-analyses, randomized clinical trials, qualitative studies, and mechanistic reviews, to clarify how music can function as a therapeutic communication tool. The results converge on the idea that the effectiveness of music therapy derives from the interaction between relatively conserved neurocognitive mechanisms in dementia, robust emotional reactions to musical stimuli, bodily synchronization and a secure relational framework. Music interventions reduce anxiety, agitation and depression, improve social connectivity and allow the emergence of coherent nonverbal communication, even in the advanced stages of the disease. However, the literature highlights methodological limitations such as small samples, variability of protocols and the lack of standardised tools for assessing communication. Future studies need to develop more rigorous methodologies capable of investigating music as a complex therapeutic language, not just as a global stimulus, and integrating the analysis of micro-sequential interactions and the quality of the therapeutic relationship. Overall, music therapy is emerging as an essential relational infrastructure, capable of rehumanizing the care of people with dementia, restoring the continuity of the self and the possibility of connection despite profound cognitive decline.tag.*

Key-words: *music therapy, Dementia; Alzheimer's disease, Nonverbal communication, Non-pharmacological interventions, neurocognitive mechanism, BPSD, music synchronization, emotional regulation, therapeutic relationship*

1. Introduction

Dementia, especially Alzheimer's disease, continues to be one of the most challenging issues in contemporary clinical neuroscience, as its impact goes beyond

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cognitive impairment and profoundly affects communication ability, relational identity, and the quality of social interactions. The progressive loss of language, the fragmentation of narrative coherence, the diminishing of pragmatic skills and the appearance of episodes of seemingly impenetrable silence reflect not only the degradation of cognitive functions, but also the need to rethink communication as a multisensory process, capable of manifesting itself beyond the verbal register. These transformations overlap with behavioral and psychological symptoms associated with dementia (BPSD), among which agitation, anxiety, depression, and apathy are constants with a major impact on the patient-caregiver relationship (Ting et al., 2023). Recent literature shows that communication difficulties are not secondary consequences of the disease, but central factors in the onset and maintenance of BPSD, which justifies the orientation of clinical interventions towards approaches that reintroduce the person into the relational flow of his world.

In this context, music therapy has evolved in the last decade from an intervention considered complementary into a therapeutic tool with solid empirical validation, being recognized in clinical guidelines as an essential non-pharmacological intervention in the management of dementia. Studies published in leading journals confirm that music influences neurocognitive networks that remain functional even in advanced stages of the disease, explaining why emotional reactions to musical stimuli persist while other areas of memory degrade. Neuropsychological research indicates that musical memory and affective responses to music are conserved more than semantic or episodic memory, activating fronto-limbic circuits that are relatively resistant to neurodegeneration (Madera-Cimadevilla et al. 2024). This peculiarity of cognitive attrition transforms music into a privileged medium of access to the residual self, allowing the reactivation of some forms of communication when verbal language becomes insufficient.

What has fundamentally changed the research paradigm in the period 2020–2025 is the shift of scientific interest from the binary question “does music therapy work?” to investigating the mechanisms and contexts that determine its effectiveness (Rucsanda et al. 2024). Realistic review studies and recent meta-analyses argue that the beneficial effects of music depend on the personalization of the intervention, the quality of the therapeutic relationship, and the integration of music into care routines, which positions music therapy as a communication tool, not just as a way to reduce symptoms (Thompson et al. 2024).

The current perspective proposes a relational understanding of musical communication, in which music acts as a support for multimodal interactions – looks, gestures, body rhythms, spontaneous vocalizations – that can reconstruct the meaning of mutual presence in the absence of language. Studies conducted in care settings for people with severe dementia describe live music sessions in which

participants, otherwise considered “non-communicative”, respond spontaneously through body synchronization, affective exchanges or nonverbal micro-expressions, indicating that music reorganizes the interactional space and reduces cognitive barriers between patient and caregiver (Clare et al. 2020). Through this prism, music therapy is not only a way of “activating” the person with dementia, but a process of reconstituting communication in its most essential terms: reciprocity, rhythm, affection and continuity of the self. If ordinary language breaks down with the evolution of the disease, musical language becomes a functional substitute, capable of re-establishing interpersonal bridges and reducing the distress that derives from the impossibility of being understood or heard. The literature of recent years converges towards the conclusion that music is not just an aesthetic stimulus, but a relational infrastructure that can counteract communicative isolation, reduce BPSD symptomatology, and improve the quality of care by reactivating fundamental ways of connecting (Bleibel et al. 2023). Overall, recent studies show that the musical approach to dementia changes the perspective on communication and the person with dementia, shifting the focus from deficit and degeneration to residual potential for relationships. Music thus becomes not just a therapeutic support, but an environment in which identity, affection and relationship find new ways of manifestation, even when language disappears. This is the direction of the most advanced research from 2020–2025, supporting the idea that music therapy is currently one of the most promising ways to rehumanize dementia care.

2. Objectives

The objectives of the research are in the direction of consolidating an updated theoretical and empirical framework on the role of music therapy as a communication tool in dementia, especially in Alzheimer's disease, in a context in which the literature of recent years insists on the need for integrated and personalized non-pharmacological interventions (Thompson et al. 2024). The first objective aims to clarify how music therapy influences communicative processes, both verbal and nonverbal, by activating musical memory and relatively conserved emotional networks, thus contributing to the restoration of forms of meaningful interaction between people with dementia and their caregivers. At a time when language difficulties are considered a central factor in the occurrence of behavioral and emotional symptoms, it becomes essential to understand how musical communication can reduce anxiety, agitation, or depression, according to recent meta-analytical evidence (Ting et al. 2023).

Another objective is to investigate the psychosocial mechanisms by which musical interventions facilitate interpersonal connection in moderate and advanced stages of the disease, starting from the premises formulated in studies on multisensory communication in severe dementia, where music functions as a relational structure that reorganizes the dynamics of interactions (Clare et al. 2020). In this direction, the analysis aims to highlight how rhythm, body synchronization, affective expressiveness and spontaneous vocal reactions can constitute valid forms of communication and generate a reduction in distress for both the patient and the caregivers.

The central objective of the work is thus to formulate an integrated perspective on music therapy, which overcomes interpretations limited to cognitive stimulation and places it in a therapeutic framework oriented towards relationship, continuity of the self and the reactivation of residual communicative potential. In line with the results systematized in the recent literature, this research aims to critically analyze the conditions under which musical interventions become effective, for whom, with what intensity, and in what care contexts, as well as the degree to which they can be integrated into standardized clinical practice (Bleibel et al. 2023).

Ultimately, the objectives aim to generate an original contribution to the understanding of music therapy as a communication tool with clinical applicability, capable of significantly improving the quality of life of people with dementia and providing health professionals with a conceptual and practical framework for the implementation of adapted, scientifically validated and person-centered interventions.

3. Material and methods

The methodology of this research is based on a narrative *review* critical analysis, built to capture the conceptual complexity and methodological diversity of studies on music therapy applied in dementia in the period 2020–2025. The choice of this design is justified by the fact that contemporary literature no longer offers only quantitative results on the effectiveness of interventions, but also mechanistic, relational and phenomenological perspectives on how music reconfigures communication where language disintegrates. To identify relevant studies, the main scientific databases – PubMed/MEDLINE, Web of Science, Scopus and the editorial platforms Elsevier, Wiley, Springer, Frontiers and MDPI – were used through a systematic search that included terms such as *music therapy*, *music-based intervention*, *dementia*, *communication*, *Alzheimer's disease*, *neuropsychiatric symptoms* and *non-pharmacological treatment*.

The selection process focused exclusively on articles published in peer-reviewed journals, from the last five years, which investigated the relationship between music therapy and communication or the effects of musical interventions on behavioral and emotional symptoms. Randomised controlled trials, qualitative in-depth analyses, systematic reviews, meta-analyses and realistic review studies have been included, as each of these provides a distinct level of evidence relevant to the objective of the analysis. Recent meta-analyses on music interventions in dementia have provided data on the effects on anxiety, depression and communication, constituting a key methodological benchmark (Ting et al. 2023; Moreno-Morales et al. 2020). Randomized trials have been analyzed in detail to clarify the differences between active music therapy interventions, music listening interventions, and standard care, as in recent trials in residential settings for people with dementia (Prick et al. 2024).

The methodology also included the rigorous evaluation of qualitative studies, as they allow the examination of the micro-interactional processes that define musical communication in the advanced stages of the disease. Video analyses and ethnographic observations from such research have provided evidence of how nonverbal expressiveness, motor synchronization, and emergent emotional responses create a communication context that cannot be captured by standardized measurement tools (Clare et al. 2020). For an integrated mechanistic perspective on musical interventions, the review published in *Nature Mental Health* was also realistically included, detailing the conditions, resources and mechanisms by which music therapy can reduce distress and restore relational continuity in severe dementia (Thompson et al. 2024).

The critical evaluation of the articles was carried out by analyzing the convergence of results, methodological robustness and theoretical coherence, paying attention to the variability of the protocols, the duration of the interventions, the way of training the therapists and the characteristics of the participants. Studies with incomplete data, insufficient descriptions of interventions or unjustifiably small samples were excluded, so that the final synthesis reflects the current level of knowledge in the field.

Through this methodological approach, the paper manages to integrate both the neurocognitive and relational dimensions of music therapy, providing a coherent perspective on how musical interventions become clinically relevant communication mechanisms in a field where pharmacological solutions are limited, and the need for personalized interventions is constantly growing.

4. Music therapy and communication in dementia: beyond “stimulation”

Recent research indicates that musical interventions produce significant effects on language, verbal fluency, and communicative participation in people with dementia, especially when they include active components such as singing, reciting lyrics, vocal improvisation, or using simple instruments. Systematic reviews in recent years emphasize that active music interventions generate more consistent improvements in cognitive functions involved in communication, outweighing the effects of passive *music listening* interventions (Bleibel et al. 2023). This trend is confirmed by meta-analyses that show that direct participation in musical activity favors access to procedural and emotional memory, contributing to the maintenance of forms of verbal expression that otherwise progressively degrade (Madera-Cimadevilla et al. 2024).

An essential theoretical contribution is provided by the study carried out by Clare and her collaborators, which describes how music can transform the interactional environment of people with severe dementia by creating a multisensory communicative framework. Ethnographic observations and video analysis of live music sessions reveal that, in the presence of a coherent musical structure, gestures, looks, facial expressions, inarticulate vocalizations, and body movements are organized into an intelligible nonverbal dialogue, supported by rhythm and tempo (Clare et al. 2020). Music becomes, in this context, a temporal support for interaction, facilitating turn-taking, affective mirroring and the appearance of reciprocal responses even in people who, outside the musical framework, are perceived as “without language” or incapable of relational initiation.

This change of perspective leads to a reconceptualization of music therapy, which cannot be reduced to the status of simple sensory stimulation. Music restructures the communicative space, reducing the pressure on verbal language in its standardized forms and allowing the emergence of alternative modes of expression, such as rhythm, gesture, vocal vibration or nonverbal affective expressiveness. The repetitive and predictable structure of music generates a stable and predictable framework for interaction, which supports the orientation of the person, reduces anxiety and facilitates the reactivation of social engagement. In this sense, music operates as a relational architecture that reconfigures the positioning of the person in relation to others (Rucsanda and Belibou 2022).

The interpretation of these results suggests that music therapy functions as a process of restoring the person, in the sense of recognizing him as a subject capable of responding, even when this response does not conform to the norms of traditional verbal communication.

Musical communication becomes a way of affirming the presence and continuity of the self, providing access to a register of interaction that remains available even after the deep deterioration of the language. From the ethical and clinical perspective proposed by recent research, this represents one of the most important contributions of music therapy in dementia: the rehumanization of the care relationship by validating forms of communication that are often ignored or insufficiently valued (Thompson et al., 2024).

5. Communication and Behavioral/Emotional Symptoms (BPSD)

Meta-analyses published in recent years consistently confirm that musical interventions significantly reduce anxiety in people with dementia, with reported effects generally being of moderate magnitude, with *standardized mean difference* values placed around the threshold of -0.6 , indicating a clinically relevant impact on emotional symptoms (Ting et al. 2023). Similarly, research synthesized in systematic reviews focused on Alzheimer's disease shows that music therapy contributes to the reduction of agitation and depression, even when the effects on cognitive functions prove to be moderate or heterogeneous, thus confirming the value of musical interventions as a non-pharmacological strategy of affective regulation (Moreno-Morales et al., 2020).

The results are reinforced by randomized clinical trials conducted in residential settings for the elderly, where individual music therapy and listening to favorite music were compared with standard care. The conclusions of these trials indicate that both interventions significantly reduce the intensity of neuropsychiatric symptoms and improve quality of life, but also reveal an important difference: music therapy facilitated by a qualified therapist produces more consistent improvements in the patient-caregiver relationship and in the ability to socially engage in daily life (Prick et al., 2024). This difference suggests that the effects of music do not derive exclusively from its sensory or emotional properties, but also from the potential of a musically mediated therapeutic relationship.

A central element of the interpretation of these results is the bidirectional nature of the relationship between communication and behavioral and psychological symptoms of dementia (BPSD). Anxiety, agitation, and depression limit the person's ability to initiate and maintain meaningful interactions, intensifying social withdrawal and reducing willingness to communicate. Conversely, language impairment and difficulty formulating or receiving meaning can lead to frustration, irritability, and behaviors perceived as problematic in care settings, thus fueling the cycle of behavioral distress. These dynamics are clearly

evidenced by observational and qualitative studies conducted in advanced dementia care settings.

However, musical interventions modify this dysfunctional circuit by establishing a flexible relational framework, in which the person's nonverbal reactions are recognized, validated and reflected back through rhythmic or melodic mirroring techniques. The analyses carried out by Clare and her collaborators demonstrate that, within musical sessions, even people with severe deterioration can enter into a coherent relational exchange, thus reducing their feeling of helplessness and diminishing the need for disruptive behavioral expression (Clare et al., 2020). Music works as a mediator of communication, providing predictable temporal structures that allow the person with dementia to reorient themselves outwards and regain their position within social interactions.

This function of communicative and affective regulation explains why music therapy is considered, in the contemporary literature, not only a complementary intervention, but one of the most effective strategies for rehumanizing care, capable of counteracting isolation, reducing distress and restoring the meaning of interpersonal relationships in severe dementia.

6. Mechanisms: from musical memory to relational security

Understanding how music therapy facilitates communication in dementia requires an interdisciplinary approach that combines neuroscience, developmental psychology, relational studies, and geriatrics. The literature from 2020–2025 converges on the idea that the therapeutic effects of music cannot be explained exclusively in terms of cognitive activation, but are the result of a set of neurocognitive, emotional, bodily and relational mechanisms that interact in well-orchestrated therapeutic contexts. An essential part of these mechanisms relates to the surprising resilience of musical memory to neurodegenerative degradation. Recent imaging studies show that the cortico-subcortical networks involved in music processing, especially those associated with procedural and affective memory, remain relatively well preserved compared to systems affected early in Alzheimer's disease, such as the hippocampus and medial temporal regions. This peculiarity explains why emotional reactions to music and the ability to recognize familiar melodies persist even in advanced stages of the disease (Madera-Cimadevilla et al. 2024). Music thus becomes a privileged vehicle through which one can access fragments of identity and intrapsychic resources that are difficult to access in other ways.

In addition to the neurocognitive substrate, music operates as a powerful emotional regulator. Meta-analyses in recent years show that musical interventions reduce cortisol levels and psychological tension, generating an affective climate that facilitates openness to relationships and social participation (Ting et al. 2023). The emotional reaction evoked by music is not just a pleasant side effect, but a central mechanism that decreases the activation of stress systems and allows the person with dementia to better tolerate interpersonal interaction. In a disease in which anxiety and agitation frequently block communication, this affective stabilization creates the premises for the emergence of forms of expression that would otherwise be inaccessible.

Music also functions as a temporal architecture for communication. Rhythm, repetition, and musical structure provide a predictable framework that organizes the movements, looks, and vocalizations of the person with dementia. Qualitative studies in care settings have observed that, in the presence of music, participants spontaneously enter into sequences of body synchronization, affective mirroring, and mutual regulation of movement, generating a form of coherent nonverbal communication, even in the absence of discursive language (Clare et al. 2020). This "shared rhythm" functions as a bridge between therapist and patient, facilitating the emergence of a bodily dialogue in which meanings are negotiated through gestures, facial expressions and fluctuations in sound intensity.

Beyond neurocognitive and behavioral mechanisms, recent literature emphasizes the crucial importance of the relational framework. Realistically, the review published in *Nature Mental Health* shows that music therapy becomes effective when it creates a safe, predictable and non-evaluative relational space, in which the person with dementia is treated as an interaction partner and not just as a passive beneficiary of an intervention (Thompson et al. 2024). In this context, the music therapist does not only act on the patient, but co-constructs with him a communication environment in which nonverbal reactions are interpreted as legitimate forms of response and are integrated into the interactional flow. This approach significantly changes the dynamics of care, as it no longer aims to correct disruptive behaviors, but to support the relational potential of the person with dementia.

An emerging element of current research is the emphasis on corporeality as a vehicle for communication in dementia. Repetitive movements, rhythmic swings or spontaneous reactions of the body become signals through which the person with dementia expresses his affection, intention or willingness to interact. Music amplifies and structures these signals, making it easier for the therapist and caregiver to interpret them. This process transforms the interaction into a multisensory exchange, in which communication is achieved through a

combination of voice, rhythm, vibration, body positioning and affective expressiveness.

From a clinical point of view, the explanatory mechanisms of musical communication in dementia do not work in isolation, but in synergy. The resilience of musical memory allows you to access emotions; emotional regulation reduces anxiety; the rhythmic structure facilitates synchronization; synchronization creates the relational bond; and the relational framework restores the dignity and continuity of the self. Research from 2020–2025 supports the idea that these mechanisms, when properly orchestrated, can profoundly transform the experience of communication into dementia, shifting the focus from deficit to possibility and from loss to presence.

7. Intervention environments: from geriatric wards to the home and online living room

The extension of musical interventions beyond institutional settings is one of the major directions of recent research, reflecting demographic changes, pressure on care systems and the need to develop sustainable therapeutic models for the domestic context. Studies exploring home music therapy for couples consisting of a person with dementia and their partner have shown that the guided use of their favorite music, combined with structured music therapy sessions, can stimulate the responsiveness of the affected person, improve emotional mood and strengthen the sense of connection and intimacy in the couple's relationship. These interventions not only reduce neuropsychiatric symptomatology, but rehabilitate dimensions of relational life profoundly affected by cognitive decline, providing partners with new ways to communicate where verbal language becomes precarious (Rosenbach et al. 2023).

In parallel, the development of online musical interventions has opened up new therapeutic possibilities, especially in contexts where physical access to services is limited, as was the case during the COVID-19 pandemic. Programs such as *Meeting Through Music* demonstrate that digital platforms can maintain the continuity of therapeutic interactions, facilitating communication and affective regulation even in the absence of physical co-presence. Although the online environment introduces obvious constraints – delayed audio transmission, diminished body resonance, and difficulties in synchronization – preliminary results suggest that music retains its relational support function and can generate emotional and behavioral responses relevant to therapeutic processes (Hsu et al. 2021).

This diversification of intervention contexts raises important methodological and ethical questions, which become central in delimiting the standards of practice in contemporary music therapy. The quality of the therapeutic relationship in the online environment is a major concern, as musical interaction is fundamentally based on synchronization, presence and multisensory feedback — elements that are potentially distorted in digital spaces. The training of caregivers also acquires increased relevance, as they take active roles in facilitating communication between sessions, transforming from spectators into informal co-therapists who support the continuity of the musical process. The current literature emphasizes that the effectiveness of home or online interventions depends largely on the ability of caregivers to use music not only as a stimulus, but as a communication tool adapted to the particular needs of the person with dementia.

In addition, the extension of musical interventions in diverse cultural contexts requires critical attention to the repertoires used and their socio-identity meanings. Recent studies on the care of Sami people have shown that the use of traditional repertoires, such as *yoik*, can facilitate a deep sense of identity continuity and produce distinct emotional effects from Western standardized music, highlighting the need for cultural adaptation of interventions (Weller et al., 2021). In other contexts, religious or folk music can activate autobiographical mnemonic networks or bring emotional benefits that cannot be replicated through culturally neutral repertoires.

Overall, the emerging directions in the recent literature show that music therapy in dementia can no longer be conceived exclusively in institutional settings, but must be seen as a continuum of versatile, context-sensitive interventions capable of supporting communication and human relationships in a diversity of environments. This conceptual expansion forces the rethinking of evaluation methodologies and ethical responsibilities, within a practice that expands its boundaries with the needs of the people it serves.

8. Limitations of the literature and methodological challenges

Although the general consensus in the literature supports the effectiveness of music therapy in relieving the emotional, behavioral, and relational symptoms of dementia, systematic reviews published in recent years highlight a number of recurrent methodological limitations that influence the consistency of results. A first major problem is the small sample size and their pronounced heterogeneity, including participants at very different stages of the disease and coming from various care contexts, which complicates the generalization of the conclusions (Lam

et al. 2020). Similarly, the variability of intervention protocols—in terms of duration, frequency, intensity, and content of sessions—makes it difficult to directly compare studies and limits the ability to precisely determine which therapeutic components are responsible for the observed effects (Moreno-Morales et al. 2020).

Another major limitation identified by the recent literature concerns the absence of standardized tools for evaluating communication in musical interventions. Although most studies focus on reducing BPSD symptoms and global cognitive indicators, far fewer use validated tools to measure interaction, nonverbal expressiveness, or therapeutic relationship quality, which are essential aspects in understanding how music works as a communication medium (Bleibel et al. 2023). The lack of longitudinal assessments is another significant limitation: few studies include follow-ups at a distance long enough to determine the durability of effects, despite the fact that maintaining benefits over time is a fundamental clinical objective (Prick et al. 2024).

The direct comparison between music therapy led by certified therapists and generalized music interventions, such as personalized playlists or group music activities facilitated by non-specialized personnel, remains methodologically difficult. This is explained by the fact that non-specialized interventions do not include the relational component specific to music therapy, which makes it problematic to isolate the effect of music as a stimulus from that of music as a tool for communication and interpersonal co-regulation. Large-scale clinical studies published in high-impact journals have drawn attention to this distinction, showing that unstructured interventions can only partially reproduce the effects of the complex musical therapeutic process, which involves synchronization, mirroring, and affective negotiation (Baker et al. 2022).

These methodological limitations do not invalidate the benefits reported in the literature, but indicate the need for research directions that integrate much finer measures of communication, including systematized video analysis, encoding of micro-sequential interactions, and social engagement indicators. Emerging studies emphasize the importance of explicitly investigating music as a therapeutic language, not just as a global stimulus, which involves examining how rhythm, melody, timbre, and musical structure become vehicles for expressing and receiving affect in severe dementia (Clare et al. 2020). From this perspective, strengthening the paradigm of music as a medium of communication is one of the most important development directions for future research, providing a more precise framework for evaluating the mechanisms by which music therapy produces relevant clinical effects.

9. Conclusions

The analysis of the recent literature confirms that music therapy is one of the most promising non-pharmacological interventions for the improvement of emotional, behavioral and relational symptoms of dementia, providing a therapeutic framework capable of restoring forms of communication where verbal language is profoundly damaged. Evidence accumulated over the past five years indicates that the effectiveness of music does not derive strictly from its sensory or aesthetic character, but from a combination of neurocognitive, emotional, bodily and relational mechanisms that work in synergy to reconstruct the experience of communication in dementia. The persistence of musical memory, intense affective reactivity to music, and rhythm's ability to organize interaction support the emergence of coherent nonverbal communication, even in the advanced stages of the disease (Madera-Cimadevilla et al. 2024).

The favorable effects observed in reducing anxiety, depression and agitation, confirmed by meta-analyses and randomized clinical trials, highlight the potential of music to function as an environment for affective co-regulation and restoration of social connectivity in contexts where isolation and withdrawal are major risks (Ting et al. 2023; Prick et al. 2024)

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