

Effects of an Active Musical Intervention on the Health of Older Adults Living With
Dementia: the DeMúsica Study, a Cross-over Trial on a Non-pharmacological
Intervention

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Introduction

The global population aged 60 and over is projected to continue growing, leading to an increased prevalence of health conditions common in this demographic (1, 2). Mexico is experiencing accelerated population aging, which presents the challenge of meeting the needs of these individuals in a shorter timeframe (3) (see Figure 1).

Dementia is highly prevalent in the older adult population, with projections indicating approximately 150 million people will be living with the condition by 2050 (4). In Mexico, the reported prevalence of dementia is 14% in women and 10% in men (5).

While various types of dementia exist, Alzheimer's disease is currently the most common, followed by vascular dementia. A third type, known as mixed dementia, results from the simultaneous presentation of both (6).

Dementias significantly impact both the mental health (see Figure 2) and physical health (see Figure 3) of affected individuals (4, 7-9). The negative impact extends beyond the individual, disrupting family dynamics due to the diverse clinical manifestations of these conditions and the extensive care needs of the person living with the disease (10).

Despite significant advancements in dementia management in recent years (e.g., monoclonal antibodies for early-stage Alzheimer's disease), available treatments remain limited, and the prognosis for disease progression has changed little (11). Non-pharmacological treatments are part of the therapeutic arsenal for caring for these patients and have demonstrated their utility across various manifestations of the disease (see Figures 2 and 3) (8, 12).

These treatments undergo a rigorous methodological evaluation of their effects, adhering to guidelines regarding their characteristics. These guidelines typically encompass the components of the intervention, proposed mechanisms of action, and anticipated changes or outcomes (12).

The use of various musical elements has shown a positive effect on individuals with dementia, ranging from promoting reminiscence for cognition to improving mood and providing physical health benefits (13-17). One strategy, 'Music for Life,' developed in the 1990s by Linda Rose, utilizes musical improvisation led by professional musicians to enhance the care of older adults with this condition (18, 19). This program has demonstrated positive outcomes and was recently introduced in Mexico for adaptation by Maestro Israel Castillo Hernández. Although 'Music for Life' has been in operation for over two decades, its reintroduction in Mexico aims to explore its effects on a broader range of outcomes than those described in previous studies.

Given the information above, a crossover clinical trial is proposed to investigate the effects of this intervention on a range of physiological variables, cognitive tests, and biomarkers, among other outcomes, in older adults living with dementia and their caregivers.

General Objective

To determine the effect of a music intervention based on improvisation on the health status of older adults living with dementia.

Specific Objectives

1. Describe the effects of an improvisation-based music intervention on the mental health of older adults living with dementia.

2. Investigate the effects of an improvisation-based music intervention on the physical health of older adults living with dementia.
3. Evaluate the effects of musical improvisation on the primary caregivers of older adults living with dementia.

Hypothesis

Older adults living with dementia who receive an improvisation-based music intervention will demonstrate improved cognitive and physical performance.

Research Question

What are the effects of an improvisation-based music intervention on the overall health status of older adults with dementia?

Relevance of the Proposal

Music has played a pivotal role in the care of older adults. Cognitive challenges have perhaps seen the most benefit from these types of interventions. However, the comprehensive impact of music on both mental and physical health remains largely unexplored. Previous research has not utilized highly precise measurement instruments to assess the effects on issues that are particularly burdensome for the health of older adults. Gaining clarity on the health impact across various levels of the individual, and including the impact on their environment, will not only improve the care of these older adults but also contribute to answering existing questions and posing new ones about the relationship between music and the mind.

Methodology

A pilot study facilitated the formation of the initial research team. This will be followed by a randomized, blinded, crossover study design to test the effect on various health variables in older adults (see Figure 4).

Patients with a history of memory complaints or a previous diagnosis of mild or moderate Alzheimer's, vascular, or mixed dementia, among other characteristics (see Table 1), will be invited to participate. Once selected (diagnosis will be screened or corroborated), they will be randomized (see Figure 4), and a baseline evaluation will be performed (see Table 2). The intervention will consist of two-hour sessions over eight weeks (see Table 3). At the end of the intervention, a post-intervention evaluation will be conducted, followed by a washout period. Subsequently, the second intervention cycle will be performed. Finally, an intention-to-treat analysis will be conducted using mixed-effects models.

Expected Outcomes

Evidence will be obtained regarding the effects on the physical and mental health of older adults suffering from dementia, allowing for the establishment of causal pathways and questions that lead to new protocols. Furthermore, having this data available for exploitation by young researchers would open new approaches to understanding the phenomenon. The results will enable the refinement of intervention processes and better focus on the activities performed to maximize the benefit obtained by the intervention subjects. Moreover, they will be useful for proposing broader strategies with an impact on a larger group. Finally, it is expected that this project will initiate a permanent line of research linking arts with the health of older adults.