

Relationship of Music Therapy on Alzheimer's Disease and its impact

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Abstract: Dementia is a disease which causes damage to the brain and gradually it is developed from time to time. As Stated By medical research, it's more than 200 subtypes and provokes dementia with Alzheimer's disease (AD) which occurs in most of the old-age people. AD is an unchangeable growing autoimmune problem which affects Daily life cognitive process activities like thinking skills are disrupted. In the Advanced progressive stage the thought process falls down and easy tasks make them critical and unworkable. AD Patients and families life quality transfers drastically and it affects very badly on caretakers bodied & psychiatric conditions. This survey explains the writings of research in order to disclose the advantage of appealing non-developmental interference like canonic music therapy to upgrade the AD Patients life of the quality. The report purpose is to focus on the footprint of this AD on the caretakers life. AD patients finding better by Symphonic music therapy which showing sound results in the treatment and improved acculturation and the keeping there dignity & reputation of the life.

Keywords: Dementia, Alzheimer's, Autoimmune, Cognitive process, Psychiatric Conditions, Canonic music therapy, Symphonic therapy, Caretakers, Acculturation.

1. Introduction:

Dementia is a set of irregular conditions by the planetary, atrocious, neoteric, intensifying, and unalterable analytical, non-generation of the total psyche, initially affecting coherent functions, inner and spiritual life, social manner, and has been Observed for many years. According to literature, AD is the first reason of Dementia. Ensuing the recognition of amyloid(A β) and Tau proteins, data on the idiomatic expressions and molecular contagious aspects were obtained, but not adequate to explain the a etiology[1,2]. Dementia in AD is a critical civilized and medical condition, attacking diagnosed persons, families and the community. Persons who are affected by this illness gradually they are losing their quality of life so the Dementia in AD progressively influencing the society people life of quality. As a result, a specific care plan is needed, which adds both economic and psychological prices [3]. stress-related illness caused by involving conscious mental activities like thinking, understanding, learning, remembering and illogical, eristic, unscientifically along with emotional or inner or spiritual consequences. A lot of articles in literature give data about Dementia and several research has been spotlighting on medicinal instructions for handling the symptoms of the conditions and dementia in common. Drug treatment cost research i.e pharmacoeconomic study tells about incremental cost effective ratio information and therapeutic implications. Recently some of the therapeutic organizations and psychologists have informed about tools of dementia assessment [1, 4]. Dementia assessment tools (DAT) gives information about the condition of the person, disease stage and response to therapy [5]. Furthermore it can explain how it affects the people from the patient's perspective too. Quality of life speaks for " multidirectional theory or multidimensional concept" and sparked universal debate. Various quality of life assessment readings have been implemented for susceptible groups over the years [1,9]. But these evaluation tools need an administrator who's taking care that the performance is high standard. Personality disorders affect persons with AD, minimizing their families and their life of quality. AD patients have a bounded capability to demonstrate themselves. And they can have trouble navigating a complex system of physical and mental assistance, in contrast to AD disorder persons with different psychiatric pathologies. AD is classified as monogenic pathology in the worldwide classification of behavioral and mental conditions (ICD-10)), Diagnostic Statistical and manual classification of Mental Conditions (DSM-V) and composition writings. These dangerous diseases have a very slow moving and developmental characteristic nature. According to experts in the medical field, AD is the most common category of Dementia [6]. The associated behavioral signs are distinguished as intrinsic. And with the calculation of the disease problem, it becomes more critical to control the disease progression [7]. Caretakers confront a slew of multiple difficulties which include economical, psychological and physical strains. Research has explained that careers' bodily conditions vary because of long term stress.

And also suspect a high risk of developing cardiovascular disease mainly very high blood pressure [8]. In spite of efforts to medicate this neurophysiologic stage, no remedy or solution has been found. And the delicacy or the weakness of these patients grows day by day with dementia development. So patients of dementia needed best interdisciplinary and open-minded interaction with their family members. The WHO first commenced in 1947, about the theory of quality of life, which explained about non appearance of disease, disability and good health [10]. According to writings quality of life first time mentioned in the literature in 1960 which is posted in 2014 with the details of statistics of quality of life standards, it became a countersign of in the medical research information in 1975[13-16]. Non pharmacological theories are explained by Olazaran et .al, According to his concept , patients will get better improvement of dementia and quality of life positively. However there are some of the difficulties observed to evaluate multi-dimensional ideas. Caretakers are the ones who utilized the assessment scales the most and it showed them patients quality of life estimation but because of these scales rating patients quality life underestimated [11]. The Quick evaluation appraisal makes the caretakers burnout and makes the patients of dementia labile mood [12].

2. Methods and Materials

The goal of this study was to go back through the literature from 2000 to 2021 to see what measures were made to investigate quality of life in persons with Alzheimer's disease who received no pharmacological treatments[17,18,19,20]. Searches of the literature were conducted for this review in databases such as Google Scholar and PubMed. The narrative literature review style suggestions were followed for this study[2,21,22,23]. Keywords used in Search engines like “dementia”, “music therapy”, “Alzheimer’s”, “non-pharmacological”, “alternative therapy”, “art therapy” and “quality of life” for review English articles. The bibliographies of the main papers were also verified for material during the investigation[5,24,25]. The following criteria were utilized in the selection of relevant materials for this paper: non-pharmacological approach, application of non-pharmacological techniques, papers written in English, articles from the years 2000–2021, experimental and/or control groups, publications from the years 2000–2021. Beneficiaries and caregivers evaluation, implemented non pharmacological methods for dementia diagnosed elderly groups, stimulated skills of visual, auditory, or motor[3,26,27,28]. non-experimental and/or control groups, Written in a language other than English, use of solely pharmaceutical treatments for older groups diagnosed with dementia, and exclusive assessment of careers of individuals with cognitive impairment were among the exclusion criteria we employed[1,29,30,31]. We opted to write this report in a narrative manner rather than a methodical one because the outcomes were heterogeneous[8,32,33,34,35]. To help people understand how the articles were chosen, We added a flow chart (Figure 1) and two tables with relevant research data for each form of treatment, Tables 1 for musical therapy and Tables 2 for art therapy.

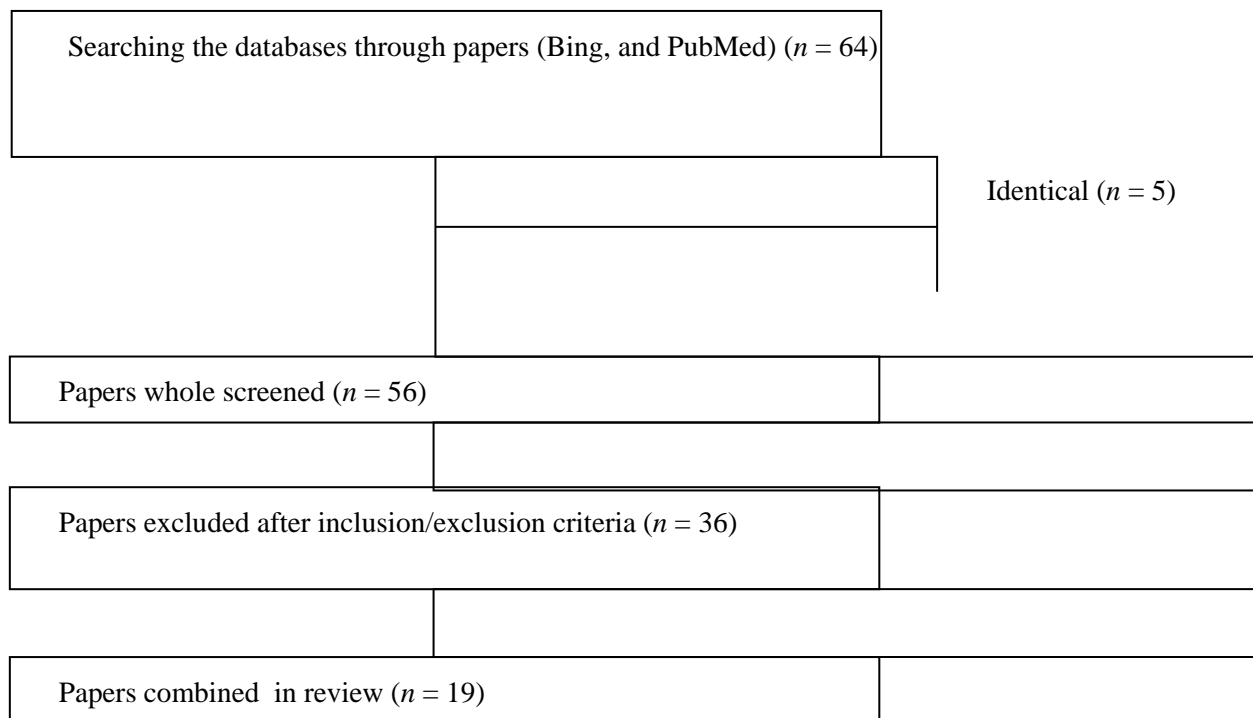


Figure 1. Graph of results; how papers were included, screened and retrieved.

3. Results

3.1. Burden of Caregiver : The Caregiver Strain Inventory (CSI) was administered to 86 carers of Alzheimer's patients in a research that found a connection between the illness severity and burden of caregiver. The study also revealed that the job of caretaker is frequently taken by the wife or daughter of the Alzheimer's patient. According to research studies, caretakers of patients with Alzheimer's disease suffer from a variety of Mental and physical health issues, financial troubles with job loss, and even an increase in mortality, as well as alterations in family connections. Female caretakers frequently experience financial, mental and physical exhaustion[36,37,38]. Their time is always limited, and they risk missing out on a variety of possibilities [13]. They frequently seek emotional methods for making their task much more challenging[39,40,41]. It is generally recognized that effective care services and medical services help the elderly by increasing their mental health, self-esteem, quality of life and new research showthat these advantages extend to family members as well also.

3.2. Music Therapy: Throughout history, attempts have been done to build a comprehensive care plan to enhance people's quality of life, with the goal of improving the effects of medication therapy [14]. Cohen-Mansfield and Werner noted in 1997 that in order to improve the everyday life of the elderly at a residential facility, they must be involved in both pleasurable and stimulating activities. Various studies have attempted to establish the efficacy of music in the treatment of various mental disorders, including dementia [15]. Studies on this issue are difficult since art lends itself more to qualitative than quantitative judgments. Cooke et al. conducted a randomized clinical trial (RCT) in 2010 [16]. Examined the effects of music therapy on persons with dementia who also had anxiety and behavioral problems. Their findings showed that treatments like music therapy or reading therapy were ineffective, with only a few of the individuals showing any improvement [17]. Brotons, on the other hand, have shown that musictherapy sessions enhance speech, behavior, and depression symptoms [18]. The previously cited study found that musical therapy increased speech content and fluency more than oral sessions with a trained therapist, as measured by the WAB's spontaneous speech subscale. In addition to conventional drug treatment, a randomised parallel-design controlled trial is currently underway to assess the effects of reminiscence therapy on cognitive, emotional, behavioral, and psychological symptoms, as well as daily living activities in patients with dementia. Musical therapy is also being investigated [19]. Individualized recreational treatment was proven to benefit dementia patients by lowering their distressing behavior, which was classified as passive (lack of initiative or motivation), agitated (wandering, verbal or physical violence), or mixed (all three) [20]. In a nursing home environment, relaxing music and hand massage, or a combination of both, were used to reduce agitation in older patients, with the results indicating that therapies done independently give the same effect as combining the two types of interventions[21]. In a nursing home environment, relaxing music and hand massage, or a combination of both, were used to reduce

agitation in older patients, with the results indicating that therapies done independently give the same effect as combining the two types of interventions [22,23]. Long-term results from engaging nursing home residents with Alzheimer's disease in recreational activities such as songs and games that encouraged eye-hand coordination, cognitive , range of motion, circulation functions and respiratory have been unsatisfactory, while the state of effect during and immediately after the activities has shown only modest signs of improvement [24]. Short-term benefits were also seen in case-control research conducted by H. B. Svansdottir and J. Snaedal, before and after musical therapy intervention, looked at the dynamics of activity disruptions, anxiety and aggression. There was no improvement in delusory ideation. Four weeks after the treatment was stopped, the impact had faded [25]. Mood swings, eating and gregarious instincts, nictemeral rhythm, and cognitive function have been researched throughout history, with depression being particularly prevalent among the elderly. Depression has been linked to variations in cortical levels in the human body in specialised research[26-28]. Corticosteroids are hormones that play an important function in the human brain and have been linked to notable changes in mood and eating patterns. Cortisol, the primary glucocorticoid, has the capacity to cross the BBB due to its lipophilic nature and produce alterations in the HAA. Multiple studies have found a link between high cortisol levels and symptoms of Alzheimer's disease, notably affective symptoms. Holland et al. reported elevated cortisol levels in institutionalised elderly individuals [29]. Although the findings were not definite in this regard, an improvement in disposition was noted, which was not reversed after the trial finished, according to Chu et. al RCT .s on the cortisol level in the saliva of older persons participating in a music therapy program[30]. According to research published in 2018 by Lyu et al., music therapy was found to be more successful than alternative approaches increased at the same time such as reading song lyrics in about 300 individuals with Alzheimer's disease, and the quality of life of their family members [31]. One of the issues of psychomotor agitation in caregivers for dementia persons of any sort encounter, and quite distressing episodes. Depending on the study[12,32,33], Numerous researchers have used a person-centered strategy(PCS) to perform randomized investigations in various senior facilities, in which the music therapist used several series of sessions for up to 18 weeks. The findings indicated that music therapy had a substantial beneficial effect, which was linked to changes in disruptive behavior and a reduction in the amount of psychotropic drugs used during therapy. However, to support the long-term improvement hypothesis evidence is insufficient. Certain creative habits and talents are thought to be controlled by the right cerebral hemisphere. Researchers discovered that in patients with neuro cognitive problems and aphasia caused by left hemisphere lesions, the functional musical residue is preserved. As a result, some medical professionals have opted to employ music therapy not only to improve social skills and mood symptoms, but also to aid dental rehabilitation and respiratory(DRR) control. Patients can improve specific abilities in musical activities while also engaging in respiratory gymnastics once they are immersed[34-35]. Medical study in the subject of cognition has occurred throughout history to aid in the development of prospective treatment approaches, and numerous blood biomarkers have been found that have been linked to the development of neuro cognitive diseases(NCD). plasma levels, -amyloid plaques and leukocyte telomeres are among the neuro-degenerative components that have been investigated. According to several studies, the accelerated AD ageing process is linked to short leukocyte telomeres; nevertheless, further research is needed, and there is no universal agreement to completely support the concept. To test these ideas, randomized studies were done, such as Innes et al., a study on the impact of alternative treatments [36-41]. Affects blood biomarker levels, habits and improvements in quality of life, such as meditation and music therapy. However, further required research [17-25,30-33,40,41].

Table1 contains musical therapy important studies and Table2 contains musical therapy research characteristics.

3.3 Therapy of Arts : Based on research, art may be a good companion for progressive dementia patients. Art therapy is employed as a supplement to conventional treatment procedures, which should potentially help patients with AD, retain functional control ,halt cognitive decline, and enhance quality of life [35,42,43,44,45]. Art may be utilized as a type of treatment to not only address dementia-related impairments, but also to activate patients' skills. In Alzheimer's disease, the visual cortex function is generally well retained, and the flow of occipitofrontal ventral recognition is maintained. As a result, the retention of motor and sensory capabilities in the cortex combined with delayed impairments in motor and visual functions allows for the creation of art, even if it is not high quality but rather abstract. The limbic system's relatively have good preservation facilitates like the expression of pleasant emotions and well-being [42,46,47,48,49,50].

Table 1. Relevant studies for musical therapy.

Alternative Therapy	Diseases or Neurological Disorder	Effects on Patients	Effects on Caregivers	Reference
Group music program	Mild-moderate dementia	Increased verbalization behavior No significant effect on agitation and anxiety	N/A	Cooke M.L., 2010 [17]
Music or conversation interventions	Dementia	Improvement in speech content and fluency after music sessions	N/A	Brotons M, 2000 [18]
Reminiscence therapy (including music)	Evaluation of ADAS-Cog, CSDD, NPI, Barthel Index			
Dementi				

Table 2. Studies characteristics regarding musical therapy.

^a Alzheimer's disease	Design	Study Focus	Intervention Type	Duration	Outcomes Measures
Cooke M.L., 2010 [17]	Randomized cross-over controlled study	Dementia	Experimental group: music therapy interventions (listening)	40 min, three mornings a week for eight weeks	CMAI-SF, RAID
Brotons M, 2000 [18]	Randomized controlled trial	Alzheimer's and related disorders	Music therapy vs. conversation sessions	Twice per week for 20–30 min for a total of 8 sessions	MMSE, WAB, AQ
Li, M., 2017 [19]	Randomized controlled trial	Dementia, Alzheimer's disease	Reminiscence therapy (including musical therapy)	35 to 45 min, 2 times/week for 12 consecutive weeks	ADAS-Cog, CSDD, NPI, Barthel Index
Fitzsimmons, S., Buettner, L.L., 2002 [20]	Quasi-experimental study	Dementia and disturbing behaviors	Individualized recreational therapy interventions	Two weeks of daily, individualized recreational therapy interventions (TRIs)	MMSE, CMAI, Passivity in Dementia Scale
Remington, R., 2002 [21]	Randomized cross-over controlled study	Dementia, Agitated behavior	Experimental	10 min exposure to either calming music, hand massage, or calming music and hand massage simultaneously	CMAI, Ward Behavior Inventory, Confusion Inventory
Van de Winkel A., 2004 [22]	Randomized controlled trial	Dementia	Experimental	3 months of daily physical exercises supported by music for 30 min/session	MMSE, ADS 6, BOP Scale
Sung, H., 2006 [23]	Randomized controlled trial	Dementia	Experimental group receiving group music with movement intervention	30 min, twice a week for 4 weeks	Modified CMAI, Likert Scale
Schreiner, A.S., 2005 [24]	Randomized control trial	Dementia, Alzheimer's	Structured observation	Structured recreation activities (including musical therapy)	Philadelphia Geriatric Centre Affect Rating Scale, MMSE
Svansdottir H.B., Snaedal J., 2006 [25]	Case-control study	Moderate or severe Alzheimer's disease	Experimental group: music therapy interventions	18 sessions of music therapy, each lasting 30 min, three times a week for 6 weeks	BEHAVE-AD
Chu H., 2014	Randomized	Dementia,	Experimental group: music therapy	30 min sessions/twice	

Conclusions: For Alzheimers dementia patients, Music therapy is a better, safe and well bearable intervention to the patient. The positive outcomes came to support the music therapy on psychological expression, family and community relationships and perceptual symptoms through slow down the cortisol levels and as a outcome symptoms like schizophrenia, to a low extent, depression, anxiety reduction and behavioral expressions and aggressions of the patients with dementia has been observed. However, some of the limitations will need to prove so further investigation has to continue for the purpose of long term benefit. Although analytical performance is observed overtime with slowing the usage of the art as a type of remedy, it has been recognized that this therapy encourages the people with dementia on a sensational level and it may create impressionistic advantage. By stimulating cortical area, art therapy upgrades cognitive methods, such as processing of information, spatial-visual attention, long term memory, as well as more encouragement on remaining patients' talents. It gives the opportunity to caretakers to find the expressions, the thoughts and feelings of the dementia patients. The beneficiary of these therapies can share their memories with the painting, creative projects and drawing. There is an upgrading realization that art and music can enhance the quality of life of Alzheimer's disease patients, and that improves happiness and better life may be possible through these interventions. Music and art therapy gives the dementia's patients a better quality of life. As a result, this methodology represents a positive approach that will show an essential further research investigation and gives the opportunity of attentiveness regarding these therapies to the medical and social workers.

Discussion: According to the literature, using unprecedented, non medication treatments like alternative or substitute therapies may be useful to individuals in the form of Alzheimer's dementia improvement and maintenance to the quality of life. To Support such a notion, still needed well structured clinical investigation and experiment research. The majority of the literature tested utilized small samples of persons; getting statistics in this area is very challenging. Due to lack of defined instruments and less time of this analysis another problem occurs in the implementation of varied procedures in pre-, intra and post therapy evaluations. Careful examination of this disease stage showing the level of analytical impairment is important for the best form of therapy. and it will evaluate the abilities and progresses are lost along the road[43-48]. AD patients who are in the stage of mild /moderate will be better to compare advanced stage patients who are facing the difficulty in their daily life activities so they needed special care and motor and sensory dysfunctions are several required and more severe. Although analytical deterioration is proceeding, randomized restricted trials have found that using both Music and Art therapies benefitting the people with dementia and improving indicator assessment scores and improving and influencing the adults quality of life with Alzheimer's disease[49]. In this paper, we categories into two different forms of therapies i.e Art Therapy and music therapy. These therapies have combination of sensational and motor function processes (eg. drawing and painting). The Art therapy Section showed the advantage of innovative activity though the application of cognitive and motor skills. And we observed in the other section of category i.e Music therapy showed the lightning in depression, trimming in anxiety and to a slight extent, behavioral aggression symptoms also reduced by the Music Therapy. The research has explored the implementation of undetected talents through rediscovery or recollections have been proposed in the research methodology as a significant participation allowance to implement a mental wellbeing type[35,49,50]. The Music therapy and art therapy forms are the low-expensive and non- invasive, these therapies performance is very effective and appreciable. Due to implementing such therapeutic treatments decreases the group membership, maintenance of social standards, socialization and Isolation.

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