

## Music Therapy with Alzheimer's Patients and Their Family Caregivers: A Pilot Project

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*The purpose of this paper is to present the results of a pilot project sponsored by a private foundation in Spain ("Fundació la Caixa"), in order to demonstrate some of the applications of music therapy, and to measure more systematically some of its effects on people with a probable diagnosis of Alzheimer's Disease and Related Disorders (ADRD) in early-moderate stages of the disease, and their family caregivers. Subjects for this project were 14 patients (5 women and 9 men) with a probable diagnosis of Alzheimer's disease, and 14 family caregivers (9 women and 5 men) from a rural area outside of Barcelona. Their age range was 70 to 80 years. Prior to the beginning of the project, a neuropsychologist specialized in gerontology administered a series of standardized tests to the participants. These same tests were administered again 2 days before the end of the project and 2 months later for follow-up purposes. The results of the satisfaction questionnaire showed that the caregivers perceived an improvement in the social and emotional areas of their patients, and statistical tests showed significant differences between pre and posttest scores in the following tests: (a) Dementia Scale ( $X_2 = 12.29$ ,  $p = .002$ ), (b) NPI ( $X_2 = 17.72$ ,  $p = .001$ ), (c) the Cohen-Mansfield agitation scale ( $X_2 = 11.45$ ,  $p = .003$ ), (d) Burden Interview ( $X_2 = 9.19$ ,  $p = .01$ ), (e) Memory and Behavior Problems Checklist (frequency subscale) ( $X_2 = 11.09$ ,  $p = .004$ ), (f) STAI-S ( $X_2 = 14.72$ ,  $p = .001$ ), and (g) Beck's Depression Inventory ( $X_2 = 9.38$ ,  $p = .009$ ). These results and their implications are discussed extensively.*

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The incidence of dementia is rising steadily world-wide, in part due to the increase in average life expectancy observed over the last century (Khachaturian & Radebaugh, 1996). Prior to the late 1980s, the literature addressing clinical situations described a largely undifferentiated dementia population. However, toward the end of that decade professionals started referencing and paying more attention specifically to the Dementia of the Alzheimer's Type (DAT) (Prickett, 1996), also known as senile dementia of the Alzheimer's type (SDAT) and Alzheimer's Disease and Related Disorders (ADRD). In Spain, at present there are an estimated 400,000 people affected by ADRD, 60,000 of which are in Catalonia (Associació de Familiars d'Alzheimer del Baix Llobregat, 2002). It is well known that this population presents serious challenges to our society, and although there is no cure, much can be done to alleviate their problems and improve their daily care and ultimately, their quality of life.

During recent years, empirical and clinical efforts to delineate and adequately meet the physical, psychological, and social needs of the elderly have burgeoned (Finnema, Dröes, Ribbe, & van Tilburg, 2000). Numerous observations and informal reports over the last two decades have led to the belief that music may offer a unique component to the treatment of the elderly with ADRD (Aldridge, 1993; Christie, 1992). These reports, either presented verbally or through association newsletters, as well as the testimonials presented at the senate hearing (Special Committee on Aging, United States Senate, 1991), have triggered an increasing number of research studies. The results of these empirical studies have demonstrated the effectiveness of music therapy to ameliorate a variety of symptoms manifested in the process of the disease. Brotons, Koger, and Pickett-Cooper (1997), later updated by Brotons (2000) conducted an extensive review of literature published since 1985 in the area of music/music therapy and dementias and categorized, coded and summarized the research outcomes. These results have been further confirmed by the results of a meta-analysis in the area of music therapy and dementias (Koger, Chapin, & Brotons, 1999), and those of most recent studies. Overall, music therapy has appeared to be an effective intervention to improve a variety of cognitive, social-emotional, and behavioral skills affected by the dementia process, specifically: anxiety, agitation, restlessness (Gerdner, 1999), depression withdrawal, disorientation (Ashida, 2000; Kydd, 2001), rapid mood changes (Götell, Brown, & Ekman, 2000), short- and long-term memory (Larkin 2001), and lan-

guage difficulties (Brotons & Koger, 2000). Music apparently has the power to provide the Alzheimer's patient with a sense of accomplishment, to energize and stimulate, to trigger words, and to soothe and comfort both the patient and caregiver (Smith, 1990; Tappen, 1994).

Home care seems to be the choice for the majority of people with dementias in Spain ("The Care of", 2001). As a result, caregivers suddenly face a whole set of problems and demands which often require new adjustments and routines, a transition which may be facilitated by music therapy. Clair, Tebb, and Bernstein (1993) conducted a study to determine the impact of music therapy on caregivers' loneliness and self-esteem. Although they did not observe significant differences in caregivers' scores from the beginning to the end of a music therapy intervention, caregivers reported that it was an opportunity for them to learn about new resources that could be used to enhance their relationship with their spouses. In a later publication, Hanser and Clair (1995) describe in great detail two programs for Alzheimer's patients and their caregivers with the purpose of assisting in retrieving losses and making contact among patients in the early stages of the disease and their family members, and to maintain the participation and active involvement in purposeful activities for those in the late stages of the disease. Although no empirical information is included in this report, both programs were qualified as successful by staff and family members. Clair and Ebberts (1997) studied the effect of singing, dancing, and rhythm playing on the participation and social behaviors (i.e., initiating touch and responding to touch) of patients in late stage dementia and their caregivers. Both patients and caregivers participated most during rhythm playing activities. Caregivers initiated touch more frequently than patients but the patients showed the greatest response to touch. Furthermore, although results did not show significant differences between pretest and posttest scores in the caregivers' burden, positive/negative affect, depression, and self-reported health, except for satisfaction with visits, their satisfaction with visits with music therapy reached significance, as compared to visits before music therapy.

Although the interest in, and the establishment of special programs in Spain for Alzheimer's Disease and Related Disorders (ADRD) has become a priority for the government and some private institutions, music therapy is in the process of developing and organizing as a profession, and its applications with the Spanish

population are still limited. In order for this treatment mode to be introduced more firmly and to become accepted as a viable form of therapy by other health professionals, it is necessary to systematically evaluate the clinical interventions to objectively demonstrate its effects, and ultimately to offer the best to each person. Given the dearth of studies in this area, further research is needed to determine the effectiveness and value of music therapy as a treatment approach for dementias in this country.

The purpose of this paper is to present the results of a pilot project sponsored by a private foundation ("Fundació la Caixa"), addressed to demonstrate some of the music therapy applications, and to measure more systematically some of the effects of music therapy on people with a probable diagnosis of Alzheimer's Disease and Related Disorders (ADRD) in early-moderate stages of the disease [Stages 4 & 5 of the Global Deterioration Scale (Reisberg, Ferris, De Leon, & Crook, 1982)] and their family caregivers. Specifically, the objectives of the intervention were addressed to four different groups:

1. For the patients, the objectives were: (a) to increase verbal and nonverbal communication, (b) to improve short-term memory by learning group members' names, and (c) to improve attention and concentration in the musical task.
2. For the caregivers, the objectives were: (a) to offer a space to share experiences and life events, (b) to acknowledge and accept personal losses, and (c) to learn self-care strategies.
3. For patients and their caregivers, the objectives addressed were: (a) to enhance participation and cooperation in group tasks, (b) to foster self-esteem by experiencing success, and (c) to facilitate expression and communication through music experiences.
4. For the staff, the objectives were: (a) to offer a space of active learning, and (b) to provide new knowledge on music therapy applied to Alzheimer/dementia patients.

### Method

#### *Subjects*

Fourteen couples (patient-family caregiver) from a rural area outside of Barcelona participated in the project. Five women and nine men formed the group of patients, and nine women and five men the group of caregivers. The mean age for the patients was 75.67 ( $SD = 3.65$ ), and for the family caregivers was 73.17 ( $SD =$

6.1). The patients all lived at home, and had to meet the following criteria to be included in the project: (a) a probable diagnosis of Alzheimer's disease, Stages 4 or 5 of the Global Deterioration Scale (Reisberg et al., 1982), (b) the patients had to be mobile, and (c) the principal family caregiver had to be the spouse. These subjects had never participated in music therapy sessions.

In addition to two professional music therapists, the interdisciplinary team was formed by six nurses (3 for each group) that assisted the patients and their caregivers in their daily basic needs, and 4 recreational activities professionals that organized a variety of activities for the patients and their caregivers throughout the days.

### *Instruments*

The measurement instruments used to evaluate possible changes were administered at three different times by an independent tester, a neuropsychologist specialized in gerontology: (a) 1 week prior to the beginning of the project (pretest), (b) 2 days before the end of the project (posttest 1), and (c) 2 months after the end of the project for follow-up purposes (posttest 2). All the questionnaires were completed by the family caregivers, although the following collected information directly related to the patients:

1. *Barthel Index* (Mahoney & Barthel, 1965). Scale of basic activities of daily living.
2. *Philadelphia Geriatric Centre Instrumental Activities of Daily Living* (PGC-IADL) (Lawton & Brody, 1969). Scale of instrumental activities of daily living which was administered at the beginning and 2 months after the end of the project.
3. *Neuropsychiatry Inventory* (NPI) (Cummings, Mega, Gray, Rosenberg-Thompson, Carusi, & Gornbein, 1994), designed to obtain information on the presence of psychopathology in patients with brain disorders.
4. *Dementia Scale* (Blessed, Tomlison, & Roth, 1968). Scale that assesses the presence of behavior problems in patients with dementia.
5. *Cohen-Mansfield Agitation Questionnaire* (Cohen-Mansfield, Marx, & Rosenthal, 1989). List of 29 agitation behaviors.

To obtain information about the caregivers, the following tests were administered:

1. *Caregiver Burden Questionnaire* (Zarit, Reeve, & Bach-Peterson, 1980). This assesses the caregivers' perception on how the caring for the patient interferes with their physical and emotional well-being.
2. *List of memory and behavior problems* (Zarit & Zarit, 1982). This includes 30 items which evaluate the frequency at which cognitive and behavior problems have occurred in the last week.
3. *State-Trait Anxiety Inventory* (STAI) (Spielberg, Gorsuch, & Lushene, 1982).
4. *Beck's Depression Questionnaire* (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961).
5. Researchers'-designed satisfaction questionnaire (only administered at the end of the project).

In addition to the above listed standardized scales, the music therapists collected daily anecdotal records of the patients' responses in music therapy sessions, particularly on the behaviors related to their objectives.

#### *Procedure*

One month prior to the beginning of the project, the two music therapists on staff met for the first time with the patients and their family caregivers chosen for the project. The music therapists administered a music therapist-designed music preferences questionnaire to gather information on the subjects' previous musical experiences and preferences. Also, an initial music therapy session was conducted to observe participants' general responses to music. After this initial session, the 14 patients and their 14 caregivers were divided in two groups according to their personal characteristics and interests. Each group included a total of 14 subjects, 7 patients and their caregivers.

The project took place in a rural house where the participants stayed for 12 days. The facility was equipped to meet the physical needs of the participants. All the music therapy sessions were in group format. The patients participated in a total of 10 music therapy sessions, patients and caregivers in 7 sessions, and the caregivers alone in 4. The music therapy sessions that involved the patients took place in the morning and included a variety of music activities: music listening, singing, instrument playing, and movement/dance. In addition, the patients and their caregivers together participated in 7 sessions which included instrumental ensembles, and sing-alongs.

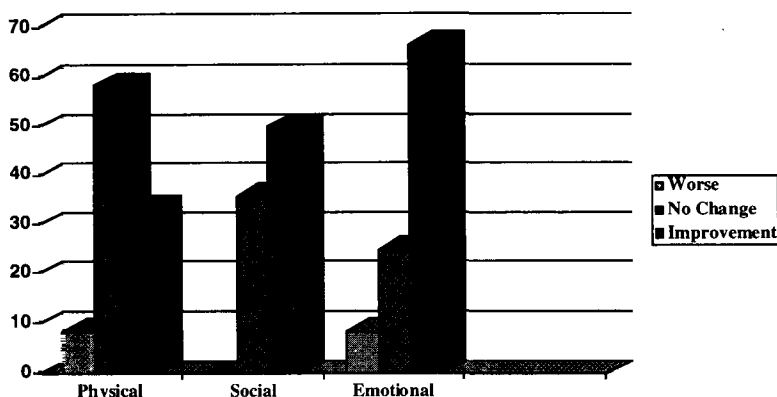


FIGURE 1.

Satisfaction questionnaire: Percentage of changes perceived by the family caregivers in the physical, social, and emotional areas of the patients.

Four afternoons, the caregivers alone participated in music therapy sessions which included activities such as singing, music listening, music relaxation exercises, musical games, and song-writing.

## Results

### *Descriptive Analyses*

Data were analyzed by the Statistical Package for the Social Sciences (SPSS) 8.0 by an independent statistician. The final sample included 22 subjects, 11 patients, and 11 caregivers. Figure 1 shows the percentage of responses on the perceived changes by the caregivers, as reported on the satisfaction questionnaire. Overall, it can be stated that the changes were positive since over half of the family caregivers observed an improvement in the patients' social behaviors (50%), and emotional state (66.7%). On the other hand, only 33% of the family caregivers perceived an improvement in the physical-motor area of the patients.

With regard to the benefits of music therapy on the family caregivers, all the participants agreed that the intervention was positive because it helped them to relax, and 66.7% added that it offered them a pleasant and enjoyable space where they could share and express feelings that had not been able to express before.

### *Anecdotal Records*

The music therapists monitored changes in each patient's sessions through a therapist-designed observation form. This form in-

TABLE 1

*Mean Scores of the Standardized Measurement Instruments*

	Pretest	Posttest 1	Posttest 2
<b>Patients</b>			
Barthel Index	90.83	91.67	92.73
PGD-IADL	4.58	—	4.45
NPI	23.58	5.42	17.18
Dementia Scale	9.33	5.42	8.18
Agitation Questionnaire	6.17	2.33	4.36
<b>Caregivers</b>			
Caregiver Burden	23.25	18.42	20.09
List of Memory and	54.67 <sup>1</sup>	43.58	54.09
Behavior Problems	4.172 <sup>2</sup>	1.92	6.09
STAI-S	49.17	8.83	30.55
Depression Questionnaire	7.58	3.92	5.91

<sup>1</sup>Frequency of memory and behavior problems.<sup>2</sup>Caregivers' reaction towards the memory and behavior problems.

cluded behaviors in the following areas: attention, short and long-term memory, language, social interaction, affection and attitude. In music therapy, an increase in attention span was observed, and an improvement in expressive language and in short and long-term memory, as evidenced by the ability to learn and recall the names of the others members of the group as well as past life experiences. It was observed that the patients progressively changed from prompted to more spontaneous social interactions with the other members of the group. This also was accompanied by a more relaxed and pleasant attitude and affect.

No progress was monitored for the joint sessions (patients and family caregivers).

### *Statistical Analyses*

A Mann-Whitney U test was used to ensure that the two groups of participants and their caregivers (first 2 weeks vs. second 2 weeks) were initially equivalent. The results did not reveal significant differences between the groups.

A Friedman two-way analysis of variance test was used to compare pretest and the two posttest scores for the nine scales and questionnaires used. Table 1 shows the mean scores of the different scales for each of the three testing periods.

With regard to the patients' information, results showed no significant differences in the means obtained in the pretest, posttest 1,

and posttest 2 for the *Barthel Index* ( $X_2 = 2.66$ ,  $p = .264$ ) and the *PGC-IAD* ( $Z = -1.63$ ,  $p = .102$ ). However, significant differences were found in the scores of the *NPI* ( $X_2 = 17.72$ ,  $p = .001$ ), the *Dementia Scale* ( $X_2 = 12.293$ ,  $p = .002$ ), the *Cohen-Mansfield Agitation Questionnaire* ( $X_2 = 11.45$ ,  $p = .003$ ), and in the *List of Memory and Behavior Problems* (behavior frequency subscale) ( $X_2 = 11.09$ ,  $p = .004$ ). Scores of the *NPI*, the *Dementia Scale*, the *Cohen-Mansfield Agitation Questionnaire*, and the frequency of the *List of Memory and Behavior Problems* were significantly lower in the post-tests than in the pre-test.

With regard to the caregivers' information, the results show no significant difference in the *Caregiver Burden Questionnaire* ( $X_2 = 9.19$ ,  $p = .01$ ), and in the *Beck's Depression Scale* ( $X_2 = 9.38$ ,  $p = .009$ ). However, the results of the *STAI-S* yielded significant differences ( $X_2 = 14.72$ ,  $p = .001$ ). The mean scores obtained in the posttests were significantly lower than in the pretest suggesting that the caregivers were less anxious at the end of the project and 2 months later than before the beginning of the project.

### Discussion

Although the sample size was small, this project yielded interesting results. The main objective of this pilot project was to introduce the field of music therapy and to demonstrate, following a systematic process, some of the known effects of this intervention with dementia patients and their caregivers in a country where music therapy is still developing and organizing as a profession. The music therapy procedures used were a replication of the ones used in previous clinical studies in other parts of the world, that have demonstrated positive results in the areas addressed in this study (Brotons & Koger, 2000; Clair, Tebb, & Bernstein 1993; Pollack & Namazi, 1992; Prickett & Moore, 1991; Sambandham & Schirm, 1995). Besides providing music therapy to patients affected by ADRD and their caregivers, one of the most important aspects of this project was to introduce health professionals working in the field of dementias, through live demonstration, to music therapy by involving them in active experiences.

Patient objectives addressed the cognitive and social-emotional areas. Although family caregivers were not informed of the objectives chosen for the patients, it is interesting to note that the positive changes that were most observed in the patients were in these areas, as reported in the satisfaction questionnaire. A few caregivers reported improvements in the motor area, although it was not di-

rectly addressed. This finding was further confirmed by the results obtained in the *NPI*, Blessed et al. *Dementia Scale*, Cohen-Mansfield *Agitation Questionnaire*, and *list of Memory and Behavior Problems* (behavior frequency subscale). It is important to note that these scales measure similar behavioral characteristics, making the results more reliable. It is important to point out that changes appeared to transfer to other daily activities. These were the times when family caregivers could interact and observe the changes in their spouses. Another important aspect is that the positive changes that were observed in posttest 1 were maintained for some time, the scores in the second posttest being lower than in the pretest.

It is well known that behavior problems pose serious challenges and difficulties in the daily caring of these patients. It is well documented in the literature that caregivers suffer physiological, psychological, and social hardships as a result of caring for their dementia patients over a long period of time (Clair, Tebb, & Bernstein, 1993). Therefore, alleviation of these problems can improve quality of life for both patients and their caregivers. Results of this study showed a parallel between a decrease in scores in behavior problems and a decrease in the caregivers' state anxiety. One of the aims of this project was to offer a therapeutic context of support and understanding for the family caregivers. The theoretical frame of reference adopted by the music therapists for the caregivers intervention was "To learn to take care of yourself in order to be able to better care for your loved one". Although the Caregiver Burden Interview and the Beck's Depression Scale did not yield significant differences, scores were lower in the first and second posttest when compared to the pretest, with the lowest scores obtained in the first posttest (at the end of the project). That music therapy seemed to achieve its objectives for the caregivers was further confirmed by their reports on how they perceived music therapy had helped them during the project.

As far as the participants in this project are concerned, it is important to take into consideration the fact that these families come from a rural area with a less open view towards the importance of using and taking advantage of support programs. It is important to note the caregivers' progress, as they experienced the benefits of sharing their concerns and working with specialized professionals, showing a more open attitude towards using the support services available to them in their geographical area. In addition, they all manifested their interest in repeating the experience in the future.

Despite all the positive changes observed, and the maintenance of the patients' improvements 2 months after the end of the project, it is important to comment on the fact that the project took place in a new environment for the patients and their caregivers, and that other variables besides music therapy may have contributed to the positive results.

### Conclusions

We would like to summarize some of the benefits of this project:

1. It has provided an opportunity to replicate music therapy clinical interventions with older people affected by AD and their family caregivers that have demonstrated positive results in other parts of the world.
2. For the family caregivers, it has provided them with the opportunity to observe and experience some of the interventions that patients may receive in professional centers. At the same time, it has alleviated some of the fears of abandonment associated with the idea of taking the patients to day care centers.
3. It has provided the caregivers with the opportunity to share feelings and experiences with other caregivers that face the same problems and situations. At the same time, these caregivers have been introduced to different coping techniques, including music.
4. It has been a unique opportunity to show the powerful benefits of music therapy to medical and health professionals also involved in this project, and its contribution to the treatment and care of people with dementias and their family caregivers.

Apart from some brief isolated experiences, this is the first systematic music therapy pilot program with patients affected by ADRD and their family caregivers carried out in Spain. This, along with additional projects, may have many positive implications for the recognition of the music therapy profession in countries where it is still in the developing stages, and for the generalization of music therapy clinical protocols worldwide.

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