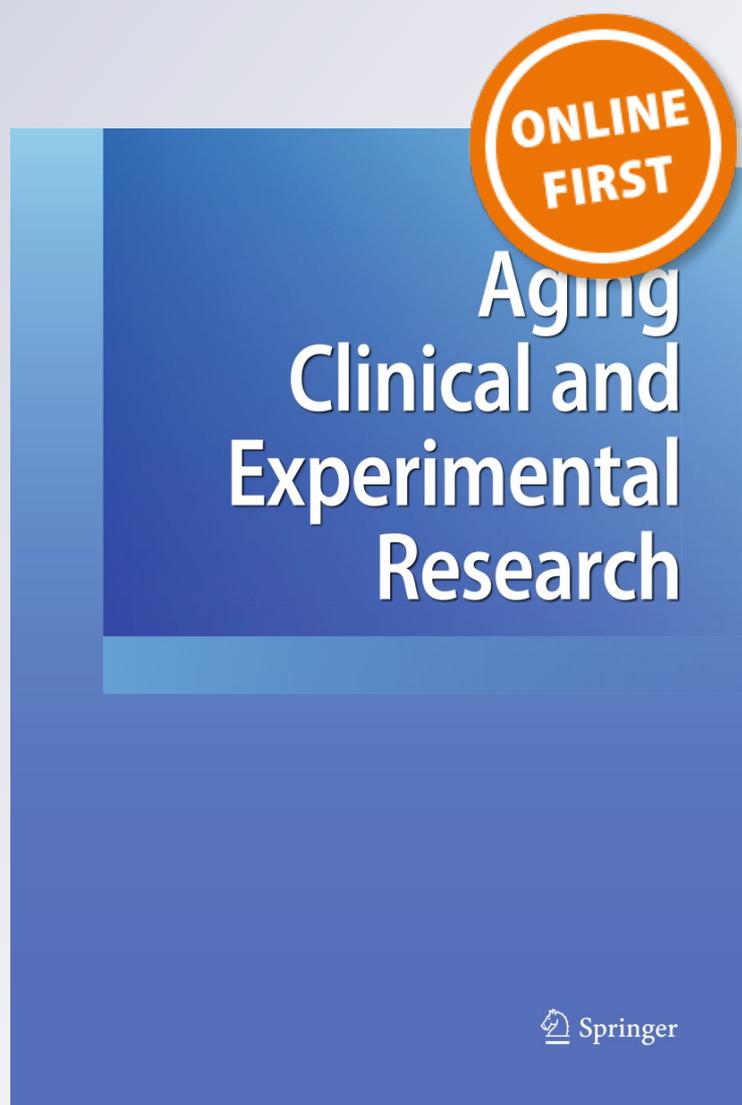# The Global Music Approach to Dementia (GMA-D): evidences from a case report

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The Global Music Approach to Dementia (GMA-D): evidences from a case report

Alfredo Raglio[1] · Stefania Filippi[2] · Lucia Leonardelli[2] · Emanuela Trentini[2] · Daniele Bellandi[3]

Introduction

It is increasingly accepted that the problem areas of older adults (and, even more significantly, those of persons with dementia) involve a wide range of perspectives—from the psychological to the physical and the relational—thus calling for a holistic view, and a consequently eclectic vision of the Person.

Within this view, it is felt that music interventions can play an interesting role.

Music in fact has the power to meet vital human needs such as the maintenance of social relationships, the silent quest for self- and other confirmation of self-esteem, and the possibility of being surrounded by a satisfying atmosphere. Therapeutic interventions with music symbolize some sort of 'psychophysical revitalization' where sound and music take on the roles of activators (as "stimulus"), mind–body organizers (as "form") relational mediators (as "expression").

Therapeutic approaches with music showed significant effects on behavioral and psychological symptoms (BPSD) in persons living with dementia (PwD) [1, 2].

Music interventions can help also the person with dementia to achieve an improved adaptation, facilitating the perception and recognition of the external environment, through new and more harmonious inner frames of reference, versus the impairment induced by neurological damage. Music can also contribute to stimulate, in a natural fashion, cognitive functions such as attention, memory, sensory-motor co-ordination, language, possibly even promoting new learning strategies in connection to an improved organization of the emotional components of the personality [3].

The consequent improvement of relational and social aspects, and therefore, of the overall quality of life, might help to reconstrue a (partial, at least) sense of identity, of personhood even, thanks to the new-born feeling of self-recognition.

A large number of interventions with music, commonly taking place in residential homes for persons with dementia are inspired by the above consideration.

Taking into account the above-mentioned background, a previous article introduced the use of a structured intervention model (Global Music Approach to Dementia, GMA-D) [3] that includes different evidence-based music interventions in dementia care (music-based activities, caregiver singing, individualized music listening, background music) as well as music therapy (MT) sessions (psychological or rehabilitative approaches).

GMA-D model aimed at introducing combined and systematic music interventions on the basis of clinical characteristics, needs, and therapeutic-rehabilitative objectives arising from PwD evaluation. This approach is based on the following crucial points: (a) a clinical assessment in which the music therapist and the healthcare staff (multidisciplinary team) focus on the needs and the residual skills of person; (b) the choice of adequate and tailored music interventions between those of GMA-D model (at least three interventions); (c) a rigorous evaluation of each music activity and of clinical conditions; (d) a continuous flexibility and adjustment of the model taking into account clinical changes that occur over time. GMA-D should be integrated in a balanced rehabilitative program shared with the healthcare staff. A trained music therapist in collaboration with

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the healthcare staff plans and manages music interventions: the music therapist directly provides music therapy sessions and, in the meantime, supports and supervises the whole program. Another important aspect is the role of the music therapist in the field training in which he/she leads the healthcare staff in the GMA-D practice. The standardization of the model and the assessment are also other important points of the GMA-D.

Case description

Mrs. D. is a female, 84 years old, resident in a nursing home, diagnosed with Alzheimer's Disease in 2009 (ICD9, 331.0). At baseline, Mrs. D. shows a moderate-severe level of disease (CDR 3, MMSE n.a.) with BPSD (Table 1). She had been taking Trazodone tablets 150 mg once a day from 8 months before treatment. During the treatment medication was not changed or modified.

Methods

After clinical and MT evaluations and 2 weeks of observation during daily activities, GMA-D was introduced. The aims of the intervention were BPSD reduction and quality of life (QoL) improving. Four activities were selected to be included in GMA-D in addition to standard of care: caregiver singing (familiar songs/improvised melodies sung to or together with PwD, daily, during activities of daily living), group motor activity with music (movement associated to music; weekly, 30 min/session), group music-based interventions (structured music activities—rhythmic use of instruments, singing, etc—weekly, 40 min/session),

active MT sessions (relational approach, bi-weekly, 30 min/session). GMA-D lasted 6 weeks from August to September 2017.

Neuropsychiatric Inventory and Cornell Brown quality of life in dementia (CBQoL) were administered to evaluate, respectively, BPSD and QoL at T0 (before treatment), T1 (at the end of the treatment) and T2 (1 month after the end of the treatment). Each intervention was assessed using the Non-Pharmacological Therapy Experience Scale (NPT-ES, score range 0–15) [4] to evaluate patient's behaviors (participation, pleasure, relationship with others, displeasure and rejection) during music activities. A specific validated scale (Music Therapy-Session Assessment Scale, MT-SAS, score range 0–6+) [5] was used to assess communication, empathetic relationship and emotional involvement in MT sessions.

Results

Table 1 summarizes main clinical results. The treatment strongly improved BPSD (NPI global scores and all selected sub-items) and QoL (CBQoL global scores and related sub-items) although the results tended to worsen at follow-up. The NPT-ES evaluations showed high scores (≥ 10) in all sessions of group motor activity with music (Fig. 1a) and in the group music-based intervention (Fig. 1b). The evaluation of caregiver-singing activity (Fig. 1c) showed a significant increase of NPT-ES scores (scores mean = 11,1) compared to no-music period (scores mean = 6.7). MT sessions also showed high scores in NPT-ES evaluations (≥ 13 in all sessions) and in MT-SAS (≥ 5 in all sessions) (Fig. 1d).

Table 1 Main clinical results of the study

	TO (baseline)	T1 (end of treatment)	T2 (follow-up, 1 month after the end of treatment)
MMSE	NA	NA	NA
NPI (global scores)	32	18	25
Agitation	6	2	6
Disinhibition	6	4	4
Irritability	12	8	6
Appetite and eating	8	4	9
CBQoL (global scores)	− 3	6	− 3
Mood-related signs	− 3	0	0
Ideational disburbances	− 2	− 1	− 3
Behavioral disturbances	− 1	1	− 1
Physical signs	− 1	2	− 3
Cyclic functions	1	4	4

MMSE mini mental state examination, *NPI* neuropsychiatric inventory, *CBQoL* Cornell Brown quality of life
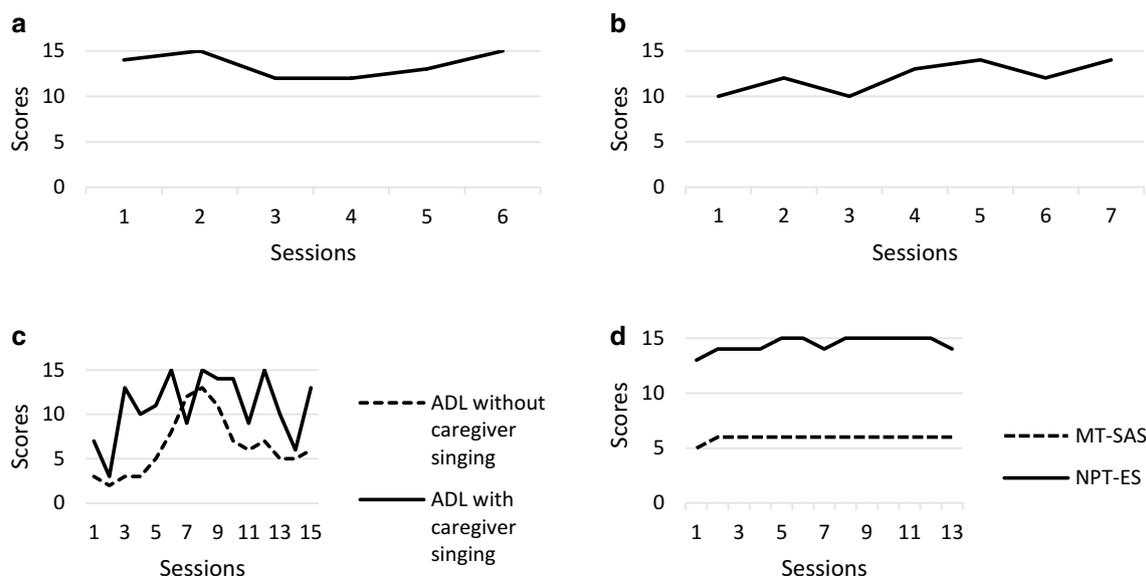
Fig. 1 **a–d** Assessment of music interventions: Non-Pharmacological Therapies-Experience Scale (NPT-ES) and Music Therapy-Session Assessment scale (MT-SAS) scores. **a** Scores of Non Pharmacological Therapies-Experience Scale (NPT-ES, Range 0–15) in Group Motor Activity with Music. **b** Scores of Non Pharmacological Therapies-Experience Scale (NPT-ES, Range 0–15) in Group Music-Based Interventions. **c** Scores of Non Pharmacological Therapies-Experience Scale (NPT-ES, Range 0–15) in Activities Daily Living (ADL) with and without caregiver singing (three-weekly evaluations). **d** Scores of Music Therapy-Session Assessment Scale (MT-SAS, Range 0–6) and of Non Pharmacological Therapies-Experience Scale (NPT-ES, Range 0–15) in Music Therapy treatment

Discussion

Significant effects of GMA-D on BPSD and QoL were reported in the study. Comparing no-music period with the effects of GMA-D and considering that pharmacological therapy and standard of care were unchanged throughout the treatment, it is possible to connect global clinical improvement of Mrs. D. to music treatments. The patient showed also a clear treatment adherence proved by single session evaluations (NPT-ES and MT-SAS) that documented a high level of compliance and relational involvement during music interventions. In particular, NPT-ES scores showed a high level of relationship and participation in motor activities supported by music (motor stimulation accompanied by live music synchronized with movements) and in the group music-based intervention (rhythmic use of instruments, singing, etc.). In the caregivers' singing approach, proposed by formal caregivers for allowing contact and relationship in the assistance of PwD moments, the patient reduced behavioral disturbances and showed more relaxation and a greater well-being. Moreover, the scores of the MT-SAS were very high since the first active music therapy session and throughout the treatment period. This means that the patient showed a stable and significant level of non-verbal and sonorous-music relationship during music therapy treatment. Compared to single interventions with music (commonly used in clinical practice) GMA-D can be considered an intensive and structured treatment that allows to tailor and to modulate therapeutic intervention on patient's needs. GMA-D was also thought to increase the exposure of PwD to music and to involve all healthcare professionals in dementia care, with important repercussion on their motivation and burden. About this the training of the healthcare staff in GMA-D seems to be crucial to improve the observation skills and non-verbal relationship that we can consider very important factors in the approach to dementia (also in the moderate and severe stages of the disease).

The study not only shows how a systematic use of GMA-D can have significant effect on BPSD and QoL but also possible effects on cognitive aspects and pharmacological therapy reduction could be investigated.

Randomized controlled trials are needed to confirm the effectiveness of GMA-D model and to validate it.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the insti-

tutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

1. van der Steen JT, van Soest-Poortvliet MC, van der Wouden JC et al (2017) Music-based therapeutic interventions for people with dementia. Cochrane Database Syst Rev 5:CD003477
2. Sihvonen AJ, Särkämö T, Leo V et al (2017) Music-based interventions in neurological rehabilitation. Lancet Neurol 16:648–660
3. Raglio A, Filippi S, Bellandi D, Stramba-Badiale M (2014) Global music approach to persons with dementia: evidence and practice. Clin Interv Aging 9:1669–1676
4. Raglio A, Gnesi M, Monti MC et al (2017) The Music Therapy Session Assessment Scale (MT-SAS): validation of a new tool for music therapy process evaluation. Clin Psychol Psychother 24:O1547–O1561
5. Muñiz R, Olazarán J, Poveda S, Lago P, Peña-Casanova J (2011) NPT-ES: a measure of the experience of people with dementia during non-pharmacological interventions. Non-Pharmacological Ther Dement 1:1–11