Music-Based Interventions and the Resilience of Persons with Dementia

Music, Dementia, Caregivers, and the Research: A Crescendo in Resilience

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Overview

- What is music therapy?
- Music-based interventions and interventionists
- Research populations involved
- Study outcomes and measures
- Theoretical frameworks
- Music and the brain
- Reviews of the literature
- Methodological and other challenges
- Moving forward…
What Is Music Therapy?

“The use of music and/or its musical elements (sound, rhythm, melody and harmony) by a qualified music therapist, with a client or group, in a process designed to facilitate and promote communication, relationships, learning, mobilization, expression, organization and other relevant therapeutic objectives in order to meet physical, emotional, mental, social and cognitive needs.”

--The World Federation of Music Therapy
Music Therapy Goals in Dementia

- Stimulating social interaction
- Reducing agitation
- Coping with emotional problems
- Managing behavior
- Elevating mood
- Promoting sleep
Studies of music therapy in dementia reflect the broad range of theory and practice

- Interventions and interventionists
- Populations of focus
- Settings
- Outcomes
  - Patient
  - Caregivers (family and staff)
Music-based Interventions

• Receptive
  – Listening to recorded or live music

• Active
  – Playing musical instruments
  – Singing
  – Dancing, movement
  – Exercise
  – Musical improvisation
Intervention Protocols

- May be combined with movement or exercise
- Usually 15-30 min. in length
- From 1-3x per week
- Individual or group
- Music may be categorized as calming, upbeat, Classical, familiar, preferred or individualized
Interventionists

- Music Therapists
- Nurses
- Certified Nursing Assistants, nurse aides
- Family caregivers
- Other types of therapists
Populations of Focus

- Patients
  - Dementia
  - ADRD
  - Alzheimer’s Disease
  - Cognitively impaired
    - Dementia
    - ADRD
    - Alzheimer’s Disease
    - Cognitively impaired

- Caregivers

- Staff
Settings

- Nursing Homes
- Assisted Living Facilities
- VA and Other Hospital Long-term Care Units
- Geripsychiatric Units
- Day Programs
- Private Residences
Patient Outcomes

• **Social Engagement Versus Apathy**
  – Alertness
  – Participation

• **Behavioral/Neuropsychiatric**
  – Anxiety
  – Agitation, aggression
    • Before, during, and after interventions
    • During meals, bathing
    • Wandering, sundowning
  – Delusional behavior
  – Posture, movement, sensory awareness

• **Cognitive Memory/Verbal**
Music Therapy for Homeless Veterans
Patient Outcomes

• **Affective Responses**
  – Happiness
  – Depression

• **Physiological Responses**
  – Stress hormones
  – Immune system
  – Blood pressure
  – Sleep

• **Functional Impairment**

• **Overall Level of Dementia**
Caregiver Outcomes

- **Family Caregivers**
  - Caregiver burden
  - Depression
  - Anxiety

- **Paid/Staff Caregivers**
  - Job satisfaction (qualitative)
Theoretical Frameworks

- Progressively Lowered Stress Threshold (Hall & Buckwalter, 1987)
- Individualized Music Intervention for Agitation (Gerdner, 1997)
- Theory of Personhood (Kitwood, 1999)
## Reviews of the Literature

<table>
<thead>
<tr>
<th>Year</th>
<th>Authors</th>
<th>Sample Size</th>
<th>Conditions</th>
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<tbody>
<tr>
<td>1997</td>
<td>Brotons</td>
<td>N=69</td>
<td>Music, dementia</td>
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<tr>
<td>1999</td>
<td>Koger <em>et al.</em></td>
<td>N=21</td>
<td>Music, dementia</td>
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<tr>
<td>2001</td>
<td>Koger, Brotons</td>
<td>N=0</td>
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<td>2001</td>
<td>Lou</td>
<td>N=7</td>
<td>Music, dementia, agitation/aggression</td>
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<td>2003</td>
<td>Vink <em>et al.</em></td>
<td>2003 (Cochrane Database of Systematic Reviews)</td>
<td>Music, dementia</td>
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<tr>
<td>2004</td>
<td>Sherrat <em>et al.</em></td>
<td>N=21</td>
<td>Music, dementia, agitation, engagement, and participation</td>
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<tr>
<td>2005</td>
<td>Sung, Chang</td>
<td>N=8</td>
<td>Preferred music, dementia, agitation</td>
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</table>
The 2003 Cochrane Review

- Behavioral problems
  - 3 RCTs studied agitation during wandering, meals, and preferred versus classical music listening
- Cognitive Skills
  - 1 RCT studied cognitive functioning with music versus verbal intervention
- Social and Emotional Functioning
  - 1 RCT studied happiness, alertness, past personal recall with music
Existing research of music therapy effectiveness is “generally poor” in its methodological quality. The effectiveness of music therapy in patients, family, and caregivers requires more rigorous research.
The 2003 Cochrane Recommendations

- Use an adequate method of randomization
- Conceal allocation of subjects to treatment groups
- Blind the outcome assessors
- Include reliable and validated outcome measures
- Assess medium and long-term effects
- Use CONSORT guidelines for reporting randomized trials.
Factors that make it difficult to measure the extent and duration of effects include:

- Wide intra- and interperson variability in behaviors
- Time of day of peak agitation varies; sometimes in AM
- Individual preferences affect responses
- “Familiar” music does not guarantee preferred music
- Medications, comorbid diseases impact behaviors
- Environmental circumstances such as death in the family, changing residence rooms, etc.
Newer RCTs with closer attention to the Cochrane recommendations are finding significant results in:

- Decreased agitation with group music therapy using recorded familiar music with movement Sung, et al., 2006, (N=36) and using nonverbal interactive music (Raglio, et al., 2008, N=59). The latter effects were sustained for 4 weeks post intervention.

- Increased cognitive functioning (MMSE) with group music therapy lasting till next morning (Bruer, et al., 2007, N=28), but faded one week later; another RCT showed no significant change in MMSE (Raglio, et al., 2008, N=59).

- Engagement/empathy was increased with music therapy in live, not recorded music (Holmes, et al., 2006, N=32), and in nonverbal group therapy (Raglio, et al., 2008, N=59).
The Beat Goes On.....

- We have a field that has a lot of promise for helping patients, families, and staff cope with the extraordinary challenges of dementia.
- The science of music and the brain is exploding with discoveries that underscore the power of music to affect physiology, cognition, and behavior.
- Funding is tight, and we face many methodological challenges, so

Where do we go from here?
What study population(s) are priority and why?

- which population priority
- feasibility of study
- selection vs convenience population

What outcomes are of the greatest interest in these population(s)?

- Behavioral
- social engagement
- agitation/aggression
- cognitive
- affect (e.g. depression)
- physiological
- collateral (family and staff caregivers)
How do we measure outcomes of music therapy interventions?
- physiologic parameters
- behavioral parameters
- cognitive parameters
- caregiver effects
- collateral benefits

How do we define the music therapy intervention?
- professional or amateur
- passive vs participatory
- live vs recorded
- musical preference
- musically skilled vs naive treatment population
- duration of intervention
What is the state of the science of music therapy?

Pre implementation processes usually include developing measures, clinical evidence and best practices, and gaps in service.

Do we know these answers? Successful implementation of a complex intervention is a function of effectiveness, context, and facilitation.

Is it time to proceed to study of music therapy implementation?
The Beat Goes On…

What next steps should occur regarding music therapy as an intervention?

• Randomized controlled study?
• Crossover design?
• Case control design?
• More descriptive studies under controlled conditions?

What potential funding sources are there for music therapy studies?

• Mental Health funding sources
• Foundations on Aging funding sources