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RESEARCH SUMMARY

What is Music Therapy? How does it work and what evidence do we have?

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This unique 175-page a spiral bound book summarises current music therapy research in a comprehensive and accessible way. It is a valuable resource for music therapists, students, people who commission music therapy, as well other health professionals and the wider public.

The resource details the evidence base underpinning current music therapy practice and provides detailed information on the research studies which have produced the evidence. Focus is given to five client groups: Young Children, people living with autism, people with learning disabilities, people suffering from mental illnesses and people living with dementia. Alongside the evidence base, we include guidance for wider reading.

It's aim? To provide an overview of what music therapy is and the research and evidence which demonstrates its value to people facing a range of challenges throughout life. We hope this resource helps to answer the questions: What is Music Therapy? How does it work and what evidence do we have?

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WHAT IS MUSIC THERAPY?

HOW DOES IT WORK AND WHAT EVIDENCE DO WE HAVE?



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INTRODUCTION

This resource has been compiled on behalf of the British charity *Music as Therapy International*. This is in response to requests from people pioneering the use of music therapy in countries where it is not a widely recognised or established form of intervention.

Our aim was to provide an overview of what music therapy is and the research and evidence which demonstrates its value to people facing a range of challenges throughout life. We hope this resource will help answer the questions: What is Music Therapy? How does it work and what evidence do we have?

There are many different approaches to music therapy worldwide and we have not attempted to compare the efficacy or impact of particular approaches. We have included research relating to music therapy and 'music interventions' in their broadest sense.

We have approached this by reviewing over 1000 papers, articles, presentations, theses and books. We have sought to include research which represents international music therapy practice. We have not knowingly excluded nor emphasised particular research methods. Where there is debate about findings we have included research which represents differing views. We have omitted research where findings were inconclusive due to issues relating to methodology.

Our starting point is to establish how music therapy is defined, with reference to the British Association of Music Therapy and the World Federation of Music Therapy. 'Considering Research' discusses how music therapy research has evolved and some of the questions remaining about its rigour and the approaches favoured. The subsequent summaries reflect areas of particular interest (and often funding). Just because one client group has less research to support statements defining the potential benefits of music therapy, doesn't mean music therapy is not impactful. It simply highlights areas where more research is needed to explore the impact that practitioners and clinicians see on a daily basis.

What helps to support music therapy practice in these less explored fields, is some of the wider research into why music helps and the neurological evidence we have as to how humans respond to music and the processes which affect people's minds and bodies. This is explored in Section 4.

Sections 5-9 provide summary pages relating to different client groups. These have been translated into the different languages of the local practitioners and music therapy pioneers who have requested this resource. Every statement is supported with references to the key pieces of research which have been cited as evidence of the scope and impact of music therapy.

The abstracts for these key pieces of research are then provided in a series of Appendices, alongside additional relevant research (including areas of debate, individual case studies or research which focuses on very specific conditions etc.) and wider reading. These Appendices are available in English only.

CONSIDERING RESEARCH

Research has been a key factor enabling the growth of the music therapy profession and its statutory recognition, and is essential to its survival as a healthcare discipline⁷. Existent research demonstrates the effectiveness of music therapy in many areas including:

- Effect on mood and affect
- Emotional support for clients and their families
- Psychosocial growth
- Physiological responses (e.g. heart rate, respiration)
- Neurophysiological functioning
- Pain perception
- Physical rehabilitation
- Speech, language and communication
- Movement⁸

Collections of accounts of clinical case material constitute a body of anecdotal evidence. Additionally there is a wealth of quantitative and qualitative research. McFerran and Rickson define these two approaches, both of which use rigorous scientific methods:

“Quantitative research in music therapy aims to control a range of variables in order to demonstrate the relationship between the music therapy intervention and the outcome, thus proving its benefit. In contrast, qualitative research attempts to capture the richness of the client’s experience and to value an individual’s experiences.”⁹

Early music therapy research was predominantly quantitative and drew heavily on behavioural principles, observing measurable change in response to musical interventions. However, towards the end of the 20th century music therapists had begun to recognise considerable limitations in using quantitative research methods to explore psychotherapeutically based work¹⁰. Psychodynamic changes, such as sense of identity, self-esteem and expression of emotions such as frustration, anger, loss and fear, have proved difficult to capture with quantitative designs. In contrast, qualitative research has proved effective for capturing both spoken descriptions and musical material offered by clients, and the musical dialogues between the therapist and the clients.

The next research challenge is to respond to the increasing demand for evidence based approaches¹¹. Wigram highlighted the difficulties in finding a tool that meets the rigorous demands of evidence based practice and yet accounts for the flexibility of the creative processes in music therapy¹². However, contemporary research demonstrates music therapists are finding ways to meet the demands of Random Controlled Trials without losing therapeutic integrity and ways to synthesise findings from qualitative research. Questions remain regarding whether we should develop our own hierarchical model of evidence-based music therapy or should we get away from the idea of hierarchy of evidence all together? Whilst evidence-based practice fits the *treatment* model of music therapy, how relevant is it to other models?¹³ Whilst research approaches continue

⁷ Darnley-Smith & Patey (2003)

⁸ World Federation of Music Therapy (2016)

⁹ McFerran & Rickson (2007)

¹⁰ Wigram (1993)

¹¹ Ansdell, Pavlicevic & Procter (2004)

¹² Wigram (1999) in Casey et al. (2011)

¹³ Bradt (2008)

to evolve, it seems that multiple perspectives continue to bring the most rigorous approach to investigation into music therapy¹⁴.

The resource strives to consolidate these multiple perspectives and to consolidate a wide range of music therapy research findings.

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¹⁴ Lincoln (2005)

WORKING WITH PEOPLE ON THE AUTISTIC SPECTRUM

Music therapy can be very helpful for those with autistic spectrum disorders. Involvement in music making can both stimulate and relax a person leading to very positive changes, including:

- Listening
- spontaneous play
- motivation to communicate
- strengthening muscles and improving co-ordination
- building relationships
- concentration
- self-expression
- language development
- imagination and creativity

The Evidence Base

Over the past seven decades numerous anecdotal case studies¹⁰⁰, narrative reviews¹⁰¹ and systemic reviews¹⁰² describe the benefits of music therapy for individuals with Autistic Spectrum Disorders. These are now widely recognised¹⁰³.

The following research-based examples demonstrate the value of music therapy for those with Autistic Spectrum Disorders:

- The impact of music therapy interventions for people with autistic spectrum disorders builds on a preserved neural capacity to process and respond to music¹⁰⁴.
- Music therapy interventions are informed by research evidence and incorporate many of the identified ASD-specific evidence-based practices in each session¹⁰⁵.
- Music therapy services for children with Autistic Spectrum Disorders are very effective for improving communication¹⁰⁶, interpersonal skills¹⁰⁷, personal responsibility, and play¹⁰⁸.
- Music therapy interventions can elicit joint attention¹⁰⁹; enhance auditory processing, other sensory-motor, perceptual/motor, or gross/fine motor skills¹¹⁰; and help identify and appropriately express emotions¹¹¹.
- Music Therapy can reduce anxiety for people with autistic spectrum disorders¹¹²
- Music therapy interventions based on family-centred practice can increase social engagement in the home environment and community¹¹³.

¹⁰⁰ Alvin & Warwick (1991)

¹⁰¹ Reschke-Hernandez (2011)

¹⁰² Geretsegger et al. (2014)

¹⁰³ Evers (1992); Mehler (2013); Whipple (2004)

¹⁰⁴ De Bruyn et al. (2012); Lai et al. (2012); Heaton et al. (1999)

¹⁰⁵ Kern et al (2013)

¹⁰⁶ Edgerton (1994); Gattino et al. (2011); Kim et al. (2008); Thompson (2012)

¹⁰⁷ Dezfoulian et al. (2013); Kim (2006)

¹⁰⁸ Whipple (2012); Kaplan & Steele (2005); Kern (2004)

¹⁰⁹ Kalas (2012); Arezina (2011); Kim et al. (2008)

¹¹⁰ LaGasse & Hardy (2013)

¹¹¹ Katagiri (2009); Brown (1994)

¹¹² Hillier et al. (2012)

¹¹³ Thompson & McFerran (2013); Thompson (2012); Kaplan & Steele (2005); Oldfield et al (2012)

WORKING WITH PEOPLE WITH MENTAL ILLNESS

Music therapy is recognised as an effective psychological intervention in the care of children and adults with mental illness. It can play a valuable role in helping minimise the trauma and disruption often associated with hospitalisation, and can have a positive impact on negative symptoms experienced with a mental health illness, such as motivation, social withdrawal and diminished affective experience and responsiveness. Music therapy can:

- Encourage clients to express themselves creatively
- Help clients feel more motivated
- Develop social and communication skills
- Build awareness of self and of self in relation to others
- Build and strengthen self-esteem and self worth
- Empower the client to becoming more confident in making choices and decisions in their daily lives
- Provide a secure and accepting environment, where positive change can take place

The Evidence Base

It is well-established that music is capable of evoking exceptionally strong emotions and of reliably affecting the mood of individuals¹³¹. Music Therapy is known to be an effective tool in helping people with a range of emotional disorders and mental health illnesses and can expedite positive change¹³². Approaches can be active or receptive: active techniques might be used when participants cannot articulate difficult feelings. Here the therapist uses clinical techniques to connect with the patient in an improvised dialogue, which can then act as a springboard to emotional awareness. Receptive techniques involve the use of pre-composed music for relaxation, reflection, guided reminiscence and change of mood state¹³³. Group work can be beneficial as a means of exploring relationships, reducing social isolation and facilitating a greater self-understanding.

Research evidences that Music Therapy can:

- Provide an accessible form of therapeutic intervention with which people with severe mental illnesses will engage¹³⁴.
- Improve the global state, mental state and/or social functioning in people living with mental illness (including schizophrenia)¹³⁵
- Increase social motivation¹³⁶
- Offer opportunities for safe and successful emotional expression and release¹³⁷
- Enhance interpersonal relationships¹³⁸
- Improve self-image and increased self-esteem.¹³⁹

¹³¹ Koelsch (2010)

¹³² Hakvoort et al. (2015)

¹³³ Maratos et al. (2008)

¹³⁴ Hannibal et al. (2012); Maratos et al. (2008); Gold et al. (2014); Edwards (2014); Grocke et al. (2009); Silverman (2006)

¹³⁵ Gold (2007); Gold et al. (2005); Talwar et al. (2006); Ulrich et al. (2007); You et al. (2002); Chen et al. (2016); Gold et al. (2009); Kamioka et al. (2014)

¹³⁶ Pavlicevic et al. (1994); Tang et al. (1994)

¹³⁷ Bodner (2007); Edwards (2014); Grocke et al. (2009); Montello & Coons (1998)

¹³⁸ Ulrich et al. (2007); Pasiali (2014); Mössler et al. (2012)

APPENDICES

APPENDIX 1: WHY MUSIC?

APPENDIX 2: WORKING WITH YOUNG CHILDREN

APPENDIX 3: WORKING WITH PEOPLE ON THE AUTISTIC SPECTRUM

APPENDIX 4: WORKING WITH PEOPLE WITH LEARNING DISABILITIES

APPENDIX 5: WORKING WITH PEOPLE WITH MENTAL ILLNESS

APPENDIX 6: WORKING WITH PEOPLE LIVING WITH DEMENTIA

APPENDIX 1

WHY MUSIC?

Featured Research Details

Aleman, A., Nieuwenstein, M.R., Böcker, K.B.E. & de Haan, E.H.F. (2000). Music training and mental imagery ability. *Neuropsychologia*, 38, 1664–1668.

Neuroimaging studies have suggested that the auditory cortex is involved in music processing as well as in auditory imagery. We hypothesized that music training may be associated with improved auditory imagery ability. In this study, performance of musically trained and musically naive subjects was compared on: (1) a musical mental imagery task (in which subjects had to mentally compare pitches of notes corresponding to lyrics taken from familiar songs); (2) a non-musical auditory imagery task (in which subjects had to mentally compare the acoustic characteristics of everyday sounds); and (3) a comparable measure of visual imagery (in which subjects had to mentally compare visual forms of objects). The musically trained group did not only perform better on the musical imagery task, but also outperformed musically naive subjects on the non-musical auditory imagery task. In contrast, the two groups did not differ on the visual imagery task. This finding is discussed in relation to theoretical proposals about music processing and brain activity.

Anderson, K. & Overy, K. (2010). Engaging Scottish young offenders in education through music and art. *International Journal of Community Music*, 3(1), 47-74.

This study examined music and art classes as a way to engage young offenders in education, and to see if such engagement had an effect on their further participation in education, self-esteem, self-control, behaviour and literacy skills. The arts are often discussed as being an inviting and safe method of entry for young offenders who may have had negative experiences with previous education in their formative years. Fourteen young offenders at Her Majesty's Young Offender Institution (HM YOI) Polmont in Scotland voluntarily participated in this ten-week study. Participants were divided into three groups: music, art and a control education group. They completed pre- and post-interviews and measures that examined their emotions, self-esteem, self-control and literacy skills. Behavioural reports and enrollment in education courses were reviewed for three months before and after the project. Results indicated increased engagement with education during and after the project for individuals in the music and art groups.

Anshel, M. & Marisi, D. (1978). Effect of music and rhythm on physical performance. *Research Quarterly*, 49, 109-13.

The effect of synchronized and asynchronized movement to music on the ability to endure a physical task was examined. The relative work loads for 32 male and female subjects (ranging in age from 19 to 22 years) on the PWC₁₇₀ test (physical work capacity, 170 bpm) were calculated and used as the criterion for exercise intensity. Subjects were then assigned in counterbalanced order to each of three conditions: synchronous movement to music, asynchronous movement to music, and a control condition. A Sex by Conditions repeated-measures ANOVA indicated that music, particularly if synchronized to physical movement, had a positive effect on the ability to endure the task and that male subjects endured longer than female subjects.

Bailey, B.A. & Davidson, J.W. (2002). Adaptive characteristics of group singing: Perceptions from members of a choir for homeless men. *Musicae Scientiae*, 6, 221-256.

There is considerable evidence to suggest that music has adaptive characteristics. Individuals use recorded music to transform the emotional landscape to coincide with transitory needs and desires.

APPENDIX 6

MUSIC THERAPY FOR PEOPLE LIVING WITH DEMENTIA

Featured Research Details

Ashida, S. (2000). The effect of reminiscence music therapy sessions on changes in depressive symptoms in elderly persons with dementia. *Journal of Music Therapy*, 37(3), 170-182.

This study examined the effectiveness of reminiscence focused music therapy treatment on depressive symptoms in elderly people with dementia. Twenty elderly (3 male & 17 female) who were diagnosed as having dementia and residing at 2 different residential care facilities in Florida were assigned to 1 of 4 small groups. Each of the participants served as his or her own control in an O1 O2 × O3 design. The depressive symptoms were measured using Cornell Scale for Depression in Dementia. The differences between the scores of pretest, posttest 1 after a week of 5-day no treatment, and posttest 2 after a week of 5-day reminiscence focused music therapy treatment were compared. A one-way analysis of variance (ANOVA) and Newman-Keuls Multiple Comparison Procedure indicated statistically significant differences between pretest and posttest 2 as well as posttest 1 and posttest 2, while no significant differences were found between pretest and posttest 1. Results indicated that participation in small group reminiscence focused music therapy groups might help to reduce depressive symptoms in elderly people with dementia. Results of behavioral observations and future implications are also discussed.

Baker, F. A. & Ballantyne, J. (2013). “You've got to accentuate the positive”: Group songwriting to promote a life of enjoyment, engagement and meaning in aging Australians. *Nordic Journal of Music Therapy*, 22(1), 7-24.

This study investigated whether group songwriting and performing affects people's perceptions of quality of life and feelings of connectedness in a community of retirees. An inductive thematic analysis of data transcripts from focus groups and written questionnaires from participants and students involved in the project were undertaken, and categories generated interpreted within the framework of positive psychology. Participants reported that the programme stimulated their enjoyment, positively affected emotions and improved wellbeing. They experienced enhanced connection with each other and with others in the broader community. They experienced a sense of accomplishment, meaning, and engagement in creating and performing their own songs.

Brotons, M. & Pickett-Cooper, P. (1996) The effects of music therapy intervention on agitation behaviours of Alzheimer's disease patients. *Journal of Music Therapy*, 33, 2-18.

The purpose of this study was to examine the effects of live music therapy on agitation behavior of Alzheimer's Disease (AD) patients during and after music therapy intervention. A second purpose was to determine if there was a difference in the effect of music therapy between those patients who had a musical background and those who did not. A third purpose was to examine if there was a difference between music therapists' and caregivers' post-music therapy agitation scores. Agitation behavior in this study was defined as overt behavior that indicates restlessness, hyperactivity, or subjective distress. The dependent measures included: (a) scores on the Agitation Behavior Scale, and (b) number of dosages of PRN medication. Subjects for this study were 20 residents, 17 females and 3 males, from four different facilities in the Northwest. Their age range was 70 to 96(M = 82, SD = 6.57). The criteria for selection were: (a) A primary diagnosis of dementia with strong medical and behavioral indications that a post mortem examination would indicate the patients' presenting problems were the result of Alzheimer's disease, (b) the presence of agitation, (c) sufficient verbal ability to answer simple social and activity questions, and (c) the written consent of the patient's guardian or representative.

Sung, H-C., Lee, W-L., Li, T-L. & Watson, R. (2012). A group music intervention using percussion instruments with familiar music to reduce anxiety and agitation of institutionalized older adults with dementia. *International Journal of Geriatric Psychiatry*, 27(6), 621-627.

This experimental study aimed to evaluate the effects of a group music intervention on anxiety and agitation of institutionalized older adults with dementia. A total of 60 participants were randomly assigned to an experimental or a control group. The experimental group received a 30-min music intervention using percussion instruments with familiar music in a group setting in mid afternoon twice weekly for 6 weeks, whereas the control group received usual care with no music intervention. The Rating of Anxiety in Dementia scale was used to assess anxiety, and Cohen-Mansfield Agitation Inventory was used to assess agitation at baseline, week 4 and week 6.

Repeated measures analysis of covariance indicated that older adults who received a group music intervention had a significantly lower anxiety score than those in the control group while controlling for pre-test score and cognitive level ($F = 8.98, p = 0.004$). However, the reduction of agitation between two groups was not significantly different.

Svansdottir, H. B. & Snaedal, J. (2006). Music therapy in moderate and severe dementia of Alzheimer's type: A case-control study. *International Psychogeriatrics*, 18(4), 613-621.

This case-control study was carried out by qualified music therapists in two nursing homes and two psychogeriatric wards. The participants were 38 patients with moderate or severe Alzheimer's disease (AD) assigned randomly to a music therapy group and a control group.

The study showed a significant reduction in activity disturbances in the music therapy group during a 6-week period measured with the Behavior Pathology in Alzheimer's Disease Rating Scale (BEHAVE-AD). There was also a significant reduction in the sum of scores of activity disturbances, aggressiveness and anxiety. Other symptoms rated by subscales of the BEHAVE-AD did not decrease significantly. Four weeks later the effects had mostly disappeared.

Ueda, T., Suzukamo, Y., Sato, M. & Izumi, S. I. (2013). Effects of music therapy on behavioral and psychological symptoms of dementia: a systematic review and meta-analysis. *Ageing Research Reviews*, 12(2), 628-641

Behavioral and psychological symptoms of dementia (BPSD) are common problems for patients and caregivers. Although music therapy is considered a non-pharmacological intervention for the management of BPSD, its effectiveness remains unclear. This study aimed to investigate the effects of music therapy on BPSD, cognitive function, and activities of daily living in patients with dementia. A literature search was conducted in the following databases: MEDLINE, CINAHL, PsycINFO, and Igaku Chuo Zasshi. We selected 20 studies, including randomized controlled trials, controlled clinical trials, cohort studies, and controlled trials, and conducted a meta-analysis using standardized mean differences (SMD). The results showed that music therapy had moderate effects on anxiety [SMD, -0.64 ; 95% confidence interval (CI), $-1.05 - -0.24$; $p = 0.002$] and small effects on behavioral symptoms (SMD, -0.49 ; 95% CI, $-0.82 - -0.17$; $p = 0.003$). In studies of duration >3 months, music therapy had large effects on anxiety (SMD, -0.93 ; 95% CI, $-1.72 - -0.13$; $p = 0.02$). The present systematic review and meta-analysis suggests that music therapy is effective for the management of BPSD.

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