



American Music Therapy Association

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MUSIC THERAPY AND MUSIC-BASED INTERVENTIONS IN THE TREATMENT AND MANAGEMENT OF PAIN: SELECTED REFERENCES AND KEY FINDINGS

What is Music Therapy?

Music Therapy is a discipline whose professionals make use of clinical and evidence-based music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program. Music therapy is an established health profession that uses music and the therapeutic relationship to address physical, psychological, cognitive and/or social functioning for patients of all ages and disabilities. Because music therapy is a powerful and physically non-invasive medium, unique outcomes are possible when interventions are directed to reduce pain, anxiety, and depression. These outcomes appear to be mediated through the individual's emotional, cognitive and interpersonal responsiveness to the music and/or the supportive music therapy relationship.

A review of the extensive published literature on this topic reveals several lines of research, largely among three major disciplines: music therapists, nurses, and physicians. Many of these studies were conducted independently by the various disciplines; however, collaborative research among Board Certified Music Therapists with other professional disciplines (particularly nursing) is on the rise.

When music is employed as an ambient and adjunct modality or tool during procedures, in the perioperative environment, and/or for use in chronic pain management, there exists considerable diversity in the literature with respect to the music listening protocol. In many cases, the authors of the published literature do not specify the exact protocol and/or why certain music was used. This is a limitation of a portion of the literature; however, it is important to understand that many of the findings from these studies can help shape, inform, and refine future research by Board Certified Music Therapists, other professionals, and in collaborative research environments.

Finally, it is important to note that the Board Certified Music Therapist employs a wide variety of music therapy interventions based on a) the best available evidence from the published literature, b) the therapist's training, expertise and specializations, and c) the client's needs and preferences. Programming and selection of individualized music and sound stimuli is only a small piece of the Board Certified Music Therapist's practice. A diverse array of underlying theories forms the foundation for music therapy interventions. Examples include frameworks from behavioral, psychodynamic, psychological, and neurobiological theories. For the topic of pain and pain management, emerging findings from neuroscience with applied music therapy interventions are trending towards a fuller understanding of why certain music therapy interventions influence outcomes more favorably than others.

OVERVIEW OF SELECTED RESEARCH

Systematic Reviews, Meta-Analyses and Literature Reviews

Standley, J.M. (2000). Music research in medical treatment. In D. Smith (Ed.) *Effectiveness of Music Therapy Procedures: Documentation of Research and Clinical Practice*. American Music Therapy Association: Silver Spring, MD.

Standley, J.M. (1992). Meta analysis of research in music and medical treatment. Effect size as a basis for comparisons across multiple dependent and independent variables. In R. Spintge and R. Droh (Eds). *Music Medicine*, St Louis: MMB.

Music Therapy reduces pain perception.

Fratianne, R.B, Presner, J.D., Houston, M.J., Super, D.M., Yowler, C.J.& Standley, J.M. (2001). The effect of music – based imagery and musical alternate engagement on the burn debridement process. *Journal of Burn Care & Rehabilitation*. 22(1): 47-53

Good, M., Anderson, G.C., Stanton-Hicks, M., Grass, J.A. & Makil, M. (2002). Relaxation and music reduce pain after gynecologic surgery. *Pain Management Nursing*, 3 (2): 61-70.

Son, J.T. & Kim, S.H. (2006). The effects of self-selected music on anxiety and pain during burn dressing changes. *Taehan Kanho Hakhoe Chi*. 36(1):159-68.

Tan, X., Yowler, C.J., Super, D.M. & Fratianne, R.B. (2010). The efficacy of music therapy protocols for decreasing pain, anxiety, and muscle tension levels during burn dressing changes: a prospective randomized crossover trial. *J Burn Care Res.*, 31(4):590-7.

Music Therapy reduces physiological indicators of anxiety and reduces need for sedation and analgesia, increases completion rate, and shortens examination time during colonoscopy.

Smolon, D., Topp, R. & Singer, L. (2002). The effect of self-selected music during colonoscopy on anxiety, heart, rate, and blood pressure. *Applied Nursing Research*. 15 (3): 126-36.

Schiemann, U., Gross, M., Reuter, R. & Kellner, H. (2002). Improved procedure of colonoscopy under accompanying music therapy. *European Journal of Medical Research*. 7 (3): 131-4.

Music Therapy reduces cortisol in healthy adults.

McKinney, C.H., Antoni, M.H., Kumar, M., Tims, F.C. & McCabe, P.M. (1997). Effects of Guided Imagery and Music (GIM) Therapy on mood and cortisol in healthy adults. *Health Psychology* 16 (4). 390-400.

Music Therapy reduces physiological and psychological indicators of distress in perioperative patients. Perioperative music therapy changes the neurohormonal and immune stress response to day surgery, especially when music selection considered patient preference. While clinically important, outcome effect size and significance levels vary across studies.

Allred, K.D., Byers, J.F. & Sole, M.L. (2010). The effect of music on postoperative pain and anxiety. *Pain Manag Nurs*. 11(1):15-25.

Cadigan, M.E., Caruso, N.A., Halderman, S.M., McNamara, M.E., Noyes, D.A., Spadafora, M.A. & Carrol, D.L. (2001). The effect of music on cardiac patients on bed rest. *Progress in Cardiovascular Nursing*. 16 (1): 5-13.

Dabu-Bondoc, S., Vadivelu, N., Benson, J., Perret, D. & Kain, Z.N. (2009). Hemispheric synchronized sounds and perioperative analgesic requirements. *Anesth Analg*. 110(1):208-10. Epub 2009 Oct 27.

Engwall, M. & Dupplis, G.S. (2009). Music as a nursing intervention for postoperative pain: a systematic review. *J Perianesth Nurs*. 24(6):370-83.

Good, M., Albert, J.M., Anderson, G.C., Wotman, S., Cong, X., Lane, D. & Ahn, S. (2010). Supplementing relaxation and music for pain after surgery. *Nurs Res*. 59(4):259-69.

Good, M., Anderson, G.C., Ahn, S., Cong, X. & Stanton-Hicks, M. (2005). Relaxation and music reduce pain following intestinal surgery. *Res Nurs Health*. 28(3):240-51.

Leardi, S., Pietroletti, R., Angeloni, G., Necozone, S., Ranalletta, G. & Del Gusto, B. (2007). Randomized clinical trial examining the effect of music therapy in stress response to day surgery. *Br J Surg*. 94(8):943-7.

Miluk-Kolasa, B., Matejek, M. & Stupnicki R. (1996). The effects of music listening on changes in selected physiological parameters in adult pre-surgical patients. *Journal of Music Therapy*, 33, 208-218.

Nilsson, U., Lindell, L., Eriksson, A. & Kellerth, T. (2009). The effect of music intervention in relation to gender during coronary angiographic procedures: a randomized clinical trial. *Eur J Cardiovasc Nurs*.;8(3):200-6.

Nilsson, U. (2009). Soothing music can increase oxytocin levels during bed rest after open-heart surgery: a randomised control trial. *J Clin Nurs*. 18(15):2153-61.

Nilsson, U. (2008). The anxiety- and pain-reducing effects of music interventions: a systematic review. *AORN J*. 87(4):780-807.

Nilsson, U., Unosson, M. & Rawal, N. (2005). Stress reduction and analgesia in patients exposed to calming music postoperatively: a randomized controlled trial. *Eur J Anaesthesiol*. 22(2):96-102.

Robb, S.L., Nichols R.J., Rutan R.L. & Bishop B.L. (1995). The effects of music assisted relaxation on preoperative anxiety. *Journal of Music Therapy*, 32, 2-21.

Simcock, X.C., Yoon, R.S., Chalmers, P., Geller, J.A., Kiernan, H.A. & Macaulay, W. (2008). Intraoperative music reduces perceived pain after total knee arthroplasty: a blinded, prospective, randomized, placebo-controlled clinical trial. *J Knee Surg*. 21(4):275-8.

Szmuk, P., Aroyo, N., Ezri, T., Muzikant, G., Weisenberg, M. & Sessler, D.I. (2008). Listening to music during anesthesia does not reduce the sevoflurane concentration needed to maintain a constant bispectral index. *Anesth Analg*. 107(1):77-80.

Walworth, D., Rumana, C.S., Nguyen, J. & Jarred, J. (2008). Effects of live music therapy sessions on quality of life indicators, medications administered and hospital length of stay for patients undergoing elective surgical procedures for brain. *J Music Ther.* 45(3):349-59.

Engaging in group music therapy and listening to music reduces anxiety associated with chemotherapy and radiotherapy. Listening to music reduces nausea and emesis for patients receiving chemotherapy.

Cai, G., Qiao, Y., Li, P., & Lu, L. (2001). Music therapy in treatment of cancer patients. *Chinese Mental Health Journal*, 15(3), 179-181.

Harper, E.I. (2001). Reducing Treatment-Related Anxiety in Cancer Patients: Comparison of Psychological Interventions. *Dissertation: Southern Methodist University, USA.*

Sabo, C.E. & Michael, S.R. (1996). The influence of personal message with music on anxiety and side effects associated with chemotherapy. *Cancer Nursing*, 19(4), 283-289.

Standley, J.M. (1992). Clinical applications of music and chemotherapy: The effects on nausea and emesis. *Music Therapy Perspectives*, 10, 27-35.

Participating in Music Therapy sessions increases comfort and motivates bone marrow transplant patients during treatment.

Boldt, S. (1996). The effects of music therapy on motivation, psychological well-being, physical comfort, and exercise endurance of bone marrow transplant patients. *Journal of Music Therapy*, 33, 164-88.

Listening to music alleviates pain, fatigue, and anxiety of hospice cancer patients.

Horne-Thompson, A. & Grocke, D. (2008). The effect of music therapy on anxiety in patients who are terminally ill. *J Palliat Med.* 11(4):582-90.

Longfield, V. (1995). The effects of music therapy on pain and mood in hospice patients. *Unpublished master's thesis: Saint Louis University, USA.*

Magill, L. & Berenson, S. (2008). The conjoint use of music therapy and reflexology with hospitalized advanced stage cancer patients and their families. *Palliat Support Care.* 6(3):289-96.

Providers can teach patients with nonmalignant chronic pain how to use music to enhance the effects of analgesics, decrease pain, depression and disability, and promote feelings of power.

Colwell, C. (1997). Music as distraction and relaxation to reduce chronic pain and narcotic ingestion: A case study. *Music Therapy Perspectives*, 15, 24-31.

Siedliecki, S.L. & Good, M. (2006). Effect of music on power, pain, depression and disability. *J Adv Nurs.* 54(5):553-62.

How Does Music Therapy Make a Difference?

Music therapy has been shown to be an efficacious and valid treatment option for patients experiencing pain related to a variety of diagnoses. Music therapy interventions can focus on pain management for physical rehabilitation, cardiac conditions, medical and surgical procedures, obstetrics, oncology treatment, and burn debridement, among others. Music is a form of sensory stimulation, which provokes responses due to the familiarity, predictability, and feelings of security associated with it. Research results and clinical experiences attest to the viability of music therapy even in those patients resistant to other treatment approaches.

What Do Music Therapists Do?

Music therapy utilized in the treatment and management of pain complies with the expectations and requirements inherent in the medical model of treatment. Music therapy programs are based on individual assessment and collection of extensive data for the development of complex patient histories and client-centered treatment plans. Patient objectives are specific and relevant to medical diagnosis, course of treatment, and discharge timeline.

Once goals and objectives are established, music therapists use music activities, both instrumental and vocal, designed to facilitate changes that are non-musical in nature. Through a planned and systematic use of music and music strategies, the music therapist provides opportunities for:

- Anxiety and stress reduction
- Nonpharmacological management of pain and discomfort
- Positive changes in mood and emotional states
- Active and positive patient participation in treatment
- Decreased length of stay

Functioning as members of an interdisciplinary team, music therapists also evaluate the patients during the course of treatment, implement changes that are indicated by the patient's response, and document benefits in medical, not musical, terms.

How Does Music Therapy Help Patients?

Music therapy can help to relieve pain and reduce stress and anxiety for the patient, resulting in physiological changes, including:

- Improved respiration
- Lower blood pressure
- Improved cardiac output
- Reduced heart rate
- Relaxed muscle tension

Music therapy has been shown to have a significant effect on a patient's perceived effectiveness of treatment, self-reports of pain reduction, relaxation, respiration rate, behaviorally observed and self-reported anxiety levels, and patient choice of anesthesia and amount of analgesic medication.

Music Therapy Protocol for Pain Management

"[This protocol]... is based on a cognitive behavioral model of therapy, which posits that new thoughts, feelings and body states may be conditioned to replace dysfunctional patterns. Specifically, a relaxed body and pleasant visual images may replace tension and worry when they are conditioned as a response to familiar, calming music. The conditioning process takes place when listening to this music is paired with deep relaxation through repeated practice. Over time, the music alone cues the response...

The music therapy protocol is designed to perform several functions:

- To direct attention away from pain or anxiety, distracting the listener with comforting music.
- To provide a musical stimulus for rhythmic breathing.
- To offer a rhythmic structure for systematic release of body tension.
- To cue positive visual imagery.
- To condition a deep relaxation response.
- To change mood.
- To focus on positive thoughts and feelings and to celebrate life."

- Professor Suzanne Hanser, EdD, MT-BC, Berklee College of Music

Who is Qualified as a Music Therapist?

Graduates of colleges or universities from more than 70 approved music therapy programs are eligible to take a national examination administered by the Certification Board for Music Therapists (CBMT), an independent, non-profit certifying agency fully accredited by the National Commission for Certifying Agencies. After successful completion of the CBMT examination, graduates are issued the credential necessary for professional practice, Music Therapist-Board Certified (MT-BC). In addition to the MT-BC credential, other recognized professional designations are Registered Music Therapists (RMT), Certified Music Therapists (CMT), and Advanced Certified Music Therapist (ACMT) listed with the National Music Therapy Registry. Any individual who does not have proper training and credentials is not qualified to provide music therapy services.

Where Do Music Therapists Work?

Music therapists offer services in medical hospitals, skilled and intermediate care facilities, rehabilitation hospitals, adult day care centers, senior centers, hospices, psychiatric treatment centers, drug and alcohol programs, schools and other facilities. In pain management applications, music therapists can work in many different hospital units, including ICU, NICU, Pre- and Post-Op, surgery, cardiac care, obstetrics, emergency, pediatrics, physical rehabilitation, and outpatient programs. Some therapists are self-employed and work on the basis of independent contracts, while others are salaried hospital employees.

How Can You Find a Music Therapist or Get More Information?

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