

The Effects of Music Therapy in Cardiac Healthcare

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Abstract: Music therapy has been applied with patients who present with acute myocardial infarction, coronary artery bypass graft, and other cardiac conditions. Music therapists integrate their techniques into cardiac care units, often treating patients who require assistance in coping with stress. This article reviews the research supporting the use of music as therapy and offers case examples to illustrate a variety of clinical methods.

Key Words: music, music therapy, stress, cardiac, coronary

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“I just went to bed and I listened to that tape. And I let it work. Breathing into your heart is difficult because all the memories flood back and there are many of them. And when you go from the heart to the soul, that I think touched me in a spot. ... I don’t know if I’d ever been to that place before, that deeply, that comfortably, that quietly. And when it was over I was relaxed. ... I took the whole feeling into a beautiful sleep. I have never felt so rested in my entire life. And I’ve been warm and fuzzy inside ever since. Nothing ever got through to me like this.”

This quotation is from 72-year-old Eve, 5 months after undergoing triple coronary artery bypass surgery. During her initial music therapy session, Eve described the anxiety she felt during her hospitalization. She went home and implemented a strategy of utmost simplicity, listening to music prescribed by the music therapist. The therapist instructed Eve to breathe into her heart and to imagine beautiful places while she listened to the music. This resulted in a surprising outcome, 12 hours of a restful night’s sleep, and continuing “warm and fuzzy” effects for some time to come. At the end of her fourth and last music therapy session, while listening to music, Eve imagined walking across a footbridge to a huge bush of fragrant lilacs, stating “spring smell ... new beginning

... new life.” At the conclusion of this session, she commented, “My journey is just beginning. I’m on my way.” Several months after her music therapy sessions, she reports that she has never had such low blood pressure readings as since her “epiphany,” as she calls her first experience, breathing with the music and letting it take her to a wondrous place. She stated that she no longer feels “roiling anxiety in my ribcage,” noting that “everything will go the way it’s going to go.”

This article is about music therapy, an established profession with national organizations around the world and a growing body of research literature to support its applications. It presents an overview of the discipline of music therapy, and describes techniques that music therapists use with patients who have various forms of cardiac disease. It focuses on music-facilitated mind-body techniques that are indicated for the purpose of ameliorating symptoms caused by stress or disequilibrium. It also discusses how nurses, physicians, other health practitioners and family caregivers may use music to help patients relax, distract themselves from pain, anxiety or depression, and enhance the quality of their lives.

INTRODUCTION TO MUSIC THERAPY

Music therapy has been defined as “a systematic process of intervention wherein the therapist helps the client to promote health, using music experiences and the relationships that develop through them as dynamic forces of change.”¹ Some would cite Biblical David’s soothing Saul with the lyre as an ancient form of music therapy. Shamans and healers of many cultures have used music in their rituals and healing practices from ancient times.² In today’s medical and health maintenance institutions, music therapists function as part of a team, assisting patients with symptoms and coping mechanisms, while developing the creative and competent parts of the person. Music therapy is included in many departments of integrative medicine, offering mind-body techniques designed to introduce positive thoughts, familiar images, pleasant associations, cheerful memories, peaceful mood, and enjoyable feelings. Listening to music may alone bring about an automatic change in mood. A pleasant memory or association may come to mind immediately and flood the listener with wonderful thoughts. Breathtaking images of

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places far and wide may also be elicited in the imagination of the listener. The effects may be profound relaxation, a peak experience of joy, or a depth of understanding or insight. It is up to the music therapist with knowledge of and input from the individual patient to select the most appropriate music and guide the individual to the most successful outcome.

Engaging in a more active music therapy experience gives many a sense of competence, control, comfort, and general well-being. Mastering beautiful music is a goal that people frequently see as unobtainable. Music therapists involve people in an esthetically pleasing music activity through success-oriented techniques, whereby they contribute to the musical performance or composition by adding their note or sound, phrase or melody, drum beat, or more sophisticated accompaniment. They participate at whatever level they are capable, leading to a sense of positive self-efficacy or self-esteem. Music therapists are adept at presenting opportunities for participants to improvise, perform, sing, move to or talk about music that is especially meaningful or appropriate for their unique needs. They may work individually, in dyads, or in groups. Patients may experience music with family members of all ages when it is important to promote a sense of unity or support, or they may prefer to make or hear music all alone to engender a more solitary mood of peace and comfort.

A qualified music therapist must be board-certified in the United States, having completed a degree from an approved program, performed a clinical internship, passed the National Board Certification Examination, and participated in continuing education. The American Music Therapy Association provides standards of practice, a code of ethics, competency-based models of practice, and guidelines for the approval of educational training programs and clinical internships.³ The World Federation of Music Therapy supports music therapists across the globe with information and resources on professional associations, clinical practice and publications.⁴

Music therapists assess the needs of their clients, determine their musical background and preferences, set goals and objectives which are consistent with the treatment plan, implement the indicated research-based protocols, and evaluate the impact of music therapy. They use all styles and genres of music, as appropriate, and may introduce any musical selection, instrument, song, improvisation, or experience. They apply techniques of composition or songwriting for people who want to express themselves in a new and creative way. They use music instruction to rehabilitate or compensate, as with the person who learns to play the recorder to enhance breath control or physically weak patients who state that they always wanted to learn to play an instrument. Music therapists are able to identify and adapt suitable instruments, such as a guitar tuned to open chords that allows free strumming without any need to position the

fingers on the fingerboard. They also use specialized protocols, such as Guided Imagery through Music,⁵ Music-Facilitated Stress Reduction,⁶ and Music-Assisted Relaxation and Imagery (MARI).⁷

MUSIC RESEARCH IN CARDIAC CARE

After experiencing his third myocardial infarction, Jim enrolled in a research experiment designed to determine whether music therapy in addition to cardiac rehabilitation could reduce stress more effectively than cardiac rehabilitation alone. Jim is a 65-year-old man with diabetes who had undergone coronary artery bypass surgery 8 years earlier. He acknowledged that he was “really bummed out” after his last episode because he has actively maintained healthy lifestyle changes during this period, including full participation in unmonitored cardiac rehabilitation. Jim stated that he tried to put his concern “in a closet and shut the door.” During music therapy sessions, Jim learned how to use Music-Assisted Relaxation and Imagery to reduce everyday stress at home. He continued listening to the prescribed music regularly and frequently. He said he wanted to “saturate myself with calming music for 2 weeks.” He reported feeling much better, committed to continuing his music listening regimen to maintain good health. He practices replaying his preferred music in his head when actual recordings are not available.

Research has shown that, for a large number of cardiac patients like Jim, listening to music results in improved psychosocial, physiological, emotional, and overall health status. In fact, nurses, physicians, and surgeons have observed that the act of listening to music by itself is extremely helpful to many of their patients. They have contributed considerable experimental research to the body of literature.

Acute Myocardial Infarction

Patients recovering from acute myocardial infarction (AMI) have experienced reduced heart and respiratory rates as well as state anxiety, accompanied by greater myocardial oxygen demand after listening to 20 minutes of music. These effects were significantly different than a control group. In addition, 1 hour after listening to music, patients maintained their reduced anxiety, and heart and respiratory rates.⁸ These results replicated similar findings of an earlier investigation.⁹ In another study, patients who presented with AMI listened to 22 minutes of 3 classic compositions by Bach, Beethoven, and Debussy daily over 3 days of hospitalization. Compared with a control group, those who listened to this music significantly reduced their reported anxiety.¹⁰ Another experimental investigation compared music listening with a control group and also a relaxation practice for AMI patients. The music condition consisted of a relaxation exercise followed by listening to 20 minutes of 1 of 3 cassette tapes developed by the experimenter. The relaxation condition involved the same induction, a quiet environment, a comfortable body

posture, repeating a word or sound, and a passive approach to intruding thoughts. These groups were comparable in reducing stress, anxiety, heart rate, and cardiac complications while raising peripheral temperature. These changes were significantly better than those observed in the control group.¹¹

It is notable that all of these significant effects occurred after patients listened to one or a few short selections of music that were not of their choice. Thus, it is interesting that a study of the influence of an advice and relaxation audio tape which used a music tape of the patient's choice as a comparison condition found that both types of tapes were equally effective to improve anxiety and quality of life for AMI patients.¹²

Joan is a 72-year-old woman who attended her first music therapy for stress management session 2 months after experiencing an AMI. Joan underwent angioplasty, and stent placement twice. She described herself as "high strung," but did not think that "anything bad was going to happen to me."

Joan reported enjoying violin music and following her first music therapy session, began listening to recorded music (Kobialka: "Timeless Motion") for 1 hour daily in the afternoon. At the conclusion of her third and final music therapy session, Joan described experiencing a white light, smelling flowers, and being accompanied by a figure in a white robe in "God's meadow," remarking that "music soothes the soul." Although she noted that she needs constant activity ("I only sit in a chair that moves,") Joan stated that she now plans to sit quietly and listen to her music daily in the afternoon.

One year following her music therapy treatment, Joan wrote a note to the music therapist that stated, "I'm listening to Mr. Kobialka's tape as I write. His music soothes my soul. If only everyone could understand what a wonderful part music can play in one's life. I can't read notes or play a musical instrument, yet I love music. My body just seems to unwind as I listen. You were a great help to me, teaching how music therapy can keep you calm and accept what life brings."

Coronary Artery Bypass Graft and Other Procedures

The music interventions studied in patients who have undergone coronary artery bypass graft (CABG) surgery have been more involved. Postsurgical patients listened to their choice of 5 musical tapes, or watched a 30-minute videocassette of peaceful scenes accompanied by music, or experienced 30 minutes of undisturbed rest. The music-listening group reported significantly less pain than the resting group, and the video group reported significantly improved sleep as compared with the control group.¹³ A related study found significant changes in mood for the patients who listened to music, although a generalized relaxation response was evident for patients in all 3 conditions.¹⁴

In response to the ill effects of noise annoyance for CABG patients, an investigation was undertaken to evaluate a compact disc blending ocean wave sounds with pieces of Mozart, Beethoven, and Donizetti. Noise annoyance was, indeed, lower during the 15 minutes of music listening. During the first postoperative day, heart rate and systolic blood pressure were also reduced. In this quasiexperimental repeated-measures design, all patients enjoyed listening to the music.¹⁵ It is interesting that, in another study, ocean sounds alone enhanced sleep depth, awakening, returning to sleep, sleep quality, and a total evaluation of sleep in CABG patients.¹⁶

Another group of investigators researched the effects of guided imagery along with music. Randomly assigned patients undergoing a variety of cardiac surgical procedures listened to a music and imagery tape twice before surgery and twice after surgery. They heard music only during the induction of anesthesia and in the recovery room. Patient reports of anxiety and pain on visual analogue scales and their length of hospital stay were significantly lower for those in the imagery with music group as opposed to the control group.¹⁷

One study of taped suggestions versus music versus a blank tape via headphones involved CABG patients listening to one of these intraoperatively and postoperatively. The music was "Dreamflight II" by Herb Ernst, and it was also the background music for the suggestion tapes. Researchers found no differences between the conditions on hospital stay, narcotic use, or nurse ratings of progress or anxiety, depression, activities of daily living, and cardiac symptomatology. Unfortunately, the investigators did not evaluate whether the patients preferred listening to this music.¹⁸

While awaiting cardiac catheterization, patients' anxieties were significantly reduced through listening to music. Heart rate and systolic blood pressure were significantly lower in those who heard music while these measures increased in control subjects.¹⁹ In a different study, an increased sense of control and relaxation were accompanied by decreased anxiety.²⁰

In fact, none of the experiments involving cardiac surgery patients reviewed here took patients' preferences into account in designing a music program. Given this limitation, it is surprising to find the many significant differences that appear in the literature as a function of music listening. It seems reasonable to conclude that if investigator-selected music has impact, music selected by the patient and administered by a music therapist who is trained to assess, observe and provide live music experiences should expect even greater effects.

Yet music listening also has its limits. In a study of pain during chest tube removal after cardiac surgery, listening to self-selected music did not affect the patients' pain as compared with listening to white noise or nothing at all. Most patients did, however, report that they enjoyed hearing the

music.²¹ Although only a single study, this finding is somewhat consistent with a metaanalysis of music in medical and dental settings which reports that music listening is generally more effective with chronic pain than with acute and severe pain.²²

Elton is a 77-year-old patient who began attending music therapy for stress management sessions 5 months following his second double coronary artery bypass graft surgery, aortic valve repair, and subsequent hospitalization for an aneurysm. Elton stated “I can’t get myself together” and complained of panic attacks, depression, and sleep apnea. Elton discussed his anxiety about how he would die, saying “I’m afraid to fall asleep and never wake up.” Elton described the relaxation music and imagery tape that he received during his heart surgery as “mournful.”

During Elton’s first session, the music therapist incorporated recorded light jazz music by Kenny G. Elton reported a diminished stress level from 10 to 1.5 (on a scale of 0–10) from start to conclusion of the session. He stated that he experienced dancing images. While strumming the Omnichord to a waltz rhythm, Elton described ballroom dancing movements.

Elton listened to a specially designed music and imagery tape twice daily. He stated that music therapy is “the best therapy you can get.” Elton reported sleeping regularly through the night since listening to the music. At the end of 4 sessions, Elton also reported that his panic attacks were “cooling down.” He noted that he listens to music in conjunction with using an inhaler to ease his breathing difficulty. He also uses music and imagery to reduce leg pain.

Coronary Care Units

Symphonic music paired with nature sounds was effective in reducing blood pressure, respiratory rate, and psychologic distress in cardiac patients who required bed rest.²³ But other research in coronary care units yield inconsistent results for music listening. One investigation by a music therapist used music previously found in preliminary studies and years of clinical experience to evoke positive moods in patients with little energy. Patients had some choices in musical styles, and this meticulous selection may have contributed to findings that heart rate, anxiety and depression were significantly reduced while toleration of pain was also improved.⁵ Other researchers confirm decreased heart rates²⁴ and reductions in diastolic and systolic blood pressure for these patients.^{25, 26} However, light classic investigator-selected music was not effective in aiding patients’ anxieties.²⁷ A choice of music by Halpern, classic-instrumental, or country western music was equally effective as white noise or uninterrupted rest in reducing anxiety in coronary care patients.²⁸ Clearly, proper care in selecting music must be a part of every research experiment designed to determine the efficacy of music listening.

Bea was far more anxious than her husband, who was being treated for coronary artery disease on the coronary care unit. She became extremely agitated when she learned that her husband, Carl, would require bypass surgery. She was concerned that she would not be able to care for herself without him at home, and this compounded her worries about his health and longevity. Now, with the prospect of surgery, she was despondent, crying uncontrollably.

The music therapist entered Carl’s hospital room to find him arguing vociferously with his wife. She asked them about the problem and the couple agreed that something had to be done about the anxious state that both patient and wife were in. She asked them about their musical taste, and learned that they enjoyed hearing the dance music that was popular when they were dating.

On her next visit, Bea brought in some of their favorite music. Bea and Carl agreed to listen to these recordings before interacting about anything else. After hearing a Benny Goodman song, they laughed and reminisced about dancing until early morning. They embraced and cried in each other’s arms. They promised each other to think about the music that was so symbolic of their love whenever stress or anxiety intervened and to begin every conversation with the smile that accompanied that memory.

Carl’s surgery went well and Bea reminded herself of their relationship and their music whenever she felt panicky.

Pediatric Cardiac Care

There is an important role for music therapists in the pediatric cardiac care setting. In the intensive care unit, music therapy offers distraction, quality of life, and a sense of normalcy to children and families. Singing is a way to motivate children to enhance deep breathing and breath control. For transplant patients, music provides meaningful, successful activities. Music experiences focus on abilities, not disabilities, and offer a creative way to communicate and express feelings. Even the dying child benefits from passive music activities that provide peace and comfort.²⁹

Katie, a 13-year-old girl, had been interested in music before her heart transplant. After her transplant, in isolation, she relished every opportunity to acquire new musical abilities and display them whenever she could. She learned to play the recorder and the keyboard and improvised on the xylophone. Katie pursued her interest in learning music many months later upon her return to school. Two years after her transplant she wrote:

“Music therapy really helped me after my transplant. Even though I played the piano and the recorder beforehand, the music helped me become more relaxed. For a couple of days after going to the cardiac ward I would only walk to the bathroom in the isolation room and back. But after I started playing these musical instruments and others, I felt stronger

and started to move around outside my room to other places like the playground.”²⁹

Cardiac Rehabilitation

Cardiac rehabilitation programs provide progressive cardiac services from prevention to rehabilitation in inpatient and outpatient settings. Cardiac rehabilitation incorporates structured, monitored exercise and education to help patients develop habits to enjoy a healthy life. In one setting, preferred music had a tendency to decrease perceived exertion, improve mood and lessen the perceived passage of time in 4 patients with cardiovascular disease who undertook a cardiac rehabilitation exercise program.³⁰

In another setting, the music therapy for stress management program in cardiac rehabilitation exists in the outpatient clinics at 2 different hospital sites. The program is funded jointly by the hospital’s administration and grant support for research. The program’s music therapy services are provided contractually. The second author, Susan E. Mandel, describes the music therapy program currently under investigation at Lake Hospital System in Ohio.

A review of patient records from 2 outpatient clinics revealed that 63% of the patients enrolled in monitored exercise (phase 2) cardiac rehabilitation were identified with stress as a risk factor during their initial evaluation. Additional patients recognized the impact of stress on their well-being during their participation in rehabilitation sessions. With this high incidence of stress as a risk factor for cardiovascular disease in mind, clinical trials of the music therapy for stress management program were developed.

In the small-group or individual music therapy sessions, live and taped music are used in combination with verbal discussion to encourage expression of feelings and to reduce anxiety. Patients describe a variety of stressful issues in their lives. These issues may be related to chronic health problems or other situations. Music may be suggested by the music therapist or requested by the patient or family member. Music therapy techniques for verbal self-expression included song lyric writing, interpretation of song lyrics, and identification of song lyrics or titles, which suggest stressors and coping techniques. Patients also express themselves nonverbally through improvisation on the Q-chord (Suzuki), which is an instrument used for accompaniment, and/or hand drums. Sessions conclude with a MARI session. MARI is the systematic application of music, cued relaxation techniques, and verbally guided imagery by the music therapist to facilitate the patient’s relaxation response. A variety of music, relaxation techniques, and imagery are combined, based on the patient’s expressed or observed needs and preferences. The live MARI experience is individually taped for the patient’s personal use.

Sue previously attended music therapy for stress management sessions along with cardiac rehabilitation following

bypass surgery 2 years earlier. At that time, Sue stated that she experienced angina and increased fibromyalgia pain with stress. Sue listed the angina, pain, stress at work, and lack of rest at home as her main stressors in rank order. During a music therapy session, Sue stated that although she had a will to live, she was “no good to anyone” at that time and felt “on the edge all the time.” Sue did not return for music therapy until 2 years later.

Sue, at age 50, began cardiac rehabilitation once again, to treat unstable angina. During her music therapy assessment, Sue revealed her lifetime history of stress-related problems. She also acknowledged her anxiety related to angina, which recurs 2 or 3 times weekly. Sue expressed a desire to resume playing “worshipful” piano music. Sue remarked that her leisure time activities are limited by her pain and fatigue. She stated that her life ended at the time of her bypass surgery and that she simplified her life to the point of having “no life.”

During the third music therapy session, Sue stated that she listens to her MARI tape on most nights and places a walkman and headset beside her bed as “the key” to her regular listening. Sue noted that listening to the MARI tape helps her to cope with insomnia and “gives her strength” to deal with fibromyalgia pain.

Sue stated that she had begun to play hymns on her home keyboard for a few minutes at a time, and she recognized that the absence of music in her life had been difficult for her. The music therapist sang “Amazing Grace” and observed that Sue seemed to withhold her emotional response to the music. Sue expressed that the music was “too much,” explaining that she has felt emotionally blocked for eleven years since her father’s death. Sue stated that she used to write prayers beginning with a Psalm, and then recited a Psalm. When asked to continue verbally composing a prayer, she requested a pen and paper. As the music therapist played a recorded version of “Amazing Grace,” she wrote, “Thank you Lord that when you seem distant I can know that it is I who have moved away and not you.”

During a subsequent music therapy session, the music therapist recorded relaxation suggestions that begin with the feet and move upward through the body. Sue later reported that listening to this MARI tape is highly effective in helping her cope with recent pain associated with foot neuropathy resulting from diabetes. During her final music therapy session, Sue stated that “energy and how to spend it is a big thing. ... Stress takes a lot of energy. Relaxation is a slowing down.” The patient noted that she previously thought that she was “going to go until I dropped” and that she is making changes “while it’s still a choice.” Sue stated that she is journaling, listening to her own spiritual music, and feeling “more peace.”

CONCLUSION

This article has presented research, clinical cases, and techniques to demonstrate how music therapy may be integrated successfully into cardiac health care. It is a privilege to work with the creative power within every person to make music and respond to music. As stated by Ralph Waldo Emerson, "... no man ever forgot the visitations of that power to his heart and brain, which created all things anew, which was the dawn in him of music..."³¹

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