



Effects of single session music therapy on hospitalized patients recovering from a bone marrow transplant: Two studies



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ABSTRACT

The purpose of these studies was to determine the effects of single session music therapy on inpatients in an adult bone marrow transplant unit. In Study 1, the researchers examined the effects of patient-preferred live music on anxiety, nausea, fatigue, pain, and relaxation for hospitalized patients ($N=50$) recovering from a bone marrow transplant utilizing a pretest, posttest, and follow-up design with Likert-Type Scales. In Study 2, the researchers utilized a randomized controlled trial with pre and posttests to determine how music therapy might effect fatigue ($N=18$). In Study 1, results were significant for relaxation, anxiety, and fatigue from pre to posttest. Although ratings tended to worsen slightly from posttest to follow-up, follow-up measurements maintained an improvement when compared with pretest scores. Results of Study 2 indicated no significant differences between- or within-group differences concerning fatigue. However, analyses of mean fatigue data indicated a slight decrease from pre to posttest for experimental participants and a slight increase from pre to posttest for control participants. Results of both studies indicate that a single music therapy session can have a positive effect on inpatients recovering from bone marrow transplants. Implications for clinical practice, limitations of the study, and suggestions for future research are provided.

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Literature review

While the course of cancer is unique to each patient, there are common practices within oncology treatment options. The primary treatment course is often initiated within the first few months after diagnosis and can include surgery, radiation, and chemotherapy (Brown, Riley, Schussler, & Etzioni, 2002). Continuing care includes surveillance activities for detecting recurrences and new primary cancers (Brown et al., 2002) and often includes additional therapies, such as bone marrow transplant (Grant et al., 1992). A bone marrow transplant replaces bone marrow that either is not working properly or has been destroyed (ablated) by chemotherapy or radiation (National Library of Medicine [NLM], 2013). With advancements in technology BMTs may increase survival rates, but they are tainted with burdens such as major psychological stress, pharmacological side effects, and social problems associated with living with a cancer diagnosis (Patenaude, 1990).

Patients undergoing BMTs often experience serious complications such as infection, anemia or internal bleeding, and short-term side effects including nausea, vomiting, fatigue, loss of appetite, hair loss, and skin reactions (National Cancer Institute [NCI], 2013).

In addition to these physiological risks, BMTs can affect patients' physical, emotional and social needs, as well as overall quality of life during prolonged and repeated hospitalizations. Ransom, Jacobsen, and Booth-Jones (2006) found that in post-operation patients, higher distress levels correlated with greater anxiety, depression, and a wide range of physical, emotional, and family problems. These multifaceted and consequential findings highlight the need to address physiological symptoms and psychological stressors before patients are discharged from inpatient settings.

The use of evidence-based music therapy models is imperative for the continued development and progression of music therapy in the medical setting. These studies concentrated primarily on three therapeutic models: the contextual support model of music therapy, patient-preferred live music, and the iso-principle.

The contextual support model of music therapy (Robb, 2000) is based primarily on the motivational model of coping by Skinner and Wellborn (1994), it is a theory that seeks to describe and investigate the mechanisms responsible for bringing about changes in self-regulatory behaviors during times of stress (Robb, 2003). The Skinner and Wellborn model maintains that human behavior is influenced and directed through the innate drive to fulfill human fundamental psychological needs for structure, autonomy support, and involvement. Utilizing this model in a music therapy context, the aim of the music therapy intervention is to reengage people with their environment using music to create three elements of

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contextual support: (1) structure: to provide opportunities for successful mastery over the environment, (2) autonomy support: to afford opportunities to make choices and direct activities, and (3) involvement: to express unconditional acceptance and reinforce their efforts and actions, thereby increasing active coping behaviors. Though this model was originally created to identify stress in hospitalized children, the need for contextual support during prolonged hospitalization is present in both children and adult populations.

Researchers have found positive effects concerning live music when compared to recorded music in medical music therapy settings (Standley, 1986). Clinicians have successfully used patient-preferred live music to reduce anxiety, increase coping skills, and shorten length of stay for pediatric and adult patients (Caine, 1991; Standley, 1986; Winter, Paskin, & Baker, 1994). The use of live music allows the music therapist to observe fluctuations between calm and anxious behaviors and enables the therapist to reflect those changes through the music by manipulating musical elements such as tempo, volume, and intensity, or utilizing the iso-principle. The iso-principle, originally coined “iso-moodic” by psychiatrist, Ira Altshuler (Michel & Pinson, 2005) consists of matching music qualities (i.e., tempo, volume, or intensity) to the patient’s current level of anxiety or behavioral state, allowing gradual change in music to facilitate the desired change in patient behavior or mood. Researchers have demonstrated the successful application of live music using the iso-principle to decrease pain in pediatric postoperative orthopedic patients (Bradt, Dileo, Grocke, & Magill, 2011) and to decrease anxiety for preoperative patients (Aldridge, 1993; Chetta, 1981).

The contextual support model, patient-preferred music and the iso-principle are three noninvasive techniques commonly utilized by music therapists in medical settings that may function to decrease anxiety, decrease noncompliant behavior, and as a method to initiate the sleep process for patients unable to relax prior to a procedure. The use of these evidence-based music therapy practices and utilization of evidence-based research is essential to the continued growth and validity of the music therapy field.

Music therapy has been shown to be effective with various medical populations and clinical needs, including treatment for hospitalized patients recovering from invasive procedures (Bailey, 1983; Boldt, 1996; Clark et al., 2006; Standley, 2000). Recently, the results of two studies have shown single session patient-preferred music therapy sessions to have a positive effect on anxiety, pain perception, and nausea (Madson & Silverman, 2010), and stress, relaxation, and mood (Crawford, Hogan, & Silverman, 2013).

In 2011, Bradt, Dileo, Grocke, and Magill compared the effects of music therapy, music medicine interventions, and standard care alone on outcomes in oncology patients in a systematic review. Selection criteria included randomized controlled trials and quasi-randomized trials of music interventions for improving psychological and physical outcomes in patients with cancer. The review included 30 trials with a total of 1891 participants. Interventions included music therapy offered by trained music therapists as well as listening to pre-recorded music offered by medical staff. The authors found that music interventions may have a beneficial effect on anxiety, mood, and pain with cancer patients and suggested music interventions may lead to small reductions in heart rate, respiratory rate, and blood pressure. Although the researchers did not find support for depression, fatigue, or physical status, only a small number of trials investigated the effect of music on these outcomes. Thus, the authors recommended that additional research is warranted concerning these consequential dependent measures.

Although researchers have found positive effects pertaining to music therapy and the oncology population (Burns, 2001; Burns, Harbuz, Hucklebridge, & Bunt, 2001; Clark et al., 2006; Ferrer, 2007; Standley, 1992; Waldon, 2001), there are a limited number of

trials and papers in which researcher specifically examined the use of music therapy with BMT recipients. Boldt (1996) was the most rigorous, but utilized a sample of only six patients. Within the oncology setting, Cassileth, Vickers, and Magill (2003), Clark et al. (2006), and Ferrer (2007), examined the effects of music listening on fatigue, but their pooled results indicated no evidence of effect for music therapy interventions, and the results were inconsistent across the three studies (Bradt et al., 2011). Specific to patients recovering from a BMT, however, researchers have not yet examined the effects of music therapy on fatigue in a randomized and controlled trial.

Therefore, the purpose of the present studies was to implement music therapy on a bone marrow transplant unit and collect initial and immediate effectiveness data. In Study 1, the researchers examined the immediate effects of patient-preferred live music on anxiety, nausea, fatigue, pain, and relaxation for hospitalized patients recovering from a BMT utilizing a pretest, posttest, and follow-up design with Likert-Type Scales. Based on the results of Study 1, Study 2 was designed to analyze the immediate effects of patient-preferred live music on fatigue of hospitalized patients recovering from a BMT utilizing a randomized controlled trial with an established psychometric instrument. The researchers sought to investigate the following research questions:

1. What immediate effects does a single music therapy session have on BMT patients’ perception of anxiety, nausea, fatigue, pain, and relaxation from pre to posttest? (Study 1)
2. What effects does a single music therapy session have on BMT patients’ perceptions of anxiety, nausea, fatigue, pain and relaxation after a 30–45 min follow-up? (Study 1)
3. What immediate effects does a single music therapy session have on BMT patients’ fatigue when compared to standard care alone? (Study 2)

Method

Study 1

The researchers conducted both Study 1 and Study 2 on the same BMT unit in a large Midwestern teaching hospital over a two-year period. The researcher who facilitated the treatment was the same person who administered the testing instrument to each participant.

The general purpose of Study 1 was to implement music therapy and determine its effect on anxiety, nausea, fatigue, pain, and relaxation for hospitalized patients recovering from a BMT.

Research participants

Criteria for participation in Study 1 included BMT recipients who had been hospitalized on the unit between July 2009 and May 2010. Participants ($N = 50$) were 15 women and 35 men who ranged in age from 22 to 75 ($M = 52.50$; $SD = 13.41$) years and had been in the hospital for one to 78 ($M = 13.21$; $SD = 14.78$) days. Of the 50 participants who completed the study, only one had previously received music therapy in a different facility.

Instrument

The investigator utilized participant self-report ratings to measure the effects of music therapy on BMT patients. The researchers used five separate 10-point Likert-Type Scales to rate patients’ relaxation, anxiety, fatigue, nausea, and pain before the music therapy session began (pretest), at the conclusion of the session (posttest), and 30–45 min after the music therapy session concluded (follow-up). Scales were anchored to be congruent with the hospital’s existing assessment system, such that “1” represented a patient feeling completely relaxed, free of anxiety, nausea and

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