A MUSIC THERAPY SUPPORT GROUP TO AMELIORATE PSYCHOLOGICAL DISTRESS IN ADULTS WITH CORONARY HEART DISEASE IN A RURAL COMMUNITY

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ABSTRACT

A MUSIC THERAPY SUPPORT GROUP TO AMELIORATE PSYCHOLOGICAL DISTRESS IN ADULTS WITH CORONARY HEART DISEASE IN A RURAL COMMUNITY

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The purpose of this study was to examine the effect of a music therapy support group on depression, anxiety, anger/hostility, and stress of adults with coronary heart disease. The study used a split-plot factorial design with random assignment of participants to the music therapy experimental group or the wait-list comparison group. Depression, anxiety, anger/hostility, and total mood disturbance were measured with Profile of Mood States – Short Form (POMS-SF; McNair, Lorr, & Droppleman, 1992). Stress was measured with the intensity value of Hassles Scale (HS; Kanner, Coyne, Schaefer, & Lazarus, 1981). The measures were administered at pre-test, post-test, and four-week follow-up. The experimental group completed a satisfaction survey at post-test to offer their opinions about the components of the music therapy treatment including the interventions, the length of treatment, and the music therapist. Seven women and six men (n = 13) completed the protocol through follow-up with eight participants assigned to the experimental group and five participants assigned to the comparison group. The mean age was 68 years old. Music therapy sessions were held weekly for six weeks and lasted for 1.5 hours. The purpose of the group was to improve participant functioning in the areas of identification and expression of the feelings. The sessions included active and receptive music therapy experiences consisting of an opening check-in, music-assisted relaxation (MAR), active music therapy interventions, and a closing. The active music therapy interventions included expressive singing, song lyric analysis, songwriting, and instrumental improvisation. Topics included active

listening, recognizing personal strengths, coping with change, assertiveness, expressing feelings, resolving conflict, learning/maintaining new health-protective behaviors, and celebrating accomplishments. As determined by repeated measures ANOVA, the results indicated that there was no difference between groups at all data collection points for the depression, anger/hostility, and stress dependent variables. For total mood disturbance, there was a marginally significant difference between groups. A post-hoc *t*-test between groups showed that there was a significant difference between groups at post-test, $t(1) = -2.41$, $p = .03$ that was not sustained at follow-up. For tension-anxiety, the repeated measures ANOVA indicated a group by time interaction that approached significance, $p = .06$. A simple effects analysis revealed that the participants in the experimental group reported a significant decrease in tension-anxiety at posttest, which was no longer present at follow-up. In an unanticipated finding, the experimental group reported a significant increase in vigor-activity at posttest that was not sustained at follow-up. Findings suggest that a weekly six-week music therapy group may be effective in reducing total mood disturbance and tension-anxiety for adults with coronary heart disease at least in the short-term. Additionally, music therapy may help to increase vigor and activity levels; therefore, increasing compliance with the lifestyle changes associated with heart disease (Dornelas, 2008). Increased treatment compliance may help decrease complications from heart disease, including morbidity and mortality, helping the individual to demonstrate their personal performance of health (Ruud, 2010). Should future studies support these findings, music therapists are encouraged to provide group music therapy programs consisting of both active and receptive interventions for adults with heart disease.

Dedicated in loving memory to my mom, Karen Ann Saberniak Pollard (1943 – 2001),
and my dad, Richard James Pollard (1943 – 2007).

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PREFACE

"Mole liked his life, but lately he had begun to feel there was something missing" (McPhail, 1999, p. 3). "Sometimes he wondered what it would be like to play his music for people" (p. 17). "He even imagined that his music could reach into people's hearts and melt away their anger and sadness" (p. 20).

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KEY TO ABBREVIATIONS

AHA	American Heart Association
AMTA	American Music Therapy Association
ANOVA	Analysis of Variance
CABG	Coronary Artery Bypass Graft
CAD	Coronary Heart Disease
CF	Contact Form
CHF	Congestive Heart Failure
CVA	Cerebrovascular Accident
HS	Hassles Scale
ICD	Implantable Cardioverter Defibrillator
IHHS	Institute for Health and Human Services
MAR	Music-Assisted Relaxation
MARI	Music-Assisted Relaxation and Imagery
MI	Myocardial Infarction
PTCA	Percutaneous Transluminal Coronary Angioplasty
POMS-SF	Profile of Mood States – Short Form
SPSS	Statistical Package for the Social Sciences
SS	Satisfaction Survey
VIF	Volunteer Information Form

CHAPTER 1

INTRODUCTION

In North Carolina, heart disease is the leading cause of death and accounts for 36% of deaths annually (Huston, 2006). While residents of metropolitan areas have convenient access to specialty hospitals and cardiac care clinics, residents in rural areas sometimes have to travel several hours to these centers for state-of-the-art care. Though rural areas are expanding regional options for acute and ongoing cardiac care and rehabilitation, these areas are often in need of support groups for people who have experienced a cardiac event. Indeed, a recent search for a cardiac support group in a rural area yielded one in a city approximately two hours away from the search area. Local support group options are needed to mitigate the time, expense, and energy involved in traveling to a support group in a metropolitan area.

This chapter will begin with an overview of heart disease and treatment interventions followed by a discussion of the incidence of heart disease in North Carolina. The current status of music therapy research with this population will be addressed to frame the problem statement and hypotheses presented at the end of the chapter. The chapter will close with relevant definitions of terms used in this paper.

Overview of Heart Disease

Cardiovascular disease is characterized by a build-up of plaque in the cardiovascular system of the body. Cardiovascular disease may result in both heart disease and cerebrovascular accident (CVA or stroke). Heart disease includes coronary heart disease (CHD), also known as coronary artery disease (CAD), arrhythmia, valve disease, and congestive heart failure (CHF). Coronary heart disease may result in angina (chest pain), myocardial infarction (heart attack), and cardiac arrhythmias (Huston, 2006).

Coronary Heart Disease

The first major category of heart disease is coronary heart disease. It is caused primarily by atherosclerosis, which results when fatty plaques develop in the arteries of the heart and interfere with the functioning of a blood vessel. Partial blocking of an artery can result in angina, which is experienced as pressure or burning in the chest. Angina is often accompanied by shortness of breath. If the blockage in a blood vessel is complete, the heart muscle beyond the obstruction may die and trigger a myocardial infarction, commonly known as a heart attack (Dornelas, 2008).

The primary changeable physiological risk factors for coronary heart disease are high cholesterol, cigarette smoking, high blood pressure, physical inactivity, obesity, and diabetes. The primary unchangeable risk factors are increasing age, male sex, and heredity. Other risk factors include stress, alcohol use, and diet (American Heart Association [AHA], 2009).

Arrhythmia

Disorders in the electrical system of the heart are collectively known as arrhythmias, the second major category of heart diseases. Arrhythmias can be caused by pre-existing damage from a heart attack, valve disease, or congenital heart disease. Other causes are possible, including hypertension, overconsumption of caffeine or alcohol, low potassium, and stress. Atrial fibrillation, a type of arrhythmia, occurs when electrical impulses fire from multiple parts of the heart. Communication between the atria and ventricles of the heart is disrupted and the heart beats irregularly (Dornelas, 2008). 2.2 million Americans have atrial fibrillation, which may lead to heart disease, stroke, or sudden cardiac death (AHA, 2009).

Two other sub-types of arrhythmias are bradycardia, a heart rhythm that is too slow and tachycardia, a heart rhythm that is too fast. The symptoms of bradycardia include dizziness and

fatigue, which may result in fainting. The symptoms of tachycardia include dizziness, faintness, heart palpitations, chest pain, or shortness of breath. There are several types of tachycardia including ventricular fibrillation, which can be fatal in minutes if the normal rhythm of the heart is not restored. This condition is known as sudden cardiac death or cardiac arrest and accounts for 335,000 deaths per year in the United States. It can be triggered by obstructed coronary arteries, or certain drugs and/or extreme physical exertion in people with a genetic predisposition (Dornelas, 2008).

Valve Disease

The third major category of heart disease is valve disease. A valve disease occurs when the normal function of the valve is disrupted, e.g., the valve is too narrow or leaks. Additionally, a valve may be inflamed, stiff, scarred, or prolapsed. In mitral valve prolapse, part of the valve extends into the atrium causing blood to pass back into the left atrium rather than progressing to the left ventricle (Dornelas, 2008).

Congestive Heart Failure

Congestive heart failure, also known as heart failure or congestive heart disease, is the fourth major category of heart disease. In the United States, there are 5.7 million people living with heart failure (AHA, 2009). It is caused by a disruption of the heart's ability to pump or relax sufficiently to send blood to the organs and extremities. The heart compensates for its compromised ability to pump by expanding its size through fluid collection. As a result of this fluid collection, fluid backs up into the lungs and the rest of the body. Causes of heart failure include hypertension, excessive alcohol use, pregnancy, myocarditis, obesity or diabetes, but any type of heart disease can progress to heart failure (Dornelas, 2008). There are 550,000 new cases

of heart failure every year and half the people with heart failure will die within five years (AHA, 2009).

Treatment of Heart Disease

Medical Procedures

While there are many medications to treat heart disease, invasive medical procedures are often needed. One such treatment is the percutaneous transluminal coronary angioplasty (PTCA), commonly referred to as angioplasty. In this procedure, arterial obstructions caused by plaque are flattened by a balloon catheter that has been inserted into the groin and threaded to the heart. In many cases, a stent is used to keep the artery open after the procedure. Angioplasty can be done as a scheduled procedure or in an emergency situation (Dornelas, 2008).

There are two major types of open-heart surgery operations: coronary artery bypass graft (CABG) surgery and valve operations. Coronary artery bypass graft surgery, commonly referred to as bypass surgery, is the most common open-heart procedure in the United States. Basically, a blood vessel from another part of the body is grafted to the heart beyond the blockage to allow blood to bypass the obstruction. Valves can be replaced or repaired depending upon the nature of the valve disorder. Mechanical and biological valves are available if the valve needs to be replaced (Dornelas, 2008).

Treatment for arrhythmia may include a pacemaker or an implantable cardioverter defibrillator (ICD). A pacemaker is used to treat bradycardia and can sense if the heart is beating too slowly or pausing too long between beats. If one of these conditions is detected, then the pacemaker can stimulate the heart to contract. An implantable cardioverter defibrillator (ICD) is used to treat tachycardia. If tachycardia is detected, the device can deliver a mild electrical impulse to slow the heartbeat into a regular rhythm. If ventricular fibrillation, a severe form of

tachycardia, is detected, then it can deliver a powerful electrical impulse often described as getting kicked in the chest. One benefit of the device is that is stores information that can be downloaded over the phone to the physician (Dornelas, 2008).

In addition to specific medical procedures and medications, preventative and non-invasive treatments for heart disease are available. Cardiac rehabilitation programs provide an important role in providing education and counseling to help increase physical activity level, reduce symptoms, improve health, and reduce risk of future problems (AHA, 2009).

Behavioral Cardiology

Dornelas (2008) defined behavioral cardiology as the theories and principles of the behavioral sciences applied to the psychological and behavioral aspects of cardiac disease. Other terms may be used in the literature, but this descriptor is used here to include the work of all clinicians who may work with patients in cardiac care. As will be described in Chapter 2, individuals with CHD often experience symptoms of stress including depressed mood, anxiety, and anger/hostility. These emotions can often lead to lowered quality of life and increased disease symptomology. Interventions are needed to activate the parasympathetic system to reduce the symptoms of stress and anxiety while providing opportunities for emotional expression and processing within a supportive social setting.

Incidence of Heart Disease in North Carolina

As stated earlier, heart disease is the leading cause of death and accounts for 36% of deaths annually in North Carolina. Additionally, North Carolinians have the eighth highest rate of hypertension in the United States. In particular, the region from southwest Virginia, through western North Carolina and into South Carolina is known in medical communities as a *stroke belt*. As stated earlier, stroke may result from cardiovascular disease. There is another parallel

stroke belt from southeastern Virginia, along the coast of North Carolina through Georgia to the coastal Sea Islands. These two *stroke belts* are attributed in part to genetic history, the local diet of the region, and historically poor access and use of medical facilities. While the rate of cardiovascular disease in men has been decreasing, the rate for women has shown little decline (Huston, 2006). Women in the United States are more concerned about dying from breast cancer than heart disease, yet breast cancer has a death rate of 1:30 and heart disease has a death rate of 1:2 (Bellg, 2004).

Music Therapy for Individuals with Coronary Heart Disease

There are relatively few articles related to music therapy for patients with heart disease (Bradt & Dileo, 2009; Mandel, 1996; Mandel, Hanser, Secic, & Davis, 2007; Mandel, 2007, MacNay, 1995; Metzger, 2004a; Metzger, 2004b; Schou, 2009). These articles include a description of case studies (MacNay, 1995), a description of a music therapy treatment protocol (Mandel, 1996), a review of the relevant literature (Metzger, 2004a), a description of a survey of patients with coronary heart disease (Metzger, 2004b), a randomized control trial (Mandel et al. 2007), and a dissertation about the application of music assisted relaxation and imagery (MARI) for this population (Mandel, 2007). While these articles provide preliminary information about music therapy for this population, more systematic research on music therapy for this population is needed.

Bradt & Dileo (2009) completed a Cochrane review of research studies involving the use of music with individuals with coronary heart disease. A Cochrane review is a systematic synthesis and evaluation of treatment approaches to determine effectiveness. These investigators made several suggestions including a need for music therapy research conducted by a board-

certified music therapist who is trained to address the specialized emotional needs of this population.

Statement of the Problem

The physical needs of individuals with coronary heart disease are often addressed through physician's visits and cardiac rehabilitation programs. While the research literature suggests that there is a direct link between the psychosocial needs of this population in the areas of stress management, depression, anxiety, anger/hostility and the health status of these individuals, it remains unclear what the best treatment protocols are for this population. Because affect-focused therapy may result in lasting lifestyle changes in this area (Dornelas, 2008) and music therapy can address affective and emotional functioning of this population, an investigation is warranted to determine if an affect-focused music therapy support group could result in increased psychosocial functioning for individuals with coronary heart disease.

Purpose and Hypotheses

The purpose of this research study was to examine the effect of a music therapy support group on depression, anxiety, anger/hostility, and stress of adults with coronary heart disease. The following hypotheses were addressed:

1. Research Hypothesis (H1): Participants will experience decreased mood disturbance, as evidenced by decreased total mood disturbance (TMD) scores on the Profile of Mood States – Short Form - POMS-SF (McNair, Lorr, & Droppleman, 1992).
2. Research Hypothesis (H2): Participants will experience decreased depressed mood, as evidenced by decreased scores on the depression-dejection (D) subscale of the Profile of Mood States – Short Form (POMS-SF).

3. Research Hypothesis (H3): Participants will experience decreased anxiety, as evidenced by decreased scores on the tension-anxiety (T) subscale of the Profile of Mood States – Short Form (POMS-SF).
4. Research Hypothesis (H4): Participants will experience decreased anger/hostility, as evidenced by decreased scores on the anger-hostility (A) subscale of the Profile of Mood States – Short Form (POMS-SF).
5. Research Hypothesis (H5): Participants will experience decreased stress, as evidenced by decreased scores on the intensity measure of Hassles Scale– HS (Kanner, Coyne, Schaefer, & Lazarus, 1981).

Definitions of Terms

Music Therapy

Music therapy is an established healthcare profession that uses music to address physical, emotional, cognitive, and social needs of individuals of all ages. Music therapy improves the quality of life for persons who are well and meets the needs of children and adults with disabilities or illnesses (American Music Therapy Association [AMTA], 2009). Music experiences may be active, e.g., music improvisation, or receptive, e.g., music listening. In this study, music therapy will be used to describe services provided by a board-certified music therapist.

Music Medicine

Music medicine differs substantially from music therapy in the following two ways: who is providing the music and what type of music intervention is being offered to the participant. In music therapy, the music intervention is provided by a board-certified music therapist. In music

medicine, the music intervention is provided by medical or other healthcare professionals. The critical difference is that the board-certified music therapist can individualize the music intervention, provide live music experiences, and provide a therapeutic presence whereas music medicine is usually limited to non-specific interventions of receptive listening to recorded music (Dileo as cited in Bradt & Dileo, 2009).

Depression

The symptoms of depression in individuals with CHD are similar to the symptoms of non-cardiac patients and may include:

> prolonged sadness and/or loss of interest in pleasure most of the day, nearly every day; significant weight loss or gain when not dieting; insomnia or hypersomnia; psychomotor agitation or retardation; fatigue or loss of energy; feelings of worthlessness or excessive guilt; diminished ability to think, concentrate, or make decisions; and recurrent thoughts of death, suicidal ideation, or suicide attempt (Dornelas, 2008, p. 51).

Anxiety

Anxiety refers both to emotional states, e.g., nervousness, and physiological states, e.g., rapid heart rate, sweating, dry mouth, and vertigo. It can be conceptualized as both a personality trait and a response to stressful situations. In cardiac literature, it generally refers to the individual's response to the stress of cardiac diagnosis, illness, and/or procedures (Dornelas, 2008).

Anger/Hostility

Anger manifests behaviorally as a range from minor irritation to rage. Aggression is an overt behavior and involves destructive or hurtful actions toward others. Hostility is the experience of anger toward others that manifests in a distrust of others and a wish to harm others.

Individuals with hostility have underlying negative attitudes and beliefs and see others as a source of mistreatment or frustration (Smith 1992 as cited in Sotile, 1996).

Stress

Stress is defined as a physiological and psychological response to external and internal stimuli. It is experienced as a result of personal and subjective responses to one's environment; no two people will experience the same events as stressful nor to the same degree. Stress can be measured with both physiological and psychological measures (American Institute of Stress, 2011). In this study, psychological measures of stress will be used in the form of a self-report tool.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter will begin with a discussion of the relationship among physical, social, and emotional variables in health and wellness. A discussion of the relationship between emotions and the central nervous system will be followed with a description of four changeable risk factors of stress, depression, anxiety, and anger/hostility and their role in coronary heart disease. Current psychosocial therapies for this population are discussed followed by a discussion of the use of music and music therapy for this population.

Emotions and the Central Nervous System

The sympathetic nervous system and the parasympathetic nervous system work in tandem to regulate arousal in the human body. It is necessary for the human to respond to environmental threats by increasing the activity of the sympathetic nervous system. In the cardiovascular system, heart rate increases to move more oxygen to the muscles. Additionally, this elevated cardiac output causes blood pressure to rise in preparation for blood loss or damage to tissues. The parasympathetic nervous system responds to this increase in arousal by slowing the heart beat, lowering the blood pressure, and returning blood supply to the periphery of the body. This complex relationship between the two systems of the autonomic nervous system is known as the fight-or-flight response (Friedman, Myers, Krass, & Benson, 1996).

The fight-or-flight response is essential to human functioning, but can be detrimental to health if the arousal of the sympathetic nervous system is easily triggered or remains in effect for long periods of time. Chronic stressors such as illness or everyday stressors can trigger repeated or prolonged stimulation of the sympathetic nervous system. The effect of epinephrine, the neurotransmitter responsible for excitation, can be detrimental to systems of the body.

Another system of the body that responds to stressors is the hypothalamo-pituitary-adrenal axis (HPA). Further, the hypothalamo-pituitary-adrenal axis (HPA) has been identified as a major contributor to the stress mechanism. This system is adaptive and serves to release the stress hormone, cortisol, to enable the body to respond to threat. However, in conditions of long-term threat, such as chronic illness, the system will flood the blood with cortisol, which is considered dysfunctional if the levels are elevated too high or too long. This dysfunctional level of cortisol can cause inflammatory response in the body (Copolov, James, & Milgrom, 2001).

The resulting inflammatory response can make the individual susceptible to illness and injury. The body will respond by developing plaques in arteries at sites of heightened inflammation and decreasing oxygen flow to the systems of the body. As a result, levels of low density lipoprotein (LDL or *bad* cholesterol) will rise and levels of high density lipoprotein (HDL or *good* cholesterol) will decrease, thus increasing risk of heart disease and hypertension. Triglyceride levels in the blood may also rise, which will attenuate the ability of HDL to increase to health-protective levels (Sotile, 2003). Dietary factors such as high sugar intake and high alcohol intake can exacerbate the triglyceride response in some individuals. It is evident that the physical health of individuals with heart disease must be addressed in their recovery for a heart event.

Changeable Psychosocial Risk Factors for Heart Disease

Stress

As noted earlier, chronic stress can cause prolonged activation of the fight-or-flight response system and the elevation of cortisol levels in the body through the HPA axis. The general adaptation syndrome model, suggested by Hans Selye in 1956, describes how high levels of stress hormones, such as cortisol, can increase blood pressure, triglyceride levels, low density

lipoprotein levels, and cholesterol levels (Dornelas, 2008). Stress and emotional distress can also increase inflammation, which increases the build- up of plaque in arteries. These are all risk factors from coronary heart disease.

While stress induces physiological changes in the body, there is a cognitive aspect to stress, specifically how an individual perceives their stress. Even after risk factors were statistically controlled for in the study, the perception of stress, as measured by the Perceived Stress scale, was the strongest predictor of symptomatic cardiovascular disease in a sample of 10, 432 women aged 70 – 75 (Strodl, Kenardy, & Aroney, 2003) indicating the importance of addressing perceived stress to improve coronary health of older women.

Depression

Depression has been identified in the literature as a changeable risk factor for heart disease. Depression has been shown to be linked to the development of cardiac illness as well as to the long-term prognosis for an individual with CHD. Most of the literature in this area examines depressive symptoms rather than clinically diagnosed depression. Often the depression of an individual with CHD is less severe than that of noncardiac patients, but is still a major factor in morbidity and mortality particularly as depressed patients may forget to take medications or stop healthful behaviors (Dornelas, 2008).

In a study to examine the frequency and severity of hopelessness and depression in people recovering from myocardial infarction, Dunn (2005) interviewed 351 patients, approximately 14 days following discharge from the hospital. She then interviewed the participants again three months following discharge. She found that hopelessness and depression were frequent and moderate to severe for some participants at baseline and three months. While depression did decline from baseline to three months post-incident, hopelessness remained

statistically unchanged after three months, which included both in-patient and out-patient treatment. She concluded that it is important to assess and treat depression and hopelessness in this population as individuals with high hopelessness may choose not to start or may quit a cardiac rehabilitation program intended to reduce morbidity and mortality.

A review of studies related to anxiety and depression, including how anxiety and depression progress and the effects of interventions for this population, concluded that anxiety and depression are common in patients with coronary heart disease (Herrmann-Lingen & Buss, 2007). They summarized that while symptoms of depression may decrease following in-patient treatment, depression often increases in the chronic phase of the disease when lifestyle changes need to be learned, practiced, and maintained. Because depression is a factor in prognosis, people with depression often have a poorer prognosis. The authors concluded that there are few studies about how depression can be successfully treated, so there is need for well-designed, multicenter studies, with large numbers of participants in order to differentiate the effectiveness of psychological treatments.

Anxiety

While anxiety often co-occurs with depression, particularly in the people with cardiac illness, the literature has shown only a weak link between anxiety and health outcomes, including mortality. Anxiety is more closely linked to the onset of cardiac illness rather than to the progression of the illness; however, it continues to be studied in the literature due to its link to stress and cardiac disease (Dornelas, 2008). It is thought that people with anxiety are more likely to be negatively affected by the stress of cardiac disease.

Several possibilities exist for relieving anxiety symptoms. Relaxation techniques, such as meditation, deep breathing, and progressive muscle relaxation are suggested. Other approaches

to address the physiological components of anxiety include biofeedback and exercise. Because anxiety is thought to relate to inner conflict, affect-focused therapy may be used to treat the anxiety by identifying and expressing the underlying emotion states (Dornelas, 2008).

Anger/Hostility

Investigators may use the terms anger, aggression, and hostility to describe this dependent variable. Anger manifests behaviorally as a range from minor irritation to rage. Aggression is an overt behavior and involves destructive or hurtful actions toward others. Hostility is the experience of anger toward others that manifests in a distrust of others and a wish to harm others. Individuals with hostility have underlying negative attitudes and beliefs and see others as a source of mistreatment or frustration (Smith 1992, as cited in Sotile, 1996).

Individuals with hostility are often reluctant to engage in behavior change if they believe the change is needed for the benefit of other people (Sotile, 1996). They may feel that to deny their feelings of hostility toward others is to deny or suppress their true feelings. It may be beneficial to encourage modification of hostile behavior patterns to improve their own health rather than to improve their relationship with others. They may be more likely to try new behaviors if they anticipate a positive health outcome.

In many cases, individuals with hostility have a Type-A Behavior Pattern (TABP) personality. These individuals evidence signs of constantly striving to do more and more, perfectionism, feelings of hostility, time urgency, competitiveness, mistrust of others (Williams & Steele, 2005). Treatment for these individuals can be challenging, as they may need to feel in control of aspects of the treatment and have difficulty trusting the therapist. Sotile (1996) suggested identifying the individual's strengths and designing active interventions with this population such as relaxation practice logs, shared group decision making, and options for choice

in the sessions. In summary, the psychological aspects of heart disease such as stress perception, depression, anxiety, and anger/hostility play a role in the treatment and prevention of heart disease.

Social Support

Another changeable risk factor in the literature is social support. While the health-protective mechanism of social support is less understood than stress and depression, it is still considered relevant to effective treatment of individuals with heart disease. In fact, risk of death is higher for people with fewer social support contacts (Dornelas, 2008). One possible explanation of the protective effect of social support is that it acts as a barrier to the HPA system when the body is in long-term chronic stress, such as heart disease (Williams & Steele, 2005).

Social support can be provided by family members, friends, health providers, and other patients. Social support may take the form of having a social network, receiving tangible support, and /or receiving emotional support. According to Rhodes (2004), emotional support may be the most effective form of social support. It is important for practitioners to assess social support, since in some cases individuals such as family members may contribute to increased stress by having to cope with their own illnesses, becoming frustrated by caring for their family member, or contributing to a stressful home life through the development or continuation of abusive relationships. In these cases, family therapy may be warranted. While the mechanism of social support is unknown and is certainly complex, investigators in the field continue to recommend inclusion of measures of perceived social support and strategies for assisting individuals in identifying and accessing social support (Lett et al., 2005). Treatments that occur within a social setting, such as group therapy, are presumed to engage the health-protective mechanism of social support.

Summary

Individuals with CHD often experience symptoms of stress including depression, anxiety, and anger/hostility. These emotions can often lead to lowered quality of life and increased morbidity and mortality. Clearly, interventions are needed to activate the parasympathetic system to reduce the symptoms of stress and anxiety while providing opportunities for emotional expression and processing within a supportive social setting. The next section will describe selected therapeutic, non-pharmacological approaches in behavioral cardiology.

Therapeutic Approaches in Behavioral Cardiology

Relaxation Training

One common component in cardiac rehabilitation programs is relaxation training. The relaxation training serves to trigger the parasympathetic nervous system to engage in order to mitigate the stimulating effects of the sympathetic nervous system responsible for the fight-or-flight response of the body. The relaxation response can be triggered several ways, including, but not limited to, meditation, yoga, deep breathing, and listening to music (Friedman et al., 1996).

Friedman et al. (1996) suggested a structure for relaxation training based upon the work of Benson et al. (1975). The authors suggested including progressive muscle relaxation (PMR) as part of a treatment protocol, but not as the only approach. This protocol works best in conjunction with a psychotherapeutic treatment and may be used best to prime the individual for a latter intervention by relaxing the body and refocusing the mind to absorb and respond to the treatment. Also, high levels of stress may trigger a continuation or return to supposedly anxiety-reducing behaviors, such as smoking and alcohol use.

When designing a relaxation training protocol, the leader should include a technique that encourages mental focusing and a technique to address distracting thoughts. One way to address these distracting thoughts is to think of a neutral dismissing phrase, such as, "Oh well," and focus again on the protocol (Benson et al., 1975, as cited in Friedman et al., 1996). They also suggested practicing the technique daily, but not within two hours after any meal. The authors also noted that developing the habit of using relaxation training may be difficult at first, but hopefully, the person will come to see the time as a welcome relief from daily stressors.

Cognitive Behavior Therapy

While most cardiac rehabilitation programs address psychosocial health in addition to diet and exercise, patients may benefit from more intense psychosocial treatments than the standard course of treatment in these programs (A. Burleson, personal communication, January 21, 2007). Cognitive behavior therapy uses learning experiences to adjust negative thinking patterns into more reality-based and helpful thoughts with the goal of positive behavior change. The therapist often coaches the individual through analysis and reframing of negative thoughts, i.e., cognitive distortions. Participants learn to monitor thoughts, alter thoughts, and identify and alter beliefs and assumptions that may play a role in negative thought processes (Beck & Weishaar, 1995).

Cognitive behavior therapy has been used with people with coronary heart disease. In a discussion of CBT therapy for individuals with coronary heart disease, Sotile (1996) described how the participants were taught to replace counterproductive thinking patterns with more realistic or positive thoughts. The rationale for the use of this approach for this population is that cognitive distortions can become stressful and habitual and interfere with the development

and maintenance of healthy coping skills. Additionally, optimism and hopefulness are health-protective and can help individuals cope with stressors in daily life.

There are few quantitative experimental psychosocial treatment studies in the literature. Three of these studies will be reviewed here (Berkman et al., 2003; Burg et al., 2005; & James, 2006). All three studied the effect of cognitive behavior therapy (CBT) on psychosocial variables. Berkman et al (2003) studied the effect of individual CBT on symptoms of depression and low perceived social support (LPSS) on patients with coronary heart disease. Prior to this study, the effect of treatment on LPSS in patients following a myocardial infarction had never been studied. Participants were 2,481 patients with coronary heart disease who had experienced a heart attack a minimum of 28 days earlier. All participants had a diagnosis of depression. Individual sessions were held for 11 sessions across 6 months. Outcome measures were the incidence of death or recurrent MI, changes in depression, and changes in LPSS. While morbidity and mortality were not affected by the therapy, the patients did experience a statistically significant decrease in symptoms of depression and increased perception of social support. The investigators maintained that while the patients' lives were not extended, they may have experienced enhanced quality of life due to the treatment.

In a study related to Berkman et al. (2003), Burg et al. (2005) investigated the interaction of perceived social support and CBT therapy on measures of social support. Participants (N = 1,503) were grouped into four groups based upon level of perceived support and presence of a partner. All four groups evidenced increased perceived social support; however, only the group classified as the lowest perceived social support and no partner had a statistically significant difference compared to the other groups. It is possible that individuals without a partner and low social support benefit the most from individual CBT therapy. The investigators suggested

that perhaps the therapist functions as a surrogate partner for these individuals. For those with higher perceived social support and a partner, the therapist may be seen as a competitor to these existing social systems.

Cognitive-behavioral therapy for building skills. One specific application of CBT therapy for this population is the development of new healthful skills and behaviors. An assumption of this model is that if the participant learns new skills, then his/her quality of life will improve. Skills training can be a stand-alone program or included as part of a larger treatment package. It is important to provide participants with opportunities to practice the new skills rather than just learning about the new skills. While practicing and learning alone both have been shown to facilitate positive behavior change, opportunities to practice the new skills have been linked to longer term maintenance of the new behaviors (Farmer & Chapman, 2008).

Self-efficacy theory. The theoretical foundation for skills building is the idea that the ability to change or learn new skills lies within the individual, assuming the individual receives support and guidance to discuss and use his or her strengths. An individual may discover his or her strengths through four mechanisms or sources: (a) enactive information, (b) vicarious information, (c) persuasive communication, and (d) internal feedback (Bandura, as cited in Sotile, 1996).

Enactive information is the most powerful source of efficacy information and refers to the participation of the individual in the new behavior. Learning about the skill is not sufficient; it must be practiced actively to be mastered. Vicarious information refers to learning from observing others participating in particular situations and engaging in new behaviors. Many times an individual will discuss his or her efforts toward learning new skills with other members

of the group. This source of information and insight related to skills building is termed persuasive communication.

An important step toward learning a new skill is providing for internal feedback as a source of efficacy information. Internal feedback helps the individual to not only learn the targeted skill, but to maintain the skill after the intervention ends. The skills that are learned must be linked to the purpose of learning the new skill. For example, if the individual's goal is to return to work following a cardiac event, then the physiological information from an exercise group can be useful in meeting that goal. Specifically, the individual may learn an exercise program, but the data or observations from participating in the program can provide support for the individual's readiness to return to work as indicated by the person's stamina to complete a particular exercise program. The person may also have increased self-confidence about returning to work if they feel successful in the exercise program.

Planning interventions. Consistent with self-efficacy theories and according to Farmer & Chapman (2008), it is important to establish a procedure for the skills training intervention while being aware of the context of certain behaviors. Their suggestion for planning interventions was focused on four components: "(a) defining and structuring skills training, (b) orienting the client(s) to skills training, (c) skills acquisition procedures, and (d) skills strengthening procedures" (p. 187). The first step is to define the class of skills to be learned and to form an operational definition. The second step is to decide upon the structure and format including leadership of the sessions, length of sessions, treatment period, and size of group. The third step centers around orienting the client to the training by providing a rationale for the program that is directly related to the client's wishes and goals.

Once the preliminary work has been completed, there are several possibilities for teaching the new skills. Most skills building programs include a process of conveying information to the group such as the goals and rationale for the group and specific information related to the skills to be learned. As stated earlier, it is important for participants to have opportunities to practice the new skills during the session through experiences that include modeling, practicing, and performing the skills. Often the group will have a discussion that may include disclosure regarding the skill usage of the therapist and participants. This disclosure may result from discussion of homework assignments perhaps including self-monitoring logs and skills practice assignments (Farmer & Chapman, 2008)

In a chapter about skill-building support groups specifically for people with cardiac illness, Sotile (1996) stressed the importance of communicating to the participants the rationale for learning new behaviors and coping skills within long-term rehabilitation. For example, learning a relaxation protocol can be helpful to individuals with heart disease, but they must understand that it not only will help them to relax in the short term, but it might also help them to be healthier in the long-term to reduce morbidity and mortality. They must also make the suggested changes for themselves rather than for the therapist or family members.

In terms of the structure and procedure of these types of skill-building groups, Sotile (1996) made several recommendations. He suggested that the groups should be time-limited and last from 4 to 6 weeks in length. A longer time commitment may be overwhelming for a patient recovering from an MI or cardiac procedure. A session length of 1.5 hours was suggested. For an overall structure to the sessions, he suggested having a specific support group theme with brief presentations each week followed by group discussion time. In terms of how the therapist and other participants interact with each other, he suggested that rather than offering

advice, the participants should listen, reflect, empathize, and admire the other individuals in the group. Learning these techniques in the group is beneficial to relationships outside of the group.

In an early published description of a therapeutic group to assist in learning new lifestyle changes for people with coronary heart disease, Billings, Scherwitz, Sullivan, Sparler, & Ornish, (1996) planned a program to address diet, exercise, stress management, and group support. This study is often referred to as the Lifestyle Heart Trial. The focus of this description will be on the group support model and techniques of this study. The authors discussed that while the group support process began as a means to monitor compliance with the diet, exercise, and stress techniques, it was cited by some of the participants as the most important part of the study. The purpose of the group was to assist the participants in learning new interpersonal skills and establish strong emotional bonds.

The goals of the group were to improve self-communication and other-communication. Specifically, participants were guided through identification of feelings and expression of feelings opportunities. In the area of other-communication, participants were taught to listen with empathy and compassion and to express empathy and compassion to other group members. The session typically began with brief meditation for transition purposes followed by a prompt question for each individual to recall "an event or experience in the last week that was upsetting, uplifting, or otherwise stimulated a feeling or set of emotions" (Billings et al., 1996, pp. 244-245). The participants were then asked to select one word to share with the group that described those feelings. Participants were then given the opportunity to explain or expand on the word in order to practice the goal areas of self-communication and other-communication. The group concluded with a summary of the issues by the group leader and another moment of quiet meditation for transition purposes (Billings et al., 1996)

The group focused on the communication and processing of feeling rather than thoughts and stimulated the group members to listen and communicate with empathy rather than giving advice to the speaker. This proved to be a challenge for the group. The leader often had to re-focus the group on the feelings being discussed or felt in the moment rather than the specific situation being discussed. They found that instruction in active listening skills was essential and several rules had to be developed. The rules were as follows:

> (a) do not give advice unless it is asked for, (b) do not give reassurance unless it is requested, and (c) do not give testimonials about your successful or unsuccessful experience with a problem that someone else is bringing up unless the point you are making is your understanding of the person's feelings (Billings et al., 1996, p. 248).

The group leader must remind the group of these rules and facilitate a focus on the feelings of the group. Additionally, the leader must be familiar enough with heart disease to provide a rationale for the focus on feelings for this population. The authors also advised that many participants can be intense and hostile at the beginning of treatment. It is the role of the leader to remind the participants that there will be differences among group members, but the purpose of the group is to focus on similarities and practice skills that might improve each person's quality of life.

The results of this study in the area of psychosocial functioning were that the participants in the experimental group had a significant reduction in trait anger as compared to the control group at 1 year ($p = .05$) and at the 4-year follow-up. While the diet, exercise, and stress management components were important, the authors suggested that group-based therapies alone might positively influence the outcome of chronic disease such as coronary heart disease (Billings et al., 1996).

In another experimental study about using CBT to teach new skills, James (2006) studied the effect of a cognitive-behavioral therapy intervention on inflammatory markers and psychological variables for patients with coronary heart disease. Thirty-three participants participated in a 90-minute CBT-based therapy group for 8 weeks. The treatment was based upon the Williams LifeSkills, Inc. program and included relaxation and meditation, assertiveness, problem-solving and improving communication and empathy. Both the treatment group and the control group completed measures for hostility, anger, depression, social support, and levels of inflammatory markers at pre-test and post-test. The treatment group participants showed significant improvements in trait anger, outward expressions of anger, and internal control of anger compared to the control group. There was no improvement in inflammatory measures as a result of the treatment.

Summary

While CBT has been used to address the psychological functioning of patients with heart disease, there is some concern that it may not be as effective for these individuals as it is for individuals with chronic and persistent mental illness (Dornelas, 2008). The suggestion is that perhaps the mechanism for depression is different in heart disease and more related to the inflammatory response than to irrational thoughts, which are addressed in CBT. Another suggestion is that these individuals may benefit from opportunities to learn new skills for emotional expression and stress release rather than limiting treatment to addressing irrational thoughts (Langosch, Budde, & Linden, 2007).

Relationship Between Music and Health

If it can be established that interventions addressing the physical, psychological and social needs of individuals with heart disease are needed for recovery, then what is the value of a

music therapy intervention for this population? In other words, what is the evidence, both theoretical and empirical, for this choice? The following sections will address this question to attempt a validation of the importance of music, specifically music therapy, for this population.

Is health merely the absence of disease that can be empirically measured and consistent among individuals or is health a concept that differs among individuals depending upon other characteristics such as age or socioeconomic status? Ruud (2010) presented these questions and continued on to suggest that engaging in music making is the performance of health. While empirical measures of health and wellness are important in the current age of evidence-based medicine, then so are individualized and personal definitions and performances of health and wellness. Therefore, an intervention, such as music therapy, that could potentially address consistent health measures across individuals and individually-constructed definitions is appropriate for adults with heart disease. Music therapy may assist an individual in finding enhanced meaning and purpose in life despite experiencing a life-threatening problem such as heart disease.

Music and Stress in Healthy Adults

Continuing the discussion of the importance of music for this population, the following section discusses the application of music for stress management for healthy adults. In order to investigate whether music can facilitate the relaxation response, music therapy investigators have examined the relationship between music and stress in healthy adults. This section will review these studies in chronological order. Thaut and Davis (1993) studied the differential effect of subject-selected and experimenter-chosen music on affect, anxiety, and relaxation. Fifty-four individuals, aged 18-33 years old, were randomly assigned to one of three groups: control, subject-selected music, or experimenter-chosen music. Subject-selected music was defined as

music selected from each participant's personal collection. Experimenter-chosen music was defined as music that was advertised to relieve tension and increase relaxation. The control group sat quietly for 15 minutes and the experimental groups listened to music for 15 minutes. The dependent variables were measured with the Spielberger State Anxiety Inventory for anxiety, Multiple Affective Adjective Checklist (MAACL) for depression and hostility, and a visual analog scale for relaxation response.

Only the anxiety variable evidenced a differential effect between music and silence, but there was no statistically significant difference between the subject-selected and experimenter-chosen music for any of the variables. There was a statistically significant decrease ($p < .05$) in both music conditions and none in the no-music control. The relaxation response, as measured by the visual analog scale measuring stress levels, decreased by a statistically significant margin in all three conditions. Similarly, all participants reduced hostility scores on the MAACL in all three conditions. Depression, as measured by the MAACL, did not have a statistically significant result in any of the three conditions (Thaut & Davis, 1993).

The authors offered several suggestions for clinical practice and future research. They suggested that if individually-selected music was as effective as commercially-prepared music for relaxation, then individuals should have the opportunity to select their own music for relaxation purposes. Also, non-music methods of relaxation as compared to music-assisted relaxation should be studied because some of the participants reported using other methods of relaxation, e.g. deep breathing, progressive muscle relaxation or visual imagery during the music conditions. It cannot be determined from this study if the results were due to the music or a combination of music and other methods (Thaut & Davis, 1993).

Scheufele (2000) made the suggested comparison of music and a non-music relaxation protocol in a research study to determine the differential effects of progressive relaxation and classical music on attention, relaxation, and stress responses. Sixty-seven participants with an age range of 18 to 59 were randomly assigned to one of four groups. All four groups participated in a stress-inducing task followed by the particular condition determined by their group assignment. Each condition lasted 15 minutes. The Control 1 group listened to a tape of stories and then wrote down what they remembered of the stories and the Control 2 group sat in silence. The Treatment 1 group participated in a taped progressive muscle relaxation protocol without music and the Treatment 2 group listened to a recording of *Sonata in D major for Two Pianos* by W. A. Mozart, K. 448. The dependent variables were measured with the Digit Vigilance Test (DVT) to measure attention, the Upright Relaxation Scale to measure relaxation through observation, a visual analog scale for attention and relaxation, the Profile of Mood States (POMS) for mood, and heart rate for physiological arousal.

All four groups had similar results on the measure of attention and physiological arousal. The progressive muscle relaxation condition had the greatest effect on the behavioral and self-report measures of relaxation as compared to the music condition. The investigator concluded that the progressive relaxation condition had more effect on the dependent measures than the music condition. It was suggested that perhaps individuals need the cognitive cues provided in the progressive relaxation condition as compared to just listening to a musical selection (Scheufele, 2000).

In the previous example, one specific music selection from a specific genre was used to determine if music can affect relaxation. Burns et al. (2002) considered that different kinds of music, e.g. classical, hard rock, self-selected relaxing as compared to no music, may

differentially affect measures of perceived and physiological measures of stress. Sixty undergraduates aged 18 to 49 years old were randomly assigned to one of four groups. The control group sat in silence while the other three groups listened to music. The classical group listened to *Serenata Notturna*, K. V. 239 by W. A. Mozart, while the hard rock group listened to *So Close* by Alice in Chains. The fourth group listened to self-selected music they considered to be relaxing. Anxiety was measured with the State-Trait Anxiety Inventory and relaxation was measured with a Likert-type scale, 1 to 7. Physiological measures of stress were skin temperature, frontalis muscle activity (i.e. just above the right eye) and heart rate.

To increase arousal, the investigators told all participants that they were going to participate in a stressful task. Then all dependent measures were administered, followed by 10 minutes of silence for each group, then the assigned condition for 10 minutes, followed by 10 minutes of silence again, and ending with the posttest measures. All music conditions decreased anxiety except for the hard rock condition. While both the classical and self-selected conditions decreased anxiety, the classical evidenced the most positive change in physiological relaxation response of heart rate. The authors concluded that sitting in silence may be a better way to promote relaxation than any music due to the difficulties of selecting appropriate music for this purpose. While the authors concluded that hard rock is counterproductive to relaxation goals (Burns et al., 2002), it is certainly possible that if an individual self-selects hard rock for relaxation purposes, then the individual may feel relaxed.

While the earlier described studies used only one treatment session of each condition, Smith & Joyce (2004) studied the differential effects of classical music, new age music designed for relaxation, and reading of popular magazines upon a complex measure of stress across three consecutive days of intervention. Sixty-three junior-level college students participated in this

study. Following 3 minutes of listening to excerpts from the music selections and browsing the magazines, participants selected from three conditions: classical music, new age music, and reading of popular recreational magazines. The classical music selection was *Eine Kleine Nachtmusik* by W. A. Mozart and the new age selection was *Serenity Suite* by Steve Halpern. Given this choice of conditions, over half of the participants chose the reading condition. Pretest and posttest measures of the Smith Relaxation States Inventory (SRSI), the measure of stress, were administered to the participants. The listening or reading was conducted at home for three consecutive days.

Another finding of this study was that the number of listening sessions increased the effect on stress. After one session, there was no difference among the groups on the measure of stress. After two sessions, both music conditions evidenced a statistically significant result on the dependent variable compared to the reading recreational magazines condition. After three sessions, the Mozart selection was statistically significant as compared to the new age music on the measure of stress. The investigators suggested that, for situations of chronic stress, an individual may benefit most from music-assisted relaxation with classical music compared to new age music or other non-musical condition. The rationale for this conclusion was that the novelty of the magazines and new age music decreased after one session, while the classical music continued to be effective at day three (Smith & Joyce, 2004). Whether the classical music would continue to be effective or have a similar decrease in effectiveness in the long-term would have to be determined with future research.

In an attempt to synthesize research findings relevant to music and stress, Pelletier (2004) conducted a meta-analysis of 22 studies. The studies had to be experimental studies with group

or individual subject designs with at least two contrasting conditions, recorded music, an *n* size greater than one, and had to have data reported as behavioral, self-report or physiological.

The use of music alone or music-assisted relaxation for stress relief was determined to have a large positive effect size (d = +.67). The investigator also concluded that individuals under 18 and women benefitted the most from music and relaxation protocols. Also, she suggested that investigators should specifically use music-assisted relaxation and imagery (MARI) because it combines the cognitive cues of progressive muscle relaxation with the benefits of music listening. She also concluded that Guided Imagery and Music (GIM) is ineffective for relaxation purposes; however, the study she included in the meta-analysis was misattributed by the author as GIM when it was a music and imagery study only.

Related to the suggestion by Pelletier (2004) that women benefit from music and relaxation protocols, Fu (2008) conducted a study to determine if women graduate students could benefit from a music-assisted relaxation (MAR) program in terms of their stress level, anxiety, and mood state. The 32 participants had an age range of 23 to 42 and were not currently taking medications for psychiatric conditions. Two 20-minute MAR sessions were provided for each participant; one session was MAR and the other was non-music. The measures were the STAI Y-1 for anxiety; POMS-SF for mood, blood pressure, and heart rate. Results indicated that there were significant differences between interventions for anxiety as measured by the STAI Y-1 and the tension-anxiety subscale of POMS-SF. Additionally, the results indicated that the MAR intervention increased the participants' vigor as measured by the vigor subscale of POMS-SF.

Summary

The above section described the philosophical and empirical evidence for music and health for adults and provides some information for designing treatment protocols for this

population. Specifically, an individual's beliefs about his or her meaning and purpose in life may be enhanced through music making (Ruud, 2010). Also, planning for multiple sessions might be more beneficial to reduce depression and stress than single sessions (Thaut & Davis, 1993; Smith & Joyce, 2004). Second, it is possible that classical music combined with the cognitive cues of progressive muscle relaxation may be more beneficial than listening alone, other types of music, or non-music interventions alone (Scheufele, 2000; Burns et al., 2002; Smith & Joyce, 2004; Pelletier, 2004). Last, a MAR program could be beneficial in terms of reducing anxiety and increasing vigor (Fu, 2008).

Music Medicine for Individuals with Heart Disease

In the last decade, medical professionals have shown an increased interest in music for patients in coronary care, particularly on variables of pain, mood, and physiological arousal. Bradt & Dileo (2009) completed a Cochrane review of music for individuals with coronary heart disease in order to evaluate the effectiveness of this intervention. While they found randomized controlled trials (N = 23) of the effect of music with this population, most of these studies (N = 22) were classified as music-medicine studies, specifically receptive listening conducted by medical personnel, for inpatients undergoing a medical procedure. Of these 22 studies, only two targeted outpatients as the participant group. Despite being referred to as music therapy in some of the studies, 21 of the studies were conducted without a board-certified music therapist. Only one study was classified by Bradt & Dileo (2009) as a music therapy study for outpatients. Two representative music-medicine studies will be reviewed here: one for participants following cardiac surgery and one for participants in cardiac rehabilitation. A review of studies conducted by music therapists will presented later in the chapter.

In a study of the effectiveness of music listening on pain, anxiety, physiological parameters, and opioid consumption for patients recovering from cardiac surgery, Sendelbach, Halm, Doran, Miller, and Gaillard (2006) randomly assigned 50 participants to a music listening protocol and 36 participants with quiet, uninterrupted rest. The participants in the music group listened to 20 minutes of music two times a day on postoperative days 1 to 3. The investigators selected music that had no dramatic changes, was consonant, was instrumental, and was between 60 to 70 beats per minute. Within these criteria, the participants could select from easy listening, classical, and jazz. Measures of the dependent variables were taken before and after each condition. No significant differences were found for systolic blood pressure, diastolic blood pressure, heart rate, and opioid use. Results indicated significant reductions in perceived pain ($p = .009$) and anxiety ($p < .001$). The investigators concluded that the psychological benefits of music after cardiac surgery may be of greatest benefit to patients (Sendelbach et al., 2006).

In one of the studies for cardiac outpatients reviewed by Bradt & Dileo (2009), participants were asked to exercise on a treadmill while listening to music on headphones or without music (Emery, Hsiao, Hill, & Frid, 2003). The investigators were attempting to determine if exercising to music could be beneficial in enhancing cognitive performance by a verbal fluency task and mood functioning by POMS-SF in people in cardiac rehabilitation. Thirty-three participants, both male and female, completed the study. The investigators selected Vivaldi's *Four Seasons* for its moderate tempo and rhythmic features. The results indicated that verbal fluency was improved with the music condition and symptoms of depression were reduced in both conditions. The authors speculate that the exercise itself could have reduced the symptoms of depression since both groups experienced a reduction in symptoms without a significant difference between conditions.

Therefore, while there is an interest in music therapy by the medical profession, questions remain about the choices and administration of the music protocol and its comparison to standard care. Similar to Hanser & Mandel (2005), Bradt & Dileo (2009) suggested that research implemented by a music therapist trained to address affective needs is needed due to the ability of the music therapist to carefully select and individualize music and interventions for the sessions. They further suggest the need for research to determine the length and duration of music therapy interventions for maximum benefit. The following section will present and summarize the music therapy research for individuals with heart disease.

Music Therapy for Individuals with Heart Disease

There are relatively few articles related to music therapy for patients with heart disease (Bradt & Dileo, 2009; Mandel, 1996; Mandel, Hanser, Secic, & Davis, 2007; Mandel, 2007, MacNay, 1995; Metzger, 2004a; and Metzger, 2004b; Schou, 2009). MacNay (1995) investigated the effect of preferred music on perceived exertion, mood, and time estimation measures of four patients in a cardiac rehabilitation program. The treatment was listening to preferred music while exercising. The investigator concluded that the music listening did have a positive effect on all variables. Mood was identified as the most affected by the music, although mood was measured with one visual analogue scale (VAS) only rather than a standardized measure of mood.

Mandel (1996) described a music therapy program for patients in a cardiac rehabilitation program. All patients participated in one educational program during their 12-week program using music for relaxation purposes. In this program, the patients discussed stress and then were instructed in music-assisted relaxation and imagery (MARI). Patients could then be referred for music therapy services by an MD, nurse, exercise physiologist, family member, music therapist,

or themselves to participate in individual sessions or multi-week small group music therapy program focusing on stress management, music-assisted relaxation, and social support. Six biweekly outpatient sessions were offered. Family members could participate in any part of the program and were encouraged to learn and practice the music-assisted relaxation techniques as well.

Several music therapy interventions were used in this program (Mandel, 1996). Both live and recorded music were used to support discussion and to explore feelings. Songs were selected to be relevant to an individual's situation or to general stressors of the population. Interventions included song lyric writing, interpretation of song lyrics, and selection of songs relevant to each person's experience. The investigator also recorded MARI scripts over recorded music for home practice. The author concluded that the program was beneficial to the participants (Mandel, 1996).

Metzger (2004a) sought to describe the literature related to music, heart disease, and the uses of music by patients in a cardiac rehabilitation program. In this literature review, she described how music has been used to affect heart rate, blood pressure, and stress. Additionally, she reviewed articles about music therapy and individuals with heart disease. She concluded the article by suggesting that music therapy research in this area should focus on better delineation of participant variables, better description of protocols, and a more systematic approach to research (Metzger, 2004a).

In an article about the results of a survey of patients in a cardiac rehabilitation program regarding their uses of music for exercise, relaxation, and enjoyment, Metzger (2004b) concluded that patients are open to using music and music therapy in their lives, but that few used music as a cue for exercise (i.e. matching the pace of walking to the beat of the music).

The patients did indicate using music as a motivator for exercise though. The author suggested that there is a need for more education about the possible uses of music for this population and that information about music preferences and uses of music by participants should be gathered prior to initiating a program (Metzger, 2004b).

One recurrent theme in the literature regarding music therapy in cardiac healthcare is the question about who should select the music to be used in the session and whether it should be individualized to each participant. Hanser and Mandel (2005) addressed this question in an article written for a cardiology journal. In their review of the research in this area, they noted that none of the research studies included music that was selected based upon participant's preferences. In many cases, the same music selection was used for all of the participants. They suggest that if music listening was effective for programs that were not individualized, then it is possible that music selected by the participant and administered by a qualified music therapist may have even greater benefit.

Building upon the music therapy protocol developed by Mandel (1996) and described earlier, Mandel et al. (2007) designed a randomized controlled trial to determine the effectiveness of this protocol on physiological and psychological dependent variables. Sixty-eight people between the ages of 30 and 80 years old participated in this study. The participants were randomly assigned to the control group, which received the standard cardiac rehabilitation programming, or to the treatment group, which received standard care plus music therapy services. Physiological measures were diastolic and systolic blood pressure. Psychological measures were the State-Trait Anxiety Inventory (STAI-T), the Center for Epidemiologic Studies Depression Scale (CES-D), the Brief Symptom Inventory (BSI), the Medical Outcomes Study 36-item Short-Form Survey (SF-36), stress analog scale, and anecdotal reports. Participants

attended between four and six sessions every other week for 1.5 hours. The protocol consisted of several elements, specifically, an opening song, a check-in, group work, active music-making, MARI practice, and reminder of homework assignment to practice MARI techniques at home.

In terms of the physiological hypotheses, the investigators noted that the music therapy group evidenced lower systolic blood pressure than the control group ($p = .03$). Regarding the psychological variables, the investigators retained the null hypotheses. Upon four month follow-up, the music therapy group did evidence statistically significant improved functioning in anxiety, general health, and social functioning although the investigators advised caution as some members of the wait-list control group were unavailable for comparison as they had already begun participating in music therapy. The groups were not statistically different from each other in terms of depression immediately after the study or at 4-month follow-up. The authors concluded that a period of at least a month is needed to develop new stress management practices. Also, the study did not control for the effect of the individual attention of the therapist. The investigators suggested assigning at least 75 participants to each condition and controlling for the individual attention of the therapist should the study be replicated.

In a follow-up study to Mandel et al. (2007), Mandel (2007) designed a non-randomized study to investigate the effect of MARI on blood pressure, anxiety, stress, depression, and health-related quality of life for patients ($N = 15$) participating in a cardiac rehabilitation program. The dependent variables and measures were similar to the previous study (Mandel et al. 2007) except the BSI was not included. Also, the data sources of behavioral observations during MARI and narratives of patient experiences were added. Another difference between the two studies was that the intervention was MARI only without therapeutic intervention. In the previous study, the intervention included active music-making and therapeutic intervention of the music therapist.

Significant differences were found for all variables except diastolic blood pressure following the first MARI training session, yet at the two-week and four-month follow-ups, no significant differences were found for any of the variables. Several questions were raised in the analysis section including the clinical relevance of the significant findings after the initial session. Also it is unclear if the nonsignificant blood pressure responses were due to the lack of therapeutic involvement, the variability of individual responses, or the small sample size. Another question was if the significant results after the training session were due to the intervention or the presence of the therapist even though she was instructed not to interact in a therapeutic manner. The author concluded that more research is needed about the effect of music therapy for this population particularly since several of the participants could have benefitted from therapeutic involvement in the form of additional coaching, individualized recordings, preferred music, and emotional processing (Mandel, 2007).

In an attempt to compare the possible differential effects of guided relaxation with music, music listening only, and control with rest, but no music, Schou (2009) implemented a study for patients after cardiac surgery. The 63 participants ranged in age from 40 to 80 years of age. The participants in the two music conditions selected from four styles: (1) easy listening; (2) classical; (3) music composed for relaxation; and (4) jazz. The music choices for the guided relaxation with music and the music listening groups were chosen by the investigator for stability and predictability of music elements and for the targeted tempo range of 60 to 70 beats per minute. Each participant in the two music groups listened to an excerpt of each choice and then selected the one to be played at each of their individual sessions. Sessions occurred once before surgery and three times after surgery. Measures included self-report of anxiety, pain, mood, and the importance of rest/relaxation, music and the guiding procedures.

In her presentation, Schou (2009) indicated that, while there were no significant differences among the groups for each dependent variable, information regarding the music for the sessions yielded important information for music therapists. Specifically, the investigator reported that 57% chose easy listening, 30% chose classical, 13% chose music specifically composed for relaxation, and none chose the jazz selection. She speculated that the low percentage of selection of the music for relaxation and the jazz selection might have been due to the contemporary nature of the choices and/or the age of the participants. Participants in the music groups were asked to rate the importance of musical elements to their experience of relaxation and chose the tempo as the most important musical element for their relaxation. They rated familiarity as a variable of less importance. She concluded that, in addition to knowing how to select music for relaxation purposes, the music therapist must be very familiar with the music selection in order to fit the verbal guiding to the music, including the phrasing and the length of the piece. She also stated that the music therapist must also be aware that, while many patients might enjoy the sessions, some may not like it at all which would be contraindicated for the purposes of relaxation and stress management.

To synthesize the wide variety of interventions and protocols in the literature, Bradt & Dileo (2009) completed a Cochrane review of music for individuals with coronary heart disease. They reviewed the findings of randomized controlled trials ($N = 23$) on the effect of music with this population, but most of these studies ($N = 22$) were classified as music-medicine studies, including receptive listening conducted by medical personnel, for inpatients undergoing a medical procedure. Of these 22 studies, only two targeted outpatients as the participant group. Twenty-one of the studies were conducted without a trained music therapist. Only one study was classified as a music therapy study for outpatients.

The authors concluded that music listening may have a moderate effect on anxiety, but other areas of psychological distress were not shown to have strong evidence for efficacy of music as an intervention. Physiological measures, including heart rate, respiratory rate, and blood pressure, may be affected by music and music may have a pain-reducing effect if two or more sessions are conducted. One consideration is that most of the studies used pre-recorded, rather than live, music for the intervention. Additionally, some studies gave little information about the music used or the selection procedure. The authors indicated a need for further research and a need for research involving music therapy conducted by trained music therapists prepared to address the specialized emotional needs of this population (Bradt & Dileo, 2009).

Summary

While the number of research studies in the area of music therapy for individuals with coronary heart disease is small, the initial evidence for the relationship between psychological functioning and music is compelling. If a weekly music therapy intervention could focus specifically on emotional functioning with music engagement as its core element, then perhaps individuals with coronary heart disease could benefit in terms of psychosocial functioning and ultimately improvements in morbidity and mortality since the research has established connections between these factors and positive health outcomes. To that end, the purpose of this research study was to examine the effect of a music therapy support group on depression, anxiety, anger, and stress of adults with coronary heart disease.

CHAPTER THREE

METHOD

Participants

Participants were recruited through presentations by the investigator at two local cardiac rehabilitation programs. These presentations were announced in advance by a recruiting poster (see Appendix A) and on the day of the event by the medical staff. At these presentations, potential participants were given information about the research, provided opportunities to ask questions, and offered time to complete the Volunteer Information Form (see Appendix B) and the Contact Form (see Appendix C). People who were interested, but did not have time to complete the forms at the time of the presentation, were offered the forms and a stamped envelope to mail the forms back to the investigator. Recruitment flyers were left with the staff at the sites and posted by the investigator in several locations at each facility. In addition to these information sessions, an informational email message was distributed to the faculty and staff of a local university three times across a five-month time period. Other forms of recruitment included an announcement in the community involvement section of the university's website and a weekly advertisement in the local newspaper.

Inclusion Criteria

Volunteers were eligible for the study if they were between the ages of 40 and 95. Volunteers under 40 and over 95 were excluded due to the unique psychological and medical needs of people with coronary artery disease within these age ranges. Additionally, volunteers met one or more of the following criteria adapted from Dornelas (2008):

- Have experienced a heart attack (myocardial infarction);

- Have a heart condition, including coronary artery disease (CAD), angina, valve disease, or arrhythmia.
- Have had a heart procedure or surgery, including coronary artery bypass graft (CABG) surgery or percutaneous transluminal coronary angioplasty (PTCA) with stenting, a valve replacement, or placement of a pacemaker or implantable cardioverter defibrillator (ICD).

Exclusion Criteria

The following exclusion criteria were adapted from James (2006). In order to decrease the possibility of extraneous factors influencing the results of the study, volunteers were excluded from participating in the study if they had one or more of the following situations:

- Another life-threatening condition. These individuals are generally more ill with medical issues in multiple systems of the body as compared to the targeted population. As such, they have more complex psychological needs as well.
- Alzheimer's disease. The cognitive aspect of this protocol, including the treatment and the measures of the dependent variables, would be challenging for people with Alzheimer's disease or other dementia.
- A psychiatric condition requiring hospitalization in the last 12 months.
- Pregnancy. Pregnant women were excluded from this study due to the biochemical and behavioral changes that occur during pregnancy.
- Congenital heart disease. The needs of this population are different from the needs of individuals with adult-onset cardiac illness.
- Participant in a concurrent research study.
- Participant in another lifestyle change program, excluding cardiac rehabilitation, within 15 days of session 1.

Instrumentation

Profile of Mood States (POMS)

POMS (McNair, Lorr, & Droppleman, 1992) is intended to measure mood state along six mood factors for purposes of evaluating the effect of a therapeutic treatment or life event. The six mood factors are Tension-Anxiety (T), Depression-Dejection (D), Anger-Hostility (A), Vigor-Activity (V), Fatigue-Inertia (F), and Confusion-Bewilderment (C). POMS is a 30 adjective rating scale with five intensity modifiers, specifically, "not at all," "a little," "moderately," "quite a bit," and "extremely." The test administrator gives an instruction to consider the *last week* when completing the form. The suggestion of a one-week period allows for a measure of typical functioning and acute response to treatment. POMS has also been analyzed in terms of factors with a suggestion of *right now* for test administration. For this study, the *last week* instruction was used as it best measures typical functioning outside of music therapy which is the ultimate goal of the proposed treatment protocol.

Using a computer or a scoring template to total each factor, the investigator can calculate the level of mood disturbance for each identified factor. A total mood disturbance score can be determined by adding the totals of all factors except Vigor-Activity, which is then subtracted from that total. The scores can be used in statistical analysis or compared to normative data as appropriate. Normative data for college students (N = 856) are given in the test manual. The data are shown as T-scores with a mean of 50 and standard deviation of 10 points. While the age range is not given in the test manual, the sample included undergraduate and graduate students. The manual also provides normative data for outpatients in a psychiatric setting (N = 650).

According to POMS Test Manual, the test is appropriate for outpatients in an outpatient setting and typically-functioning adults 18 or older. It is recommended that the participants have

at least a high school education in order to understand and complete the test. In addition, the manual indicates that it is possible to use the test with typical or disturbed adolescents, although no normative data exist for this application. While measures of mood are important in the inpatient psychiatric setting, POMS has not been studied regarding its reliability and validity for this treatment setting.

Preliminary studies were completed during test development that indicated a need for improvements in the test, including increasing the number of items in some of the factors and adding one more intensity modifier to make a 5-point scale format. Another study was conducted with 650 male and female outpatients. The test manual indicates that the internal consistency reliability, as measured by the Kuder-Richardson 20 procedure, ranged from .84 to .94. As the test developers state that the Confusion-Bewilderment (C) factor may be a measure of cognitive deficiencies in addition to mood state, the lower scores for this factor (.87 and .84) are to be expected.

During the test development, test-retest reliability was measured within the procedures in common practice in outpatient treatment facilities. The participants completed POMS upon requesting and being accepted into a treatment program and then again immediately prior to beginning outpatient services. The time between each administration of the test averaged twenty days. This procedure yielded test-retest reliabilities ranging from .66 to .74. POMS was administered again six weeks into treatment yielding reliabilities ranging from .43 to .53. The test manual states that test-retest reliability is expected to be lower than that of other tests because mood is a transient and relatively unstable variable by definition. In addition, it states that the decision to get treatment can usually cause some alleviation of symptoms, and the six-

week treatment period would be expected to yield a decrease in overall mood disturbance. No parallel forms of the test are available as indicated by the test manual.

Regarding process validity, the test is clear, fast, and economical to administer to subjects drawn from the suggested populations. The directions are clear and participants have the opportunity to ask questions as needed. The test manual recommends that participants have a high school education, yet it also states that persons with at least a seventh grade education should be able to read and understand the adjectives descriptors. The seventh grade reading level is useful for older adults who may not have completed their education due to the social or economic conditions of their family of origin. Many older adults in rural areas, in particular, had to leave school to work full-time on family farms and women often left school to get married prior to starting or completing high school. If individuals had volunteered who had an education level less than seventh grade, they would have been invited to participate in the sessions, but not included in the data analysis.

POMS seems to be sensitive to mood fluctuations present in the identified populations, indicating strong construct validity. The test manual indicates that the relatively low test-retest reliability of POMS indicates strong construct validity, in that high reliabilities would indicate that test was not sensitive to mood fluctuations.

The intercorrelations between factors are given for three participant pools in the test manual. The intercorrelations for the male and female psychiatric outpatients are similar. As expected, the values are lower for male undergraduates, perhaps indicating lower mood disturbance overall or a greater difference between the factors for this population. The higher values for the psychiatric outpatients could indicate that the factors overlap more for this particular population.

The test manual indicates that POMS can be used to predict treatment efficacy in seven applications based upon clinical research. POMS can be used to determine the effectiveness of brief psychotherapy studies, usually at least 12 weeks in length. It has been used in controlled outpatient drug trials and studies of concurrent validity. POMS can be used in cancer research and drug abuse/addiction research. It has been used extensively in research in sports with athletes and typical adults. The last application listed in the test manual relates to its use to study the response of participants to emotion-inducing conditions, such as dental treatments or threat of shock.

POMS has been studied for concurrent validity with Hopkins Symptom Distress Scales (HSDS), Manifest Anxiety Scale (MAS), and Beck Depression Scale (BDS). POMS is highly correlated with HSDS and MAS tests, but has lower correlation with Beck Depression Scale. BDS is intended for an inpatient psychiatric population, so it is not surprising that the relationship between the two tests is lower than the other two.

A full description of the normative samples is given in the test manual. The test manual indicates that women reported higher scores than men on all factors except Anger and Vigor. Outpatients over age 40 indicated lower confusion scores overall. The normative samples were predominantly white; therefore the relationship of race to test scores is not known according to the test manual. As expected, patients with a treatment history indicated greater mood disturbance than patients without a treatment history.

Profile of Mood States – Short Form (SF)

POMS-SF is similar to POMS in that it measures the same six factors using the same five intensity measures as POMS, yet it includes 30 items as compared to 65 in POMS. POMS-SF is

ideal for participants who may become fatigued when completing multiple measures of the dependent variables. It is comparable to POMS in terms of both reliability and validity.

POMS-SF was selected instead of the Brief Symptom Inventory (BSI) used in Mandel et al. (2007) as BSI is a short form of Hopkins Symptom Checklist (HSCL; also known as the HSDS). According to the test manual, POMS-SF is highly correlated with HSCL (McNair, Lorr, & Droppleman, 1992). POMS-SF was selected instead of State-Trait Anxiety –T (STAI-T) measure used in Mandel et al. (2007) because STAI-T measures anxiety as a personality variable. Personality variables would be difficult to adjust in a 6-week treatment protocol. POMS-SF measures anxiety as a symptom of tension and distress and is a better measure for the purposes of this study.

Hassles Scale (HS)

Hassles Scale was designed to measure how people experience daily stressors or harmful events (Kanner, Coyne, Schaefer, & Lazarus, 1981). The scale was developed as a tool to evaluate daily stressors as predictors of future illness. Participants respond to 117 events that range from minor annoyances, such as "silly practical mistakes," to major problems or difficulties, such as "not enough money for food." The participants indicate which hassles occurred in the past month and rate each event as having been "somewhat," "moderately," or "extremely" severe. Frequency and intensity scores for daily hassles can be calculated for subsequent analyses. Frequency and intensity means are given for males, females, and four age ranges between age 45 and 64 (Kanner et al.,1981).

Hassles Scale has been evaluated for its test-retest reliability with an average frequency measure at $r = 0.79$ and an average intensity measure of $r = 0.48$. Kanner et al.(1981) suggested that the higher frequency test-retest reliability value indicates that the number of hassles a person

experiences usually remains stable while an individual's perception of these hassles changes over time.

The scale is easy to understand and complete due to the limited number of ratings for each possible daily hassle. It is possible that participants will become fatigued after completing the scale which has 117 items. Upon visual inspection, Hassles Scale appears to be relevant for a rural population in that the stressors listed could occur in a rural setting.

In terms of determining if Hassles Scale is a suitable measure of stress, the test developers indicated that daily hassles are a better predictor of stress and subsequent psychological distress than either life events or daily uplifts. Additionally, DeLongis, Coyne, Dakof, Folkman, & Lazarus (1982) found that daily hassles as measured by Hassles Scalewere positively correlated with somatic illness to a greater degree than life events. While the authors advised against interpreting this relationship as causal, it does provide support for HS as an indicator of somatic illness (DeLongis et al., 1982). They also suggested that daily hassles are easier to modify or re-appraise than life events such as the death of a spouse, suggesting that hassles could be addressed with a short-term therapy.

Satisfaction Survey

In order to assess the participants' experience of the music therapy intervention, the investigator designed a two-page, 16-item survey to be completed at the end of the last session (see Appendix D). The survey was optional and designed to be anonymous. Thirteen of the items had closed answer choices and three of the items were open-ended. The majority of the items with closed answer choices were ordinal in design.

Following the invitation to complete the survey, participants were given an unlimited time to complete the survey. The first question asked the participants to identify how many

sessions they had attended. Questions 2 through 10 focused on the different music interventions in the sessions, including music-assisted relaxation, expressive singing, song writing, and improvisation. These questions also asked for their evaluation of the degree to which the music therapist and the group helped them to identify and express feelings. Question 11 asked participants to evaluate if and how strongly they would recommend the group to another individual with heart disease. Questions 12 and 13 asked the participants to evaluate the length of each session and the overall length of treatment. The survey closed with three open-ended items: what was most beneficial, what was least beneficial and other comments.

Procedures

Screening

All volunteers completed the Volunteer Information Form (VIF) and the Contact Form (CF) either independently or through phone interview. The purpose of the VIF was to verify eligibility for the study and to collect demographic and music preference information. The purpose of the CF was to collect contact and scheduling information. The research protocol and forms were approved and renewed by the Institutional Research Boards of Michigan State University and Appalachian State University where the investigator was teaching at the time of the research.

Recruitment

The investigator presented three 30-minute presentations to participants in the cardiac rehabilitation program of a regional hospital in the Southeastern United States. Eighteen people attended the sessions. Three people completed the screening forms at the meeting and two people, who did not attend the presentations, responded to recruiting posters at the same facility by calling the investigator and completing the screening process by phone. One of the three

people who attended the meeting was eligible, but did not enroll after two invitations to come to the enrollment meetings.

Additionally, the investigator presented six 5-minute presentations to participants in the cardiac rehabilitation program of another regional hospital in the Southeastern United States. A total of 65 people listened to the presentations and had the opportunity to read an informational flyer. Two people were interested and eligible but did not enroll since there were not enough volunteers to schedule a group there and they did not wish to travel 2.5 hours roundtrip to the other research site.

Concurrent with the above presentations, the investigator sent three email messages across a five-month period to the faculty and staff of a state university in the Southeastern United States. Nineteen people responded to the messages and eight were eligible to participate. The eleven people who did not meet the inclusion criteria for this study were referred to other music therapy services in the community. In most cases, these individuals were interested in music therapy for wellness but did not have cardiac health conditions.

Additionally, the investigator published descriptions of the study in two local newspapers, which generated two requests for more information. Neither volunteer participated as one disliked popular music and the other chose not to travel three hours round-trip to participate in the group.

In summary, four participants were recruited from cardiac rehabilitation programs, four people from the campus community, and two from the general community. One participant was affiliated with both the university and the cardiac rehabilitation program. In most cases, the reason given for choosing not to volunteer was the time commitment on top of cardiac rehabilitation, which is three times a week in addition to their work and family commitments.

Pretest

Following completion of the two screening forms (VIF and CIF), volunteers were invited to attend a one hour group meeting conducted by the investigator during which they were provided with information about and an opportunity to sign the Informed Consent Form (ICF; see Appendix E). Additionally, they were asked to complete the Profile of Mood States – Short Form (POMS-SF) and Hassles Scale(HS). Participants were given the option to leave any items on POMS-SF or HS scales blank if they so desired.

Randomization Procedure

Following enrollment in the study, the participants were randomly assigned to either the music therapy experimental group or the wait-list control group by the investigator. Each person was given a number between 1 and 19. Using a random number generator (Haahr, n.d.), the investigator assigned each person to one of the groups. A coin toss determined that the first five numbers would comprise the experimental group and the last five numbers would comprise the comparison group. Music therapy sessions were conducted in two cohorts: each had five participants. For the second cohort, the participants in the initial comparison group were given the music therapy treatment and used as their own controls. The participants were not told if they were assigned to the treatment or comparison group. They were told either that they would be starting the music therapy sessions right away or that they would have to wait to begin the sessions. As the investigator also delivered the intervention, she was aware of group assignments.

Music Therapy Intervention

The deliverer of the experimental music therapy condition had been a master's level, Board-Certified Music Therapist (MT-BC) for 17 years at the time of this study. During the study, She was a Ph.D. candidate at Michigan State University.

Consistent with the suggestions of Sotile (1996), this study had a time frame of six weeks in length and the sessions were held weekly. The music therapy intervention was adapted from the protocol in Mandel et al. (2007). Similar to that study, this study included both receptive and active music therapy interventions. Different from that study, this study did not use rolling admissions; all group members started and ended at the same time to build group cohesion. The control group was a wait-list control group. Following data collection for the first cohort, these participants were offered six music therapy support group sessions and became the second experimental cohort.

Consistent with the Lifestyle Heart Trial (Billings et al., 1996, p. 246), the goals of the experimental group were to improve functioning in the following areas:

Self-communication:

1. Identification of feelings.
2. Expression of feelings.

Other communication:

1. Listening with empathy and compassion.
2. Expression of empathy and compassion.

Opening. The sessions had four components: an opening, music-assisted relaxation (MAR), active music therapy, and a closing. The session opened with a general welcome and brief verbal check-in with each person about his or her week between sessions. The investigator

then reminded the group about the goals of the group and guidelines for participation. The guidelines were represented by the acronym SAFE. The letter S represented support similarities, the letter A represented avoid advice, the letter F represented focus on feelings, and the letter E represented encouragement. The guidelines of supporting similarities, avoiding advice and focusing on feelings were adapted from Billings et al., (1996). The investigator added the idea of encouragement plus the combination of the guidelines into the word SAFE.

Music-Assisted Relaxation (MAR). Music-Assisted Relaxation (MAR) was selected as a receptive music therapy intervention to promote stress hardiness, provide a transition into the sessions, and prime the group for the music-based group work. Instrumental music selections were drawn from the classical and new age genres (see Table 1). Consistent with the literature, the selections had tempi of 60 to 70 beats per minute, were 3 to 6 minutes in length, and had consistent tempo, dynamics, and instrumentation (Grocke & Wigram, 2007; Mandel, 1996; Mandel et al., 2007; Mandel 2007; Schou, 2009). The selections gradually increased in length and complexity as the sessions progressed and then ended with a shorter, less complex selection for the last session. The relaxation scripts included autogenic and image-based inductions (see Appendix F).

Prior to beginning the MAR, the investigator prepared the room by lowering the lights, setting the volume level on the portable stereo, and posting a privacy sign on the door. Additionally, she prepared herself by doing a breathing, humming and centering protocol to prepare to effectively lead the MAR for the participants.

The structure of the MAR was adapted from Grocke & Wigram, (2007) and included four components: preparation, induction with music, affirmation, and return to alert state. During the preparation, the investigator explained what would happen during the MAR including types of

imagery that were planned for the session. Participants were given the opportunity to ask questions or ask for a different image. She explained that any participant could open his/her eyes at any time during the MAR. Next, she asked the participants to get comfortable, close eyes, and focus on breathing. A suggestion was made to carry the suggested image into the music. The investigator then started the music and guided the participants through the imagery induction with music. At the close of the script, the investigator affirmed that the participants could return to their imagery at a later time should they wish to do so. To assist the participants in returning to an alert state, a suggestion was made to return their awareness to the room. Individuals took as much time as needed to return to the present and share their experience(s) with the group.

Table 1

Types of Scripts, Images, and Music for Music-Assisted Relaxation

Session #: Type of Script (Image)	Music
1: Autogenic (Color)	"The Garden" (Frontiere, 1991, track 5). Length: 3:03
2: Image-based (Sunrise)	"The Swan" (Saint-Saens, 2007, track 8). Length: 3:00
3: Autogenic (Healing Light)	"Antarctica Echoes" (Vangelis, 1983, track 2). Length: 5:54
4: Image-based (Meadow)	"Introduction and Allegro" (Ravel, 1995, track 5). Length: fade at 5:00
5: Image-based (Woods)	"Venus" (Holst, 1995, track 2) Length: fade at 4:30
6: Autogenic (Color)	"Gwenlaise" (Cossu, 1990, track 7) Length: 4:38

Active Music Therapy. To address the group goals and follow the MAR, the sessions included music-based group work including a verbal check-in drawn from Billings et al., (1996). Individuals were asked to recall "an event or experience in the last week that was upsetting, uplifting, or otherwise stimulated a feeling or set of emotions" (Billings et al., 1996, pp. 244-245). Then, each person was asked to identify one feeling word that summarized that experience.

After each member shared his/her feeling word, the group members then had an opportunity to practice active listening and empathy skills through combined verbal and music interventions based upon the presenting needs of the group each session. Interventions were drawn from the following types of music therapy interventions: song lyric analysis, expressive singing, songwriting, and instrumental improvisation. Topics included active listening, recognizing personal strengths, coping with change, assertiveness, expressing feelings, resolving conflict, learning/maintaining new health-protective behaviors, and celebrating accomplishments. Additionally, the investigator was prepared to process the death of a group member(s) should that situation have occurred during treatment. The music interventions were used to literally express the topic, serve as a metaphor for the topic, or to deepen or explore the topic. Opportunities were provided for self-efficacy information including enactive information, vicarious information, personal communication, and internal feedback (Bandura, 1984 as cited in Sotile, 1996).

In order to clarify the active music making process and its link to the music assisted relaxation, a clinical example will be described here. In the final session, the investigator led a music-assisted relaxation script focusing on color. The participants were invited to welcome a color into their bodies. Following the MAR, one participant described how she saw a vivid

shade of yellow and welcomed it into her body. She continued to say that it hovered and gently warmed the parts of her body where she had been trying to lose weight. As she had met her weight goal that week, she interpreted the vivid yellow color as a way to recognize her achievement and remind her to love her body. The investigator then asked the group if they would like to sing and discuss, *Here Comes the Sun*, to recognize and support the client upon her achievement and self-love. During the group singing, the client repeatedly raised her arms into the air and brought them back again to her hips saying, "here comes the sun to me." Then the investigator invited the client to lead a celebratory improvisation on the pitched and unpitched instruments. She agreed and suggested that it should also be a celebration of the group's work together over the six week treatment period. The session then closed with *I Can See Clearly Now* which had become the group's favorite closing song to signify welcoming in the positive aspects of life and dispelling the negative.

Closing. Each session ended with confidentiality reminders and a closing music intervention depending upon the events in the session or which session in the series it was that day. Options might include a participant suggesting a song that summarized the work of the session, the investigator suggesting a breathing protocol with music, or at the last session, the investigator suggesting a song that suggested a final good-bye for the treatment sessions.

Materials

For the Music-Assisted Relaxation portion of the sessions, the investigator used a portable stereo and compact disk recordings. The investigator wrote the scripts for the Music-Assisted Relaxation. For the Active Music Therapy portion of the sessions, the investigator used two tubano drums, an ocean drum, two sets of maracas, two frame drums and mallets, a cabasa, a set of claves, a tambourine, a chime tree, a rain stick, and finger cymbals. The keyed percussion

instruments provided were two bass tone bars, a soprano xylophone, a tenor xylophone, a glockenspiel, and mallets. The xylophones and glockenspiel were set up in a C major pentatonic scale. Additionally, the investigator created a songbook of 28 songs (see Appendix G) to be used in the sessions. The songs were selected considering the music preferences of the group, the themes of the sessions, and client requests. The investigator used a steel-string guitar to accompany the songs.

The standardized measures used were Profile of Moods – Short Form (POMS-SF) and Hassles Scale(HS) described above. The investigator created the Satisfaction Survey and provided pencils and pens for participants to complete the forms.

Setting

The sessions were held in the group meeting room of the Institute for Health and Human Services, Appalachian State University, Boone, North Carolina. The building could be accessed by private car with ample parking or by a free, public bus service. The building had a spacious and comfortable waiting area and convenient restroom and water access. Handicapped parking and an access ramp were available at the main entrance to the building.

The session space had a room divider. One side was set up with tables and chairs for completing the measures when needed. The other side was set up with a circle of chairs for the participants and tables to the side for instruments. The room was private and a privacy sign was posted before each session. During the music-assisted relaxation, the overhead fluorescent lights were turned off and the window blinds were left open to allow natural light to enter the room. During the rest of the session and depending upon the preferences of the group, the lights were either turned back on or left turned off with natural light from the windows.

Posttest

The posttest measures were POMS-SF and HS. The measures were administered at the last session for the experimental group and by mail for the comparison group. The satisfaction survey was administered to the experimental group at the last session and was anonymous.

Follow-up

The follow-up measures were POMS-SF and HS. The measures were administered four weeks after the last treatment session. The experimental group completed the forms by mail and the comparison group completed the forms in person prior to beginning their treatment sessions as cohort two. Therefore, the follow-up measures functioned as a pretest as well for these participants.

Research Variables

This study included an independent variable and dependent variables as described below.

Independent Variable

The treatment condition was the between-groups independent variable. There were two levels of this variable: the music therapy treatment group and the wait-list comparison group.

Dependent Variables

The dependent variables were the total mood disturbance score of POMS-SF, the specific subscale scores on POMS-SF (depression-dejection, tension-anxiety, and anger-hostility), and the intensity measure of HS.

CHAPTER FOUR

RESULTS

Design

This study used a split-plot factorial design to explore the effect of a music therapy support group on depression, anxiety, anger/hostility, and stress of adults with coronary heart disease. The between-group variable had two levels: control and experimental conditions. The within group variable was time point and included three repeated measures of mood and stress. Mood variables were POMS-SF scores on the depression-dejection, tension-anxiety, and anger-hostility subscales plus the total mood disturbance score. The stress measure was the intensity value of the HS. The a priori p. level was set at $p. < .05$ for all statistical analyses. Although not one of the original hypotheses, vigor-activity will be discussed here due to the discovery of interesting findings related to this variable. See Table 2 for a visual depiction of the administration of the measures.

Table 2

Measurement Time Points by Weeks

Measures	0	1	2	3	4	5	6//	10
Volunteer Information Form	X							
Hassles Scale	X						X	X
Profile of Mood States - SF	X						X	X
Satisfaction Survey – Experimental Group Only							X	

Participant Flow

The flow of participants and structure of the study are shown in Figure 1. Twenty-eight people recruited from community outpatient cardiac rehabilitation programs and the general community were assessed for eligibility in the study. A total of 18 volunteers were excluded from the study. Rationale for exclusions included not meeting the study inclusion criteria, incompatible schedules, round-trip commuting distance to the group, and an extreme dislike of popular music. Three of the eligible volunteers were offered multiple opportunities to enroll, but chose not to do so.

Following exclusion of the 18 volunteers described above, the remaining 10 volunteers were randomly assigned to the treatment group or the comparison group using a random number generator. Following a decision by the investigator that the first five random numbers would be assigned to the treatment group and the second five random numbers would be assigned to the comparison group, the investigator generated a list of random numbers between 1 and 10 with no repeating numbers. Of these 10 participants, one person attended one session only and was excluded from data analysis which represents a drop-out rate of 10%. Therefore, there was a total of nine participants in the study. The members of the intial comparison group received the treatment after the 4-week follow-up measures were completed bringing the total number of participants for data analysis purposes to 13 (experimental, $n = 8$; comparison, $n = 5$).

Statistics and Data Analysis

Participant Characteristics

During the screening process, demographic information was collected in order to describe the population, determine musical interests, and compare the experimental and comparison groups in terms of age, medical diagnoses, and cardiac interventions. The nine participants who

completed the study ranged in age from 54 to 81years of age, with both a mean age of 68 (see Table 3). There were five females (56%) and four males (44%) in the study. Six participants (67%) were married, two were divorced (22%), and one was in a domestic partner relationship (11%). In terms of level of the highest level of education attained, three had a bachelor's degree (33%) and three had a doctoral degree (33%). There was one participant in each of the following education categories: master's degree (11%), some college (11%), and medical degree (11%).

During the screening process, the volunteers were asked about their medical histories, specifically diagnoses and interventions related to their heart disease. Seven participants (78%) had been diagnosed with coronary heart disease, five (56%) experienced angina, five (56%) experienced arrhythmia, three participants (33%) had experienced a myocardial infarction, two (22%) had congestive heart failure, and one (11%) had valve disease.

In terms of interventions, 8 (89%) had participated in cardiac rehabilitation, three (33%) had completed at least one coronary artery bypass graft procedure, three (33%) had completed an angioplasty procedure, three (33%) had an implantable cardioverter defibrillator (ICD), and none had needed a valve replacement surgery or pacemaker device. Using a Chi-square procedure for each, it was determined that the treatment group and comparison groups were equivalent in terms of age, diagnoses, and surgical procedures.

Another part of the screening process involved inquiry about the participants' musical interests. The most popular genre of music was classic rock (60's/70's) followed by folk and classical music. One liked Southern gospel and another liked Dixieland. All participants expressed a dislike for rap/urban, heavy metal, and current pop music. Several participants expressed an interest in learning about and listening to new genres of music.

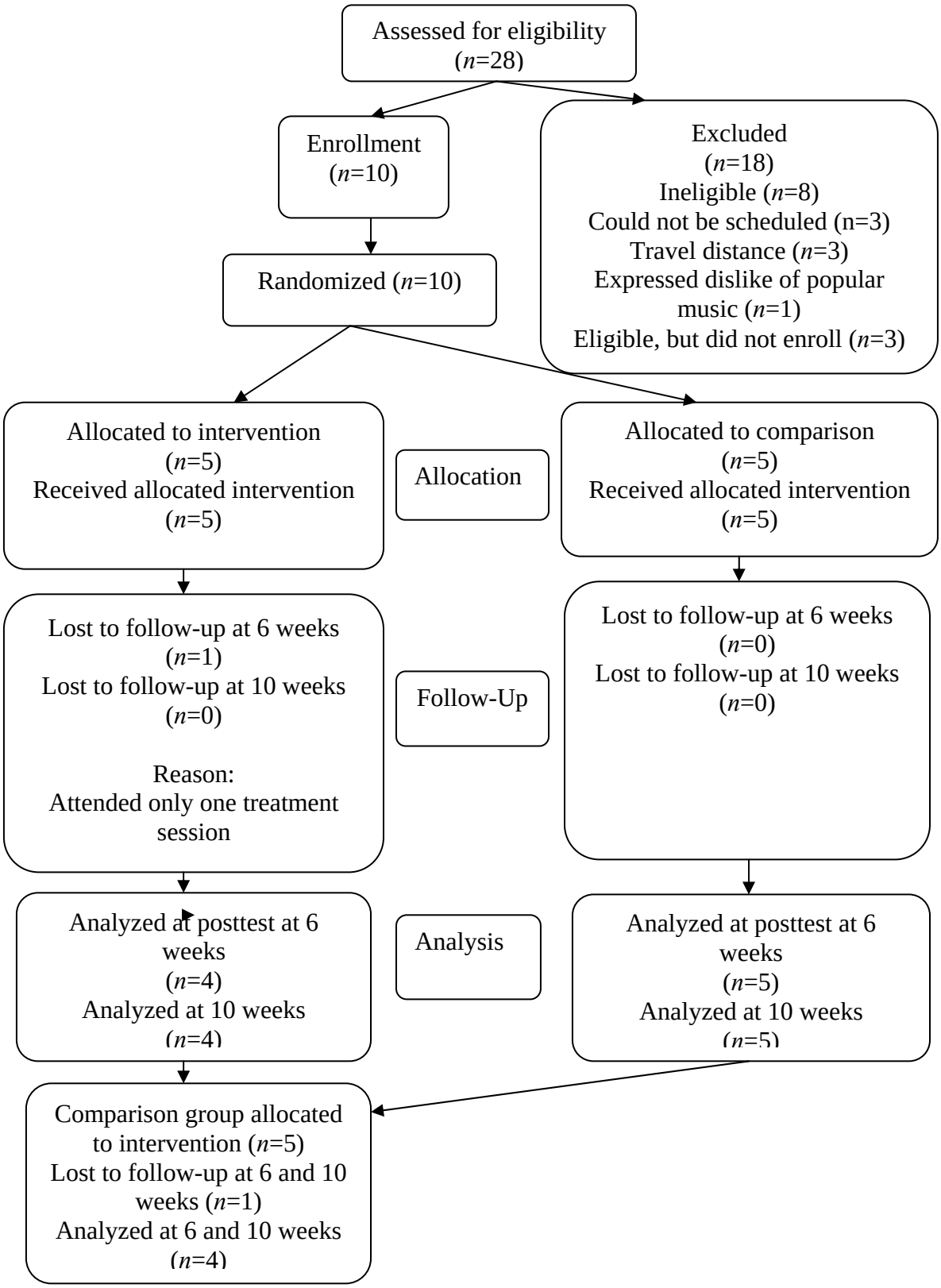


Figure 1. Participant Flow

Table 3

Participant Characteristics

Variable	Years	*n*	% Participants
Age			
Range	54-81	9	
Mean	68		
Sex			
Female		5	56%
Male		4	44%
Diagnoses			
Coronary artery disease		7	78%
Angina		5	56%
Arrythmia		5	56%
Myocardial infarction		3	33%
Congestive heart failure		2	22%
Valve disease		1	11%
Interventions			
Cardiac rehabilitation		8	89%
Coronary artery bypass graft		3	33%
Angioplasty		3	33%
Implantable cardioverter defibrillator		3	33%

Dependent Variables

Due to the small number of participants (n = 9), the members of the comparison group received the intervention and their data were collapsed with the data of the other members of the

experimental group for a total number of 13 participants for data analysis purposes. The procedure for this was to compare the pre-test measures of the dependent variables for the first experimental cohort to the follow-up measures of the dependent variables for the first comparison cohort group to determine if the scores were equivalent. This procedure was needed to determine if the waiting period before the music therapy group altered their scores enough to cause a significant difference from the initial scores of the first experimental cohort. Because these scores were equivalent, the follow-up measures of the dependent variable for the first comparison cohort group became their pre-test measures of the dependent variables when they became the second experimental cohort. As a result of this process, the experimental group could then total eight participants for data analysis bringing the total *N* for the study to 13.

The next step was to determine if the experimental and comparison groups were equivalent at pre-test on all variables using an ANOVA in order to have a basis for determining cause and effect should their scores be different at post-test or follow-up (see Table 4). As all the variables were equivalent at pre-test, the investigator then reviewed the homogeneity of variance assumption for the data using Levene's statistic for each pretest mood and stress variable. Total mood disturbance (p = .245), tension-anxiety (p = .726), depression-dejection (p. = .578), anger-hostility (p = .739), and hassles intensity (p. = .683) all had an acceptable homogeneity of variance result so parametric statistics were used for subsequent analyses (all p's > .05).

Mood

Each dependent variable was analyzed with a repeated measures ANOVA with a between- groups factor to determine the effect of the music therapy support group on each dependent variable. Each dependent variable is presented separately.

Table 4

Summary of Analysis of Variance for Pretest Composite and Subscales

Variable Group	*M* *(SD)*	*F*	*p*
Total Mood Disturbance		1.19	.30
Experimental	11.88 (13.71)		
Comparison	22.40 (22.41)		
Tension-Anxiety		.01	.94
Experimental	5.88 (5.79)		
Comparison	5.60 (5.68)		
Depression-Dejection		.08	.78
Experimental	4.62 (5.01)		
Comparison	5.40 (4.39)		
Anger-Hostility		.19	.67
Experimental	4.38 (3.50)		
Comparison	5.20 (3.03)		
Vigor-Activity		.78	.40
Experimental	6.75 (4.13)		
Comparison	9.00 (5.00)		
Hassles Intensity		.08	.78
Experimental	1.50 (.38)		
Comparison	1.56 (.46)		

Total mood disturbance (TMD) and four subscales from POMS-SF were used to determine the effect of the music therapy intervention on mood. The four subscales were tension-anxiety, depression-dejection, anger-hostility, and vigor-activity. Table 5 shows the means and standard deviations for the Profile of Mood States- Short Form subscales by group.

Table 5

Means and Standard Deviations for POMS-SF Subscales by Group

Variable Group	Pretest *M* *(SD)*	Posttest *M* *(SD)*	Follow-Up *M* *(SD)*
Total Mood Disturbance			
Experimental	11.88 (13.71)	5.38[a] (11.06)	10.75 (9.72)
Comparison	22.40 (21.41)	26.00 (20.11)	12.60 (14.83)
Tension-Anxiety			
Experimental	5.88 (5.79)	2.37[b] (2.20)	3.75 (2.96)
Comparison	5.60 (5.68)	8.00 (5.15)	6.80 (6.61)
Depression-Dejection			
Experimental	4.62 (5.01)	2.38 (2.67)	3.00 (2.33)
Comparison	5.40 (4.39)	7.40 (6.54)	6.20 (4.49)
Anger-Hostility			
Experimental	4.38 (3.50)	3.50 (5.24)	4.00 (3.46)
Comparison	5.20 (3.03)	6.20 (6.14)	4.80 (3.96)

Table 5 (cont'd)

Vigor-Activity			
Experimental	6.75	11.00[b]	9.12
	(4.13)	(4.99)	(3.09)
Comparison	9.00	8.60	4.40[c]
	(5.00)	(2.51)	(4.72)

[a]Significantly different from comparison group (α = .05)
[b]Significantly different from pretest (α = .05)
[c]Significantly different from pretest (α = .10)

Total Mood Disturbance (H1). Because Mauchly's test indicated that the assumption of sphericity was not met (p = .04), a Huynh-Feldt correction was applied. The results of the ANOVA are shown in Table 6. The ANOVA indicated that there was neither significant group by time interaction nor significant main effect across time. There was a marginally significant different between groups. A post-hoc *t*-test between groups showed that there was a significant between group difference at post-test, $t(1) = -2.41$, $p = .03$. There was no between group difference in total mood disturbance at follow-up, $p > .10$.

Table 6

Summary of Analysis of Variance for Total Mood Disturbance by Group

Source	*SS*	*df*	*MS*	*F*	*p*
Group	1116.92	1	1116.92	3.23	.10
$Error_{Subj\ Within\ Gp}$	3806.67	11	346.06		
Time	197.09	1.62	122.00	.65	n.s.
Group x Time	543.35	1.62	336.34	1.78	n.s.
$Error_{Time\ x\ Subj\ w/in\ Gp}$	3355.98	17.77	188.85		

Depression-Dejection (H2). Mauchly's test indicated that the assumption of sphericity was met ($p > .10$). The results of the ANOVA are shown in Table 7. The ANOVA indicated that there was neither significant group by time interaction nor significant main effect across time. It further indicated that there were no significant between group differences at any time point.

Table 7

Summary of Analysis of Variance for Depression-Dejection by Group

Source	*SS*	*df*	*MS*	*F*	*p*
Group	83.10	1	83.10	2.34	n.s.
$Error_{Subj\ Within\ Gp}$	391.33	11	35.58		
Time	1.1	2	.55	.06	n.s.
Group x Time	27.97	2	13.99	1.53	n.s.
$Error_{Time\ x\ Subj\ w/in\ Gp}$	201.62	22	9.16		

Tension-Anxiety (H3). Mauchly's test indicated that the assumption of sphericity was met ($p > .10$). The results of the ANOVA are shown in Table 8. The ANOVA indicated a group x time interaction that approached significance. Even though the result was not significant, a simple effects analysis was conducted. The results are shown in Table 9. While there was no between group difference in tension-anxiety at pretest, follow-up simple effects analysis showed that the groups were significantly different at posttest, but not at follow-up. Simple effects analysis and examination of means showed that while the comparison group reported no significant change over time, the experimental group significantly changed across time. Tukey's HSD was calculated to be 3.02. Applying this to experimental group means indicates that those

in the experimental group reported a significant decrease in tension-anxiety at posttest, which was no longer present at follow-up.

Table 8

Summary of Analysis of Variance for Tension-Anxiety by Group

Source	*SS*	*df*	*MS*	*F*	*p*
Group	72.37	1	72.37	1.43	n.s.
$Error_{Subj\ Within\ Gp}$	555.07	11	50.46		
Time	2.15	2	1.08	.13	n.s.
Group x Time	53.84	2	26.92	3.20	.06
$Error_{Time\ x\ Subj\ w/in\ Gp}$	185.18	22	8.42		

Table 9

Simple Effects for Tension-Anxiety

Source	*SS*	*df*	*MS*	*F*	*p*
Group @ Pretest	.25	1	.25	.86	n.s.
Group @ Posttest	97.53	1	97.53	4.35	$p < .05$
Group @ Follow-Up	28.62	1	28.62	1.28	n.s.
Experimental Over Time	50.04	2	25.02	2.97	n.s.
Comparison Over Time	14.40	2	7.2	.86	n.s.

Anger-Hostility (H4). Mauchly's test indicated that the assumption of sphericity was met ($p > .10$). The results of the ANOVA are shown in Table 10. The ANOVA indicated that

there was neither significant group by time interaction nor significant main effect across time. It further indicated that there was no significant between group differences at any time point.

Table 10

Summary of Analysis of Variance for Anger-Hostility by Group

Source	*SS*	*df*	*MS*	*F*	*p*
Group	19.19	1	19.19	.74	n.s.
$Error_{Subj\ Within\ Gp}$	285.89	11	26.00		
Time	1.46	2	.73	.05	n.s.
Group x Time	7.31	2	3.70	.25	n.s.
$Error_{Time\ x\ Subj\ w/in\ Gp}$	326.38	22	14.84		

Vigor-Activity. Mauchley's test indicated that the assumption of sphericity was met ($p > .10$). The results of the ANOVA are shown in Table 11. While the ANOVA indicated there was no significant main effect across time, there was a significant group by time interaction. Simple effects analysis and examination of means showed that the comparison group and the experimental group significantly changed across time. The results of the simple effects analysis are shown in Table 12. For the comparison group, Tukey's HSD was calculated to be 4.30. Applying this to comparison group means indicates that while those in the comparison group reported no significant change in vigor-activity at post-test, there was a significant decrease in vigor-activity at follow-up compared to the pretest. For the experimental group, Tukey's HSD was calculated to be 3.40. Applying this to the experimental group means indicates that there was a significant increase in vigor-activity at posttest that was not sustained at follow-up.

Table 11

Summary of Analysis of Variance for Vigor-Activity by Group

Source	*SS*	*df*	*MS*	*F*	*p*
Group	24.38	1	24.38	.79	n.s.
$Error_{Subj\ Within\ Gp}$	338.96	11	30.81		
Time	58.13	2	29.07	2.7	.09
Group x Time	77.62	2	38.81	3.62	.04
$Error_{Time\ x\ Subj\ w/in\ Gp}$	235.82	22	10.72		

Table 12

Simple Effects for Vigor-Activity

Source	*SS*	*df*	*MS*	*F*	*p*
Group @ Pretest	15.58	1	15.58	.89	n.s.
Group @ Posttest	17.72	1	17.72	1.02	n.s.
Group @ Follow-Up	68.55	1	68.55	3.94	n.s.
Experimental Over Time	72.57	2	36.29	3.39	< .05
Comparison Over Time	64.93	2	32.47	3.03	< .10

Stress (H5)

The hassles intensity subscale of Hassles Scalewas the measure used to determine the perceived stress level of each individual. Table 13 shows the means and standard deviations for the hassles intensity subscale. The hassles intensity variable was analyzed with a repeated measures ANOVA with a between groups factor to determine the effect of the music therapy

support group on perceived level of stress. Mauchly's test indicated that the assumption of sphericity was met ($p > .10$). The results of the ANOVA are shown in Table 14. The ANOVA indicated that there was neither significant group by time interaction nor significant main effect across time. It further indicated that there were no significant between group differences at any time point.

Table 13

Means and Standard Deviations for Hassles Intensity Subscale of the Hassles Scale

Variable Group	Pretest *M* *(SD)*	Posttest *M* *(SD)*	Follow-Up *M* *(SD)*
Hassles Intensity			
Experimental	1.49 (.38)	1.35 (.32)	1.36 (.29)
Comparison	1.56 (.46)	1.77 (.43)	1.51 (.39)

Table 14

Summary of Analysis of Variance for Hassles Intensity by Group

Source	*SS*	*df*	*MS*	*F*	*p*
Group	.41	1	.41	1.37	n.s.
$Error_{Subj\ Within\ Gp}$	3.31	11	.30		
Time	.10	2	.05	.92	n.s.
Group x Time	.21	2	.11	1.89	n.s.
$Error_{Time\ x\ Subj\ w/in\ Gp}$	1.25	22	.06		

Satisfaction Survey

A total of nine participants (100%) completed the satisfaction survey at the end of the music therapy treatment period. While eight participants were included in the analysis of the effect of the music therapy intervention on the dependent variables as members of the experimental group, nine participants were included in the satisfaction survey. One participant attended only one treatment session, so he was offered the opportunity to complete the survey to offer his evaluation of the interventions, but not the opportunity to complete the follow-up measures since he experienced too small a dose of the intervention for the investigator to determine include his responses in the group data.

Question 1 asked the participants to state the number of sessions attended out of the possible six sessions. Results indicated that 67% (n = 6) of the participants attended 4 or more sessions. Of the remaining respondents, 1 attended one session and 2 attended three sessions.

Questions 2 through 11 asked the participants to evaluate the specific music components of the intervention and their assessment of the benefit of the group. To respond to each item, the participants could select among the following options: (a) 1, strongly disagree; (b) 2, disagree; (c) 3, unsure; (d) 4, agree; (e) 5, strongly agree. Table 15 shows the data for questions 2 through 11.

In order to determine which components of the sessions were the most helpful and important to the participants, the investigator calculated the percentages of participants who rated items 2 through 11 with *agree* or *strongly agree*. Table 16 shows a ranking of items 2 through 11 by highest percentage of participants selecting *agree* or *strongly agree*.

Questions 12 and 13 asked the participants to evaluate the hour and a half session length and the six week treatment period. The answer choices for each item were as follows: a) 1, too short; b) 2, just right; c) 3, too long. Table 17 shows the data for questions 12 and 13.

Table 15

Evaluation of Session Components

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
2) The music and relaxation instruction and practice was helpful to me.				
0%	0%	22%	**56%**	22%
3) I will use the music and relaxation process in the future to decrease stress.				
0%	11%	11%	**67%**	11%
4) Music therapy helped me feel more comfortable expressing my feelings.				
0%	0%	22%	**56%**	22%
5) Music therapy helped me feel more comfortable listening to and supporting the feelings of others.				
0%	0%	33%	**44%**	22%
6) The music therapist listened to me and supported my work in the group.				
0%	0%	0%	11%	**89%**
7) Singing songs about feelings and issues was helpful to me.				
0%	0%	11%	**56%**	33%
8) Discussing songs about feelings and issues was helpful to me.				
0%	0%	11%	**56%**	33%
9) Writing songs about feelings and issues was helpful to me. ((n = 5)				
0%	0%	20%	**40%**	**40%**
10) Engaging in music improvisation with instruments and voice was helpful to me.				
0%	0%	33%	**44%**	22%
11) I would recommend this group to other individuals with heart-related medical conditions.				
0%	0%	11%	**44%**	**44%**

Table 16

Combined Percentage of Agree and Strongly Agree Responses

Survey Item	%
The music therapist listened to me and supported my work in the group.	100%
Singing songs about feelings and issues was helpful to me.	89%
Discussing songs about feelings and issues was helpful to me.	89%
I would recommend this group to other individuals with heart-related medical conditions.	88%
Writing songs about feelings and issues was helpful to me. (n = 5)	80%
The music and relaxation instruction and practice was helpful to me.	79%
I will use the music and relaxation process in the future to decrease stress.	78%
Music therapy helped me feel more comfortable expressing my feelings.	78%
Music therapy helped me feel more comfortable listening to and supporting the feelings of others.	66%
Engaging in music improvisation with instruments and voice was helpful to me.	66%

Table 17

Evaluation of Session and Treatment Period Length

Survey Item	Too Short	Just Right	Too Long
12) Please evaluate the hour and a half session length.	0%	**100%**	0%
13) Please evaluate the six week length of time for the music therapy sessions.	22%	**78%**	0%

Questions 14 through 15 were open-ended items asking the participants to discuss the most beneficial and least beneficial parts of the music therapy group. Question 16 invited the participant to share any other comments with the investigator about the group. Tables 18 through 20 show the responses for questions 14 through 16 grouped by question and category.

Table 18

Responses to "What was the most beneficial part of the music therapy group?"

Themes
SOCIAL SUPPORT
Sharing thoughts, hopes, and fears.
Having common sets of feelings.
Learning that others are struggling with the same problems.
The group experience
Doing something for me that helped me relax and be among people.
It was good to listen to the other perspectives.
Learning to share personal feelings with people who were not close friends.
Comradeship.
The overall atmosphere.
Sharing and listening to others.

Table 18 (cont'd)

INTERVENTIONS
The relaxation exercise
Using music to relax and meditate with.
Playing the instruments
I thought the discussions about music were helpful
MUSIC THERAPIST
The leader's empathy

Table 19

Responses to "What was the least beneficial part of the music therapy group?"

Themes
INTERVENTIONS
Hypnosis [sic] at start of each session. For me, this wasn't relaxing. Even though I enjoyed listening to the music, some of the imagery was frightening.
Discussing how I felt over the past week and consolidating it all into a single word.
Changing format could be more beneficial.
Probably the instruments, but nothing really.
Not understanding what the objective was.
SCHEDULING
For me – time. My schedule is very demanding.

Table 20

Responses to "Other comments?"

Themes
BENEFITS OF THE INTERVENTION
This was helpful to me in sorting out some of my own coping strategies.
I thought it very beneficial to me personally as well as learning something else to do to be healthier.
I just felt better on [the two days following the session].
Always came and went with positive feelings.
THANKS
Thanks for all the gentle guidance and good musical experiences.
Thank you for allowing me to participate in your research and learn a different way to handle stress.
I enjoyed the class very much.
INTERVENTIONS
I would have liked the initial music and relaxation sessions to be longer, just 2 – 3 more minutes.
I think all the parts came together nicely.
MUSIC THERAPIST
I/we are so fortunate to have [music therapist's name] sincere interest in my/our well being.

Summary

The responses to the open-ended questions pointed to the importance of the group setting and types of interventions to these participants. Specifically, the majority of the responses to the "most beneficial" question centered around the aspect of social support. Derivations of the word,

"share", appeared three times plus references to the commonality of their feelings and experiences, such as the word "comradeship." The responses also focused insight on the importance of offering different types of experiences in the music therapy group to meet the different preferences of the group members. Some members clearly liked the MAR, and wished it had lasted longer, and others did not like it at all. Others mentioned enjoying the instruments while others stated the instruments were the least beneficial part of the sessions. One mentioned that the purpose of the sessions was not clear while others commented on the benefit of learning new coping and relaxation strategies.

CHAPTER FIVE

DISCUSSION

The purpose of this research study was to examine the effect of a music therapy support group on depression, anxiety, anger, and stress of adults with coronary heart disease. The results indicate that a music therapy support group decreases total mood disturbance and anxious mood while increasing the vigor of adults with coronary heart disease at least for the short-term. The significant changes in total mood disturbance, anxious mood, and vigor were noted at posttest but not sustained at follow-up. No significant change was observed for depressed mood, anger, or perceived stress. All findings in this study should be considered with caution due to the small sample size in this study. It is possible that with a larger sample size additional significant results would be revealed; however, the study does offer preliminary support for a music therapy support group for adults with heart disease. Findings from the satisfaction survey indicated that participants most valued the therapist's support, the social support of the group, and the expressive singing component of the group. The session length of an hour and a half was unanimously ranked as just right with a high percentage of respondents indicating that six weeks was the right length of time for the group.

This chapter will elaborate upon these findings, explore the relationship of the results to the literature, and examine the limitations of the study. Recommendations for future research will be suggested in the final section.

Discussion of Findings

Mood

Significant findings were found in this study for total mood disturbance, anxious mood, and vigor. The following sections will compare the findings of this study to the literature.

Depression-Dejection. While several CBT studies found an effect upon depression, the current study found no significant results (Berkman et al., 2003; Burg et al., 2005; & James, 2006). While those studies were 11 weeks in length, the current study was 6 weeks. There may be a better measure of depressed mood specific to medical or cardiac patients. Some of the characteristics of depression for adults with heart disease given by Dornelas (2008) overlap subscales of POMS-SF. For instance, "… diminished ability to think, concentrate, or make decisions…" (p. 51) would be accounted for on the confusion-bewilderment scale of POMS-SF; therefore, the measure would not be able to detect this trait as a component of depression for this population. Different from Dunn (2005), this study did not specifically examine hopelessness, which was found by Dunn to be related to depression and a positive predictor of the individual's persistence in cardiac rehabilitation. The findings here are consistent with Thaut & Davis (1993) who found no significant effect on depression as a result of receptive music interventions. The findings are also consistent with Mandel et al. (2007) who found no significant effect on depression following a series of music therapy sessions.

Tension-Anxiety. Significant results were found for anxious mood in this study. The experimental group reported a decreased level of anxious mood compared to pretest; however, the comparison group reported an increase in anxious mood for reasons unknown. The positive findings of this study for the experimental group are consistent with the literature addressing the benefits of relaxation techniques and affect-focused therapy for this population (Dornelas, 2008). The findings here are consistent with the Thaut & Davis (1993) and Sendelbach et al. (2006) studies that found a significant reduction of anxiety as a result of receptive music interventions for typical adults and cardiac patients. The findings are also consistent with Mandel et al. (2007) who found that anxious mood decreased following a series of music therapy sessions.

Anger-Hostility. While Billings et al. (1996) and James (2006) found significant results related to anger, the current study did not. One difference among the studies is the length of treatment. The Billings et al. study (1996) and the James (2006) study were one year and eight weeks, respectively, while the current was six weeks. People who are experiencing anger or hostility may be reluctant and need more treatment time to admit to these feelings as they are less socially acceptable than other emotions, such as anxiety and depression. Further, individuals with anger may have a distrust of others (Smith, 1992, as cited in Sotile, 1996). Individuals who have distrust or negative feelings about others would be less likely to volunteer for a research study such as this one.

Vigor-Activity. Unanticipated positive increases in vigor were noted for the experimental group at posttest. This finding is similar to that of Fu (2008), who found that levels of vigor increased following music-assisted relaxation for women university students. Some comments from the survey possibly related to vigor include, "I just felt better on [two days following the session]" and "always came and went with positive feelings." Examining the group means at follow-up reveals that, while the comparison group did experience a decline in vigor for unknown reasons at follow-up, the experimental group did not experience this decline. So even though the vigor scores for the experimental group were not significant at follow-up maybe their participation in the music therapy group helped prevent the decline in vigor experienced by the comparison group.

Stress

Hassles Scale was the measure used to determine each individual's perception of stress. While the quantitative data indicate no difference as a result of the intervention, several participants noted the benefits of the group for decreasing stress. Sample responses include,

"doing something that helped me relax," "using music to relax and meditate with," and "…learn a different way to handle stress."

Satisfaction Survey

The majority of the participants addressed the importance of the social support of the music therapist and the group members. This finding is consistent with that of Rhodes (2004) who suggested that emotional support is the most effective form of social support. Throughout the treatment, several group members discussed family challenges at home and the relief of being able to talk to people who have had similar life experiences.

Methodological Limitations

Selection Bias

Participants were recruited through local cardiac rehabilitation programs, the campus community, and the general community. Transmission methods included live presentations, internet announcements, posters, and the newspaper. A major source of recruitment left unexplored was the local physician community. It is possible that the participants were drawn from a population who has access to the internet and newspapers. Also, these volunteers may have been particularly interested in music, wellness, and/or research in a way that is different from the general population of adults with cardiac illness. Another possible difference between this sample and the general population of adults with cardiac illness is level of education. Almost half of the sample (46%) had an advanced degree, including masters, doctoral, and medical degrees.

There were study limitations in terms of acquiring and verifying the participants' medical records and stage of recovery. Upon initial participant screening, the investigator learned that the majority of the clients were seeing, or had seen, cardiologists either out-of-state or 6 to 8

hours round-trip from the research site making access to these records cumbersome. The investigator chose to rely on self-report for determination of their medical status. The lack of information regarding medication use is a limitation of the current study, as well. Additionally, while Sotile (1996) suggested matching the level and type of support to the individual's recovery stage for the client to gain the most benefit, no attempt was made to set a limit of time since the particular cardiac event or diagnosis. An intervention that is mismatched to the recovery stage could be stressful for the participant (Sotile, 1996).

Measurement Tools

POMS-SF. By definition of the test developers, mood is a fluctuating variable and therefore possibly less reliable than a long-term variable for measures taken at only three time points (McNair et al., 1981). Further, McNair et al. (1981) suggested that a 12-week protocol is desirable for their test, but the current study was a 6-week intervention as suggested in the cardiac literature (Sotile, 1996). A longer time frame for the intervention or more frequent measurement time points could have yielded different results.

While participants were not informed about the specific variables observed in the study, they did know from the title that the investigator was interested in psychological distress. Several participants were trained in research methods and repeatedly tried to determine the research design and hypothesized outcomes. One participant was so interested in the investigator's "success" that he asked her what he should circle on the form so she would be sure to graduate! Another participant expressed concern that her scores would be quite different from the other participants and asked if she should change her numbers so they "looked better." The investigator assured both participants that completing the form honestly was the best way for

them to participate. It is unknown if the participants followed this instruction or how many others altered their scores.

Hassles Scale. Hassles Scalewas the measure used to determine each participant's perceived level of stress. While the results were very useful as an assessment tool for determining the issues and topics to explore in the group, the use of this tool as a measure of stress is questionable for this population. First, the form is quite long and several participants expressed fatigue and difficulty sustaining concentration while completing the form. It is unknown whether items at the end of the scale were marked differently from items early on the list due to fatigue. Last, several participants mentioned sources of stress that were not clearly listed on the form such as stressors related to the use of technology such as email, using the internet, and other computer-related concerns.

Satisfaction Survey. The investigator developed a survey for participants to evaluate their perception of the effectiveness of the music therapy interventions, the music therapist, and the session structure. The survey was designed to be anonymous, but due to the small sample size and the question asking how many sessions were attended, the investigator could determine who had completed each survey. It is unknown if the participants realized this possibility and changed their responses. The answer option of "unsure" was given for several questions on the survey. It is possible that it may have been chosen if the participant did not understand the question rather than as an indication of a neutral response to the question. The survey also revealed that one participant did not like the MAR at all, suggesting that it was contraindicated for that person, which is similar to the findings of Schou (2009).

Music Therapy Interventions

Active music therapy. The active music therapy component of the music therapy sessions included expressive singing, songwriting, and improvisation. As noted in the section describing the survey results, the participants rated the expressive singing and songwriting components higher than the improvisation components. As the music therapist in this study had more experience and comfort implementing expressive singing and songwriting compared to improvisation, it is possible that her uncertainty about improvisation could have affected the implementation of the intervention. Additionally, songwriting was implemented only once during the course of treatment, so conclusions about the effectiveness of songwriting for this population are limited.

Receptive music therapy. The receptive music therapy portion of the intervention consisted of music-assisted relaxation. There were several implementation challenges related to this part of the intervention. Several group members were hard-of-hearing and, despite adjustments by the music therapist, continued to struggle to hear the music and the relaxation scripts. Straining to hear can be anxiety-provoking and could directly affect the results and the perceived benefit of that part of the intervention. Additionally, at times there were unexpected extraneous noises that could not be diminished, such as the building air conditioner, the automated coffee pot, and the refrigerator in the room. On one occasion, and despite signs asking for quiet directly outside the room, the music therapist had to ask a group of faculty and students talking loudly during the intervention to relocate from the hallway outside the session space to their designated classroom at the other end of the hallway.

Investigator as Therapist

In an ideal research situation, the investigator and the implementer of the treatment would be separate people. In this study, the investigator served as the music therapist for the support groups. As discussed in the previous section, it is certainly possible that the music therapist's varying skill level at the various music therapy interventions involved in the study could have affected the results. A different music therapist with differing levels of training could produce different results.

Sample Size

The nonsignificant findings in this study could be attributable to small sample size. It is possible that a similar study with a larger sample size would have revealed more significant findings. The mean score differences needed to determine significance between groups can be smaller for a larger sample size.

Recommendations for Future Research

Several suggestions for participant recruitment can be made as a result of this study. First, it is suggested that the music therapist be part of a cardiac rehabilitation team and maintain a referral network with local physicians who treat individuals with cardiac illness. A replication study with a larger sample size is recommended for future research. Additionally, with a larger sample size, differential treatment effects as a result of gender and time since diagnosis or cardiac event could have been determined. It would also be useful to collect information about medications and changes to medical treatment throughout the course of the intervention. Control variables such as personality type could be introduced to determine their influence, if any, upon the results.

Considering the delivery of the music therapy interventions, several suggestions can be made for future research. To decrease self-consciousness and increase the likelihood of identifying contraindications for music-assisted relaxation, it is suggested that participants take a few moments to write down their responses to the music and imagery experience and then share as they are willing. The participants would then submit their responses to the therapist to read later. This process would allow individuals to share any concerns about the intervention with the music therapist in a private manner. For the current investigator/music therapist, a study using expressive singing, songwriting, and MAR without improvisation is suggested, but other therapists with more training in improvisation should be encouraged to pursue this line of research. Additionally, the use of the Bonny Method of Guided Imagery in Music, an intensive form of 1:1 music and imagery, could be pursued with this population. The skill set of the music therapist may be an extraneous variable in the current study.

Following the suggestion of Bradt and Dileo (2009) to consider the optimum frequency and duration of therapy, this study sought input from the participants about this matter. Results of the survey indicated that the session length and frequency of the session were desirable to the participants yet the benefits were not sustained at follow-up. It is possible that while the therapy dosage was strong enough to cause change at posttest, it was not strong enough to sustain the change at follow-up. Because it is desirable for benefits to be long-lasting and independent from the therapist, another study addressing the length of the session or the total number of sessions would be useful for music therapists planning music therapy groups for this population.

While music therapy research with this population is in its early stages, the findings of this study support the provision of music therapy interventions for individuals with heart disease to decrease total mood disturbance and anxiety and to increase vigor. Should follow-up studies

support these findings, music therapy groups, such as the one described in this study, may provide opportunities for enhanced emotional functioning in an atmosphere of social support. Consistent with the suggestion of Dunn (2005), individuals who experience enhanced emotional functioning may have better outcomes in terms of compliance with the goals of cardiac rehabilitation. Further, this proposed increased compliance may help decrease complications from heart disease, including morbidity and mortality, helping the individual to demonstrate their personal performance of health (Ruud, 2010). Therefore, based upon the results of this study, it is advised that music therapists consider offering group music therapy sessions consisting of a range of types of music therapy experiences for adults with heart disease.

APPENDICES

Appendix A

Recruiting Poster

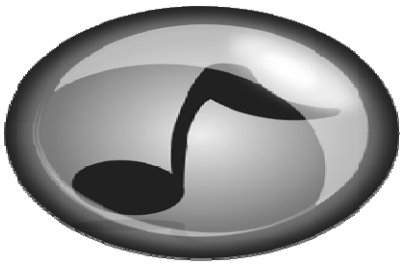
Interested in music and wellness?

Volunteers are needed to participate in a research study of the effects of a music therapy support group on mood and stress of adults who have –

- experienced a heart attack, and/ or
- have coronary heart disease, and/ or
- had a heart procedure or surgery.

The music therapy support group will involve music and relaxation procedures plus processing of emotions and stress through active music making.

Volunteers must be 40-95 years old.
No musical training is required.



For more information, please contact –

Christine P. Leist
Music Therapist-Board Certified
(828) 262-6663 or
pollardcl@appstate.edu

Appendix B

Volunteer Information Form

Volunteer Information Form

I.D. # _____
(Please leave the above item blank. It will be entered by the researcher)

1.	What is your age?	_____	
2.	Have you experienced a heart attack(s)?	YES	NO
3.	If so, when did the heart attack(s) occur?	_____	
4.	Are you diagnosed with coronary heart (or artery) disease?	YES	NO
5.	Do you experience angina?	YES	NO
6.	Do you have valve disease?	YES	NO
7.	Do you have heart beat arrhythmia?	YES	NO
8.	Have you had a coronary artery bypass graft (CABG)?	YES	NO
9.	If so, when did you have the CABG?	_____	
10.	Have you had angioplasty (PTCA) with insertion of a stent?	YES	NO
11.	Have you had valve replacement surgery?	YES	NO
12.	Do you have a pacemaker?	YES	NO
13.	Do you have an implantable cardioverter defibrillator (ICD)?	YES	NO
14.	Do you have congestive heart failure?	YES	NO
15.	Do you have congenital heart disease?	YES	NO
16.	Do you have another life-threatening condition?	YES	NO
17.	If so, what is the condition?	_____	
18.	Do you have Alzheimer's disease or other dementia?	YES	NO
19.	In the past year, have you been hospitalized for a psychiatric condition?	YES	NO
20.	Are you currently a participant in another research study?	YES	NO
21.	Do you participate in a cardiac rehabilitation program?	YES	NO
22.	If so, where is the program located?	_____	

23. Who is the physician directing your medical care related to your heart condition(s)?

    Name: _____

    Location: _____
    (name of town or city is sufficient)

    Phone number: _____

24. (Women only) Are you currently pregnant or breastfeeding or have you given birth within the past 6 weeks? _____

25. Please indicate with a check the types of music listed below that you enjoy. If there is a specific artist or group, please list that information in the blank.

_____ Big Band. Artists /groups: _____

_____ Bluegrass. Artists / groups: _____

_____ Blues. Artists / groups: _____

_____ Classical. Artists / groups: _____

_____ Classic Rock (60's / 70's). Artists / groups: _____

_____ Country. Artists / groups: _____

_____ Current Pop. Artists / groups: _____

_____ Folk. Artists / groups: _____

_____ Gospel. Artists / groups: _____

_____ Heavy metal (mid-80's to present). Artists / groups: _____

_____ Pop (1980's). Artists / groups: _____

_____ Rap/Urban. Artists / groups: _____

_____ Religious. Artists / groups: _____

_____ Show tunes. Artists / groups: _____

_____ Other. Artists / groups: _____

_____

26. Please indicate with a check your current relationship status:

_____ Divorced
_____ Domestic partner relationship
_____ Married
_____ Separated
_____ Single
_____ Other: _____

27. Please indicate with a check the highest level of education attained:

_____ Some grade school
_____ Some high school
_____ High school graduate
_____ Some college
_____ Associate degree
_____ Bachelor's degree
_____ Some graduate work
_____ Master's degree
_____ Doctoral degree
_____ Other: _____

Appendix C

Contact Form

Contact Form

This form is not official data for the study, but will provide information which I will need to contact you to schedule sessions. This form will be kept separate from the study data and will be destroyed after the study has ended. Sincerely, Christine Leist

NAME: _____

HOME PHONE: _____

WORK PHONE: _____

CELL PHONE: _____

EMAIL ADDRESS: _____

1. Can you meet for sessions during the day? (please circle one) YES NO
2. If so, on what day(s) would you be available? (please circle) M T W R F
3. What time of day would be best? Morning Afternoon Either
4. Is there any additional information about your availability for daytime sessions that would be helpful for me to know?

5. Can you meet for sessions in the evening? (please circle one) YES NO
6. If so, what day(s) would be best for you? (please circle) M T W R F
7. Is there any additional information about your availability for evening sessions that would be helpful for me to know?

8. Can you meet for sessions on Saturdays? (please circle one) YES NO
9. What time of day would be best? Morning Afternoon Either
10. Is there any additional information about your availability for Saturday sessions that would be helpful for me to know?

Appendix D

Satisfaction Survey

Dear participants: Please take a moment to complete this survey about the music therapy group. This survey will be anonymous. Please do not put your name or any identifying information on this survey. Thanks, Christine Leist

For items, 1 – 13, please circle ONE answer for each item.

1. How many music therapy groups did you attend? 1 2 3 4 5 6

2. The music and relaxation instruction and practice was helpful to me.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

3. I will use the music and relaxation process in the future to decrease stress.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

4. Music therapy helped me feel more comfortable expressing my feelings.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

5. Music therapy helped me feel more comfortable listening to and supporting the feelings of others.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

6. The music therapist listened to me and supported my work in the group.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

7. Singing songs about feelings and issues was helpful to me.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

8. Discussing songs about feelings and issues was helpful to me.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

9. Writing songs about feelings and issues was helpful to me.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

10. Engaging in music improvisation with instruments and voice was helpful to me.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

11. I would recommend this group to other individuals with heart-related medical conditions.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

12. Please evaluate the hour and a half session length by choosing one choice below.

1	2	3
Too Short	Just Right	Too Long

13. Please evaluate the six week length of time for the music therapy sessions by choosing one choice below.

1	2	3
Too Short	Just Right	Too Long

14. What was the <u>most beneficial</u> part of the music therapy group?

15. What was the <u>least beneficial</u> part of the music therapy group?

16. Other comments:

Appendix E

Research Participant Information and Consent Form

Research Participant Information and Consent Form

You are being asked to participate in a research project. Researchers are required to provide a consent form to inform you about the study, to convey that participation is voluntary, to explain risks and benefits of participation, and to empower you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Study Title: A Music Therapy Support Group to Ameliorate Psychological Distress in Adults with Coronary Heart Disease in a Rural Community

Primary Investigator's Title: Frederick Tims, Ph.D.
Department and Institution: College of Music, Michigan State University
Address and Contact Information: 201 MPB, College of Music, E. Lansing MI 48823-1043
Email: tims@msu.edu

Secondary Investigator's Title: Ms. Christine Pollard Leist, M.M., MT-BC
Ph.D. candidate, Michigan State University
Department and Institution: College of Music, Michigan State University
Address and Contact Information:
Hayes School of Music
ASU Box 32096
Boone, NC 28608
Email: pollardcl@appstate.edu

1. PURPOSE OF RESEARCH:
You are being asked to participate in a research study to determine if a music therapy-based support group could be helpful in reducing symptoms of stress, anxiety, depression, and anger/hostility in individuals with coronary heart disease. Additionally, the researcher hopes to learn what music therapy approaches are the most effective for this group of people.

In the entire study, 40 people are being asked to participate. If you are assigned to the music therapy support group, your participation will take a total of 11 hours. This total includes 30 minutes to complete forms, 1 hour group meeting, 1.5 hour music therapy sessions per week over a 6-week time period for a total of 9 hours, and 30 minutes to complete two forms four weeks after the music group ends.

If you are assigned to the other group, your participation will take 2.5 hours. This total includes 30 minutes to complete forms, a 1 hour group meeting and 30 minutes on two separate occasions across a 10-week time period to complete two forms.

2. WHAT YOU WILL DO:
If you agree to be in the study, the following will occur:

1. You will attend a one hour group meeting where you will be provided with information and an opportunity to sign two forms: an Informed Consent Form and a Patient Authorization for Use and Disclosure of Protected Health Information for Research Purposes Form. Additionally, you will be asked to complete one form about your mood and one form about your stress.

2. You will be randomly assigned to a music therapy group or to another group who will be offered three sessions after all data for the study have been collected. Assignment to these groups will be random so neither you nor I will be able to select your group assignment.

3. If you are assigned to the music group, you will participate in weekly 1.5 hour music therapy sessions for six weeks. At the last session, you will complete the mood and stress forms again. Four weeks after the last session, you will be asked to complete the mood and stress forms again. These will be mailed to you with a pre-addressed stamped envelope for your convenience.

4. If you are assigned to the music therapy group, you will participate in a small support group of approximately ten people. Following a music and relaxation experience, you will be invited to share an emotional event that occurred during the previous week. The group will support you by listening and processing the event through music making. Examples of music therapy interventions include, but are not limited to, song lyric analysis, expressive singing, songwriting, instrumental and vocal improvisation, and instrument playing. You will be invited to complete the mood and stress measures at the last session and at four weeks following the close of sessions. You will also have the opportunity to complete a satisfaction survey at the last session.

5. If assigned to the other group, you will be asked to complete two mood and stress forms at two different times across a ten week period. These will be mailed to you and include a pre-addressed stamped envelope for your convenience. Once all data have been collected for the study, you will have the opportunity to participate in weekly 1.5 hour music therapy sessions for three weeks.

3. POTENTIAL BENEFITS:
The potential benefit to you for taking part in this study is increased awareness of how music may be beneficial to you in managing stress and emotions. Additionally, the information that you provide may help health professionals to better understand how music therapy could be beneficial to individuals with heart disease. No promises or guarantees of benefits have been made to encourage you to participate.

4. POTENTIAL RISKS:
There will be no financial costs to you as a result of taking part in this study other than the time spent to participate. Some of the discussions and completion of paper and pencil forms may make you feel uncomfortable or upset, but you are free to decline to answer any questions you do

not wish to answer or to stop your participation at any time. Additionally, expressing your feelings in the presence of others and hearing the feelings of others may be uncomfortable, but you are free to participate in this process to the extent that you feel comfortable. Last, if you participate in this study, you will be asked to decline participation in other research or lifestyle change programs, excluding cardiac rehabilitation, for the duration of the project, approximately 10 weeks.

5. PRIVACY AND CONFIDENTIALITY:
Participation in this research may involve a loss of privacy; however, the data for this project will be kept confidential. All data will be coded by participant number rather than by name. Questionnaires, consent forms, and codes will be maintained in the secondary investigator's locked office in a locked file cabinet. Data files will be stored for five years in a password-protected computer in a private, locked office.

The sessions will be audio recorded. These audio recordings will be stored on a password protected computer. The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain anonymous.

I agree to allow audio recording of the music therapy sessions for educational purposes.

Yes _____ No _____ Initials_____

Information about you will be kept private and confidential to the maximum extent allowable by law unless there is a danger to yourself or others. If child abuse is known or strongly suspected, the investigators are required to notify the appropriate authorities. If participants are believed to be a threat to themselves or others, the investigators should notify authorities.

6. YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW:
Participation in this research project is completely voluntary. You have the right to say no. You may change your mind at any time and withdraw from the study. There may be circumstances under which the investigators may determine that a participant should not continue in the study.

You may choose not to answer specific questions or stop participating at any time. Choosing not to participate or withdrawing from this study will not make any difference in the quality of any services you may receive and/or benefits to which you are otherwise entitled.

7. COSTS AND COMPENSATION FOR BEING IN THE STUDY:
You will not receive money or any other form of compensation for participating in this study.

8. ALTERNATIVE OPTIONS:
As an alternative to this study, you might choose to participate in individual counseling or another support group.

9. THE RIGHT TO GET HELP IF INJURED:
If you are injured as a result of your participation in this research project, Michigan State University will assist you in obtaining emergency care, if necessary, for your research related

injuries. If you have insurance for medical care, your insurance carrier will be billed in the ordinary manner. As with any medical insurance, any costs that are not covered or in excess of what are paid by your insurance, including deductibles, will be your responsibility. The University's policy is not to provide financial compensation for lost wages, disability, pain or discomfort, unless required by law to do so. This does not mean that you are giving up any legal rights you may have. You may contact Frederick C. Tims, Ph.D. at 517-353-9856 with any questions or to report an injury.

10. CONTACT INFORMATION FOR QUESTIONS AND CONCERNS:
If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher, Christine P. Leist at 828-262-6663 or pollardcl@appstate.edu.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 207 Olds Hall, MSU, East Lansing, MI 48824.

11. DOCUMENTATION OF INFORMED CONSENT.
Your signature below means that you voluntarily agree to participate in this research study.

_____ _____

Signature Date

Appendix F

Music-Assisted Relaxation Scripts

AUTOGENIC – Color

"The Garden" (Frontiere, 1991, track 5). Length 3:03

Preparation

Check-in about the choice of image, can open eyes, dismiss unwelcome thoughts…

Will last approximately…

Close eyes and comfortable position…

Breathing…..relaxation to body, center, back, hips, legs, calves, feet, shoulders, neck, face, hands, fingers, continues to relax you.

Let your breath…. A color...notice its color and texture…With you into the music

Music

Feet…. Draw in and fill ….

0:25 Both legs… draw in and fill… knees, upper part of legs...hips… bringing what your body needs

0:30 Lower back… draw in and fill…to stomach… as much as it needs…

Chest… draw in and fill… to shoulders…arms... fingers…bringing what your body needs

1:00 Gently through neck… draw in and fill… jaw… cheeks… eyes… as much as it needs

2:00 Entire body… area needs more color … take it there….Entire body … what it needs…

Bringing the client back to an "alert" state

Music has ended for now….Turn awareness back… aware of breath…. Own pace…open eyes….Take some quiet time to reflect…..

IMAGE-BASED – sunrise

"The Swan" (Saint-Saens, 2007, track 8). Length 3:00

Preparation

Check-in about the choice of image, can open eyes, dismiss unwelcome thoughts…

Will last approximately…

Close eyes and comfortable position…

Breathing…..relaxation to body, center, back, hips, legs, calves, feet, shoulders, neck, face, hands, fingers, continues to relax you.

Find yourself in a comfortable, safe place to enjoy the sunrise.

Music

Look around you…See the drops of dew on the grass

See the leaves on the trees move in the gentle breeze

Breathe in the clean air of sunrise

Listen to the birds in the trees

Feel the calm and peace of this moment

Notice the rays of the sun peaking through the clouds

The light is gold and pink with the energy of the sunrise

Feel the slight warmth of the sun of your skin

2:00 Enjoy this moment with the sunrise

2:40 Let its warmth bring you energy for your day

Bringing the client back to an "alert" state

Music has ended for now….Turn awareness back… aware of breath…. Own pace…open eyes….Take some quiet time to reflect…..

AUTOGENIC – Healing Light (contraindicated for people w/ near death exp)

"Antarctica Echoes" (Vangelis, 1983, track 2). Length 5:54

Preparation

Check-in about the choice of image, can open eyes, dismiss unwelcome thoughts…

Will last approximately…

Close eyes and comfortable position…

Breathing…..relaxation to body, center, back, hips, legs, calves, feet, shoulders, neck, face, hands, fingers, continues to relax you.

Let your breath…. A ball of healing light ..notice its form and texture…With you into the music

Music

Feet…. Draw in and fill ….

0:39 Both legs… draw in and fill… (1:00) knees, upper part of legs...hips… bringing what your body needs

1:36 Lower back… draw in and fill…to stomach… as much as it needs…

2:15 Chest… draw in and fill… to shoulders…arms... fingers…bringing what your body needs

3:05 Gently through neck… draw in and fill… jaw… cheeks… eyes… as much as it needs

3:50 Entire body… area needs more color … take it there….Entire body … what it needs…

5:00 (time to imagine)

Bringing the client back to an "alert" state

Music has ended for now….Turn awareness back… aware of breath…. Own pace…open eyes….

Take some quiet time to reflect…..

IMAGE-BASED – meadow on spring day

"Introduction and Allegro" (Ravel, 1995, track 5). Length: fade at 5:00

Preparation

Check-in about the choice of image, can open eyes, dismiss unwelcome thoughts…

Will last approximately…

Close eyes and comfortable position…

Breathing…..relaxation to body, center, back, hips, legs, calves, feet, shoulders, neck, face, hands, fingers, continues to relax you.

Meadow on a spring day…scenery…… a companion…..

Music

See the meadow

Feel the delicate grass….dandelion…. puff of breath ….. spores over a meadow…wish…

Magic umbrella...companion….buoyant air…. Foot or so above…..(time to imagine)

Daily cares fall away…. Sway and move… colors of flowers…. Trees with fruit… birds….(time to imagine)

Complete and fulfilled… gradually close… land softly on firm and steady ground…companion

Laugh at ability to feel light and carefree… lie in the grass to rest …. Drift off…wake up calm and refreshed.

Bringing the client back to an "alert" state

Music has ended for now….Turn awareness back… aware of breath…. Own pace…open eyes….

Take some quiet time to reflect…..

IMAGE-BASED – woods

"Venus" (Holst, 1995, track 2). Length: 4:30

Preparation

Check-in about the choice of image, can open eyes, dismiss unwelcome thoughts…

Will last approximately…

Close eyes and comfortable position…

Breathing…..relaxation to body, center, back, hips, legs, calves, feet, shoulders, neck, face, hands, fingers, continues to relax you.

Cool woods on a warm day…..

Music

See the woods around you… colors of leaves, red, orange, yellow

You notice a small stream ahead

As you walk toward it, you notice how the light dances off the rocks

1:50 Hear the leaves of the trees around you

2:30 Breathe in the cool, calming air of these woods

You notice the flowers by the stream

You notice their colors

3:12 You notice a large flat rock near the stream and walk over to sit on it

3:40 Enjoy the peaceful cool woods around you

3:50 Notice what you see and hear (to 6:06)

Bringing the client back to an "alert" state

Music has ended for now….Turn awareness back… aware of breath…. Own pace…open eyes….

Take some quiet time to reflect…..

AUTOGENIC – Color/body sensation 2

"Gwenlaise" (Cossu, 1990, track 7). Length: 4:38

Preparation

Check-in about the choice of image, can open eyes, dismiss unwelcome thoughts…

Will last approximately…

Close eyes and comfortable position…

Breathing…..relaxation to body, center, back, hips, legs, calves, feet, shoulders, neck, face, hands, fingers, continues to relax you.

Let your breath…. A color or other body sensation ...notice its form and texture…With you into the music

Music

Feel the color or sensation begin at your head and descend through your head into your shoulders

1:00 Be aware as it brings sense of peace and rest to your upper body

1:30 It fills you with its essence. It descends through your legs and knees

2:15 It brings peace and rest to your lower body

2:30 Let it resonate throughout our body

3:00 Enjoy the sensation. Be aware of what you see and feel.

3:45 It brings you peace and rest

4:00 – 4:30 Know that you can return to this feeling later when you need peace and rest

Bringing the client back to an "alert" state

Music has ended for now….Turn awareness back… aware of breath…. Own pace…open eyes….Take some quiet time to reflect…..

Appendix G

List of Songs in Music Therapy Song Book

List of Songs in Music Therapy Songbook

1. How Could Anyone Ever Tell You?
2. Farewell, Good Friends
3. With a Little Help from My Friends
4. I Walk the Line
5. Button Up Your Overcoat
6. Dance, Dance, Dance
7. Against the Wind
8. Blowing in the Wind
9. Face Tomorrow
10. Kansas City Blues
11. Bridge Over Troubled Water
12. Five Hundred Miles
13. Sometimes I Feel Like a Motherless Child
14. Shower the People
15. Baby, Please Don't Go
16. Let it Be
17. We Can Work it Out
18. Take it Easy
19. Here Comes the Sun
20. I Can See Clearly Now
21. Will the Circle Be Unbroken?
22. Proud Mary
23. Homeward Bound
24. Take Me Home, Country Roads
25. Stand By Me
26. Morning Has Broken
27. Wayfaring Stranger
28. On the Sunny Side of the Street

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