

Original Article

Trajectories of Terminally Ill Patients' Cardiovascular Response to Receptive Music Therapy in Palliative Care

Marco Warth, MA*, Jens Kessler, MD*, Thomas K. Hillecke, Dr sc hum, and Hubert J. Bardenheuer, MD
Center of Pain Therapy and Palliative Care Medicine (M.W., J.K., H.J.B.), Department of Anesthesiology, Heidelberg University Hospital; and School of Therapeutic Sciences (M.W., T.K.H.), SRH University Heidelberg, Heidelberg, Germany

Abstract

Context. Relaxation interventions are frequently used to promote symptom relief in palliative care settings, but little is known about the underlying mechanisms.

Objectives. The present analysis aimed at examining the psychophysiological pathways of terminally ill patients' cardiovascular response to a live music therapy vs. prerecorded mindfulness exercise.

Methods. Eighty-four patients of a palliative care unit were randomly assigned to either of the two interventions. Multilevel modeling was used to analyze trajectories of physiological change. Vagally mediated heart rate variability (VM-HRV) and blood volume pulse amplitude (BVP-A) served as indices of autonomic nervous system response. Participants' gender, age, baseline scores, self-rated pain, and assignment to treatment were entered to the models as predictors.

Results. Both VM-HRV and BVP-A showed significant linear and quadratic trends over time, as well as substantial heterogeneity among individuals' trajectories. Baseline scores, pain, and treatment significantly accounted for random variation in VM-HRV intercepts. BVP-A levels were significantly higher in women than in men. Moreover, assignment to treatment significantly accounted for differences in the linear slopes of peripheral blood flow.

Conclusion. Higher levels of VM-HRV in the music therapy group highlight the importance of a therapeutic relationship for the effectiveness of relaxation interventions in end-of-life care settings. Music therapy caused significantly stronger reductions of vascular sympathetic tone and, therefore, may be indicated in the treatment of pain and stress-related symptoms in palliative care. Initial self-ratings of pain moderated patients' physiological response and need to be taken into account in clinical practice and future theory building. *J Pain Symptom Manage* 2016;52:196–204. © 2016 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

Key Words

Music therapy, mindfulness, palliative care, randomized controlled trial, multilevel analysis, cancer, pain

Introduction

Over the past several years, the benefits of complementary and alternative therapies have been increasingly recognized in the treatment of advanced malignancies.^{1–3} In particular, mindfulness-based (MB) relaxation interventions with and without the use of creative elements such as music and arts showed promising results in improving symptom distress and quality of life.^{4–7} However, little is known about the underlying

psychophysiological mechanisms that may elicit a relaxation response in terminally ill patients.

The World Health Organization defines palliative care as a multidisciplinary approach “[...] that improves the quality of life of patients and their families facing the problem associated with life-threatening illness.”⁸ The German classification of procedures recommends the use of music therapy (MT) as an adjunct treatment in palliative care.⁹ In contrast to music

The trial was registered by German Clinical Trials Register—DRKS00006137.

*Drs. Warth and Kessler contributed equally to this work.

Address correspondence to: Marco Warth, MA, Center of Pain Therapy and Palliative Care Medicine, Department of

Anesthesiology, Heidelberg University Hospital, Im Neuenheimer Feld 131, 69120 Heidelberg, Germany. E-mail: marco.warth@hochschule-heidelberg.de

Accepted for publication: January 29, 2016.

medicine or music listening interventions, the definition of MT highlights the importance of the therapeutic relationship and dynamic interactions between patient and therapist.¹⁰ In end-of-life care, MT interventions aim at improving the patients' quality of life by supporting symptom management, enhancing emotion regulation, and communication skills, as well as facilitating spiritual experiences.¹¹ Today, MT is among the most frequently provided complementary treatments in U.S. hospices^{3,12} and receives high acceptance by other health care professionals in the U.K.¹³ Interventions typically encompass the use of active techniques (e.g., songs or improvisation), as well as receptive techniques such as relaxation or imagery.¹⁴ The latter do not require active physical or musical participation of the patient and, therefore, are very common in work with terminally ill patients.

Although the complementary application of MT has formed an inherent part of palliative cancer care for more than 35 years,¹⁵ to date, only limited evidence on its specific effects is available.^{6,16} Empirical investigations showed that MT may improve quality of life¹⁷ and alleviate pain in palliative care patients.^{18–21} Furthermore, previous studies reported significant effects on anxiety,^{22,23} stress,²⁴ communication,²⁵ and spirituality.²⁶ A recent retrospective analysis suggests that MT may be associated with spiritual support and a decrease of breathing problems.²⁷ However, the majority of the reported findings stem from studies with high risks of bias.^{6,16,28}

Although certain aspects of the concept of mindfulness may be inherent in receptive MT techniques and have been subject to a recent pilot study with breast cancer patients,²⁹ more research exists on verbal MB interventions. Mindfulness is defined as to pay attention "on purpose, in the present moment, and nonjudgmentally."³⁰ MB interventions have shown to generally improve health in clinical and nonclinical populations^{31,32} and to reduce anxiety, depression, sexual difficulties, stress, and sleep disturbances in various oncological conditions.^{4,33,34} However, only few studies included advanced cancer patients or end-of-life care settings. One quasi-randomized study used a prerecorded body scan meditation and found significant improvements in mental and physical health over a period of one month.⁵ In a qualitative pilot study, hospice patients reported beneficial effects after participating in mindfulness groups.³⁵

The physiological correlates of both short-term MB and receptive MT interventions in resting positions are most likely to be represented by a relaxation response,³⁶ which is mainly modulated by a shift in the activation patterns of the autonomic nervous system. Contrasting the stress response, a relaxation response is expected to manifest in a reduction in

sympathetic arousal and increase in parasympathetic activity.^{36,37} Study outcomes that have been commonly used for the operationalization of autonomic nervous system activity were 1) high-frequency (HF) oscillations in the beat-to-beat-intervals of successive heartbeats (i.e., heart rate variability [HRV]) as an index of vagally mediated (VM) cardiac outflow, and 2) the amplitude of peripheral blood flow (blood volume pulse amplitude [BVP-A]) as a measure of sympathetic tone.

Low HRV has proven to be a risk factor for oncological and cardiac diseases^{38,39} and is associated with emotional dysregulation.^{40–42} In accordance with Porges's polyvagal theory, which emphasizes the role of myelinated vagus fibers in engaging in adaptive, prosocial behavior and in suppressing automated fear and stress responses, high VM-HRV seems to be positively correlated with resilience, social engagement, well-being, and psychological flexibility.^{43–45}

Previous studies on apparently healthy participants' cardiovascular response to MB interventions showed significant reductions in heart rate^{46–48} and increases in VM-HRV^{46–49} and BVP-A.⁴⁶ An observational study found evidence for a positive association between HRV and the ability to mindfully regulate one's attention.⁵⁰ Fewer studies evaluated the cardiovascular effects of MB interventions for clinical populations. Significant decreases in heart rate and increases in the HF spectrum were reported for chronic pain patients⁵¹ but were not found in myocardial infarction patients.⁵²

Evidence on the effects of music on HRV is inconsistent. Clinical trials revealed significant increases in HF variation among preoperative patients undergoing a music listening intervention⁵³ and in elderly patients with cerebral vascular disease and dementia exposed to live music therapy sessions.⁵⁴ A pilot study with female cancer survivors replicated the pattern of decreased heart rate and increased VM-HRV after 2 hours of participating in MT.⁵⁵ In female cancer patients undergoing chemotherapy, however, listening to prerecorded monochord sounds led to a significant increase in the LF, but not in the HF spectrum.⁵⁶ To our knowledge, no study has yet examined the physiological response of terminally ill cancer patients to music or MT.

The present study was designed to evaluate the efficacy of an MT relaxation intervention in palliative care patients. A prerecorded verbal mindfulness exercise served as an active control group condition.²⁸ Pre-to-post changes in self-report data and physiological outcomes have been addressed in a previously published article,⁵⁷ identifying significant between-group effects on self-reported relaxation, well-being, and fatigue, as well as changes in subjects' physiological state before versus after the intervention. However, preliminary analyses on the individual trajectories revealed significant

Download English Version:

<https://daneshyari.com/en/article/5881217>

Download Persian Version:

<https://daneshyari.com/article/5881217>

[Daneshyari.com](https://daneshyari.com)