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Music, text, music-and-text and psychophysiological responses: A randomized controlled trial

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ABSTRACT

Interventions using music, text, and music and text together for relaxation and visualization stimulation are used frequently by music therapists and psychotherapists in their clinical practice. However, there is not much research comparing the impact of these interventions on psychophysiological responses. The goal of this pilot study was to compare the interaction with psychophysiological reactions of different types of interventions using visualization. The reactions, including respiratory rate, galvanic skin response, heart rate, and blood pressure, were measured with a polygraph. Healthy nonmusician adults ($n = 20$) were randomly assigned to three groups: group M listened to music, group T listened to text with verbal visualization instructions, and group M+T listened to the music and text combined. Statistically significant differences in psychophysiological responses to these conditions were found. Additionally, all of the interventions were rated as highly pleasurable by participants. The implications of the results are discussed for both clinical practice and future research projects. The results of this pilot study may contribute to and direct further investigations.

Visualization or imagery is often used in therapy to stimulate the imagination. Although popular in the work of psychotherapists, therapeutic techniques relying on this type of stimulation are not always seen as evidence-based methods (Andrews & Shaw, 2012). Some scholars (Loftus & Pickrel, 1995; Paddock & Terranova, 2001) even point out the unreliability of guided imagery diagnostic or therapeutic material, especially that relating to memory and recall of (autobiographical) memories. Nevertheless, elements of visualization, with or without music, are widely employed by clinicians (Singer, 2005).

This term "visualization" is sometimes used interchangeably with "images," "imagery," "mental pictures," or "fantasizing." Although its meaning differs and often refers to distinct forms of activity, visualization generally refers to the process of creating sensory images in one's mind without actual, physical stimuli.

Psychotherapeutic visualization can take the form of receptive visualization (i.e., self-investigation and searching for images), imposed visualization (whereby the therapist suggests desired ideas to the patient by means of a text), and guided imagery (where, in addition to the therapist's verbal suggestion, the patient's imagination is allowed some freedom). It can be literal, when the patient grapples with situations that could take place in the real world, or metaphoric, when the images are beyond the scope of a person's everyday experience (Arbuthnott, Arbuthnott, & Rossiter, 2001).

Stimulating imagery with music in its various forms is one of the most popular interventions used in receptive music therapy. It sometimes appears in the form of guided or free visualization. It may contain verbal instructions, although this is not necessary. If the verbal element occurs, guiding is carried out on both verbal and musical levels. The music factor may be the essential medium to provoke image creation, to complement the text only, or to constitute the background (Stachyra, 2012). As far as the content of the instruction is concerned, different possibilities arise. Verbal commentary may gently suggest some images, or it may be more specific. The aims of visualization differ; it may be connected with relaxation (Overholser, 1991) or, at other times, may lead to new insights and reflections, working as a tool for depth psychotherapy (Utay & Miller, 2006).

The most well-known and highly developed form of receptive music therapy that uses music to stimulate imagery is Guided Imagery and Music (GIM), also known as the Bonny Method of Guided Imagery and Music (BMGIM) or the Bonny Method, which will be referred to here as BMGIM. These terms refer to the method developed by Helen Bonny, who defined it as the "purposeful use of prepared classical music by a guide or facilitator to evoke sensory and emotional responses in the listener. These responses, in

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the form of imagery, symbols, feelings, past and present life review, sensations, unfolding metaphors and transformative experiences, become the heart of the session" (Bonny, 2000, Section 4). The method was created for use in a one-to-one format and is guided by a person trained in the method.

Many other uses of music and imagery are also used. The Association for Music and Imagery provides with the following explanation:

> In guided imagery with music for relaxation, the goal is deep relaxation. In this kind of music-assisted relaxation, guidance is more directive and the specific images and music used in the session are chosen for their ability to promote and support the goal of relaxation. In contrast, with the Bonny Method of Guided Imagery and Music, carefully selected classical music is used to elicit and support a non-directed spontaneous imagery process, with the client reporting their inner experiences, which are followed and supported by the facilitator. (ami-bonnymethod.org)

Various forms of visualization, with and without music, have been examined with different populations. Unfortunately, not all researchers use standard terminology, and clear description of the process is not always provided, leading to some confusion in attempting to understand what was done in various studies.

Individual forms of BMGIM, involving dialoguing with the therapist while in a altered state of consciousness and being guided through spontaneous imagery, have been investigated in healthy adults (Maack & Nolan, 1999; McKinney, Antoni, Kumar, & Kumar, 1995; McKinney, Antoni, Kumar, Tims, & McCabe, 1997), oncologic patients (Burns, 2001), pregnant women (Short, 1993), cases of childhood abuse (Ventre, 1994), and mental disturbances (Pickett, 1991). Research in this field employs different methods, from randomized controlled studies to qualitative approaches. Randomized controlled trials suggest that individual sessions of BMGIM might lower depression (McKinney et al., 1995) and reduce mood disturbance, fatigue, and cortisol levels in healthy adults (McKinney et al., 1997) and improve mood and quality of life in oncologic patients (Burns, 2001). Other quantitative studies (pre- and quasi-experimental) of BMGIM indicate that sessions might reduce psychiatric symptoms and interpersonal problems in adults who are healthy or experience mild to moderate psychiatric problems (Wrangsjö & Körlin, 1995), lower distress and perception of pain in people with rheumatoid arthritis (Jacobi & Eisenberg, 2001–2002), and reduce distress and increase emotional and social well-being in women with oncologic problems (McKinney & Clark, cited in Bonde, 2007). A mixed-methods study by Bonde (2004) suggests that BMGIM may decrease anxiety in women recovering from breast cancer.

Modified forms of BMGIM, including group sessions and music choices different than classical, were also investigated. Patients with psychiatric problems benefitted from group music and imagery sessions (Moe, 2002). Such sessions also increased sense of coherence in clients with substance abuse disorder (Moe, 2011–2012). Relaxation-focused music and imagery based on principles of BMGIM was developed and analyzed, aimed at decreasing stress and promoting well-being in older adults, and leading to increased awareness of relaxation and enhanced feelings of physical and emotional well-being (Short, 2007). Older adults also benefited from an adaptation of BMGIM in a group setting without ongoing, individualized visualization suggestions (Summer, 1981). For some populations, such as clients with PTSD, both individual and group forms seem to be beneficial (Blake & Bishop, 1994).

While music plays an essential role in BMGIM, in other interventions based on guided imagery, it might serve as a background only; this combination was shown to be effective with patients with depressive disorders (Apóstolo & Kolcaba, 2009). Also guided imagery without music was at the center of studies in conjunction with another treatment, visualization with acupuncture (Sawada et al., 2010) or in a specifically designed form as guided relaxation and exercise imagery for older adults (Kim, Newton, Sachs, Giacobbi, & Glutting, 2011).

Music has been used to facilitate relaxation in various forms of interventions. Pelletier (2004) concluded, based on a meta-analysis, that both music itself and music-assisted relaxation techniques can decrease arousal due to stress. However, this conclusion is drawn from studies employing different types of techniques to facilitate relaxation, including passive listening, Guided Imagery with Music, vibrotactile stimulation using Somatron, progressive muscle relaxation, simple verbal suggestions and autogenic training, Benson's respiratory method in abbreviated form, or a combination of some of the these. Music, relaxation, and visualization combined were found to be able to normalize the body's circadian rhythm (Rider, Floyd, & Kirkpatrick, 1985). Music-assisted relaxation with an imaginary journey was also found to decrease preoperative anxiety in children when measured on the State-Trait Anxiety Index for Children, although physiological measures revealed no differences when compared with standard care (Robb, Nichols, Rutan, Bishop, & Parker, 1995).

Listening to music alone may reduce stress and influence its cognitive component (Burns et al., 2002). It also elicits a response to psychophysiological factors such as respiratory rate, blood pressure, heart rate, and galvanic response (Hodges, 2012; Knight & Rickard, 2001). Important factors in this situation are preferences and familiarity (Lingham & Theorell, 2009; Miluk-Kolasa, Matejak, & Stupnicki, 1996; Tan, Yowler, Super, & Fratianne, 2012). There is no clear indication that any one genre of music predominates over others for relaxation purposes. Offering post-operative cardiac patients a choice among music styles that would accompany guided relaxation or serve alone as a medium for relaxation did not result in significant difference among these conditions and rest time with no music as a control on anxiety, pain, or mood (Schou, 2008). However, some research suggests that classical compositions might lead to higher psychological relaxation comparing to new age music (Smith & Joyce, 2004).

Strauser (1997) and Robb (2000) found similar results of the effects of music on anxiety. Strauser found that state anxiety was mitigated in all of the three following conditions: (a) preferred music genres with verbal relaxation instructions, (b) new age music with breathing visualization relaxation instructions, and (c) silence (from pre- to posttest), while blood pressure did not change across conditions. Robb found music-assisted progressive muscle relaxation, music itself, progressive muscle relaxation itself, and silence with regard to the perception of anxiety and relaxation (self-reported measures) to be equally effective.

Summarizing, it seems that techniques employing music, relaxation, and visualization suggestions have a potential for decreasing stress and facilitating positive mood/emotional changes; however, it is not clear which of the conditions, or what combination of them, is best for particular purposes. In addition, results from different types of measurements (physiological responses and self-reports) vary. Therefore, the area of visualization, both in psychotherapy and in various techniques of music therapy, requires further research to determine its true possibilities, areas of influence, and the relative superiority of some forms over others. The role of specific factors that comprise a technique and their interactions also needs to be investigated. Although testing each of the elements separately might seem to be a solution here, there is a risk of losing the essence of the experience in the process of deconstructing therapeutic interventions.

The purpose of this pilot study was to discriminate possible differences among three conditions in regard to psychophysiological measures only. The main research question may be stated as: are there any differences in the intensity of psychophysiological