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*Music and Medicine* 2009 1: 41

DOI: 10.1177/1943862109337135

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# Objectivist and Constructivist Music Therapy Research in Oncology and Palliative Care: An Overview and Reflection

Clare O'Callaghan, PhD, RMT<sup>1</sup>

Objectivist and constructivist music therapy research in oncology and palliative care since 1983 is detailed, and the meaningfulness of evidence gathered is considered. Objectivist approaches are informed by positivism and commonly use experimental, hypothetically driven methodologies incorporating researcher-designed measures. Constructivist approaches are informed by varied theoretical frameworks (e.g., postmodernism, phenomenology) and commonly aim to understand participants' subjective experiences. Methodologies include grounded theory, ethnography, and discourse analysis. Both research approaches have uncovered varied and evolutionary understandings about how

music therapy can help people deal with loss and maintain life quality when affected by life-threatening and end-stage illnesses. Furthermore, constructivism and palliative care are compatible in that both focus on understanding individualized and multiple interpretations of experience. It is contended that objectivist and constructivist research will never be able to capture an absolute "truth" about music therapy's effectiveness; however, findings from both approaches can be conceptually generalized to comparable clinical contexts.

**Keywords:** music medicine; music psychotherapy; music therapy; oncology; palliative care

## What Is Music Therapy in Oncology and Palliative Care?

First described in palliative care over three decades ago (Munro & Mount, 1978), music therapy has since become a widely accepted discipline that can promote resilience, control, comfort, and peace among people affected by life-threatening illnesses, including patients and their families, friends, and staff caregivers (Dileo & Loewy, 2005; Hilliard, 2005; Lee, 1995; Magill Bailey, 1984; Martin, 1989; Munro, 1984; O'Callaghan, 2006a; Rykov & Salmon, 2001). Music therapy in oncology and

palliative care can be described as the professionally informed and creative use of music within a therapeutic relationship with people who have been identified as needing psychosocial, physical, or spiritual help or who desire further self-awareness, enabling increased life quality (O'Callaghan, in press). Palliative care, also described as hospice care, is defined as

an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual (World Health Organization, 2008).

While traditionally palliative care was associated with those dying from malignant disease, its principles are now considered relevant throughout the trajectory of any degenerative and life-threatening condition (Doyle, Hanks, Cherny, & Calman, 2004) and for the bereaved (Kissane, 2004). Hence,

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Date received: January 26, 2009; accepted: April 6, 2009.

music therapy in palliative care now encompasses oncology. To develop evidence-based practice, music therapists have embraced the challenge of researching their own, as well as music's, role in the field. Traditional medical research designs (objectivist), such as controlled trials (Magill Bailey, 1983), and qualitative (constructivist) methods (Forinash, 1990) have been used.

In this article, historical precursors to the objectivist and constructivist research "divide" are described, and major differences between the two approaches are clarified. Following this, 61 objectivist and constructivist research studies (Kuper, Reeves, & Levinson, 2008), conducted by music therapists in palliative care since 1983, are delineated, and the meaningfulness of the research findings are discussed. Reflections about using alternate research approaches in palliative care are also offered, including my belief that palliative care aims are compatible with constructive research approaches: Both focus on clients' individualized interpretations of their experiences. The favoring of objectivist research in evidenced-based medicine, which includes standardized treatment protocols, can be problematic for palliative care music therapists who tailor techniques to address clients' idiosyncratic (Edwards, 2004) and holistic needs within a multidisciplinary team approach (Aoun & Kristjanson, 2005). It is important to examine and discuss existing objectivist and constructivist research contributions in palliative care music therapy to help readers understand different paradigms informing this research and the kinds of knowledge they produce.

Historically, a distinction was made between "music in medicine" and "music therapy in medicine." In the former, music is the primary therapeutic agent, whereas in the latter, the therapist-client relationship and the music experience are the primary therapeutic agents (Bruscia, 1989). *Music therapy research*, in this article, however, depicts research involving music therapists as researchers and/or service providers because their knowledge and skills have informed the studies' questions, designs, and/or conduction. Music research in cancer and palliative care without music therapist involvement also importantly exists (e.g., Beck, 1991; Sabo & Rush Michael, 1996; Zimmerman, Pozehl, Duncan, & Schmitz, 1989) but is beyond this article's scope. The term *palliative* in this article encompasses only people receiving care from cancer and

palliative inpatient and home-based services. It is hoped, however, that readers can transfer understandings about research approaches outlined here to any population where a human relationship therapy is directed at improving life quality.

## Objectivist and Constructivist Research Approaches: Historical Context

The origin of the quantitative and qualitative research divide emerged at the end of the 1800s, when German philosophers claimed there should be a distinction between *Naturwissenschaften*, that is, scientific ideas focused on the natural, physical world, and *Geisteswissenschaften*, that is, human sciences focused on the meaning of human action and spirit. By the early 1900s, anthropology was focused on studying "alien cultures" through fieldwork. In the 1920s, Chicago sociologists demonstrated how the same techniques could be used to study city life (D. Clark, 1997), and by the 1960s, comparable research methods emerged in health care (Glaser & Strauss, 1967). Barney Glaser and Anselm Strauss were the first qualitative researchers in palliative care. Their study on the awareness of dying in a Californian hospital's oncology and geriatric wards led to the development of a "dying awareness" grounded theory characterized by how dying patients and their carers interacted with each other in a closed or open manner, or through suspicion, or through sharing a mutual pretense.

Varied research approaches, informed by the natural and social sciences, have since evolved in palliative and broader health care. In articles published by the *British Medical Journal* in 2008, a distinction was made between objectivist approaches, which are aligned with positivism, and constructivist approaches, which are aligned with the qualitative and interpretivist stances, including phenomenology, interactionism, hermeneutics, critical theory, feminism, and postmodernism (Hodges, Kuper, & Reeves, 2008; Kuper, Lingard, & Levinson, 2008; Kuper, Reeves, et al., 2008; Lingard, Albert, & Levinson, 2008; Reeves, Albert, Kuper, & Hodges, 2008; Reeves, Kuper, & Hodges, 2008). Objectivist approaches reflect an assumption that an absolute truth can be discovered that is replicable and predictable. Constructivist approaches, however, reflect a belief that a person's perceived reality is constructed by his or her individual, social, and

**Table 1.** Common Features Distinguishing Objectivist and Constructivist Research

Approach	Objectivist	Constructivist
Frameworks	Positivism	Postmodernism; phenomenology; hermeneutics; critical inquiry; symbolic interactionism; feminism
Direction	Quantitative	Qualitative, and possibly quantitative, analysis of inductive findings
Questions	Specific; fixed; causal	Broad; can evolve, more explanatory
Methodology	Experimental quasi-experimental	Grounded theory; ethnography; action research discourse analysis, heuristic research, phenomenological research (exploratory and naturalistic)
Sampling	Random, controlled	Purposive, theoretical; naturalistic; exploratory; may aim to saturate data
Tools	Validated scales (statistics); closed-ended surveys	Observations; interviews; focus groups; open-ended and semistructured questionnaires; comparative analysis, document analysis, theme identification, content analysis
Analysis <sup>a</sup>	Deductive	Inductive
Findings' representation	Numerical	Qualitative depictions (text, audio, visual) with or without measurements of those inductively derived depictions
Generalizability	Predictive	Conceptual, logical
Researcher's stance	Detached	Situated, involved, contextualized
Quality criteria	Validity, reliability, significance	Resonance; triangulation; interpretive rigor
Knowledge development	Accretion; cause/effect	Deepen understanding; grounded theories

This table is based on Kuper, Reeves, and Levinson (2008; the constructivist and objectivist research demarcation, analysis, researcher's stance, quality criteria, and knowledge development); Crotty (1998; framework, methodology, and tools); Fossey, Harvey, McDermott, and Davidson (2002) and Corbin and Strauss (2008; sampling and findings' representation); and Kitto, Chesters, and Grbich (2008) and Popay, Rogers, and Williams (1998; generalizability and quality criteria). Crotty also used the term *constructionism*. Music therapy texts and articles also outline various music therapy research approaches, including Wheeler (2005); Langenberg, Aigen, and Frommer (1996); and a special *Journal of Music Therapy* issue (guest) edited by Forinash and Lee (1998).

<sup>a</sup> Constructivist research emphasizes an inductive-subjective-contextual stance, while quantitative research emphasizes a deductive-objective-generalizing stance. These are broad tendencies, however; they are neither absolute nor mutually exclusive (Lingard, Albert, & Levinson, 2008; Morgan, 2007).

historical context. Constructivists acknowledge that truth is multifaceted: Different people can have varying perspectives about a specific research phenomenon, and these perspectives can all be acceptable (Crotty, 1998; Edwards, 1999; Guba & Lincoln, 1994; Kuper, Reeves, et al., 2008).

Until the late 1980s, music therapy in palliative care research was based on objectivism. Michelle Forinash (1990) then introduced constructivist research through a phenomenological examination of music therapy for 10 dying adult patients. Data included one taped music therapy session with each patient; the sessions were then transcribed and reflected on. Analysis included a three-stage reflection process. First, "meaning units" were distilled from the transcripts and process notes. Second, three categories emerged: relationship, music, and process. Finally, the essences were integrated and synthesized into a description of music therapy with the terminally ill, including that the therapist "always focuses on serving as a companion on the patient's journey.... The therapist sometimes

reflects, sometimes questions, sometimes directs and sometimes listens as the patient travels on his or her journey" (pp. 105-106).

## Distinguishing Between Objectivist and Constructivist Research Approaches

Features distinguishing objectivist and constructivist research approaches will be clarified and are also summarized in Table 1. Objectivist and constructivist theoretical frameworks and orientations have already been mentioned. These in turn reflect the research questions and the methodology used to answer those questions (Kuper, Reeves, et al., 2008). Objectivist researchers ask specific questions, such as, "Does music therapy improve quality of life?" To address that question in one music therapy study, for example, a researcher-developed quality-of-life questionnaire was used. Research participants were invited to indicate numerically whether music therapy improved factors that a

researcher perceived to be important for their life quality (Hilliard, 2003). Objectivist methodologies also tend to be experimental (or closed-ended surveys). Constructivist researchers, however, do not assume that music therapy affects life quality. Constructivists are interested in what life quality means to research participants and whether music therapy affects what they describe as being important in their lives. Constructivist research tools, therefore, do not include researcher-validated questionnaires and inventories. Constructivists are more likely to invite participants to tell their stories through interviews and focus groups (Crotty, 1998): to explain their experiences of music therapy. A broad research question may instigate the commencement of a constructive study, for example, "What is the relevance of music therapy in a cancer hospital?" (O'Callaghan & McDermott, 2004). Constructivist methodologies encompass more open-ended investigations. Sampling tends to be purposive: Research participants (and data) are selected to represent a range of experiences and beliefs that the researcher thinks will be relevant to the question (Kuper, Reeves, et al., 2008). As constructivists analyze the data (which often occurs as it is collected), more specific questions may then emerge, which are then focused on through ongoing and purposive sampling and data collection (Corbin & Strauss, 2008; Kuper, Reeves, et al., 2008).

Hence, unlike objectivist research, constructivist research may not have predetermined sample sizes. Sampling stops when one reaches a point of "saturation," which traditionally means that no new understandings emerge about the researched phenomenon as further data are collected (Fossey, Harvey, McDermott, & Davidson, 2002). Saturation actually means, however, that the phenomenon has been explored to a sufficient enough depth because "in reality a researcher could go on collecting data forever" (Corbin & Strauss, 2008, p. 148). Most constructivist music therapy studies do not reach saturation because the researcher runs out of time or funding, or the researcher may not regard saturation as important: Phenomenological researchers, for example, believe that deeper understanding of the subjective meaning of experiences for individual participants is enough (Forinash, 1995). Alternately, once data saturation is reached, grounded theories about the researched phenomenon can be developed (Corbin & Strauss, 2008), for example, the substantive grounded theory about music therapy's effect on

oncologic staff bystanders (O'Callaghan & Magill, in press).

Within objectivism, researchers usually have predetermined hypotheses and therefore tend to analyze their data deductively (Kuper, Reeves, et al., 2008), to accept or reject their null hypotheses, or they might describe a phenomenon in a numerical way. Constructivists do not tend to have preconceived ideas about what is in, or not in, the data. Their analyses tend to be inductive, and the findings emerge (Edwards, 1999; Guba & Lincoln, 1994). While objectivist research produces numerical findings, constructivist research produces either only qualitative depictions, including textual, audio, and/or visual (Corbin & Strauss, 2008), or qualitative depictions and measurements of those inductively derived depictions (Kuper, Reeves, et al., 2008). Constructivists acknowledge that measurements can contribute to an expanded understanding of a subjective phenomenon, while not claiming it represents potential for making predictive generalizations (for examples, see Bunt & Marston-Wyld, 1995; O'Callaghan & McDermott, 2004).

Research methodologies also inform measurement tools, assumptions about the findings' generalizability, the researcher's stance, and factors that determine the quality of the research (Kitto, Chesters, & Grbich, 2008; Kuper, Reeves, et al., 2008; Popay, Rogers, & Williams, 1998), as are also described in Table 1.

## Research in Palliative Care Music Therapy

Brief descriptions of oncology and palliative care research in music therapy encompassing the past 26 years are found in Tables 2, 3, and 4. Criteria for inclusion were that the research descriptions (a) were in English; (b) involved music therapists as researchers or service providers in contexts with cancer and palliative care affiliations; and (c) had been published in journals and textbook chapters known to me or found on the following databases: CINAHL EBSCO, PsycINFO, and MEDLINE. Three foci were examined in music therapy objectivist, constructivist, and combined "mixed methods" (Creswell & Plano Clark, 2007; Lingard et al., 2008) research outlined in the tables: (a) Does music therapy help patients, their significant others, and staff caregivers in cancer and palliative care



**Table 2.** Objectivist Research Approaches in Cancer and Palliative Care Music Therapy

Author Context	Year	Method	Number Age Group	Music Experience	Outcome Measures	Positive Music Therapy Findings (unless otherwise stated)
Magill Bailey <i>cancer</i>	1983	RCTPP	50 pts 17-69	Live cf. taped music	POMS (mood)	Live music: significantly reduced tension, increased vigor.
Bailey <i>cancer</i>	1985	Survey	465 pts <i>adults</i>	MV	Pt reports during MT sessions	Reports of reduced isolation, improved mood, communication.
Curtis <i>palliative</i>	1986	CO	9 pts <i>adults</i>	ML	Graded rating scales	No significance in pain, relaxation, contentment, comfort. Positive trends.
Whittall <i>palliative</i>	1989	CO	8 pts <i>adults</i>	MV	Physiological measurements	No significance in heart and respiration rates, nor extremity temperature.
Pfaff et al. <i>cancer</i>	1989	RP	6 pts 7-15	Music relaxation	Self-report face scales; OSBD	No significance in pain, distress, and fear, but positive trends.
Lane <i>cancer</i>	1989	PPq	38 pts <i>adults</i>	MV	Speech pause time	No significance between nonhospitalized and hospitalized groups.
Standley <i>cancer</i>	1992	RP	15 pts 38-73	ML cf. no music	Graded rating scales	No significant difference reported for nausea, emesis. Positive trends.
Boldt <i>cancer</i>	1996	CO	6 pts 14-53	MV	Observer ratings; self-report scales	No significant differences in relaxation, pain, nausea; relaxation exercises favored; some positive observations.
Weber et al. <i>cancer</i>	1997	PP	33 pts 18-81	ML	STAI; questionnaires	Most requested classical music; used music for relaxation and diversion during chemotherapy; reported high satisfaction.
O'Brien <i>cancer</i>	1999	Survey	52 pts 20-45	MV	Structured questionnaire	Improved treatment tolerance (66%), relieved boredom (89%).
Robb <i>cancer</i>	2000	CO	10 pts 4-11	MV cf. other conditions	Affective Face Scale self-report measure; behavioral observations	MT produced significantly higher supportive environmental elements and engaging behaviors (unsustained) than did reading and standard conditions.
Gallagher et al. <i>palliative</i>	2001	Survey and audit	106 pts and family <i>adults</i>	MV	Therapist and staff ratings of responses; pt communication	Most frequent descriptors: interest; positive verbal response; relaxed/changed affect (therapist); satisfaction, symptom alleviation (staff).
Krout <i>palliative</i>	2001	PP	80 pts 38-97	MV	VAS (observer and pt rated)	Significant difference in comfort, pain, relaxation.
D. S. Burns <i>cancer</i>	2001	RCTPP	8 pts 30-65	MI cf. SC	POMS; QOL-CA	Improved mood and life quality in MI group.
Waldon <i>cancer</i>	2001	PP	11 pts 30-84	Making cf. responding to music	POMS Short Form; questionnaire attendance records	Significant improved mood in both groups.
Cassileth et al. <i>cancer</i>	2003	RCTRP	62 pts <i>adults</i>	MV cf. SC	POMS	Significant lower scores in anxiety/depression, mood disturbance.
Hilliard <i>palliative</i>	2003	RCTRP	80 pts <i>adults</i>	MV cf. SC	HQOL-RPhysPS	Significant improvements in life quality over time (not length).

(continued)

Table 2. (continued)

Author Context	Year	Method	Number Age Group	Music Experience	Outcome Measures	Positive Music Therapy Findings (unless otherwise stated)
Kruse cancer	2003	Survey	99 RMTs	n/a	Predominantly structured questionnaire	70% RMTs prefer live music interventions; all aimed to address psychosocial needs; lack of private sound environment problematic in hospitals.
Sahler et al. cancer	2003	PP	23 pts 5-65	MI and relaxation	VAS: pain and nausea (pt self-reports); time-to-engraftment	Significantly less pain, nausea, and time-to-engraftment.
Hilliard palliative	2004a	Survey	382 U.S. hospice administrators	n/a	Questionnaires	RMTs need to include business benefits in marketing and need end-of-life education in their college training.
Hilliard palliative	2004b	Survey	80 pts adults	MV	Analysis of pts' medical records	Significant effects: Pts who experienced MT lived longer; RMTs spend more time at bedside than other staff and treat broader needs.
D. S. Burns et al. cancer	2005	Survey	65 pts adults	n/a	Music interest and preference survey; STAI; PANAS; FACIT-F; COPE scale	85% interested in having MT (68% in ML); pts interested in ML are significantly more anxious and negative than those interested in active music making or not interested in MT.
Gallagher et al. palliative	2006	PP	200 pts	MV	Rogers' Happy/Sad Faces Assessment Tool; VAS (pts); pain scale (RMT)	Significant improvements in anxiety, pain, shortness of breath (pt rated), pain behaviors (RMT rated), and mood (family members).
Hilliard palliative	2006	PP	17 staff 28-60	MV: Structured cf. unstructured	CFS; TBQ	Significant improvement in team building in both groups.
Hanser et al. cancer	2006	RCTRP	70 pts adults	MV cf. SC	HADS; FACIT-Sp; FACT-G; VAS; cardiovascular arousal	Significant improvements in relaxation, comfort, and happiness, and heart rate reductions.
Mills Groen palliative	2007	Survey	72 RMTs	n/a	Questioned about pain scales and MT interventions	86% assess pain. Treat pain with music listening (93%), distraction (76%), deep breathing (65%).
M. Clark et al. cancer	2006	RCTRP	63 pts 18+	ML and relaxation cf. SC	HADS; POMSNRS (pain and distress); relaxation strategies questionnaire	Significantly less anxiety and distress in music group over time; the more music used, the less treatment-related distress.
Horne-Thompson et al. palliative	2007	Survey	354 pt referrals 4-98	MV	Data collection forms (6 items about referral) and pt ECOG rating	Nurses refer most often (47%); 48% of pts have ECOG 3 at referral. Mean time from referral to death was 5 days.
Włodarczyk palliative	2007	CO	10 pts adults	MV	Spiritual well-being questionnaire	Significant increase in spiritual well-being scores on music days.
Ferrer cancer	2007	RCTPP	50 pts 21-78	ML cf. SC	VAS; questionnaire; physiological measures	Significant improvements: relaxation, fatigue, fear, anxiety, and diastolic blood pressure.
Horne-Thompson & Grocke palliative	2008	RCTPP	25 pts 18-90	MV cf. volunteer	ESAS; heart rate	Significantly reduced anxiety, pain, drowsiness.
Robb et al. cancer	2008	Trial Nonrandom RP	83 pts 4-7	ML; cf. to active music making; cf. audio story	Behavioral coding by observers	Active music engagement group: significant higher coping and initiation behaviors, and positive facial affects.

Please see the appendix for table abbreviations. Tables 2, 3, and 4 are informed by Hilliard (2005) and Dileo and Bradt (2005). These brief research descriptions are intended to give a broad overview of the scope of music therapy research in cancer and palliative care and reflect my perception of what was important to convey given word limitations. Readers are encouraged to source the original articles for complete understandings.

**Table 3.** Constructivist Research Approaches in Cancer and Palliative Care Music Therapy

Author Context	Year	Frameworks Method	Number Age Group	Music Experience	Research Design	Findings
Forinash <i>palliative</i>	1990	Phenomenology	10 pts 45-82	MV	Session transcripts; RMT's observations and condensed interpretations	RMT as companion on pt's journey.
Bunt & Marston-Wyld <i>cancer</i>	1995	Humanist and client-centered	12 pts (average) in 6 groups <i>adults</i>	MV	"Brainstorms" distilled into word lists and their frequency of recurrence examined	MT reduced preoccupation with pain, illness, and problems, and helped emotional expression and awareness.
O'Callaghan <i>palliative</i>	1996	Grounded theory informed	39 pts 26-80	SW	Criterion sampling (all cases that meet the criteria are examined; Rice & Ezzy, 1999): 64 songs' lyrics; inductive thematic and content analysis	Songs included messages; self- reflections; compliments; memories; reflections upon significant others, including pets; self-expression of adversity; imagery; prayers.
O'Callaghan & Colegrove <i>cancer</i>	1998	Grounded theory informed	46 pts 25-81	Introduced MT	Criterion sampling; session transcripts and therapist observations; inductive thematic analysis	Most pts engaged in MT when had heard the MT; were offered live music, had discussed music preferences, and were in moderate discomfort.
G. Aldridge; G. Aldridge & D. Aldridge <i>cancer</i>	1996; 2008	Hermeneutic	1 pt 33	Music improvisation	Improvisation analysis and therapist observations	Musical elements associated with pt's altered identity, courage, and hope.
Hogan <i>palliative</i>	1999	Phenomenology	9 pts 60-91	MV	Semistructured pt interviews; phenomenological analysis	MT as positive emotional, social, and spiritual experience.
O'Callaghan & McDermott <i>cancer</i>	2004	Postmodernism; grounded theory informed; ethnography	258 pts, visitors, staff, RMT <i>adults</i>	MV	Criterion sampling: open-ended questionnaire transcripts and RMT- researcher journal; inductive thematic and content analysis	Many pts', visitors', and staff members' contemplative, affective, and imagined moments affirmed their "aliveness" and expanded awareness.
Aasgaard <i>cancer</i>	2005	Interpretive, naturalistic inquiry	5 pts 4-15	SW	Maximum variation sampling. 19 songs' lyrics and their life histories thematically examined	Meaningful aspects in song life-histories: expression, pleasure, achievement. Lyric themes: hospital world, other, and nonsense.
O'Callaghan <i>cancer</i>	2005	Postmodernism; grounded theory informed; ethnography	1 RMT	MV	RMT clinical reflexive journal; inductive thematic analysis	MT helped many pts, visitors, and staff to encounter altered intra-awareness and transient community participation.
O'Brien <i>cancer</i>	2005	Phenomenology	8 pts <i>adults</i>	SW and song sharing	Open-ended questionnaires	SW was pleasurable, helpful, unique, calming, and easy, and allowed a record and self-expression.

(continued)



Table 3. (continued)

Author Context	Year	Frameworks Method	Number Age Group	Music Experience	Research Design	Findings
Clements-Cortes <i>palliative</i>	2006	Qualitative	4RMTs	n/a	Open-ended interview about work stress; analysis of the narratives' patterns; participant verification	RMTs' concerns included lack of others' understanding their role, ongoing loss, identification with some clients, difficult referrals, and sometimes felt helpless.
O'Callaghan & Hiscock <i>cancer</i>	2007	Postmodernism; grounded theory informed	128 pts <i>adult</i>	MV	Criterion sampling; interpretive subgroup analysis	Number of MT sessions had scant effect on reported MT experience; variations in experiences evident across gender and age groups.
O'Callaghan & McDermott <i>cancer</i>	2007	Postmodernism; discourse analysis	258 pts, visitors, staff, RMT <i>adults</i>	MV	Analyzed interpretations from O'Callaghan & McDermott (2004)	Alternate interpretations of findings, e.g., social desirability effects may bias responses.
O'Kelly & Koffman <i>palliative</i>	2007	Interpretive	20 staff	MV	Purposive sampling for heterogeneous staff group; semistructured interviews	MT valued by most staff who observed emotional, physical, social, environmental, creative, and spiritual benefits for pts.
Daykin et al. <i>cancer</i>	2007	Grounded theory	23 pts; <i>adults</i>	MT group with MV	Semistructured telephone interviews	Themes included creativity, choice, enrichment, power, freedom, release, healing, balance, aesthetic, meaning, and notably, identity.
Anadoru & McFerran <i>palliative</i>	2007	Phenomenology	4 pediatric staff	MV	Open-ended interviews	MT helps children in hospices and their families to communicate and express feelings and emotions.
O'Callaghan <i>cancer, palliative</i>	2008	Postmodernism; ethnography; grounded theory informed	1 RMT	MV	Analysis of music therapist-researcher's own clinical reflections, clinical journal, and academic products	"Lullament" signifies helpful moments when pts' and families' relationship with lullabies and laments were actualized in MT.
Barry & O'Callaghan <i>cancer</i>	2008	Ethnography; grounded theory informed	1 student RMT	MV	Student-researcher's analysis of her clinical journal and clinical reflections	Student's emergent understandings of contextual influences on practice, theory, and music therapy's usefulness.
Lindenfelser et al. <i>palliative</i>	2008	Phenomenology	7 bereaved parents ( <i>children up to 12</i> )	MV	Phenomenological interviews and analysis	MT altered child's and family's perception of their adverse situation; promoted remembrance and communication.
Magill <i>palliative</i>	2009a	Naturalistic inquiry	7 bereaved caregivers	MV in preloss MT	Interviewed narrative accounts; RMT-researcher journal and field notes; inductive thematic analysis	Caregivers perceive meaning of music in MT as a conduit, getting inside, making a difference, and love.

Table 3. (continued)

Author Context	Year	Frameworks Method	Number Age Group	Music Experience	Research Design	Findings
Magill <i>palliative</i>	2009b	Naturalistic inquiry	7 bereaved caregivers	MV in preloss MT	As above	Caregivers experienced meaning in MT through transcendence encompassing autonomous and empathic joy, empowerment, connectedness, remembrance, hope.
Magill <i>palliative</i>	in press	Naturalistic inquiry	7 bereaved caregivers	MV in preloss MT	As above	Caregivers' depictions of MT: enabled their own empowerment, as MT helped them offer their loved ones joy, comfort, relief from distress, meaning, beauty, peace.
O'Callaghan & Magill <i>cancer</i>	in press	Grounded theory	100 staff	MV	Theoretical sampling; analysis of staff open-ended questionnaire responses or interviews across two cancer centers	Substantive grounded theory: Staff witnessing MT can experience personally helpful emotions, moods, awareness, teamwork, and perceive better pt care.
O'Callaghan, O'Brien, et al. <i>cancer</i>	in press	Grounded theory	27 pts; <i>adults</i>	SW	Criterion sampling; analysis of songs from four music therapists' practices	Lyrics included love; memories; yearning; loss; children's meaning; hopes; compliments; existential beliefs; and suggestions about to whom the children can turn.
O'Callaghan, Petering et al. <i>palliative</i>	in press	Grounded theory informed	4 RMTs	MV; legacies	Analysis of music therapist- researchers' clinical memories and reflections, expressed during a group supervision process	Reasons for and what's done with incomplete MT legacies; ethical issues; and the research's effects on the RMT's future legacy work, e.g., each session may be a final or single session.

Please see the appendix for table abbreviations. Tables 2, 3, and 4 are informed by Hilliard (2005) and Dileo and Bradt (2005). These brief research descriptions are intended to give a broad overview of the scope of music therapy research in cancer and palliative care and reflect my perception of what was important to convey given word limitations. Readers are encouraged to source the original articles for complete understandings.

**Table 4.** Mixed Methods Research Approaches in Cancer and Palliative Care Music Therapy

Author Context	Year	Number Age Group	Music Experience	Research Design; Outcome Measure	Findings
S. J. Burns et al. <i>cancer</i>	2001	29 pts 21-68	Music listening/ relaxation and improvisation	2-stage study: (a) PP MT mood (UWIST) scores and focus group transcript with deductive mood analyses; (b) PP saliva measures added	Both experiences: significantly increased well-being; decreased tension and cortisol; altered energy. Relaxation: significantly increased salivary immunoglobulin A.
Barrera et al. <i>cancer</i>	2002	65 pts 0.5-17	MV	PP FACES children self-report; PlayPS parent rating; satisfaction questionnaires (open-ended for children and Likert-type for parents and staff with comments added)	Significant improvements in children's feeling ratings and parents' play performance ratings for preschoolers and adolescents; positive well-being comments.
Robb & Ebberts <i>cancer</i>	2003a; 2003b	6 pts 9-17	SW and video production cf. game	Descriptive case study and RCT; PP CDI, STAI (children); lyric analysis (inductive) including inter- raters; semistructured survey	Describes how depression and anxiety varies with treatment stage; anxiety dropped in 3 music and 1 control condition; both conditions improved mood; lyrics included coping, positive physical status, family support.
Salmon <i>palliative</i>	2003	72 RMTs	n/a	Internationally sent questionnaire with structured and open-ended questions; analysis of categories within textual data	Dynamic tension: Many found palliative care meaningful, rewarding, a privilege, painful, challenging, difficult. Highest stress sources: grief/ death exposure, work load, lack of pt stability, team issues.
Bonde <i>cancer</i>	2005	1 cancer survivor 41	Bonny Method, Guided Imagery, and Music	Described as humanist and hermeneutic framework; case study, semistructured interview, and interpretation of imagery (part of Bonde, 2007)	Improved life quality (coping strategies, altered personal "scripts," hope, and joy).
Daykin et al. <i>cancer</i>	2006	80 UK cancer managers	n/a	Quantitative and open-ended postal questionnaire; thematic content analysis	67 returns. Depicted ways MT is conducted and viewed, including background; entertainment; enjoyment; communication; healing; exploratory, and expressive release tool.
Bonde <i>cancer</i>	2007	6 cancer survivors 40-65	Bonny Method, Guided Imagery, and Music	Described as humanist framework. PP follow-up design/ multiple-case study. HADS, EORTC QLQ-C30, SOC. Qualitative analyses: interviews, images, music categorization (grounded theory), 2 case studies	Significant anxiety effect. Also enhanced coping, mood, temporal perspectives, hope, self-understanding, and perspectives on life, death, and spirituality.
Rykov <i>cancer</i>	2008	8 cancer-pt survivors 24-72	MV	Described as arts-informed research phenomenological MT inquiry. Analysis of audio recorded sessions (transcribed), journals, evaluation forms, images, artwork. Included descriptive statistics	MT support group is a profound, nonverbal connection to themselves, to each other, and something beyond themselves, and is empowering.
Magill et al. <i>cancer</i>	2008	39 pts. With some family and staff	ML and CBT	One session intervention. PP Distress Thermometer and qualitative thematic analysis	Significantly reduced distress score representing 46% improvement. Themes: faith, hope, family, life meaning, creativity, hopelessness, abandonment, and fear of death.

Please see the appendix for table abbreviations. Tables 2, 3, and 4 are informed by Hilliard (2005) and Dileo and Bradt (2005). These brief research descriptions are intended to give a broad overview of the scope of music therapy research in cancer and palliative care and reflect my perception of what was important to convey given word limitations. Readers are encouraged to source the original articles for complete understandings.

contexts? (b) What are the session outcomes and would they indicate helpfulness? and (c) Questions related to practice issues pertinent for music therapists. Tables 2, 3, and 4 illustrate how the findings have emerged from (a) different music therapy methods; (b) different people's perceptions of music therapy's effects, including patients, therapists, family members, staff, and independent observers; (c) the use of different measurement tools; and (d) different control experiences (e.g., standard care or volunteer visits). Brief summaries of music therapy's significant and positive effects, revealed by objectivist, constructivist, and mixed methods approaches, are now outlined. The 61 research projects were reported in 32 objectivist, 26 constructivist, and 10 mixed methods papers.

### Objectivist Research

As evident in Table 2, palliative care randomized controlled trials (RCTs) that achieved significant findings indicated that, among adult cancer and palliative care patients, music therapy improved mood (Cassileth, Vickers, & Magill, 2003; Magill Bailey, 1983), life quality (Hanser Bauer-Wu et al., 2006; Hilliard, 2003), relaxation, (M. Clark et al., 2006; Ferrer, 2007; Horne-Thompson & Grocke, 2008), comfort, happiness, (M. Clark et al., 2006; Horne-Thompson & Grocke, 2008), and diastolic blood pressure (Ferrer, 2007), and reduced distress (M. Clark et al., 2006), heart rate (Hanser et al., 2006), pain, depression (Horne-Thompson & Grocke, 2008), anxiety, (M. Clark et al., 2006; Ferrer, 2007; Horne-Thompson & Grocke, 2008), and fear (Ferrer, 2007). In a study where pediatric oncology patients were sequentially assigned to one of three conditions, it was also found that the children's coping and initiation behaviors improved with active music engagement (Robb et al., 2008).

In nonrandomized pre-post test studies, including questionnaires and visual analogue or affective face rating scales, findings indicated that, according to various perceptions, music therapy improved the mood of patients' family members (Gallagher, Lagan, Walsh, Davis, & LeGrand, 2006) and improved patients' comfort, relaxation (Krout, 2001), and mood (Waldon, 2001). Music therapy also reduced patients' anxiety, shortness of breath (Gallagher et al., 2006), pain (Gallagher et al., 2006; Krout, 2001; Sahler, Hunter, & Liesveld, 2003), and nausea (Sahler et al., 2003), and caused pediatric patients to

display more engaging behaviors (Robb, 2000). Hospice staff also reported that both structured and unstructured music therapy support sessions significantly improved team building (Hilliard, 2006).

Other quantitative studies indicated that music therapy reduced isolation (Bailey, 1985) and boredom (O'Brien, 1999) and improved spiritual well-being (Włodarczyk, 2007), mood (Bailey, 1985; D. S. Burns, 2001), communication (Bailey, 1985), treatment tolerance (O'Brien, 1999), endurance, cooperation, participation (Boldt, 1996), interest, relaxation, satisfaction, symptom relief (Gallagher, Huston, Nelson, Walsh, & Steele, 2001), and life quality (D. S. Burns, 2001), and was satisfying (Weber, Nuessler, & Wilmanns, 1997). Relaxation exercises were also preferred (Boldt, 1996), as was classical music in a chemotherapy study (Weber et al., 1997).

Another interesting feature of the objectivist research is that, of the 23 non-survey-type studies, 17 (74%) had significant findings. The 6 studies (26%) that had nonsignificant findings (Boldt, 1996; Curtis, 1986; Lane, 1989; Pfaff, Smith, & Gowan, 1989; Standley, 1992; Whittall, 1989) were all published before 1997, and their mean number of participants was 14 per trial. In the studies with significant results, all except 1 was published from 2000, and the mean number of participants was 51 per trial. This raises the possibilities of Type 2 error in the nonsignificant studies due to small sample sizes or the possibility of recent publication bias toward those studies with positive findings.

Furthermore, a meta-analysis conducted by Dileo and Bradt (2005) identified 18 studies on music and people living with cancer, a terminal illness, or HIV ( $N = 641$ ). They found a mean effect size measured by the Pearson correlation coefficient of .22 (95% confidence interval = .14–.30,  $p < .01$ ), which was a moderate effect.

Objectivist research examining practice issues also indicated that American hospice administrators wanted music therapists to include understandings about business benefits in their justification for music therapy and believed that student therapists needed more college training in end-of-life issues (Hilliard, 2004a). Almost all surveyed American music therapists (86%) reported that they assessed palliative care patients' pain, and most (93%) treated it with music listening (Mills Groen, 2007). Seventy percent of American music therapists also preferred to use live music interventions (Kruse, 2003). In

another study, music therapists met broader patients' needs than other team members did, and patients who experienced music therapy were found to live longer (Hilliard, 2004b); however, increased longevity was not evident in other research (Hilliard, 2003). In some Australian hospices, nurses mostly referred patients to music therapy, and almost half of those referred had an Eastern Cooperative Oncology Group Performance Status of 3 (Horne-Thompson, Daveson, & Hogan, 2007). Many cancer patients are also interested in experiencing music therapy (D. S. Burns, Sledge, Fuller, Daggy, & Monahan, 2005).

### Constructivist Research

The constructivist research detailed in Table 3 illustrates that, through interviews and open-ended questionnaires, cancer and palliative care patients reported that music therapy can reduce their preoccupation with adversity and help positive self-expression (Bunt & Marston-Wyld, 1995); enable a positive social, spiritual (Hogan, 1999), and emotional experience (Hogan, 1999; O'Callaghan & McDermott, 2004); affirm their aliveness; and expand awareness (O'Callaghan & McDermott, 2004). Varied music therapy methods also provided opportunities for creativity, choice, enrichment, freedom, release, healing, balance, aesthetic, meaning, expanded identity, and empowerment (Daykin, McClean, & Bunt, 2007). Interviewed bereaved parents of pediatric patients stated that music therapy had also helped their children in hospice care and their families through adversity, and it promoted remembrance (Lindenfelser, Grocke, & McFerran, 2008).

Music therapists perceived that a music therapist accompanies palliative care patients on a journey (Forinash, 1990), can help to expand a patient's sense of identity (G. Aldridge, 1996; G. Aldridge & Aldridge, 2008), and can also help patients, hospital visitors, and staff to encounter alternate intra-awareness and community participation (O'Callaghan, 2005). Staff bystanders reported that they observed physical, psychosocial, spiritual, environmental (O'Callaghan & Magill, in press; O'Kelly & Koffman, 2007), and creative (O'Kelly & Koffman, 2007) benefits for patients experiencing music therapy. Interviewed staff also believed that music therapy provided children in hospice care, and their families, with opportunities to communicate

and express their feelings, and hence it improves life quality (Amadoru & McFerran, 2007). Staff bystanders can also find witnessing oncologic music therapy's effects personally helpful (O'Callaghan & Magill, in press).

Caregivers who hear or participate in pre-loss music therapy have experienced meaning through transcendence, encompassing joy, connectedness, remembrance, and hope (Magill, 2009b). Caregivers have also been empowered through the music therapy that has helped them to offer their loved ones relief from distress, aesthetic beauty, and peace (Magill, in press). Caregivers also described the music in music therapy as a conduit (Magill, 2009a). In addition, oncology visitors have had positive emotional and awareness benefits through music therapy involvement (O'Callaghan & McDermott, 2004).

Journal writing and analysis was helpful for a music therapy student's practice development (Barry & O'Callaghan, 2008), and a music therapist's reflections helped to uncover the "lullament" phenomenon, which signified the helpful moments when patients' and families' relationships with lullabies and laments were actualized in music therapy (O'Callaghan, 2008) and also understandings about how music therapy elicits hospital ward communities (O'Callaghan, 2005).

Cancer patients reported that songwriting was a pleasurable, helpful, unique, calming, and easy experience that allowed them to express themselves and record significant life events (O'Brien, 2005). Lyric analyses of oncology patients' songs indicated that songwriting is a forum where parents can express important messages for their children's future well-being, including love, memories, yearning, loss, their children's meanings for them, hopes, compliments, existential beliefs, and suggestions about who the children can turn to in the future (O'Callaghan, O'Brien, Magill, & Ballinger, in press). General lyrics in palliative care patients' songs also often included messages, self-reflections, compliments, and memories (O'Callaghan, 1996). An examination of child and adolescent cancer patients' songs' "life histories" also revealed meaningful associations, including expression, achievement, and pleasure. Their lyrics reflected both the hospital and non-hospital worlds (Aasgaard, 2005).

Constructivist research examining practice issues indicated that gender and the number of music therapy sessions experienced were scantily associated with how music therapy was described



by research participants (O'Callaghan & Hiscock, 2007). Also, most patients chose to engage in music therapy when they had previously overheard it, had discussed their music preferences, were in moderate discomfort, and were offered live music (O'Callaghan & Colegrove, 1998). Music therapists can also find work life stressful in palliative care settings, mentioning, for example, concerns about others' not understanding their role, loss, and client identification (Clements-Cortes, 2006). Concerns related to incomplete legacies in music therapists' work, for example when a patient dies before finishing a song composition, were however relieved through reflexive group supervision research (O'Callaghan, Petering, Thomas, & Crappsley, in press). Finally, a discourse analysis provided alternate interpretations about positive oncologic music therapy research findings; for example, the propensity of cancer patient research respondents to provide socially desirable answers may have inappropriately affected the results (O'Callaghan & McDermott, 2007).

### Mixed Methods Research

Mixed methods research combines elements of both quantitative and qualitative paradigms to produce converging findings in the context of complex research questions. . . . Central to the effectiveness . . . is a clear and strategic relationship among the methods in order to ensure the data converge or triangulate to produce greater insight than a single method could. (Lingard et al., 2008, pp. 460-461)

Robb and Ebberts (2003a, 2003b) researched six young cancer patients who were randomized into either a songwriting and DVD production condition or a standard care game condition. This was mixed methods research because a variety of tools were used to understand the children's responses to these techniques. The young cancer patients' anxiety dropped in the three music conditions, while only one of the three young patients' anxiety dropped in the control condition. Also, an analysis of the three music participants' song lyrics revealed themes including coping, positive physical status, and family support. Barrera, Rykov, and Doyle's (2002) mixed methods research also found that music therapy improved the emotions, play performances, and well-being of children with cancer.

As also illustrated in Table 4, mixed methods research in adult oncology revealed that music

therapy increased patients' well-being, faith, and hope (Magill, Levin, & Spodek, 2008); decreased their tension (S. J. Burns, Harbuz, Hucklebridge, & Bunt, 2001) and distress (Magill et al., 2008); and was associated with cancer survivors' empowerment and transcendence (Rykov, 2008). Cancer survivors also found that the Bonny Method of Guided Imagery and Music improved their life quality through an altered personal script (Bonde, 2005) and through their reduced anxiety and enhanced mood, coping, and dealings with death and spiritual issues (Bonde, 2007).

Finally, practice issues examined with mixed research methods revealed that U.K. cancer care managers characterized music therapy as background, entertainment, enjoyment, communication, healing, and an exploratory and expressive release tool (Daykin, Bunt, & McClean, 2006). An international study on palliative care music therapists' work life also indicated that a dynamic tension was often experienced as therapists found palliative care meaningful and rewarding yet challenging and painful. Grief and death issues were stressors for many music therapist respondents (Salmon, 2003).

### A Reflection About Objectivist and Constructivist Research

The choice of [research] method is . . . influenced by the assumptions that the researcher makes about science, people and the social world. In turn, the method used will influence what the researcher will see. (Minichiello, Aroni, Timewell, & Alexander, 1995, p. 9)

Objectivist and constructivist research uncovers multifaceted and evolutionary views of the varied phenomena characterizing music therapy and palliative care. Traditionally, objectivist research methods, specifically RCTs, are regarded as the gold standard in medical health research because they are derived from physical science research approaches and, it is assumed, enable predictive generalizations (Edwards, 2004) and eliminate bias (Aoun & Kristjanson, 2005). There is, however, increasing debate about what constitutes best evidence in public health, and re-examination of the taxonomy for grading literature in palliative care is recommended.<sup>1</sup> Furthermore, it is suggested that the deliberate withholding of desired support services from a control group can be unethical (Keeley, 1999). It is therefore vital to not presume that objectivist research is



superior when examining a human relationship therapy in palliative care. The inherent problems of RCTs in palliative care preclude predictive generalizations from their findings. Furthermore, objectivist methods do not foster respondents' individualized expression, which is important for patient-centered care. These points will be discussed in turn.

### **Inherent Problems With RCTs in Palliative Care**

Problems inherent with making generalizations from RCTs in palliative music therapy offered within multidisciplinary contexts include that (a) patients often cannot be blinded to group allocation; (b) the great variations in patients' illnesses, treatments, treatment responses, and life histories mean that randomization is unlikely to distribute confounders evenly between treatment groups (Aoun & Kristjanson, 2005); and (c) the music therapy process does not allow for a standardized treatment, as therapists' approaches vary and patients often choose how they wish to engage in therapy (O'Callaghan, 2006b). In particular, complex patient-therapist relationship components cannot be controlled, as evident in the "significant therapist effect" found in an RCT comparing preoperative anxiety in children separated into control, music therapy, and sedation groups. Two different music therapists worked with the music therapy group: One therapist's group of children experienced lower anxiety, while the other therapist's group showed no significant difference (Kain, Caldwell-Andrews, & Krivutza, 2004).

While predictive generalizations are not possible in objectivist music therapy and palliative care research, generalizations from objectivist research can be conceptual, that is, can be made with qualification. This is comparable with how generalizations can be made from constructivist research (Kitto et al., 2008). Conceptual generalizations, for example, can be made from Hilliard's (2003) RCT on music therapy's quality-of-life effects on hospice home care patients ( $N = 80$ ). The participants who experienced music therapy reported a significantly higher quality of life than those who did not on the psychophysiological subscale of the Hospice Quality of Life Index-Revised (HQLI-R). The participants' life quality also increased over the time of their two or three sessions, while those who had standard care experienced reduced life quality over time. Hilliard noted, however, that further multisite studies

were needed to determine if comparable findings would be evident among participants with other characteristics than those in his study, including those who are non-Caucasian, who are from other geographic regions, and who have contrasting social norms and music preferences. Despite this, one can conceptually generalize that comparable palliative care participants who engage in similar kinds of music therapy contexts as those in Hilliard's study are likely to experience increased life quality, as determined by the HQLI-R. Similarly, conceptual generalizations were made from O'Callaghan and Magill's (in press) constructivist research, which examined 100 oncology staff members' perceptions about their experiences of music therapy in Australian and American cancer hospitals. A substantive grounded theory emerged revealing that in comparable oncology contexts, with comparable music therapy programs, staff witnessing music therapy can experience personally helpful emotions, moods, self-awareness, and teamwork, and can perceive improved patient care.

Objectivist and constructivist music therapy studies in palliative care have comparable merit in being able to offer conceptually generalizable findings. Multisite studies with varied source populations and designs will further extend research findings' conceptual generalizability to varied clinical contexts, and should be encouraged.

### **Research in Contexts Focused on Individualized Needs and Patient-Centered Care**

Palliative care patients and their families have active and varied views about their care and treatment plans and about research participation (Aoun & Kristjanson, 2005), including what constitutes best care and life quality. Objectivist research, however, often uses standardized measurement scales, which may measure information important to the researcher but not necessarily to the respondent (McGrath, 2000). Such scales do not enable respondents to represent their unique experience of a treatment tailored specifically for them. Palliative care is increasingly focused on patient-centered care (Kvale & Bondevik, 2007) and patient involvement in service delivery planning (Health Evidence Network, 2004). Patient-centered practice emerges from listening to patients' reflections (Kvale & Bondevik, 2007; Lloyd-Williams, Reeve, & Kissane, 2008).

Constructivist open-ended research instruments are therefore needed to understand music therapy participants' perceptions of music therapy's effect so that future services are grounded in evidence reflecting patients' (and their families' and staff caregivers') perceptions and desires.

Meaning is not inherent in the data, it is influenced by the way in which the researcher interprets reality. . . . Once that interpretation bias is made clear, then we as readers are able to discern how that work resonates with our own premises of interpretation and, indeed, our own bias. (D. Aldridge, 1996, pp. 125-126)

I am drawn to the constructivist approach in my palliative care research because I believe that there can be no absolute shared truth about human subjective experience. Constructivism also reflects my patient- and family-centered music therapy practice style: one of endeavoring to understand the clients' realities, and to be where they need and choose to be on their journeys. Constructivism helps me to appreciate that the reality experienced by a client is informed by the client's life story, and as the client and I share our backgrounds in present moments, new individual realities and shared understandings can both emerge. I also support the objectivist approach because it helps my attempts to meaningfully describe palliative care music therapy to people aligned with objectivism. Furthermore, I believe that knowledge informed by objectivism can be located within the constructivist paradigm, as constructivists accept multiple realities: This includes accepting that some people adhere to the epistemology that objective truth can be discovered within human relationship therapies.

Ultimately, I hope that the relationship between Hermes and Zeus is reflected in my connection, as a music therapy researcher (Hermes), with people interested in my work (Zeus): "When Hermes took the role of messenger to the gods, he promised Zeus not to lie. He did not promise to tell the whole truth. Zeus understood" (Crapanzano, 1986, p. 53).

While I believe that one can never tell the whole truth about subjective human experience through health research, others may believe it is possible. Nonetheless, I hope that both objectivist and constructivist readers can resonate with the interesting and varied research investigations described in this article, which often substantiate music therapy's rightful place in cancer and palliative care.

## Acknowledgment

This article was enabled through the author's National Health and Medical Research Council of Australia Post Doctoral Fellowship in Palliative Care (2008-2009).

## Declaration of Conflicting Interests

The author has declared that there are no conflicts of interests in the authorship and publication of this contribution.

## Note

1. The evidence-based medicine framework reflects a series of evidence levels. The National Health and Medical Research Council of Australia's (1999) criteria for rating levels of quantitative evidence include the following: Level 1, a systematic review of all relevant randomized controlled trials (RCTs); Level 2, at least one properly designed RCT; Level 3, other comparative studies; and Level 4, case series with either post- or pre-post testing.

## Appendix Abbreviations Used

### Outcome Measure (Inventories) Abbreviations

CDI = Children's Depression Inventory;  
CFS = Compassion Satisfaction/Fatigue Self-Test for Helpers  
ECOG = Eastern Cooperative Oncology Group Performance Status (e.g., 3 = *limited "selfcare"*)  
EORTC QLQ-C30 = European Organization for Research and Treatment of Cancer Quality of Life Questionnaire  
ESAS = Edmonton Symptom Assessment Scale  
FACES = Faces Pain Scale  
FACT-G = Functional Assessment of Cancer Therapy-General  
FACIT-F = Functional Assessment of Chronic Illness Therapy-Fatigue Scale  
FACIT-Sp = Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being  
HADS = Hospital Anxiety And Depression Scale  
HQOL-R = Quality of Life Index-Revised  
NRS = Numeric Rating Scale  
OSBD = Observational Scale of Behavioral Distress  
PANAS = Positive Affect and Negative Affect Schedule  
POMS = Profile of Mood State Inventory  
PlayPS = Play Performance Scale  
PhysPS = Physical Performance Scale  
QOL-CA = Quality of Life-Cancer  
SOC = Antonovsky's Sense of Coherence Scale  
STAI = State-Trait Anxiety Inventory  
TBQ = Team Building Questionnaire

UWIST = University of Wales Institute of Science and  
Technology Mood Adjective Checklist  
VAS = Visual Analogue Scale

## General Abbreviations

cf. = compared to  
CO = cross-over method; participant sequentially exposed to  
all treatment modalities  
MI = music imagery  
ML = music listening  
MT = music therapy  
MV = variety of music therapy techniques  
PP = pre-post method; patient exposed to one treatment, with  
the outcome measured twice  
PPq = queried; possibly pre-post method or post-only analysis  
pt = patient  
RP = repeated-measures method; participant exposed to one  
treatment, with the outcome measured more than twice  
RMT = registered music therapist  
RCT = randomized controlled trial  
SC = standard care  
SW = songwriting

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