

*Full-Length Article***Music Therapy and Music Medicine Studies in Oncology: Part II: The Use of the Delphi Technique****Barbara L. Wheeler¹, Michael D. Cassity², Teresa L. Lesiuk³, Debra S. Burns⁴, Andrew Rossetti⁵, Suzanne B. Hanser⁶**¹Montclair State University, United States of America²Southwestern Oklahoma State University, United States of America³University of Miami, United States of America⁴Indiana University-Purdue University Indianapolis, United States of America⁵Mount Sinai Beth Israel, United States of America⁶Berklee College of Music, United States of America**Abstract**

This is the second of 2 articles comparing music medicine and music therapy studies. The intent was to explore whether music therapy research differs from music medicine research, and if so, to delineate the differences. Studies in oncology were examined. This article describes the Delphi process that was followed to determine the classification of studies that met inclusion criteria. This article also explains why this process can be useful to music therapy and music medicine and discusses its applicability to the current topic. Reasons for and justification for modifications that were made in the Delphi technique are discussed.

Keywords: *music therapy, music medicine, research, Delphi technique, Delphi method, palliative care, supportive care*

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The Delphi technique was designed to achieve consensus of opinion from experts in a field. It is defined as “the use of repeatedly refined questionnaires to gather data on a particular topic from experts in order to identify points of consensus and disagreement; may be used to produce consensus or to reveal differences of opinion among experts concerning a topic” (based on [1], from Glossary, p. 735). The technique is well-suited as a means and method for consensus building by asking increasingly refined questions of and to collect data from a panel of experts. The technique was developed primarily at the Rand Corporation in the 1950s [2] and is a widely accepted method for achieving convergence of opinion concerning real-world knowledge solicited from experts within certain topic areas.

The Delphi technique was modified for this study, but the basic intent of gathering opinions of experts through a structured process and to arrive at consensus, was followed. The rationale for making certain modifications is presented later in the paper.

The Delphi technique has seldom been used in music therapy. Most recently, it was applied in a study in Korea

aimed at forecasting the future of music therapy and offering ideas for developing music therapy in Korea [3]. Cassity [4] also used the Delphi technique to gather information on the future of music therapy. Edwards [5] used the Delphi technique to compare opinions of music therapists with those of related professionals concerning research priorities in pediatric music therapy. Further, the Delphi technique has been used for studies in other areas of music and music education (e.g., [6, 7]). The Delphi technique described here compares music therapy and music medicine research in oncology to evaluate exemplary research in this specialty and to determine differences between these approaches.

Method

The Delphi technique was chosen for this study because the literature indicates its effectiveness to achieve consensus of a non-analytical topic, and it can provide information about complex problems or topics about which little is known (see [1]). Since one aspect of the study was to achieve consensus on a complex issue (i.e., identifying best research), the Delphi technique seemed a good fit. Another advantage of using Delphi is that a panel of experts, rather than a single investigator, is charged with ranking the investigations that meet inclusion criteria.

Selection of Oncology as Area to Study

Illness is the night-side of life, a more onerous citizenship. Everyone who is born holds dual

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citizenship in the kingdom of the well and in the kingdom of the sick. Although we all prefer to use only the good passport, sooner or later each of us is obliged, at least for a spell to identify ourselves as citizens of that other place. [8] (p. 3)

While a large amount of research is being carried out in both music therapy and music medicine milieus in a myriad of clinical contexts, perhaps no area is as deserving of scrutiny as is cancer. The presence of cancer is ubiquitous, and though some types of cancer are becoming less frequent, the numbers are still staggering: 1,735,350 new cancer cases and 609,640 deaths from cancer were projected to occur in the US in 2018 [9]. Around the world there were an estimated 18.1 million new cancer cases (17.0 million excluding non-melanoma skin cancer) and 9.6 million cancer deaths (9.5 million excluding non-melanoma skin cancer) in 2018 [10]. In the United States one in three women and one in two men will develop cancer during their lifetimes. A quarter of all U.S. deaths and about 15 percent of all deaths worldwide will be attributed to cancer [11].

Few messages strike such terror as a diagnosis of cancer, and anxiety and distress are rampant in pre- and post-treatment contexts [12]. Arguably the apex purpose of research is to inform and drive clinical practice forward to greater efficacy. Oncology is an area in which a number of well-designed, published studies exist and in which both music therapists and those practicing music medicine have

made substantial contributions. In light of these contributions, an understanding of their merits to research and clinical practice is in order—especially since there has been tremendous growth in the use of music and medicine interventions on a worldwide scale—to better inform best practice in clinical milieus and orient further research in the best direction for this complex and fragile population.

The Panel

11 researchers with expertise in music therapy and oncology, mostly music therapists, were asked to be a part of the Delphi panel. The first author selected them, based upon her knowledge of experts, and their qualifications and potential availability. 4 of the invited panelists were from outside of the United States. 3 people declined the request immediately, while 4 completed a portion of the evaluations and then withdrew, explaining that the lengthy review process was not feasible for them. 4 panelists, all board-certified music therapists from the U.S. completed the final evaluations. After the articles targeted for review were identified, the role of these 4 people was broadened, and they contributed to other aspects of the research including the coauthoring of this article. Information on the 4 panelists who evaluated the studies is provided in Table 1.

Table 1. Qualifications of Expert Panelists

Years of MT Experience	Primary Employment Setting	Percent of Time Devoted to Various Duties	Primary Theoretical Orientation	Number of Years Involved with Research	Number of Publications in Oncology
48	University + research appointment at pediatric hospital	Teaching 90% Research 10%	Integrative medicine; Cognitive Behavioral Therapy	50	3
27	University Private practice (rehabilitation and mental health settings)	Teaching 60% Research/ clinical research 20% Supervision 5% Administration 15%	Neurologic Music Therapy and humanistic philosophy	30	2
25	University	Administration 50% Research 25% Teaching 25%	Eclectic	20	27
17	Hospital (ambulatory and in-patient)	Clinical 65% Teaching (including presenting) 18% Research 12% Supervision 5%	Medical music psychotherapy	10	2

The Evaluation Process

In Round 1 of the Delphi process, panelists were asked to evaluate 26 music therapy and 19 music medicine studies and to rank them beginning with highest quality within the

specialties of music therapy and music medicine in terms of quality. (See [13] for additional information on procedures that were followed and the findings.) Studies were limited to quantitative research, including mixed methods studies, to allow focus on the research methods. The panelists were asked

to use accepted evaluation criteria and were told they would later be asked for additional opinions/rankings until the final studies to be considered were determined. In addition to their evaluations, panelists were asked to add any articles that they thought should be considered. They were also given a chance to change the classification of articles as music therapy or music medicine, if they felt that the current classification was incorrect.

The evaluation criteria were left quite broad; panelists were instructed to use their clinical judgment and research expertise to evaluate the studies. This was done intentionally, since the evaluators had different areas of expertise, and it was hoped that an open evaluation process would allow them to include their different perspectives. Panelists were provided with CONSORT Guidelines [14] and McKinney's [15] chapter from *Music Therapy Research*, "Evaluating Objectivist Research," as suggested resources for evaluation criteria. The evaluators ranked the music therapy studies independently from the music medicine studies.

In Round 2, after receiving the experts' rankings and comments, the first author compiled all of the rankings. Those receiving the highest total ranks were highlighted. Studies on which there were disagreements were identified, and panelists were asked to look at them again and communicate amongst themselves to try to resolve differences. In a deviation from the traditional Delphi process, this step was not done anonymously, as panelists knew with whom they were corresponding. A number of email communications about this occurred, leading to consensus of the studies that would be listed as being of the highest quality. It was determined that three music medicine studies [16, 17, 18] actually presentations of different aspects of the same study, so these were combined into one entry for comparison. One study [19] had been classified as music medicine but, after additional consideration of the role of the music therapist, was moved to music therapy. The final list of nine music therapy and eight music medicine studies was established at the end of this step, and the studies were then listed in order of ranking, within the two types of research.

In addition to the evaluation by the Delphi panelists, all randomized controlled studies were evaluated by the first author, using the CONSORT Guidelines [14] and "Reporting Guidelines for Music-Based Interventions" [20]. The retrospective examination of medical records [21] was evaluated using "Brief Guidelines for Reporting Propensity Score Analysis" [22], an appropriate evaluation for this type of research. The first author also wrote to some of the researchers of the studies to clarify relevant items that were not included in their published reports. This additional information informed a subsequent comparison of the two types of research (as reported in [13]).

Feedback from Panelists

A few evaluators provided some information as to how they evaluated the studies.

One said:

These diverse studies all had strengths and weaknesses, and it seemed impossible to decide if, for example, a weakness in study design trumped a strength in clinical validity. I avoided relying on a purely numerical rating of a long list of factors to come to my conclusions. During evaluation I took the CONSORT guidelines into account, though I also employed a more personal and subjective process. I placed most weight in the evaluation process on the following four points and their interaction: overall study design, clinical validity/efficacy, reporting clarity and accuracy, outcomes/contribution to the field. One important comment I would like to make from the start is that, with very few exceptions, no one talks about the music itself, its characteristics, or how it is thought to contribute to efficacy on a mechanistic level. Also, in many instances the music used in either MT or Music Medicine interventions is identified as "patient preferred" or "patient selected" when in reality the options offered are extremely limited and usually confined to a small number of genres. This is not real patient preferred music. Also (for the most part) from a clinical standpoint the interventions are limited and unadventurous. I believe that these are important points to consider. From my experience as a clinician I have to say that, for the most part, and aside from reported outcomes, the interventions themselves in some of these studies appear to be of limited therapeutic value - consisting mostly of passive listening of very limited pre-recorded music choices. I found myself questioning the accuracy of some of the outcomes, especially concerning passive listening to treat pain and depression.

Another panelist stated:

There were several methodologically sound articles, but many had one major flaw. This was particularly evident in the music medicine articles e.g., not reviewing the music therapy literature, not identifying the difference between music therapy and music medicine, referring to a music listening intervention as music therapy, lack of detail or attention to preference in selection of music, extremely short intervention, etc. This contributed to a review process whereby it was challenging to compare the quality of these articles.

Another stated:

I used a previously designed format used to evaluate clinical research. My process was to read over each study first, keeping in mind the quality of the study design, whether there was depth of critical thought about underlying relationships between variables or an espoused theory. I also looked for a synthesis amongst the research questions, the measures, results, and discussion of the outcomes. The music therapy studies employed a treatment intervention along with a therapeutic relationship (most of the time); some with feasibility tested along with effects; and there was usually reference to a team orientation. The music medicine studies focused on physiological outcomes such as those examined by medical personnel and the therapeutic relationship was not as important.

Results

The current article reports on the Delphi process and looks at aspects of the process that may have influenced the findings. Comparisons of these 2 types of research are reported elsewhere (see [13]).

Adaptations of Delphi Process

The study used a modified Delphi process. The modifications and reasons for them, in relation to the traditional Delphi technique, are discussed below.

No measures of central tendency and dispersion of the rankings by the experts were used. This can be justified in that, although Delphi studies usually report measures of central tendency and dispersion, this was not feasible in this study. Although the first round collected individual rankings of the studies, the second round was a focus group via email discussion in which the group resolved the differences in ranks and produced a final ranking. Therefore, individual data for calculating central tendency and dispersion were not calculated in the second round. Because the Delphi literature cites risks associated with the lack of anonymity, the focus group was monitored by the primary author to insure the opinions of all panel members were considered, and the rankings represented the true consensus of the panel as much as possible.

Given the complex task of ranking the studies, the email discussion was necessary to resolve the ranking differences. Mullen [23] supports this process, citing the finding that some studies do not give an extra round necessary to modify responses.

The study did not maintain anonymity in round two because of the email consultation. The following quote from Mullen [23] speaks to anonymity in the Delphi process:

However, does Delphi require that such anonymity be preserved throughout the study? Delphis have been recorded which have a face-to-face meeting in place of the final round or, more controversially, which start with such a meeting. It might thus be argued that Delphi requires only that the anonymity of responses be preserved for at least part of the study. (p. 47)

The panel of experts had a high drop-out rate. However, because this study did not use measures of dispersion to determine consensus levels, this is not a concern. Literature indicates that "low attrition is an indicator of validity when using data to determine consensus levels" [24], p. 240 (citing Williams and Webb, 1994). The quality of experts that remained with the study supports the validity of the study, since validity in Delphi ultimately depends on the panel of experts. Many who criticize small Delphi panels confuse Delphi with conventional quantitative surveys [23]. Delphi is *not* an opinion poll. Other research indicates there is no difference between those who choose to take part in a Delphi study and those who do not [23] (citing McKee et al, 1991).

Another concern might be that the researcher (first author) provided the panel with the research studies rather than letting the panel initially list studies. Given the complex nature of the study which required an extensive review of the literature to produce the research studies, the literature search method appeared to be the most appropriate for this study. Further, the literature search is a valid method for Delphi [1; 23] (p. 44).

Another deviation from the traditional use of the Delphi technique was that the panel of experts were required to rank rather than to rate the research studies. Since the studies were among the best in the literature, rating each study would likely have produced a ceiling effect. In addition, other authors have used rankings and compared rankings to ratings [23], p. 45 (citing Xiao et al, 1977, and Scheibe et al, 1975). Although the procedures followed in this study deviated in the ways from traditional Delphi techniques discussed here, the reasons for these changes appear to be justified.

Possible Influences on Findings

The findings of this report may have been influenced by the choice of the studies to be included in the comparisons. As explained, the first author selected a large number of studies for consideration and divided them into music therapy and music medicine; then the Delphi panel selected those to compare. Although panel members were asked to add any studies that they felt might have been omitted, no new studies were introduced. Since panelists had a broad awareness of the literature on music therapy and music medicine and oncology, this may mean that the included studies were sufficient, but

the concern that the pool of studies was not broad enough is worth considering. The literature included in this study was not intended to be exhaustive, but to allow for the selection of exemplary studies in both music therapy and music medicine.

Another question about the choice of studies is raised by other published research overviews. The articles included in the current comparison were selected by the first author through surveying numerous articles and databases, but not through a systematic process. This may have introduced bias in the articles selected for panel review. This contention is supported by two recent reviews that included different samples of studies [25, 26]. Bro et al. [25], in a systematic review and meta-analysis of interventions in cancer treatment, included many of the same studies included in the current study, but there were other differences in those screened and those selected. Some of this is due to different criteria—Bro et al. limited the studies they considered to those with adults—and some (nine) the current study intentionally excluded as they did not rank as the highest quality studies (plus an additional study that was older than those used in the current study). Bro et al. did not consider three of the studies included in the current analysis, while the current study did not consider four of those included by Bro et al. Hertrampf and Wärja [26] examined studies on the effect of creative arts therapy and arts medicine on psychological outcomes in women with breast or gynecological cancer. The studies in their review also varied from those included in the current study. 2 of the studies that Hertrampf and Wärja included were not considered for the current study because they did not appear in any of the databases from which studies were selected; of the remaining studies, three were the same (counting the three studies that were combined in the current analysis as one study), three did not employ music and thus were not considered, and one was excluded from consideration for the current study by the first author because it did not meet the screening criteria. A complete analysis of the studies considered or included is beyond the scope of this article.

Summary and Conclusion

This article describes the Delphi process and how it was used to arrive at a consensus of exemplary articles from music therapy and music medicine in oncology. The modified Delphi procedure used in this study may be useful for other music therapy and music medicine studies. Additional considerations of possible influences on the studies selected were also presented.

References

1. Cassity MD. The Delphi Technique. In: Wheeler BW, Murphy KM, eds. *Music Therapy Research*. 3rd ed. Dallas, TX: Barcelona Publishers; 2016:350-57.
2. Hsu C, Sandford B. The Delphi technique: Making sense of consensus. *Pract Assess Res & Eval*. 2007;12(10):1-8.
3. Hwang, E-Y. (2016). A study on forecasting the future of music therapy and the development of music therapy strategies in Korea. *Korean J Music Ther*. 2016;18(2):1-20.
4. Cassity, MD. Psychiatric music therapy in 2016: A Delphi poll of the future. *Music Ther Perspect*. 2007;2:86–93. doi:<https://doi.org/10.1093/mtp/25.2.86>.
5. Edwards, J. M. (2000). Developing a platform for research to inform music therapy practice with hospitalized children (Unpublished doctoral dissertation). 2000. University of Queensland, Brisbane, Australia.
6. Millican JS, Forrester SH. Core Practices in Music Teaching: A Delphi Expert Panel Survey. *J Mus Teacher Ed*. 2018;27(3):51-64. <https://journals.sagepub.com/doi/10.1177/1057083717736243>.
7. Vogel I, Brug J, Ven der Ploeg CPB, Raat H. Prevention of adolescents' music-induced hearing loss due to discotheque attendance: A Delphi study. *Health Educ Res*. 2009;24;1043-50. <https://doi.org/10.1093/her/cyp031>.
8. Sontag S. *Illness as metaphor*. New York: Farrar, Straus and Giroux; 1978:3.
9. American Cancer Society. <https://www.cancer.org/latest-news/facts-and-figures-2018-rate-of-deaths-from-cancer-continues-decline.html>
10. Bray F, Ferlay J, Soerjomataram I, et al. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2018;68:394-424. <https://doi.org/10.3322/caac.21492>.
11. Mukherjee S. *The emperor of all maladies: A biography of cancer*. New York: Scribner; 2010.
12. Andersen BL, Karlsson JA, Anderson B, et al. Anxiety and cancer treatment: Response to stressful radiotherapy. *Health psychol*. 1984;3:535-51.
13. Wheeler BL, Lesiuk TL, Burns DS, Hanser SB, Rossetti A, Cassity MD. Music therapy and music medicine: Part I: A comparison. *Music Med*. 2019. 11;3:145-159.
14. Schulz KF, Altman DG, Moher D et al. CONSORT 2010 Statement: Updated guidelines for reporting parallel group randomised trials. *BMC Medicine*. 2010;8:18. <https://doi.org/10.1186/1741-7015-8-18>.
15. McKinney CH. Evaluating objectivist research. In: Wheeler BL, Murphy KM, eds. *Music Therapy Research*. 3rd ed. Dallas, TX: Barcelona Publishers; 2016:685-93.
16. Li XM, Yan H, Zhou KN, Dang SN, Wang DL, Zhang YP. Effects of music therapy on pain among female breast cancer patients after radical mastectomy: Results from a randomized controlled trial. *Breast Cancer Res Treat*. 2011;128(2):411-9. doi:10.1007/s10549-011-1533-z.
17. Li XM, Zhou KN, Yan H, Wang DL, Zhang YP. Effects of music therapy on anxiety of patients with breast cancer after radical mastectomy: A randomized clinical trial. *J Adv Nurs*. 2011;68(5):1145-55. doi:10.1111/j.1365-2648.2011.05824.x.
18. Zhou KN, Li XM, Yan H, Dang SN, Wang DL. Effects of music therapy on depression and duration of hospital stay of breast cancer patients after radical mastectomy. *Chin Med J (Engl)*. 2011;124(15):2321-7.
19. Clark M, Isaacs-Downton G, Wells N, et al. Use of preferred music to reduce emotional distress and symptom activity during radiation therapy. *J Music Ther*. 2006;43(3):247-65.
20. Robb SL, Carpenter JS, Burns DS. Reporting guidelines for music-based interventions. 2011. *J Health Psychol*;16:342. doi:10.1177/1359105310374781.
21. Burns DS, Perkins SM, Tong Y, Hilliard RE, Cripe LD. Music therapy is associated with family perception of more spiritual support and decreased breathing problems in cancer patients receiving hospice care. *J Pain Symptom Manage*. 2015;Aug;50(2):225-31. doi:10.1016/j.jpainsymman.2015.02.022.
22. Yao XI, Wang X, Speicher, PJ, et al. Reporting and guidelines in propensity score analysis: A systematic review of cancer and cancer surgical studies. *JNCI J Natl Cancer Inst*. 2017;109(8):djw323.

23. Mullen PM. Delphi: Myths and reality. *J Health Organ Manag.* 2003;17:37-52. doi:10.1108/1477726031046919.
24. West A. Using the Delphi technique: Experience from the world of counseling and psychotherapy. *Counsel and Psychoth Res.* 2011;11:237-42. doi:10.1080/14733145.2010.492429.
25. Bro ML, Jespersen KV, Hansen JB, et al. Kind of blue: A systematic review and meta-analysis of music interventions in cancer treatment. *Psychooncology.* 2018;27:386
26. Hertrampf R, Wārja M. The effect of creative arts therapy and arts medicine on psychological outcomes in women with breast or gynaecological cancer: A systematic review of arts-based interventions. *Arts Psychother.* 2017;56:93–110.

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