

Effects of Live Music in Oncology Waiting Rooms: Two Mixed Methods Pilot Studies

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Abstract

Although music is frequently utilized in medical waiting rooms in an attempt to potentially decrease anxiety and enhance the environment, the mechanisms of how and why music might impact waiting rooms are not yet understood. More specifically, it is unclear how live music might affect environmental factors, patients, caregivers, staff, and the performing musicians. The purpose of these mixed methods pilot studies was to investigate the perceptions of patients, musicians, and staff members who experienced live music in gynecological oncology (Phase I) and chemotherapy (Phase II) waiting rooms. Using embedded mixed methods designs, the researchers collected quantitative data via a post-visit clinic survey concerning various measures of patients' and caregivers' experiences given live music (experimental group) or no music (control group). Qualitative data were collected via open-ended staff questionnaires, musicians' reflexive journaling, focus groups including the researchers and staff supervisors, and an open-ended item on the patient survey. The researchers used an inductive approach to identify themes from qualitative data. Concerning quantitative results, there were no significant differences between control and experimental groups on any measure except "Overall Clinic Environment" in Phase I. In this measure, the experimental condition had a higher rating than the control condition. However, the assumption of homogeneity of variance was violated due to the small control group sample size. Emerging themes from qualitative data included: Live music distracted patients resulting in positive affective and physical changes; Staff experienced positive affective and environmental benefits of live music; Musician sensitivity, quality, and repertoire; Live music facilitated interaction and ensuing sense of community; and Appreciation and positive experiences. Staff members in both phases supported and recommended the continued use of live music in both waiting rooms. Patients, caregivers, staff members, and musicians tended to have positive perceptions of live music in the waiting rooms. Live music may facilitate increased interaction, positive affective changes, distractions from potentially stressful appointments, and appreciation. Limitations of the study, suggestions for future research, and implications for clinical practice are provided.

Keywords: live music; oncology; cancer; waiting room; mixed methods; music medicine

Introduction

Many cancer patients experience anxiety while waiting for various types of medical appointments. The waiting room environment, including physical attractiveness and general ambience, can influence patients' perceptions of the quality of care they receive (Becker & Douglass, 2008). More attractive environments can also be associated with less patient anxiety. Cost-effective methods to improve waiting room environments can include the presence of fresh flowers, current reading materials, and music. Although researchers have found that music can be effective at reducing patients' anxiety during waiting periods (Cooke, Chaboyer, & Hiratos, 2005), there is minimal empirical evidence to support increased patient satisfaction with the presence of live music. Additionally, researchers investigating this topic have mostly studied recorded music, thereby indicating a specific need for studies examining the effects of live music on patients during waiting periods. In these mixed methods pilot studies, the researchers investigated the following questions: Does live music impact patients' anxiety and overall satisfaction with the clinic? What are patients', staff members', and musicians' perceptions of live music on patients and the work environment?

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Literature Review

Characterized by uncontrolled growth and spread of abnormal cells that can result in death (American Cancer Society, 2013), cancer remains a major public health concern in the United States. Cancer can involve both physical (American Cancer Society, 2012a) and psychological symptoms and side effects (American Cancer Society, 2012b). The psychological or emotional side effects of a cancer diagnosis may include shock, fear, anxiety, guilt, sadness, grief, depression, and anger. Additionally, patients' responses to a cancer diagnosis tend to be of greater intensity than with other diseases (Hishel, Hostetter, King, & Graham, 1984). The relative five-year survival rate for all cancers has increased from 49% between 1975-1977 to 68% between 2002-2008 (American Cancer Society, 2013). Despite the increased availability and occurrence of successful treatment, many cancer survivors experience continued negative psychosocial effects resulting from the disease (Auchincloss, 1995). Moreover, patients may need to continue visiting outpatient clinics for annual check-ups, therapy, or continued treatment evaluation. Auchincloss noted that "checkup anxiety" (p. 2119) can represent a normal experience for patients during the years of follow-up appointments. Checkup anxiety may peak during the last two days prior to an appointment, including the waiting room period just before the appointment occurs. Heightened anxiety concerning medical appointments may potentially result in diminished treatment compliance and compromised executive functioning during appointments. In past investigations, researchers have utilized music in an attempt to influence patients' anxiety and satisfaction while in waiting rooms (Cooke, Chaboyer, & Hiratos, 2005; Cooper & Foster, 2008; Holm & Fitzmaurice, 2008; Jared, 2003; Silverman, Christenson, Golden, & Chaput-McGovern, 2012; Tansik & Routhieaux, 1999). Generally, researchers have found that music in waiting room environments can be associated with decreased anxiety levels but the music does not seem to have a significant effect on patient satisfaction. Cooke, Chaboyer, and Hiratos (2005) conducted a critical appraisal of 12 studies utilizing music to reduce patient anxiety during waiting periods. The researchers utilized patient preferred recorded music in all 12 studies. The researchers found that music was effective in reducing some or all anxiety measures in 11 of the examined studies. However, as the music was mostly delivered via headphones, it may have limited social interactions between patients that may have resulted in decreased opportunities for normalization and universalization.

Tansik and Routhieaux (1999) found that playing (what the authors considered to be) slow and relaxing recorded music in a surgery waiting room had a significant effect on reducing the stress and anxiety of visitors. Although there was no difference between experimental and control groups regarding their level of satisfaction with the hospital, participants who were more relaxed tended to have higher satisfaction levels. Similarly, Holm and Fitzmaurice (2008) investigated the effects of recorded music and aromatherapy on adults' anxiety levels while in an emergency department waiting room. On days during the music condition both with and without aromatherapy, anxiety levels were lower than when music was played. Researchers of these studies supported the use of relaxing, recorded music to reduce anxiety in family members and friends of patients in waiting room environments, but not the patients' own anxiety levels. Jared (2003) utilized a three-group experimental design to in an attempt to determine the effects of live music on anxiety levels of persons in a surgical waiting room. In this study, participants in the direct music group were encouraged to request songs and interact with the musician, participants in the indirect music group were given no control over the music they heard, and participants in the control group did not receive music. While there was no significant difference concerning anxiety, stress, or worry levels among the three groups, there were greater relaxation levels in the direct and indirect music groups. In a related study, Silverman, Christenson, Golden, and Chaput-McGovern (2012) investigated the effects of live music on patients in a university health clinic waiting room. This study was unique as the researchers measured the effects of live music on patients rather than exclusively on family members and friends of patients. The researchers also collected data in the form of feedback from staff members and found staff had positive perceptions and recommended the continued use of live music in the waiting room.

Patients' preferences and familiarity levels with music used in waiting periods may impact their anxiety levels and should be considered (Tan, Yowler, Super, & Fratianna, 2012). The rationale behind music selection is an important decision to articulate in future research on this topic (Cooke et al., 2005). Cooper and Foster (2008) used various genres of music to aid patients' levels of relaxation in a radiotherapy waiting room and found that enjoyment of the music was associated with increased relaxation. Additionally, Tan et al. (2012) found that there was a significant positive correlation between music preference and the degree of relaxation in music therapists and adult participants.

Researchers have found that oncology patients may benefit from music therapy or other complementary therapies (Puig, Lee, Goodwin, & Sherrard, 2006; Singer, Götze, Buttstädt, Geue, Momenghalibaf, & Böhler). In a mixed methods study, Canga, Hahm, Lucido, Grossbard, and Loewy (2012) utilized live music in the waiting room and chemotherapy infusion suite of an urban cancer center. Music therapists provided improvised live music to reflect the environment. The authors performed a qualitative interpretive phenomenological analysis based on data collected through open-ended survey questions and comments from patients, caregivers, and staff. The researchers found that the music was relaxing, mood changing, and provided an unexpected pleasant effect for patients and caregivers. Staff members indicated that the music improved the mood, enhanced peer staff support, but may have evoked negative memories of previous loss. The authors recommended musicians in this type of setting be able to recognize symptoms of stress in a fragile environment and that in-services be provided to nursing staff informing the therapeutic goals of music therapy in a medical setting. To investigate the long-term effects of a live music program, Preti and Welch (2012) performed grounded theory analysis on data from semi-structured interviews with 20 hospital staff members. The authors identified three thematic areas: staff's perceived effectiveness of music for children, impact of music on staff's daily work, and perceived professionalism of the musicians. The majority of staff responded that they felt the music was effective at reducing anxiety, normalizing the environment, and entertaining children. Some of the staff indicated that repetition of musical selections caused added stress and could be disturbing in emergency situations. However, the evidence that the children were benefitting from the music ameliorated staff stress. Overall, the staff were not concerned with the professional status of the musicians.

In a systematic review of 30 trials with cancer patients, Bradt, Dileo, Grocke, and Magill (2011) found that music-based interventions may have beneficial effects on anxiety, pain, mood, and quality of life of cancer patients. However, there remains a need to systematically investigate the use of live music in oncology waiting rooms utilizing both quantitative and qualitative paradigms. Therefore, the purpose of the current pilot studies was to investigate the perceptions of patients, caregivers, and staff members who experienced live music in gynecological oncology and chemotherapy waiting rooms. The authors investigated the following research questions:

1. Are there between-group differences on post-visit satisfaction surveys in patients and caregivers who hear live music and patients and caregivers who hear no music in gynecological oncology (Phase I) and chemotherapy (Phase II) waiting rooms?
2. What are the perceptions of patients, caregivers, musicians, and staff members who experienced live music in gynecological oncology (Phase I) and chemotherapy (Phase II) waiting rooms?

Method

Research Participants

Participants in Phase I included patients and caregivers in a gynecologic cancer clinic waiting room of a university affiliated hospital in the Midwest. Given the type of clinic, only female patients were present and, although males often accompanied women to their appointments, only females completed the post-visit survey. Participants in Phase II included patients and caregivers in a chemotherapy waiting room of the same hospital. Although caregivers often remained in the waiting room while patients were in the exam rooms when surveys were distributed, this phase also only included patient responses. In both phases, the researchers attempted to be as inclusive as possible and there were only minimal study inclusion criteria: Participants were only required to be patients waiting for treatment or caregivers accompanying patients, read and write in English, and provide informed consent by reading a consent form and volunteering to participate in the study by completing the posttest. Research participants' demographic data are depicted in Table 1.

Table 1: Demographics

	Phase I: Gynecology Clinic		Phase II: Chemotherapy Clinic		
	Experimental <i>n</i> = 17	Control <i>n</i> = 3	Experimental <i>n</i> = 17	Control <i>n</i> = 12	
Gender					
	Female	17	3	7	5
	Male	0	0	10	7
Identifier					
	Patient	14	3	17	12
	Family member/friend	3	0	0	0
Patient reason for visit					
	Check-up	4	1	0	2
	Follow-up	1	1	6	2
	Procedure or procedure follow up	4	1	4	4
	Other	8	0	7	4

Instrument

The researchers modified the hospital's original satisfaction survey and also based the data collection instrument upon a previous related study (Silverman, Christenson, Golden, & Chaput-McGovern, 2012) along with input specific to the oncology settings. During Phase I, Post Clinic Visit Satisfaction Surveys were distributed to patients and caregivers during the check-out process. Due to low response rates in Phase I, surveys were distributed to participants in Phase II upon entering the exam room. The 18-item survey included seven demographic questions, 10 questions regarding various measures regarding the respondent's experience in the clinic, and one open-ended prompt for further comments. Questions regarding clinic waiting room perceptions were rated on five-point Likert-type scales (1 = low satisfaction; 5 = high satisfaction). Surveys were accompanied by a letter of informed consent indicating the purpose of the study, but, in an attempt to keep participants blind to study conditions, the patient surveys purposely did not include specific questions about the use of live music in the waiting room.

At the conclusion of each phase, the researchers distributed brief surveys to staff members. There were five items on the staff surveys: three open-ended, one demographic, and one Likert-type scale. Questions addressed staff's impressions of live music in the waiting room, whether they felt live music interfered with their job performance, and whether the live music helped increase patient confidentiality. Utilizing a seven-point Likert-type scale, staff members rated the degree to which they would recommend live music in the waiting room (1 = not recommend; 7 = highly recommend). After each music condition session, the performing musician wrote in a reflexive journal concerning her experience performing music. After each phase, the researchers conducted focus groups to discuss their perceptions and experiences throughout the studies. The focus groups were video- and audio-recorded, transcribed, sent to focus group members for member-checking, and analyzed.

Design and Procedure

The embedded mixed methods design (Creswell & Plano Clark, 2011) comprised a randomized controlled study with quantitative data collection plus qualitative data collection both during and after the trial (see figure 1). The premise of this design is that a single data set is insufficient due to multiple research questions requiring distinct data types. The rationale for this paradigm was that the collection of qualitative data within a randomized controlled study might assist in explaining the benefits and limitations of utilizing live music in an oncology waiting room. Researchers have indicated the need for research that examines the therapeutic processes of music therapy in healthcare in order to help understand how and why interventions are effective (Pothoulaki, MacDonald, & Flowers, 2006; Robb, 2012).

Additionally, Pothoulaki, MacDonald, and Flowers (2006) stated that given “music therapy aims for human betterment and amelioration of individuals’ quality of life, it should involve research approaches that enhance a holistic examination of phenomena under investigation” (p. 447). Creswell and Plano Clark (2011) advocate an embedded design when a need exists in the literature to “examine outcomes through experimental methods and process by obtaining detailed views from participants through qualitative data” (p. 151), aligning with the needs highlighted by Pothoulaki and colleagues (2006) and Robb (2012). Typically associated with mixed methods research (Creswell & Plano Clark, 2011), the researchers designed the current study from a pragmatist worldview. The focus in this worldview is on the consequences of research, the importance of the research questions rather than the methods, and on the use of multiple types of data. The ontology of pragmatism (nature of reality) is that multiple perspectives are offered (i.e., patients, staff members, and musicians). The epistemology (relationship between researcher and what is being researched) is focused on practicality—doing what is necessary to address research questions (i.e., changing data collection procedure in Phase II). The axiology (role of values) of pragmatism includes multiple stances, both biased and unbiased perspectives, within the data. The methodology (process) involves the combination of both qualitative and quantitative data. Finally, the rhetoric (language) of the research is both formal and informal, including both scholarly language and examples from participants in their own words.

Qualitative data were made from several sources, including patient and staff surveys, focus groups, and the musicians’ reflexive journal notes. In their guide to qualitative methods, Richards and Morse (2013) offered methods commonly utilized to make qualitative data. The authors delineate between *collecting* and *making* qualitative data, the former implying the data preexist, the latter indicating a collaborative, ongoing process between the researcher, participants, and the environment. The patient surveys in the current study included open-ended questions with the goal of allowing participants to share their impressions of the clinic and care they received, including their time in the waiting room. Staff surveys included open-ended questions regarding their perceptions of live music in relation to patients’ experiences and their work environment. Focus groups were facilitated by one of the researchers and included the musicians, clinic staff, and an oncology physician. As commonly recommended by qualitative researchers, the facilitator introduced the questions, attempted to ensure the conversation was balanced, and kept the dialogue moving (Richards & Morse, 2013). Additionally, the musicians recorded observations and impressions of reactions, interactions, and conversations held during their time in the waiting rooms. All data sets were analyzed separately according to the associated research questions and methods, and were integrated into the discussion.

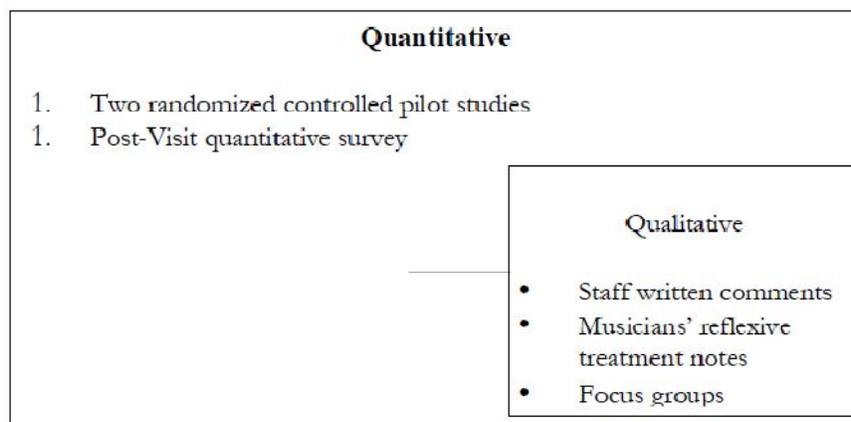


Figure 1: Embedded Mixed Methods Design

In both phases, data were collected for 27 weekdays over a six-week period from 2:00 pm to 3:00 pm. Each day comprised a different condition and was randomly assigned via computer program to either the control (no music) or experimental (live music) condition. During the 13 days of the experimental condition in each Phase, one of two female graduate music therapy students provided live music by singing and accompanying herself on the steel string acoustic guitar. Musicians selected music from their repertoire lists that they were comfortable with and could play at an aesthetically high level. Selections were non-religious, popular music from various decades and typically included songs such as “Country Roads,” “Blowin’ in the Wind,” “Leaving on a Jet Plane,” and “Let It Be.”

Musicians tailored musical selections based on their informal assessments of patients' behavioral reactions and verbal comments. For example, if the musician observed a patient tapping her foot during a particular song and interpreted this behavior as a sign of enjoyment, she would play similar songs in an effort to maximize the positive response. Musicians also chose music according to their estimation of the patients' ages, playing more current music for younger patients and older music for older patients. Participants in the control condition did not hear live or recorded music while in the waiting room. Control data were collected in an identical manner during the same afternoon hours during 14 weekdays when there was no live music. In these purposely inclusive pilot studies, participants were eligible to complete the survey if they were in the waiting room at any time during the specified hour. The order of the control and experimental days was randomized via a computer program. The researchers completed all required training to conduct the study. The hospital and university shared an Institutional Review Board that approved the study in advance.

Quantitative Data Analyses

To determine whether there were differences in overall satisfaction and anxiety between the experimental and control groups, independent-samples *t*-tests were performed. Each phase was analyzed separately due to population and clinic differences. From the total 63 surveys that were completed during both phases, 49 were eligible for use. Fourteen surveys were ineligible as respondents failed to include a date, which was how the researchers identified participants' conditions. Given that clinic staff distributed the surveys, not the researchers, the date was blank and was to be filled in by participants. If the date was not included, the researchers were unable to determine if participants were there on a control or experimental day.

Qualitative Data Analyses

The researchers analyzed qualitative data by performing detailed thematic analyses on patient surveys, staff surveys, focus group transcripts, and the musicians' reflexive journal notes. Noting thematic analysis is "a method for identifying, analyzing, and reporting patterns (themes) within data" (p. 79). Braun and Clarke (2006) noted that thematic analysis offers an approach to qualitative analysis that is both accessible and theoretically flexible. In the current study, the researchers used an inductive approach to identify themes, meaning that initial codes were directly linked to the data, not driven by the researchers' *a priori* assumptions concerning relationships among the data. The process of data analysis in this study was based upon Braun and Clarke's six phases of thematic analysis including: 1) familiarization with the data; 2) generate initial codes; 3) search for themes; 4) review themes; 5) define and name themes; and 6) produce the report. In the current study, the researchers reviewed all qualitative data, generated initial codes, organized codes into categories, created initial themes, reviewed themes, defined themes with thematic statements, and provided relevant examples from the data. To ensure trustworthiness, all researchers were involved in reviewing the qualitative data and worked collaboratively to generate codes and themes. Focus group data were member-checked by participants in order to ensure the transcript accurately reflected their experiences (Creswell & Plano Clark, 2013).

Results

Quantitative Analyses

In Phase I, *t*-tests revealed a significant difference between groups on overall clinical environment ($t = 3.043$, $p = 0.008$). However, the assumption of homogeneity of variance was violated (Levene's test < 0.05) due to the small control group sample size ($n = 2$, $SD = 0.00$). Therefore, these results should be interpreted with caution. In Phase II, *t*-tests revealed no significant between-group differences. Thus, live music appeared to have no effect on patients' anxiety or various measures of appointment satisfaction. Descriptive statistics are depicted in Table 2.

Table 2: Descriptive Data

Question	Phase I: Gynecology Clinic						Phase II: Chemotherapy Clinic					
	Experimental			Control			Experimental			Control		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Age	53.50	14.57	17	60.60	4.16	3	53.00	22.0	15	47.20	17.35	12
Previous appointments	8.12	7.56	13	3.00	2.82	2	23.60	58.79	11	14.75	34.57	8
Satisfaction with check-in	4.65	0.61	17	4.00	1.00	3	4.65	0.70	17	4.50	0.67	12
Stress/anxiety level	4.24	0.90	17	4.00	1.00	3	4.35	0.79	17	4.42	0.90	12
Duration of wait time	4.43	0.85	14	4.33	0.58	3	4.31	0.87	16	4.12	1.02	12
Waiting room environment	4.53	0.72	17	4.00	0.00	2	4.59	0.79	17	4.09	1.04	1
Overall clinic environment	4.53*	0.72	17	4.00*	0.00	2	4.41	0.79	17	4.58	0.51	12
Staff helpfulness	4.88	0.33	17	5.00	0.00	2	4.82	0.39	17	4.75	0.62	12
Staff respect	4.76	0.56	17	4.50	0.71	2	4.94	0.24	17	4.75	0.45	12
Provider care	4.71	0.61	14	5.00	0.00	2	4.67	0.49	15	4.83	0.39	12
Clinic care	4.73	0.59	15	5.00	0.00	2	4.67	0.49	15	4.75	0.62	12
Recommendation	4.88	0.34	16	5.00	0.00	2	4.79	0.43	14	5.00	0.00	12

Higher scores indicate more positive ratings

* Significant between-group difference at $p = .05$ level

Patient and Caregiver Posttest Comments

Patients and caregivers had opportunities to include additional written comments on the survey. These responses tended to be positive, brief, and lacked depth. Thus, the researchers included them as patient and caregiver perceptions are important but decided to keep these comments separate and distinct from the other qualitative analyses. In Phase I, eight comments were collected from patients and caregivers (40%) and in Phase II, seven comments were collected (24%). Participants' comments revealed that environmental changes such as fresh flowers and live music may positively impact patients' clinic experience. Music was considered relaxing, beautiful, enjoyable, and a distraction. Participants requested the music continue in the waiting room and, in one case, suggested the addition of music therapy to the chemotherapy treatment floor. A patient in Phase I commented, "The music is a fantastic touch. Please continue!" Additionally, patients were satisfied with their care providers at the clinic and with the staff overall. They expressed appreciation toward the staff, felt their health care needs were being met, and would recommend the clinic to others. One patient in Phase II wrote, "Excellent patient respect and very comfortable with staff." Thus, from participants' comments, live music appeared to positively impact the environment by creating a relaxing environment and providing a distraction from the anxiety of waiting.

Staff Surveys, Musicians' Journals, and Focus Group Data

Nine staff members completed surveys in Phase I. The researcher distributed staff surveys in Phase II but none were returned. The researchers contacted the clinic supervisor on two occasions to inquire about the completion of staff surveys in Phase II, yet none were returned. When asked to quantitatively rate their recommendations concerning the presence of live music in the waiting room on a seven-point Likert-type scale (1 = not recommend; 7 = highly recommend), the mean rating was 6.56 ($SD = 0.73$), indicating a high recommendation with relatively little variance among staff participants in Phase I.

The researchers performed a thematic analysis on open-ended responses from staff participants in Phase I, musicians' reflexive journals completed at the end of each live hour of music, and focus group transcripts. All researchers were present for focus groups, including both musicians (*M1, M2*), a gynecologic clinic doctor (*MD*), and in Phase II, the clinic supervisor (*CS*). The first author facilitated the focus group discussions by asking members to elaborate and further explain their experiences. The researchers identified five themes from the qualitative data. The locations of the themes' occurrences are signified below with the following abbreviations: *FGI* = Phase I Focus Group, *FGII* = Phase II Focus Group, *SS* = Staff Surveys, *MJ* = Musicians' Journals. The numbers in the quoted examples indicate participant type, number, and phase (i.e. S2-1 = Staff, Participant 2, Phase I). Each theme is defined and then supported by relevant examples from the data.

Theme 1: Live Music Distracted Patients Resulting in Positive Affective and Physical Changes (*SS, FGI, FGII, MJ*)

Many patients experienced anxiety concerning their visits and live music provided a positive distraction from negative affective states. Staff members also perceived positive changes in patients' affect with the presence of live music. Staff members commonly described music as relaxing, soothing, and calming. Additionally, live music elicited positive affective changes in people by highlighting moments of happiness and reducing anxiety by distracting patients. Musicians observed patients crying, dancing, and falling asleep. Patients, caregivers, and staff also exhibited a wide range of physical responses to the music. Musicians observed many nonverbal reactions including smiles, winks, head nods, foot tapping, dancing, clapping, and adjusting proximity to be closer to the musicians. Some people sang along, requested songs, and engaged in conversation with the musicians or others around them. Crying was observed on one occasion, although it was not clear if the crying was related to the music.

- ...one of the things that we talked about when we were figuring out how to use music therapy in cancer care is that there are different time periods when they have a lot of stress and they feel a lot of anxiety. That can hinder their ability to fight the cancer even, because that stress response takes away from their ability to fight the cancer, so we're trying to find out ways to decrease that stress response and with music therapy, we're trying to find out how to weave that in to our cancer care. We want to keep doing this and have more and more of the feedback and have a better experience; I think that will ultimately decrease their stress levels. Potentially, we could do something where we check their stress level pre and post music therapy, and that will be an actual number that we scientists like to see as opposed to the "quality of life" number. I think that'll pay off if we decrease people's stress levels just by having someone sing in a clinic for an hour or so a day. (MD)
- I think the music was a distraction. Something else to occupy their time, something pleasant... (CS)
- Many great comments from the patients on feeling relaxed. (S1-1)
- Some people would move if they couldn't see me, or they'd move to be closer to the music, which was really cool. (M2)
- I think it is very relaxing for patients – I feel if I were a patient waiting to be seen for such a horrific disease I would want my mind to be directed to something so much more uplifting. (S4-1)
- I should probably mention that at least *twice* put someone to sleep. (M1)
- She said she "loves all kinds of music," repeated the word "relaxing" at least 4-5 times, and said "even my friend said it relaxed her and she's the one here for the appointment!" (M2)
- I also think too that with the music itself, just looking at the difference between the CD and the live music, I think everyone kind of attaches an emotion or a memory to a song like when they first heard it, or heard it in a different experiences. Being able to take patients away from the clinic and back to those memories is sometimes good, and sometimes it brings them back to a sad emotional experience. Even doing that though takes them away from the current experience they're having with the cancer care. (MD)
- I mean, it's a distraction for the patients! It's something to keep their mind off of what they're there for. (M1)
- M2: Mother and daughter were singing along and tapping feet, and clapped after each song. (M2)

Theme 2: Staff Experienced Positive Affective and Environmental Benefits of Live Music (*SS, FGI, FGII*)

Staff members found that live music elicited a range of positive emotions and responses in themselves, including decreased stress and increased work productivity. Live music was also associated with an improved work environment characterized by a welcoming atmosphere. Staff members appreciated the music both personally and for the patients' wellbeing.

One staff member felt the music was mildly distracting but also felt it was an “extra special touch” for patients. Additionally, the live music may have positively impacted patient confidentiality by masking communication and providing a distraction from patient-staff interactions.

- ...one of the staff told me that he... I don't know if you were there that day, but he was actually singing along in clinic with what was being sung in the waiting room, so he was singing along and they'd see that as he was going into patient's rooms. He thought that it brought a, kind of a, different emotional stage even back in the clinic rooms. He felt like he was a little more upbeat with the songs, like the song he mentioned was “Don't Worry, Be Happy,” and he'd sing it as he walked in to talk to patients about their cancer diagnosis. He's not the type of a person; when he gives news to patients or talks about their cancer, he's very straightforward and almost emotionless. He felt a little more personable, as he talked to patients while listening to the music. People also thought they were more productive, which I believe that they were, but I don't get it. [laughs] I thought they were more productive and they were just absolutely up there. (MD)
- It actually made it (work) seem less stressful and much more enjoyable. (S5-I)
- ...the music...had a calming effect on the staff, too... (CS)
- I would go down and talk to the people about what their experience was, and XXXX, the clinic manager who spoke with us at the beginning, was very, very positive. She actually hopes that we can get music therapy full-time, because she absolutely loved it; everybody loved it. A couple of the other staff were mentioning that the morale of not only the patients but also the people in the clinic was higher and brighter when you guys were there versus when they weren't. One said they felt more productive with the live music, and it's a little interesting too, because they have a CD that goes on normally on a daily basis, so they even noticed a difference when there was live music versus a CD. I thought it was really cool that they noticed a difference, and even an increase in productivity when they were in the clinic. (MD)

Theme 3: Musician Sensitivity, Quality, and Repertoire (**SS, FGI, MJ**)

Patients and staff members highlighted the need for a wide musical repertoire selection due to the diverse populations and music preferences in the clinics. Staff members noticed and commented on the aesthetic quality of the music. Musicians noted they varied musical selections based on observations of patients' physical responses such as smiling, tapping, and singing. Musician sensitivity and perceptiveness was necessary due to patients' sensitive situations and varied affective states.

- ...the signs of cancer were much more prominent in this (clinic), so I was very aware of that and very careful about what I picked to play. (M1)
- ...the music was beautiful and relaxing. (S2-I)
- Sometimes you could see a strong reaction to a song, they might close their eyes or seem upset, so I know that we said we both did this, but we tried to increase the “upbeatness” of the next song, just a little bit. Maybe that one was too much, and sometimes it was hard to operate on which song to pick, but I think it's important to be sensitive to those things and observe the reactions that people are having. Just have a variety ready. (M2)

Theme 4: Live Music Facilitated Interaction and Ensuing Sense of Community (**FGI, FGII, MJ**)

Patients interacted frequently with musicians, often thanking or complimenting them. Live music also encouraged non-medical communication between patients and their family members, between patients and other patients, and between patients and staff members. The music functioned as a stimulus for discussion and provided a non-medical conversational topic that facilitated verbal interaction. Live music also changed aspects of interactions between staff and patients, characterized by staff members lowering their voices, relaxing their demeanor, and facilitating structured interaction about the music. Due to the socialization and communication, live music contributed to a heightened sense of community, characterized by interactions inspired by or about the music and led to more meaningful, shared experiences among patients, family, and staff members concerning diagnoses, treatments, or backgrounds.

- The first day that I was in there, I started with an Elvis song. I was trying to start with a song that they'd recognize, I started with "Can't Help Falling in Love with You," and this woman came up to me with her family and said "Oh my gosh, I love Elvis!" Her daughter came up to me "I got this book at the library today, it's Elvis pictures!" and I was like [triumphantly] "Yes!" [laughter] She asked if I knew any other Elvis songs and I said "Yeah, I do!" I played all four or five of my Elvis songs, and the woman was singing and clapping and interacting, which was a great way to start for me because if I hadn't been there, who knows what their experience might've been like? (M1)
- A woman...engaged in conversation and talked with me for about 20 minutes. (M2)
- An older gentleman engaged another family in conversation about the music. (M1)
- ...when the music was playing, my staff tended to be quieter when they talked to the patients, and I liked that. (CS)
- He (doctor) felt a little more personable as he talked to patients while listening to the music. (MD)
- Before I even got my guitar out of the case, a gentleman moved to a chair a few feet away from me so he could engage in dialogue with me. He started out by asking what kind of strings I had on my guitar. I asked if he was a guitar player, and he said he was a beginner. He wanted to play more, but time was an issue. He asked if I was a music student, and I said yes, and told him I was somewhat a beginner too since I've only been playing for a year and a half. He shared that he liked the electric guitar and his wife had purchased one, but they never started learning how to play it. The nurse called his name shortly after, and he told her he would be there soon - he wanted to finish his conversation with me. (M1)
- I noticed that a couple times, the patients might've been sitting by themselves, and then they'd get up and talk to other families or me. That happened a few times; they'd talk about the music and then suddenly this family that was really involved in themselves is now telling stories about their grandma who played piano. (M2)
- I've noticed interaction not just between the families but between people in the waiting room. There was one lady who would skip and clap after I was done, and then more people would start clapping. There was a talkative guy over here who said "Oh, do you know any country stuff?" and that was a fun, you know, group experience that was going on. (M1)
- I felt like it also stimulated interaction sometimes between patients and their family; I came in a couple times and they'd be reading magazines. Then, when I started playing, they'd put the magazines down and talk to each other about the songs. I know a couple times, they talked about the music, but otherwise they were involved in their own thing, then interacting with each other on something they could agree upon, or even a mutual subject that'd be beneficial to pass the time, which makes them forget why they are there sometimes. (M2)
- I also saw that there was a patient, and then her son, and then her granddaughter, and you could kind of tell before the music that the granddaughter didn't really know how to interact with the grandmother, but once the song started playing, the dad said "Oh, maybe you should learn how to play guitar for your grandma!" which started a spark, or sort of interaction between them. (M1)
- That definitely happened with a woman who talked to me for about twenty minutes; it ended up being her and I in the waiting room and she was talking after every song. She was a friend of a patient, and wanted to talk for a while. She'd talk about her friends, her family, her kids, and it got very personal, but whenever there was a wall in the conversation I just played again and then we talked again. I always have this thing I can do if I don't know what to say or if she doesn't want to talk anymore. It certainly wasn't all about the music after the first couple of minutes. (M2)
- There was conversation back and forth about the music. We always talk about trying to find more common ground with the patients when we're meeting with them. Whether it's the jewelry they have on, or something they have out on their desk; the music is another one of those things that helps bond and find the common ground between the staff and the patients. I love those things. It draws out people that wouldn't have much to say normally. (CS)
- And sometimes, too, being in a cancer clinic, your focus is different. You have so many support people there that are just there to watch TV, and it *is* just about you in a health clinic, but in a cancer clinic it's the interactions with the patients, the nurses; there's a community established. You're used to having a community, and having someone join is like "Come on in! We're a club!" (MD)
- It seemed (patients) talked to each other as a group with the music, where they might not be talking to each other if there wasn't any. (MD)
- ...the music is another one of those things that helps bond and find the common ground between the staff and the patients. I love those things. (CS)

Theme 5: Appreciation and Positive Experiences **(FGI, FGII, MJ)**

After providing live music in the clinics, the musicians often experienced a “helper’s high” and felt the overall experience was personally rewarding. The musicians expressed their desires to positively impact all patients and were sensitive to the needs of the patients. Overall, musicians felt appreciated by patients, caregivers, and staff members.

- When they got up to leave, they’d come over and look at me and say “Thank you.” Just that moment where they looked, or winked, or smiled, you think Gosh, who knows what their experience is about? (M2)
- He asked if I was a music major, and I specified music therapy. He responded, “it’s working. It makes people forget that they are sick.” (M1)
- A couple of them would smile at me, say thanks, or wave when they left. While they may not be comfortable coming up to me to talk, I think that they do appreciate or enjoy the music, and a smile is their way of telling me that. (M1)
- They [staff] really enjoyed the music; usually they’re too busy to really stop and appreciate it, but I think they appreciated it for themselves. More so, they appreciated it for the patients. They have such a connection with the patients, and they follow their patients; I know they enjoyed it for them.
They had that, you know, that caring, that someone else came in and cared about the patients we care about. (CS)
- Sometimes you could see them with a little thank-you know, so you could tell they were enjoying it. I think most of it was nonverbal, though. You could hear the patients talking to the nurses as they went back sometimes, so I don’t know what they said, but you could hear the nurses saying “Oh yeah, we love having them here!” (M1)
- It was obvious from the environment and the staff that it’s a patient-centered clinic, and being a part of that felt really nice. I was contributing to someone in a positive way, and the staff responses were very much along those lines, too. They felt it was upscale and a nice service to provide their patients. It was all about the patients; how can we best get them through this? Being part of that felt really good. (M2)
- Just overall, though, everybody loved you guys. They made so many comments about your voices it was unbelievable. Angelic, every single description you could think of, they submitted. They definitely want you back, for sure. (MD)
- I think one of the best responses I heard from patients is that they felt almost honored that someone would take the time to come and play music for them. I think that was the greatest feedback that I could get. (CS)
- ...but after the first positive feedback from the clinic, I realized even if I just affect one person, it’s worth my time. If I make one person’s day, it’s worth it... (M2)

Merging of the Data

Although quantitative results were not significant, qualitative inquiry produced meaningful results depicting the experience of live music in oncology waiting rooms. It seems that objectively measuring quantitative effects insufficiently depicted the phenomenon under investigation. Subjective effects from qualitative data yielded consequential interpretations of the experience. The merger of results is depicted in Figure 2.

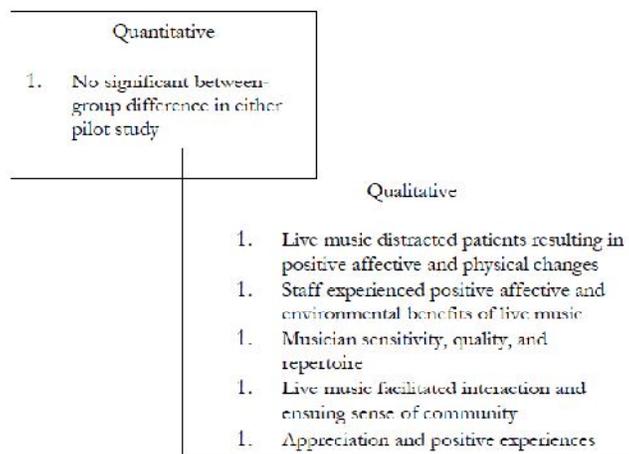


Figure 2: Merging of Results

Discussion

Consistent with quantitative results from previous research utilizing similar designs (Jared, 2003; Silverman et al., 2012), live music appeared to have no effect on participants' survey responses in relation to anxiety levels or various measures of clinic satisfaction. Also consistent with previous research (O'Callaghan & Magill, 2009; Silverman et al., 2012) were the effects of live music on staff members, with live music being highly recommended in both phases of the current study. These results highlighted staff members' patient-centered attitudes and their desires to provide patients with the best possible care. This attitude was reflected in responses to staff surveys, musicians' journals, and during focus groups, indicating the benefits of mutual caring for oncology patients between staff members and musicians. In contrast to the quantitative data, the researchers found within the qualitative data that live music seemed to positively impact people's experiences while in the waiting room during both phases of the present study. In a review of qualitative methods used to explore patient perceptions of the arts in healthcare, Moss, Donnellan, and O'Neill (2012) found that patients exposed to the arts in health care often expressed perceived benefits "particularly in areas such as boosting self-esteem, self-confidence, sense of achievement, positivity at a difficult time of life, and promoting a sense of hope" (p. 108). In the current study, patients' confidence may have increased with the presence of live music, allowing for enhanced communication with others, an ensuing sense of community, and positive changes in affective states. Additionally, despite the potentially stressful environment, musicians received many positive comments from patients and staff regarding the quality of the music and its ability to distract patients from the purpose of their visit.

Given cancer patients' survey responses, "checkup anxiety" (Auchincloss, 1995, p. 2119) did not appear to be an issue, yet many comments were made about the relaxing, calming effects of the music. Jared (2003) suggested researchers consider the use of positive and negative words when measuring participants' anxiety levels. The survey in the current study included the word "anxiety" rather than "relaxed," which may have impacted participants' responses. Patients' comments to musicians and staff members indicating that the music made them feel more relaxed suggest a potential change in affective state, regardless of their survey response to this question. Participants' comments during the focus groups indicated that musicians in waiting room settings should be sensitive to patients' needs and have a wide repertoire available to accommodate both patients' physical and affective responses to the music, and patient requests. This finding is congruent with recommendations from Canga et al. (2012) who, in a study concerning music in chemotherapy infusion suites, suggested that musicians be aware of patients' needs. Additionally, musicians should be skilled on their instrument and be able to provide high quality music to a diverse population. Musicians may benefit personally from the experience of playing in waiting rooms; the musicians' experiences and responses suggested that some positive benefits included personal stress relief, an increased sense of usefulness and altruism from helping others, and making personal connections through interaction with patients and staff members. Patients and caregivers exhibited a wide range of responses to live music that were perceived by musicians and staff members. Most people exhibited some type of physical response, which seemed to be, at times, *contagious*. During two separate occasions, a young child started dancing to the music, which attracted the attention of other patients, caregivers, and staff members. Thus, patients may have been distracted from the anxiety associated with their visit indirectly by another person's positive behavioral response to music.

Not only did live music seem to facilitate increases and positive changes in various interpersonal interactions, it may have contributed to a sense of community and normalization among people faced with similar circumstances. A focus group participant commented, "I think globally, just being able to talk to someone else who has cancer or is going through the same situation, it shows that there is someone in the same boat." Live music was able to bring people together who may not have interacted otherwise and, in some cases allowed patients who were unaccompanied by a caregiver to connect to another person, possibly reducing feelings of isolation. While live music may or may not be associated with increased patient confidentiality due its masking effects at patient check-in, it seemed to positively impact the working environment for staff members. This impact was evident in staff members' survey responses and clinic supervisors' comments during focus groups. Interestingly, some staff members felt more productive with live music, despite their routine use of recorded music. Daykin, Bunt, and McClean (2006) explored the role of music therapy and music medicine interventions in a survey of cancer care providers in the UK. The researchers analyzed the qualitative data utilizing a thematic content analysis and found that providers viewed music as having a variety of roles in cancer care, including providing enjoyment, distraction from illness, and support to other complementary therapies. The researchers also found that music also contributed to relaxation and calming atmospheres, and at times, provided enjoyment and entertainment for patients.

The researchers in the current study found similar themes in staff responses as well as from patients and caregivers. These similarities support the positive impact music can have on anyone present within a cancer clinic. Although both musicians who provided the live music in Phases I and II were graduate music therapy students, the authors consider this study to be *music medicine* and not music therapy. Researchers have articulated the importance in making a clear distinction between music interventions implemented by trained music therapists (music therapy) and those implemented by other medical or health care professionals (music medicine) (Bradt, Dileo, Grocke, & Magill, 2011). Music medicine interventions typically involve passive music listening for relaxation or distraction purposes while music therapy interventions are goal-oriented, employ a therapeutic process, and are delivered by a credentialed music therapist. Due to the positive experiences of these musicians, it seems that these types of waiting rooms may be ideal venues for music therapy students to practice their repertoire as a form of music medicine. As the musicians' primary responsibility was to provide music in the current studies, less experienced music therapy students may gain experience and desensitize themselves to clinical environments by providing live music in these types of music medicine settings. Thus, this study may have implications for educating music therapy students or musicians who desire to share their music in a non-traditional venue.

Live music can have a positive impact on patients, caregivers, and staff members in oncology waiting room environments. Similar with previous research, live music did not have an effect on patient anxiety or clinic satisfaction according to hospital surveys (Jared, 2003; Silverman, Christenson, Golden, D., & Chaput-McGovern, 2012). Results unique to this study included that live music can be used to increase patients' sense of community, increase and improve interactions, and provide a welcome distraction from thoughts surrounding the purpose of their visit. Musicians in these environments should be sensitive to the needs of oncology patients, possess the ability to assess physical responses, and alter the music accordingly. Music therapists working in oncology settings may consider auditioning and training volunteer musicians to ensure their success in sensitive environments. Additionally, musicians in waiting room settings might consider their proximity to staff-patient interactions, whether or not to use lyrics, musical dynamics, and time of day to provide music.

Limitations and Recommendations for Future Research

In a systematic review highlighting methodological issues with music interventions in oncology settings, Pothoulaki, MacDonald, and Flowers (2006) discussed several design and methodology concerns that can impact the quality of the outcomes, including: increased case-study designs, experimenter bias, reliability and validity of assessment tools, limited follow-up data, confounding variables, and limited description of the procedure and intervention. While some of these factors were not an issue with the current study, other factors may have impacted the data. Given that the survey was distributed with a letter of informed consent mentioning music therapy as part of the study, it is possible that participants responded in what they thought to be a socially desirable manner, possibly enhancing the appearance of music's efficacy. Additionally, qualitative research typically employs the researcher as the analyst as well, possibly introducing bias into the analysis. In the current study, the method included triangulation of the data between researchers in an attempt to avoid a single researcher's biases.

Researchers in the current study utilized a modified satisfaction survey similar to one already in use by the clinics. While this survey was chosen due to patients' and staff members' familiarity with the survey, it was not a previously researched psychometric instrument, thus limiting its generalizing capabilities. Furthermore, follow-up data was not collected in the current study due to the lack of patient identifiers on surveys. Pothoulaki, MacDonald, and Flowers (2006) cited confounding variables as a possible methodological issue while also highlighting the ethical issues raised when music therapy is administered only to a specific group despite broader benefits. Researchers in the current study did not control for factors such as age, ethnicity, gender, type, or stage of cancer. Moreover, the purpose of the current study was not to compare differences between variables, but to gain some understanding of how and why live music may impact patients in an oncology waiting room environment. Considerations for future research related to this topic include ensuring clear communication with clinic staff on the distribution of surveys, developing a system to stop recorded music on control condition days, and finding the optimal location for the musician. There were several limitations to the current study. From the total surveys collected, 22% were ineligible due to a missing date, which the researchers used to determine if participants were in the control or experimental group.

Inclusion of these surveys would have increased the sample size and provided more support to the quantitative data analyses. The researchers modified the survey distribution procedure in Phase II of this study due to a low response rate in Phase I. This change may have impacted whether patients actually heard the live music before completing the survey, as patients were often immediately called to an exam room and may not have sat in the waiting room and listened to the live music. In a discourse analysis of music therapy research in oncology settings, O'Callaghan and McDermott (2007) attributed lack of returned questionnaires to several possible reasons: "(a) negative feelings about music therapy; (b) patients' physical symptoms and lack of energy; (c) patients and visitors' preoccupation with emotional reactions to the illnesses, hindering their motivation to complete the form; or (d) their busy schedules" (p. 402). These factors may have impacted responses rates in the current study as well. As previously mentioned, patients were often immediately called to an exam room upon their arrival and were then called up to the treatment floor, creating a situation in which patients were both busy and may not have heard the live music. Concerning control condition days, staff members commented that it was difficult to remember to distribute surveys when the musician was not present as a reminder. Additionally, remembering to stop recorded music during control condition days may also have been an issue as musicians occasionally had to remind staff to turn off music even on experimental condition days. This may have impacted participants' responses, as it was not completely certain that no music was heard on control days. Musician location also may have influenced survey responses as, given the large size of the waiting room in Phase II, some patients may not have been impacted by the music due to their distance from the musician. Moreover, it is important that musicians do not interfere with clinic traffic or take up valuable space intended for patients. Participants in both focus groups suggested allowing patients to request songs from a provided list, another potential area for future research.

Conclusion

In conclusion, results of the present study seem to indicate that live music can be an inexpensive method to positively impact people in oncology waiting rooms. Musicians may experience a "helping high" from their interactions with patients, and staff members may feel more relaxed and productive. When asked why live music in the chemotherapy waiting room should continue, the clinic supervisor commented: It is a positive thing. I think the reasons for continuing are...anything we can do to alleviate some of the stress for the patients while they're waiting. Not just as a distraction, but as a positive experience for the patients. And the staff, we can't forget about them, as they're so stressed and tired and overworked when the patients come in. Even the children dancing, they're caught up in everything that's going on. We can't forget those moments of happiness.

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