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Intentional Uses of Music in Occupational Therapy Practice: The Effectiveness of a Workshop

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Abstract

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Keywords

Occupational therapy; music; education; clinical practice; music therapy; arts; health

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Intentional Use of Music in Occupational Therapy Practice: The Effectiveness of a Workshop

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ABSTRACT

Occupational therapy practitioners (OTPs) do not receive additional training on the physiological, emotional, mental, and physical effects of music on the body or how to improve and increase its use in occupational therapy (OT) practice. Additionally, the specific effects of the use of music within OT practice have not been fully explored. This workshop was created to develop skills related to appropriately using music as supported by the American Occupational Therapy Association's Occupational Therapy Practice Framework-IV, and to address gaps in knowledge regarding how to use music intentionally, effectively, and safely in OT practice. This study's purpose was to evaluate the effectiveness of a continuing education workshop on increasing OTPs' confidence of facilitating intentional uses of music in OT practice. The free four-hour workshop was implemented as a continuing education course for currently practicing OTPs.

Participants (N=13) completed Pre- and Post-Course Surveys and results indicated an increase in confidence levels for all twelve survey items. The One-Month Follow-Up Survey (N=6) measured the carryover of learned material and gathered additional information to inform revisions of workshop content for future implementation.

Qualitative themes emerged indicating the workshop was effective for increasing understanding of how music impacts the brain and body and confidence in clinical application of music in OT practice. Results indicate the need to increase educational opportunities for OTPs regarding using music in practice.

The physiological impacts of music on health are supported in literature. Notably, music has the ability to release several neurotransmitters and hormones: oxytocin, which plays a role in social bonding (Harvey, 2020); dopamine, which regulates movement, attention, learning, and emotional responses (Ferreri et al., 2019); and serotonin, which

helps regulate mood and social behavior (Altenmuller & Schlaug, 2013; Speranza et al., 2022). Subsequently, because music affects the production of these neurotransmitters (Fancourt et al., 2014), an adverse response to music could be detrimental to therapeutic rapport, motivation, and physiological responses during recovery if forms of overstimulation or preferential dissonance occur (Reybrouck et al., 2019; Vogel et al., 2014).

The National Institute of Health (NIH) has identified various conditions from which music engagement can be of use such as dementia, multiple sclerosis, Parkinson's disease, autism spectrum disorders, and fibromyalgia, among others (NIH, 2022). With the development of creative arts therapies, including music therapy (MT), music is becoming an integral part of recovery (Hole et al., 2015; van der Wal- Huisman, 2018). Music is a universal medium that impacts the body and mind, and its use in treatment should be intentional to support interventions, flexible to accommodate patients and clients as their needs change over time, and adaptable in the moment during individual sessions. Subsequently, music can be used more intentionally in occupational therapy (OT) practice to support interventions and patient goals.

The profession of OT is defined as “the therapeutic use of everyday life occupations with persons, groups, or populations for the purpose of enhancing or enabling participation” (American Occupational Therapy Association [AOTA], 2021). As established by the AOTA's Occupational Therapy Practice Framework-IV [OTPF-IV], the field of OT is inclusive of both the preservation and acquisition of occupational identity while prioritizing an increased quality of life (AOTA, 2020). Relative to the benefits of music as a therapeutic medium in OT practice, a review of the literature by Cohn (2017) found three themes regarding the benefits of music: (a) music as a means of increasing group cohesion toward common goals, (b) music as a means of increasing socialization, and (c) music as a meaningful occupation can empower individuals to enhance and embrace wellness and recovery.

Music therapy is a clinical, evidence-based use of music to achieve non-music related goals addressing physical and emotional needs of clients (American Music Therapy Association [AMTA], 2015). Training requirements for becoming a board-certified music therapist includes graduating with a bachelor's degree in MT with a curriculum addressing three main categories: music foundations, clinical foundations, and music therapy (AMTA, 2008). Although MT is a clinical, evidence-based use of music in therapeutic settings there is an overlap of using music as a therapeutic medium in both MT and OT professions. There is an opportunity for occupational therapy practitioners (OTPs) to further understand how to intentionally use music as a modality to support therapy in alignment with the OTPF-IV (AOTA, 2020) while leading to an increased collaboration with MTs. The aim of this manuscript is twofold:

1. To describe the development and implementation of a four-hour workshop addressing intentional uses of music within OT practice.
2. To describe the effectiveness of the workshop based on a mixed-methods approach in response to participant confidence levels regarding using music in practice.

Literature Review

The domains of the OTPF-IV include: occupations, contexts, performance patterns, performance skills, and client factors (AOTA, 2020) and music can align with each domain, especially when considered within a client-centered approach. Music has been supported by literature as a health tool easily accessible and used across varied health disciplines to support interventions, patient goals, and recovery. Research involving music in medical settings outside of MT focuses primarily on reducing anxiety, stress, and pain. Notably, a systematic mapping study by Ciğerci et al. (2019) found that music-based interventions within nursing primarily targeted outcomes such as anxiety, pain, and vital signs. Relative to the field of rehabilitation, much of the research has emerged from the discipline of MT. Within MT research, evidence supports music as a reinforcement for education and therapy objectives, as music was seen as more effective than other strategies (Standley, 1996).

Recent literature also supports music interventions in group settings to reduce disruptive behaviors, anxiety levels, and depressed moods (Chang et al., 2015). Further, the way music is used has key considerations for music chosen by the patient which has been shown to be more effective than music chosen by a clinician or researcher (Ramaswami & Silverman, 2019; Walworth, 2003). Tsoi et al. (2018) found that for older adults with dementia, receptive MT (listening to music) can reduce agitation, behavior problems, and anxiety more than interactive MT interventions. Understanding how these interventions are structured can be effective to support many professional scopes of practice, particularly rehabilitation therapies.

Given the efficacy and accessibility of music in clinical settings, it is important for OTPs to understand the cultural implications of music and the impact of music on clients and patients, including emotional, physical, mental, and physiological effects. Currently, there are two OT trainings and/or interventions that incorporate components of music: (a) Interactive Metronome, which improves neurotiming through interactive exercises using a steady rhythm that measures accuracy of specific movements (McGrew, 2012), and (b) Therapeutic Listening, which is typically implemented to improve sensory processing with children using specifically composed music that is pre-recorded and embedded in a developmental and sensory integration perspective (Vital Links, 2024). Gray literature review of blog posts and private OT practice webpages demonstrated that language from these sources was indicative of a lack of awareness of MT as a profession and its scope of practice. Various OT websites state that some OTPs are providing MT services, which is not in line with the recommendations of the use of this term by the AMTA (AMTA, 2015). These resources list uses of music, such as classical music for specific populations, which are contradictory to best-practice uses of music found in MT research. Best-practice approaches in MT state that patient-preferred music choices are more effective than therapist chosen music (Clark et al., 2006; Silverman et al., 2016; Sung & Chang, 2005; Walworth, 2003). This individualization aligns with OT's client-centered therapeutic approach (Braun et al., 2021).

One prominent barrier to the implementation of these trainings is the lack of a distinct boundary defining the use of music within OT practice as opposed to music in MT practice. When reviewing OT models and frameworks, music fits within all aspects of the OTPF-IV (AOTA, 2020) when used in the setting of occupations, client factors, performance patterns, performance skills, and contexts and environments. Also, the use of music is well within the OT scope when used to improve participation, engagement, motivation, and environmental modifications (Croom, 2015).

One issue for OTPs is that the Accreditation Council for Occupational Therapy Education (ACOTE) does not have a standard addressing music training or music as a modality. Additionally, the use of music in OT practice may not be an entry-level skill and continuing education in this area may be warranted (ACOTE, 2023). As stated above, client-preferred music, also referred to as individualized music, is more effective for therapeutic care. However, for an untrained musician, music that is non-client-centered may be more easily accessed due to a lack of music knowledge by the OTP. With more training, OTPs may be able to use music intentionally to support OT interventions to enhance therapeutic outcomes.

Training can improve OTPs' skill for providing opportunities to upgrade or downgrade music to support a successful therapy environment that encourages participation and engagement, flexibility to meet the needs of patients during changing situations, and building rapport for increased motivation to participate. Notably, effective workshops are both humanistic and multifaceted and should have methods and structures — inclusive of components such as lectures, group discussion, hands on learning activities, and case scenarios/case-based learning — that are tailored to their goals (Munna & Kalam, 2021; Safapour et al., 2019). As such, there is a current need for these same tailored methods and structures to be employed in continuing education to advance the use of music intentionally within OT spaces.

Methodology

In order to determine effectiveness of music interventions, a workshop was designed for currently practicing OTPs and was held in a classroom at a local, midwestern university. Researchers used voluntary response sampling, and recruitment of participants occurred via a ListServ created by the state OT association. Inclusion criteria for participants included board certified OTPs. The number of participants was limited to sixteen to ensure adequate space and to create an environment with individualized feedback. The sixteen spots for this course were filled within twelve hours of sending the ListServ announcement and, due to a high level of interest for participation, a waitlist was created. The day of the workshop, three participants canceled, and those spots were unable to be filled (N=13).

This workshop's content consisted of five main sections to ensure understanding and application of music concepts in OT practice. Those five sections include: 1. What is Music?; 2. The Profession of Music Therapy; 3. Music in Occupational Therapy; 4. Case Scenarios and Group Presentations; 5. Action Plan and Reflection. Each section consisted of didactic and active learning experiences and opportunities for reflection,

action planning, and goal writing. Instructors scaffolded assistance for participants to promote increased skills, improve independence, and provide opportunities to build clinical reasoning related to using music in OT intervention planning and implementation. See Table 1 for the workshop outline and details.

Table 1

Workshop Outline

Course	Objectives Met	Learning Activities
What is Music?	<ol style="list-style-type: none"> 1. Differentiate between physiological, mental, emotional, and physical effects of music on the body. 2. Identify two uses of music within medical settings. 3. Analyze how music can be harmful to recovery. 	<ol style="list-style-type: none"> 1. Description of music and definitions provided and discussed. 2. Music and art activity was facilitated. 3. Video was shared describing physiological, mental, and emotional effects of music on the body. 4. Large group discussion was facilitated asking how OTPs can use music more effectively within OT practice and, if used inappropriately, music could be harmful.
The Profession of Music Therapy	<ol style="list-style-type: none"> 4. Articulate how music preferences or experiences can be individualized. 5. Compare uses of music in MT and OT. 	<ol style="list-style-type: none"> 1. MT education requirements and areas of practice were discussed. 2. Multi-media demonstration of the neurological impact of active music making (playing an instrument) was delivered and discussed. 3. Roles and scopes of OT vs. MT were discussed. 4. Interactive quiz for selecting appropriate music for various case scenarios was facilitated. Discussion included considerations for motor and process skill upgrades and downgrades. 5. Cases included: background music for a patient on a stepdown unit; a person with Alzheimer's listening to music on headphones; a patient playing drums with a steady beat to improve pacing and timing; a person with Parkinson's walking to the beat of a favorite song playing on an iPhone

<p>Music in Occupational Therapy</p>	<ol style="list-style-type: none"> 6. Examine components of music that can impact therapeutic outcomes. 7. Synthesize how music can impact participation, engagement, and/or the environment. 8. Synthesize how music can be used in each of the five aspects of the Occupational Therapy Practice Framework Domain 9. Design a task analysis using music intentionally to aid an OT treatment session. 10. Select aspects of the OTPF-IV domain that support music interventions. 	<ol style="list-style-type: none"> 1. Music in OT history was presented. 2. Discussion about current occupation-based practice and how creative arts might be used to support the current approach. 3. Large group discussion considering recorded vs. live uses of music within OT practice was facilitated. 4. Education provided on the components of music (pitch, rhythm, tempo, instrumentation, meter, volume). 5. Application of learned knowledge to case scenarios. 6. Discussion for upgrading and downgrading components of music was facilitated. 7. Mild, moderate, and severe case studies were presented for small group collaboration. 8. Discussion on situations when music might be outside the OT scope of practice. 9. Evidence-based Dos and Don'ts of music in OT practice were discussed.
<p>Case Scenarios and Group Presentations</p>	<ol style="list-style-type: none"> 11. Implement an OT treatment session using music. 12. Apply interventions using music to address engagement, participation, and/or the environment in OT practice. 	<ol style="list-style-type: none"> 1. Steps for designing an OT intervention with music to support specific goals was presented. 2. Small groups collaborated to create interventions for case scenarios. 3. Small groups presented intervention designs. 4. Documentation guidelines were provided for goal writing and capturing OT skill for interventions within the OT scope of practice.
<p>Action Plan and Reflection</p>	<ol style="list-style-type: none"> 13. Create an action plan to use music in OT practice within the next month. 14. Assess confidence of using music in future OT practice. 	<ol style="list-style-type: none"> 1. Action plans were developed by each participant for goals to use music in future practice. 2. Action plans were shared among the group. 3. Action plans and reflection data were collected. 4. One-month follow up occurred after conclusion of the workshop.

Evaluation Methods

A statement from the Institutional Review Board (IRB) was received stating that this study did not represent human subject research as the primary form of data collection was pre- and post-course surveys; therefore, this study was exempt. All surveys were distributed via Qualtrics (Qualtrics, Provo, UT, 2023). Researchers used a convergent, parallel mixed-methods approach. Participation in each survey was optional, and participants could opt out at any stage of the workshop.

Five surveys were distributed across the duration of this study. The Registration Survey was distributed via Qualtrics (2023) at the time of registration, approximately one month prior to beginning the workshop. The Pre-Course Survey was distributed in-person at the onset of the workshop. The Post-Course Survey and the Instructor and Course Evaluation were distributed at the conclusion of the workshop and received before participants left the location. The One-Month Follow-Up Survey was distributed via email one month after the conclusion of the workshop and was received within two weeks of distribution. All surveys were collected and deidentified with randomized codes assigned to correlate for paired analysis.

At the time of enrollment, participants received the Registration Survey. The following information was gathered from each participant through Qualtrics: years of practice, current practice settings, frequency of providing music in OT practice prior to attending the course, and current levels of comfort in providing music as a modality to support OT interventions on a Likert scale of 1 (no comfort) to 7 (extremely comfortable). Descriptive statistical analysis was completed to organize and present the findings.

Quantitative analysis was completed for the Pre- and Post-Course Surveys, the Instructor and Course Evaluation, and the One-Month Follow Up Survey. For the pre- and post-course surveys quantitative prompts asked participants to rate their confidence levels of using music in OT practice on a Likert scale of 1 (not confident at all) to 10 (extremely confident). A Wilcoxon signed-rank test was used to compare each participant's quantitative responses for the pre- and post-course surveys (Woolson, 2005). An anonymous evaluation was provided to measure the effectiveness of the instructor and course and a descriptive statistical analysis was completed. This survey measured the skills of the course instructor, the course content, and the activities facilitated; researchers completed a descriptive statistical analysis for these responses.

One month after completion of the workshop, an email correspondence was sent providing a link to the One-Month Follow Up Survey via Qualtrics (2023) to measure changes in implementation of music skills in daily OT practice. This survey had one quantitative question regarding confidence implementing music in OT practice and open-ended questions. Descriptive statistics were used to analyze and compare the quantitative response from this survey to the registration survey.

Each survey included qualitative responses. The Pre-Course Survey qualitative questions asked participants to identify the most important reasons for participating in this course. Post-Course Survey open-ended questions prompted participants to describe 1) to what extent the original goals and reasons for taking the course were met and 2) what the most valuable knowledge and/or skills acquired that will be used in future practice. The Instructor and Course Evaluation included five open-ended questions that asked the strengths of the facilitator, suggestions to improve the facilitator's effectiveness, what aspects of the course were most beneficial to the participant, suggestions to improve the course, and comments about course activities. The One-Month Follow-Up survey prompted participants to reflect on progress with their goals and to describe how they were using music in practice after attending the workshop. Coding and thematic analysis was completed for the qualitative responses (Braun & Clarke, 2006).

Results

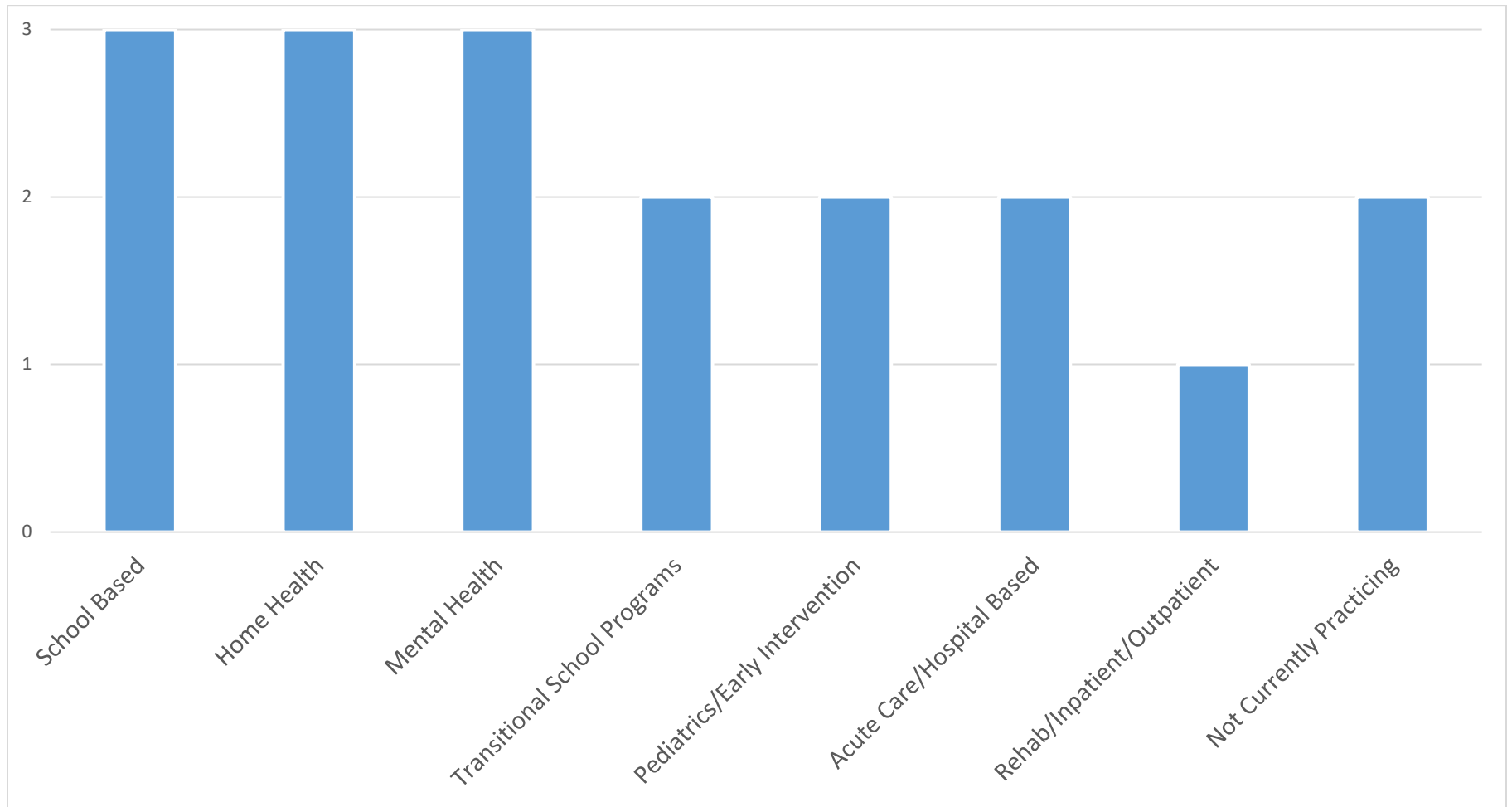
Thirteen participants attended the workshop (N=13), and all completed the Registration, Pre- and Post-Course, and Instructor and Course Evaluation. Six participants completed the One-Month Follow-Up Survey. The participants' practice settings, gathered from the registration survey, are presented in Figure 1.

Twelve female and one male participant attended the workshop. Four participants reported working as an OTP for less than one year, two reported working one to two years, three reported working three to five years, one reported working five to ten years, and three reported working over ten years. The participants' years of experience are presented in Figure 2.

Participants were asked the frequency of using music in practice. The mean value for the thirteen participants was less than one time per month. Of those thirteen responses, five participants (38%) stated they never used music in practice. Additionally, participants were asked to rate their confidence level of using music in OT therapy interventions. On a scale of one (not confident at all) to seven (extremely confident), the mean response was 4.3 (neither confident nor unconfident).

Figure 1

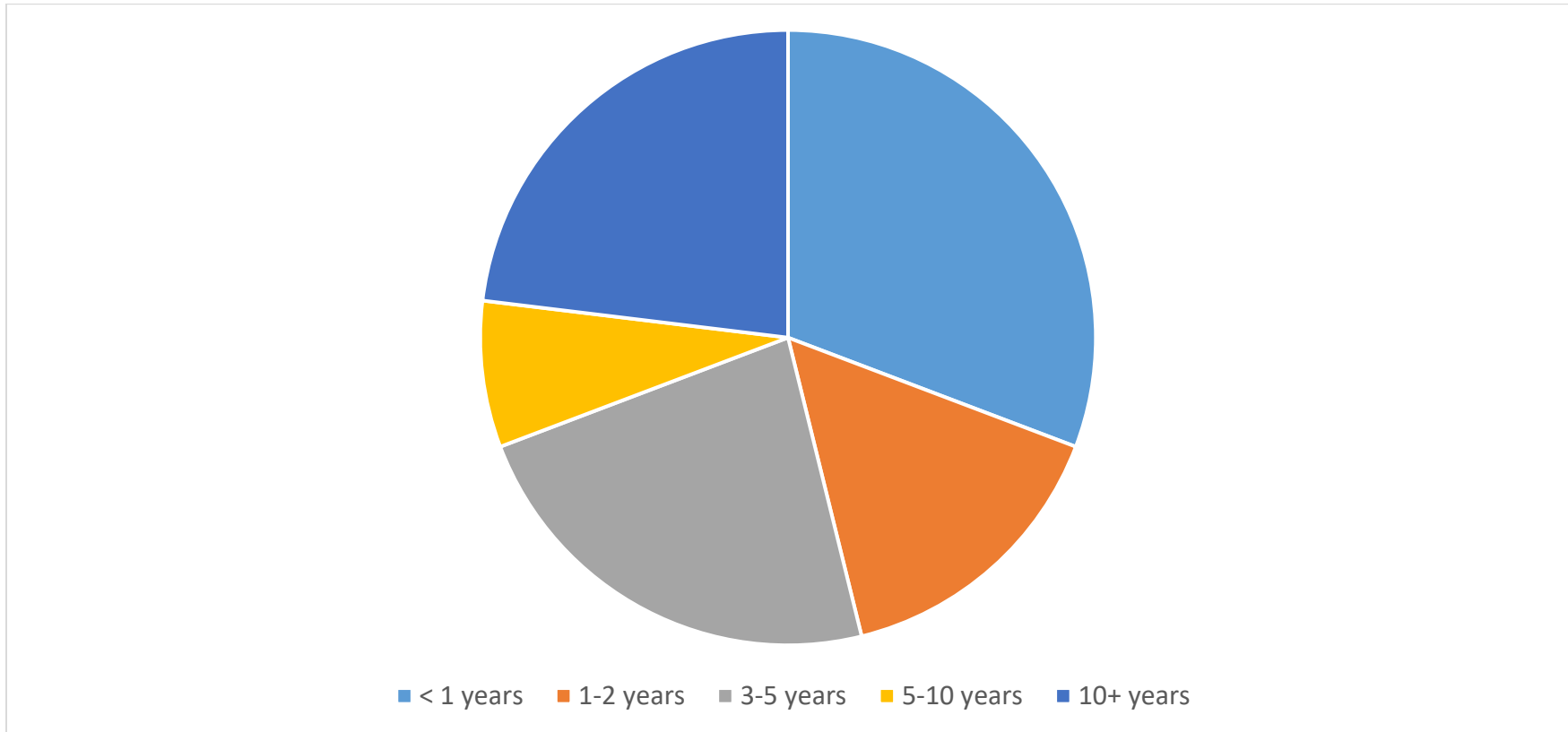
Participants by Practice Setting



**Note that some participants reported working in multiple settings.*

Figure 2

Participants by Years of Experience



Data Analysis

A Wilcoxon signed-rank test was used to compare each participants' responses for the pre- and post-course surveys. All data was paired for each participant (N=13) and data analysis was performed using SPSS to measure the changes in participants' confidence levels before and after the workshop. The dependent variable was the ordinal measure of confidence for each survey item, and the independent variables were two points of time (before and after).

The scale for the pre- and post-course surveys included ratings ranging from 1 to 10 with 1 being "not confident at all" and 10 being "very confident". Results indicate an increase in confidence levels for each of the twelve items ($p < 0.05$). See Table 2 for results and Figure 3 for the difference in mean responses for each survey item. Themes emerged from the qualitative analysis for the Pre- and Post-Course Surveys. See Table 3 for themes and exemplary quotes. All thirteen participants (100%) reported in the Post-Course Survey that their original goals for attending this workshop were met.

Table 2

Pre- and Post-Course Survey Results

Confidence Level Questions: "I am confident I can..."	Pre-Test		Post-Test		Z	p value
	M	SD	M	SD		
1. Communicate how music preferences or experiences are individualized.	4.000	2.708	8.000	1.291	3.199	<0.001
2. Distinguish physiological, mental, emotional, and physical effects of music on the body.	3.846	1.725	7.000	1.261	3.071	<0.002
3. Identify two uses of music within medical settings.	3.077	2.326	8.231	1.363	3.072	<0.002
4. Analyze how music can be harmful to recovery.	2.154	1.819	7.923	1.188	3.192	<0.001
5. Compare uses of music in MT to uses of music in OT practice.	2.461	2.066	7.000	1.291	3.198	<0.001

6. Examine components of music that can impact therapeutic outcomes.	2.462	1.613	7.308	1.548	3.219	<0.001
7. Synthesize how music can impact participation, engagement, and/or the environment.	2.770	1.691	7.769	1.166	3.192	<0.001
8. Synthesize how music can be used in each of the five aspects of the OTPF-IV.	2.231	1.423	6.462	1.942	3.187	<0.001
9. Design an activity analysis using music intentionally to aid an OT treatment session.	2.692	1.751	7.385	1.446	3.192	<0.001
10. Identify aspects of the OTPF-IV Domain that support music interventions.	2.308	1.494	7.000	2.121	3.187	<0.001
11. Implement an OT intervention using music to support engagement, participation, and/or the environment.	3.000	2.000	7.846	1.625	3.190	<0.001
12. Confidently use music within the OT Scope of Practice.	2.692	1.751	7.500	1.624	3.201	<0.001

Figure 3

Comparison of Pre- and Post-Course Means

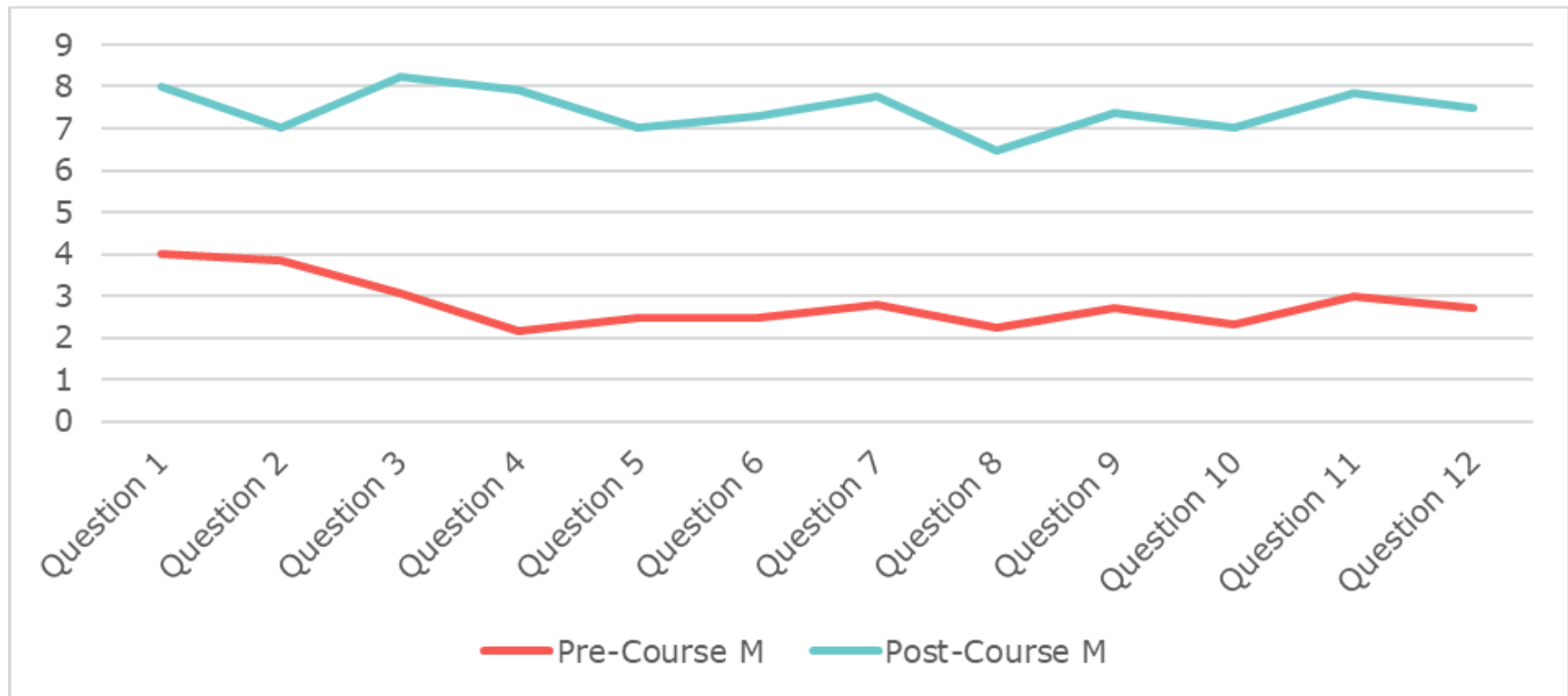


Table 3*Pre- and Post-Course Survey Qualitative Responses*

Pre-Course Survey			
Prompt	Theme	Exemplary Quote	N
Reason for Attending this Workshop	Build new skills	“I want to expand my knowledge, find new ideas, and develop new skills using music.” “I want to understand how to be support my clients without going overboard or overstimulating my patients.”	8
	Be more intentional with music	“I currently use music but want to learn how to use it more effectively.” “I am interested in in incorporating music into practice more intentionally.”	4
	Understand music as a modality	“I want to gain knowledge on therapeutic interventions that may aid patients in rehabilitation settings.”	3
Post-Course Survey			
Prompt	Theme	Exemplary Quote	N
What new knowledge and/or skill will you take into your future practice?	Skilled uses of music in OT practice	“I have better understanding of how to use music as an OT intervention and knowing the limits of my own knowledge and when to refer to a music therapist.” “I feel more confident in how to upgrade and downgrade music in OT interventions.” “I now know to consider instrumentation, tempo, rhythm and syncopation, pitch, volume when choosing music.”	13
	Client-centered care	“I feel more confident in how to make music meaningful in my OT sessions.” “I feel prepared to use music to meet my client where they are, to match their energy, and use music to support that energy.”	7
	Increased awareness of the profession of Music Therapy	“I learned so much about music therapy. I did not know this profession existed!” “I know when to refer to a music therapist.”	4
	Physiological effects of music	“The impact of music on the brain and body and how it affects function.”	3

One-Month Follow-Up Survey Results

Six participants responded to the optional one-month follow-up survey via Qualtrics (2023). Four participants stated they made progress toward their action plan, one stated they achieved their action plan, and one stated they had not made progress nor achieved their action plan. One stated they were using music more in their OT practice, four said they were using music “about the same as before” the workshop, and one stated they are using music less in practice. A comment section was available for this question and the participant who reported using music less stated “I am being more intentional and have realized I wasn’t using music appropriately before.”

One question measured goal areas in OT practice that are being addressed most using music. Participants were able to select more than one area. Four stated they were focusing on engagement, four stated their focus was on the environment, three stated “participation,” and three stated “motivation.” Additionally, the survey asked for the overall confidence level for using music in practice on a scale of one (not confident at all) to seven (extremely confident). Table 4 shows a comparison of confidence levels at the time of registration and follow-up.

Table 4

Comparison of Registration and One-Month Follow-Up Confidence Level Results

	Registration Results <i>N</i> = 13		One-Month Follow-Up Results <i>N</i> = 6		<i>p</i> value
	M	SD	M	SD	
One a scale of 1 (not confident at all) to seven (extremely confident), how confident are you with using music in OT practice?	4.3	1.8	4.78	1.5	0.578

To be statistically significant, the *p* value must be less than or equal to (\leq) 0.05. This table demonstrates that this data point is not statistically significant. It is important to note that the sample size for the registration survey data is *N* = 13 while the optional follow-up survey sample size is *N* = 6. Several open-ended questions were provided in the follow-up survey. Of most importance, participants were asked if they have identified any barriers when implementing music in their practice setting. One stated they have “experienced difficulty finding patient-preferred music with nonverbal patients” which is their primary population. Another stated they have not been able to find appropriate music for their geriatric patients due to a “lack of knowledge about genres of music relevant” to that population. Of all six participants in this follow-up survey, 100% stated they have not attempted to collaborate with and have not collaborated with a MT practitioner since completion of this workshop.

Student Evaluation of Instructor and Course Results

All participants (N=13) completed the anonymous course instructor survey. The survey was divided into three main categories: 1. Facilitator/Course Coordinator, 2. Course Content, and 3. Activities; the average responses are depicted in Table 5. Each response was measured on a scale of one (strongly disagree) to five (strongly agree). The lowest average rating (4.75 out of 5) correlates with an evaluation of the instructor and how well students were assisted in synthesizing and integrating course material. The two highest averages (5 out of 5) also correlate with how well the instructor elicited student participation and related to students in ways which promoted mutual respect.

This course was designed to fade instructor assistance over the workshop's duration to enable participants' critical thinking, analysis, and ability to synthesize new knowledge as presented in this course. Discomfort was expressed when groups were tasked with developing their intervention strategies and action plans. Themes emerged related to the strengths of the instructor's facilitation skills (n=4), the workshop outline (n=3), and clear representation of how to use music within OT practice (n=3). Specifically, participants stated that the most beneficial aspects of the course were understanding the distinction between MT and music in OT, hands-on activities, treatment planning and implementation, and linking music in OT to the OTPF-IV (AOTA, 2020) and specific OT theories. Three participants suggested more time to focus on case studies and intervention planning.

Table 5

Student Evaluation of Instructor and Course Results

Scale of 1 (Strongly Disagree) to 5 (Strongly Agree)	M
Facilitator/Course Coordinator	
Presentation skills were excellent	4.923
Course materials were excellent	4.846
Assisted students in synthesizing and integrating course material	4.75
Elicited student participation	5
Related to students in ways which promoted mutual respect	5
Was conscientious about being well prepared	4.917
Overall effectiveness of facilitator was excellent	4.917
Course Content	
Course content covered stated objectives	4.923
Course was well organized	4.846
I found this course intellectually challenging and stimulating	4.846
I learned something which I consider valuable	4.846
Overall quality of this course was excellent	4.846

Activities

. Expectations related to the activities were clear	4.923
. I learned skills and techniques applicable to my career	4.846
. Activities were valuable in achieving course objectives	4.846

Discussion

This study's purpose was to develop, implement, and evaluate a continuing education workshop for increasing confidence of current OTPs' intentional use of music. Results from the pre- and post-course surveys demonstrate the effectiveness of this workshop for increasing confidence levels in participants related to their ability to use music more intentionally and effectively within the OT scope of practice. Confidence levels improved for all participants in relation to each learning objective represented in the surveys. The use of social learning, case studies, and application of concepts provided the foundation for this continuing education workshop and led to increased participation and understanding of the content presented as exemplified in the qualitative analysis. Using case studies, the instructor guided participants through clinical and professional reasoning steps to analyze scenarios and create interventions applicable to each situation (Hmelo-Silver, 2004). The use of case studies led to an active learning environment within the classroom (Popil, 2011) and resulted in increased motivation (Bonney, 2015), collaboration, and ability to create dynamic solutions from each of the small groups.

The key concept that supports best practice with uses of music in OT includes an ability to assess the needs of each individual patient. The qualitative data showed that increased knowledge and understanding of music as a therapeutic modality should not overshadow the profession of MT but should lead to better collaboration and proper use by OTPs. As indicated in the literature review, gray literature of blog posts and private practice websites demonstrated misuse of the term "music therapy." Increased awareness and education could inform practitioners of the distinction between music used therapeutically and music provided by a MT practitioner. Music is unique in its ability to produce dopamine (Ferreri et al., 2019), serotonin (Altenmuller & Schlaug, 2013; Speranza et al., 2022), and oxytocin (Harvey, 2020), which means music can be supportive but also harmful if used inappropriately in practice. Thus, OTPs should recognize their limitations, particularly with complex patients, and consult or refer to a MT when appropriate.

A limitation for this study is the small sample size of thirteen participants. Although each survey item demonstrated a *p* value below 0.05, future research is needed to determine the statistical significance of the workshop on increasing confidence in uses of music in OT practice. Due to the high volume of interest resulting in a waitlist to participate in this workshop, there are opportunities to expand this study. This demonstrates a high interest in further education in the use of music in practice. Of the thirteen participants, three were known colleagues of the course instructor which may have resulted in biased feedback.

This workshop was held for a four-hour duration. During the workshop, to provide ample time to develop deeper dialogue during large group discussions, time was shortened for the case scenario activity. This may have negatively impacted the participants' ability to synthesize the learned knowledge and implement the skills developed during the course. This course's effectiveness could have been improved if held for six hours to provide enough time to implement and synthesize newly developed skills.

Implications for Occupational Therapy Education

This manuscript demonstrates that a workshop educating current OTPs on uses of music in practice can improve understanding of the impact of music with different patient populations and settings. When providing education about appropriate billing for OT services that include music, it is important to identify if music is being used as a means to support occupation or as an end goal as the main occupation (music making/playing) and bill accordingly. It is imperative that OTPs received education on the separate and overlapping roles of OT and MT and represent their skilled expertise in occupation. The focus for OTPs should always remain on improving and enhancing occupational function.

For music to be a viable treatment modality for OTPs, additional training is required to equip practitioners in appropriate application of this modality to achieve positive therapeutic outcomes. This might be accomplished through an expansion of the OT curriculum and or including examples of music in the Domain of the OTPF-IV (AOTA, 2020). As discussed earlier, music impacts motivation, participation, engagement, and the environment, all of which influence the ability to perform daily occupations. Additionally, opportunities for an advanced therapeutic uses of music training certificate would provide advanced training for advanced expertise.

It is recommended to implement this workshop content within OT educational curriculum or as an entry-level Continuing Education course to bridge the gaps in knowledge related to the uses of music as a modality to improve therapeutic outcomes. Educators can benefit from the workshop design and outline to scaffold participants' learning with a novel modality. Additionally, linking music clearly to the OTPF-IV (AOTA, 2020) and to occupation-based theories can lead to practical application of music as an intervention.

Future studies may also consider employing larger sample sizes to increase the generalizability of the results. Future research should also focus on understanding current uses of music by OTPs and population specific approaches. This would lead to clearly defining the advanced training needed for improved effectiveness of therapeutic implementation. Further exploration on establishing specific protocols using music to support goals and interventions within OT practice would be valuable. Additionally, research regarding specific practice settings and patient populations would further guide best practice. Participants reported one-month after conclusion of the workshop that they had not contacted or collaborated with MTs during that time. Several barriers may exist including working in care teams without MTs and the lack of insurance reimbursement for MTs. These barriers need to be further explored and solutions developed to encourage collaboration between the two professions.

Conclusion

The created workshop addressed how OTPs, who are not trained in therapeutic uses of music, can implement music as an occupation (music making); use recorded music to impact the environment, increase participation, improve motivation, and facilitate engagement for individuals with mild to moderate medical complexities; and facilitate music as a modality to support OT interventions. This workshop educated OTPs on the emotional, mental, physical, and physiological effects of music to reduce harmful outcomes. The lack of a definitive boundary between the scopes of practice between OT and MT and the lack of music knowledge by current OTPs were identified by participants as deterrents for using music within OT practice.

Themes emerged indicating a lack of awareness of MT as a profession, decreased understanding of how music impacts the brain and body, and decreased confidence in clinical application of music in OT practice. The workshop was effective in increasing confidence for using music intentionally in therapeutic relationships. Educational opportunities for using music in OT practice are recommended to increase confidence with music as a modality and to increase uses of music in practice.

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