



(REVIEW ARTICLE)



Compositional music therapy: A systematic review of clinical trials

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Abstract

Purpose: Compositional music therapy involves the creation of original music by the therapist, the patient/client, or both together. The purpose of this systematic review is to examine techniques of compositional music therapy and the evidence for its therapeutic uses.

Methods: PRISMA guidelines were followed in performing this systematic review. Studies published in the last 25 years from January 1998 to December 2023 were identified through the use of the PubMed, PsycInfo, and Google Scholar databases, using the following keywords: Musi*, AND Therap*, AND Compos*. Two authors independently conducted a focused analysis and reached a final consensus on nine studies that met the specific selection criteria and passed the study quality checks.

Results: Review yielded four key compositional music therapy techniques: songwriting, lyric analysis, instrumental composition, and therapeutic rap and singing. Eight out of the nine studies showed positive results for compositional music therapy. These techniques were associated with reduction in anxiety levels and an enhancement of positive affective states, the development of coping strategies, and improvement of emotional regulation.

Conclusion: This review shows a body of positive evidence for compositional music therapy, highlighting its potential to foster psychological and physiological well-being across various demographics, especially in terms of coping strategies and emotion regulation. Future directions include the use of digital music technology for composition in music therapy.

Keywords: Music therapy; Compositional music therapy; Therapeutic songwriting; Clinical trials

1 Introduction

The practice of music therapy is organized into the following four methods: receptive, re-creative, improvisation, and composition (Wheeler, 2015). According to Wheeler each method is defined as follows (Wheeler, 2015): 1. The receptive method involves passive music engagement such as music-listening; 2. The re-creative method involves active engagement with pre-composed music, which could include playing and singing along to the patient/client's preferred music; 3. Improvisation involves using voice and/or instruments to create spontaneous musical creations; and 4. The composition method entails the creation of original music by the therapist, the patient/client, or both together.

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Compositional music therapy encompasses any process where original elements of music are created (Wheeler 2015). According to Jackson and Heiderscheit, compositional music therapy can be divided into the following categories: song transformation, songwriting with individuals, songwriting with groups, instrumental composition, and music collage (Jackson & Heiderscheit 2022). Song transformation involves the music therapist taking a pre-existing arrangement of a song and guiding a patient/client through writing new lyrics to the original melody or creating a new melody with the original lyrics (Jackson & Heiderscheit 2022). This intervention engages the patient/client “in a creative process in which they can increase awareness of their behaviors, thoughts, and feelings and can express them within a new version of a song that is personalized” (Jackson & Heiderscheit 2022). Therapeutic songwriting is a form of compositional music therapy that is characterized by “the process of creating, notating, and recording lyrics and music by a client and therapist within a therapeutic relationship to address psychosocial, emotional, cognitive, and communication needs of the client” (Miller 2021). Because such compositions are specific and personalized within a therapeutic relationship, this intervention has strong potential to increase patient/client-involvement and expression (Miller 2021). Therapeutic songwriting can be administered with both individuals and groups (Jackson & Heiderscheit 2022). In instrumental composition, the patient/client creates a piece of music of any length that contains any combination of musical elements including melody, harmony, and rhythm (Jackson & Heiderscheit 2022). The finished piece can be notated for future recreation or performance by the patient/client on live instrument(s) or recorded for future receptive listening (Jackson & Heiderscheit 2022). Music collage, the final category of compositional music therapy, “involves the selection of sounds, songs, and music and their intentional sequencing to create a recording with a specific therapeutic focus. The final recorded product becomes a concrete expression of this exploration and can serve as a record of the work done during the therapeutic process” (Jackson & Heiderscheit 2022). Music collages are personalized to patient/clients and serve as a backdrop for other media and arts modalities (Jackson & Heiderscheit 2022).

Compositional music therapy is less common than the other three methods of music therapy, given that it is less accessible for patients/clients that present physical or psychological barriers to the creative processes of composition, but is commonly integrated into improvisation (Wheeler 2015). Compositions can be improvised during music therapy sessions (Nordoff & Robbins 2007). However, the compositional method is not to be confused with the improvisation method. While improvisation is compositional in nature, the composition method invites the idea of realization, bringing a piece of music to a point of completion where it can be re-created (Nordoff & Robbins 2007). While the process of improvisation is geared towards free expression and exploration, the process of composition emphasizes on working toward an end goal of musical product (Nordoff & Robbins 2007). While the process of composing can be spontaneous, the purpose of the intervention surrounds the end product, rather than the process itself (Nordoff & Robbins 2007). Compositions create a means for the patient/client to address certain psychological, social, emotional, or spiritual goals (Wheeler 2015).

Research over the years has shown music composition’s profound impacts on cognition, behavior, and well-being. A recent review showed that creative processes in creating music involve metacognitive strategies concerned with high-level planning and evaluation of one’s own thoughts and emotions (Bogunovic 2019). Such high-level cognitive processes can be linked to compositional music therapy improving cognitive function (Bogunovic 2019). It has also been shown that composition may improve participants’ focus and thought organization due to conditioned melodic predictability (Aldridge & Aldridge, 2008). A more recent study showed that songwriting, rapping, and composition contributed to the well-being of underrepresented people by increasing self-esteem, empowerment, and social and cultural connection (Dingle et al. 2021). Given music composition’s relationship with high-level cognitive processes, as well as its ability to foster self-expression and group-connection, it is important to take a deeper look into how composition is used in music therapy practice to create positive health effects.

This systematic review aims to answer the following research questions:

- What are the characteristics of compositional music therapy?
- What is the evidence for compositional music therapy show?

2 Methodology

2.1 Information Sources and Search Strategy

This systematic review was performed in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA.com). A systematic literature search was conducted on articles in the PubMed, PsycInfo, and Google Scholar databases published in the past 25 years, from January 1998 to December 2023 using the following keywords: Musi*, AND Therap*, AND Compos*. The identified studies met the inclusion and exclusion criteria detailed below. More studies were added from the reference lists for identified research studies and reviews.

2.2 Study Selection Criteria and Methodology

The following inclusion criteria were used: (a) articles published in English or had a published English translation; (b) articles published in a peer reviewed journal; (c) clinical trial design in humans, of all ages. Exclusion criteria involved reviews, editorials, opinion pieces, and case reports. Two authors independently conducted a focused analysis then together reached a consensus on studies that meet the specific selection criteria. The quality of each study was examined by identifying its strengths and limitations using the criteria adapted from Lohr and Carey by the Agency for Healthcare Research and Quality (Lohr and Carey, 1999). Quality aspects assessed include sample size, patient selection methods, potential for bias, study group comparison, blinding, intervention details, outcome measures, and statistical analysis plans. The search method is displayed in the PRISMA flow diagram in Figure 1.

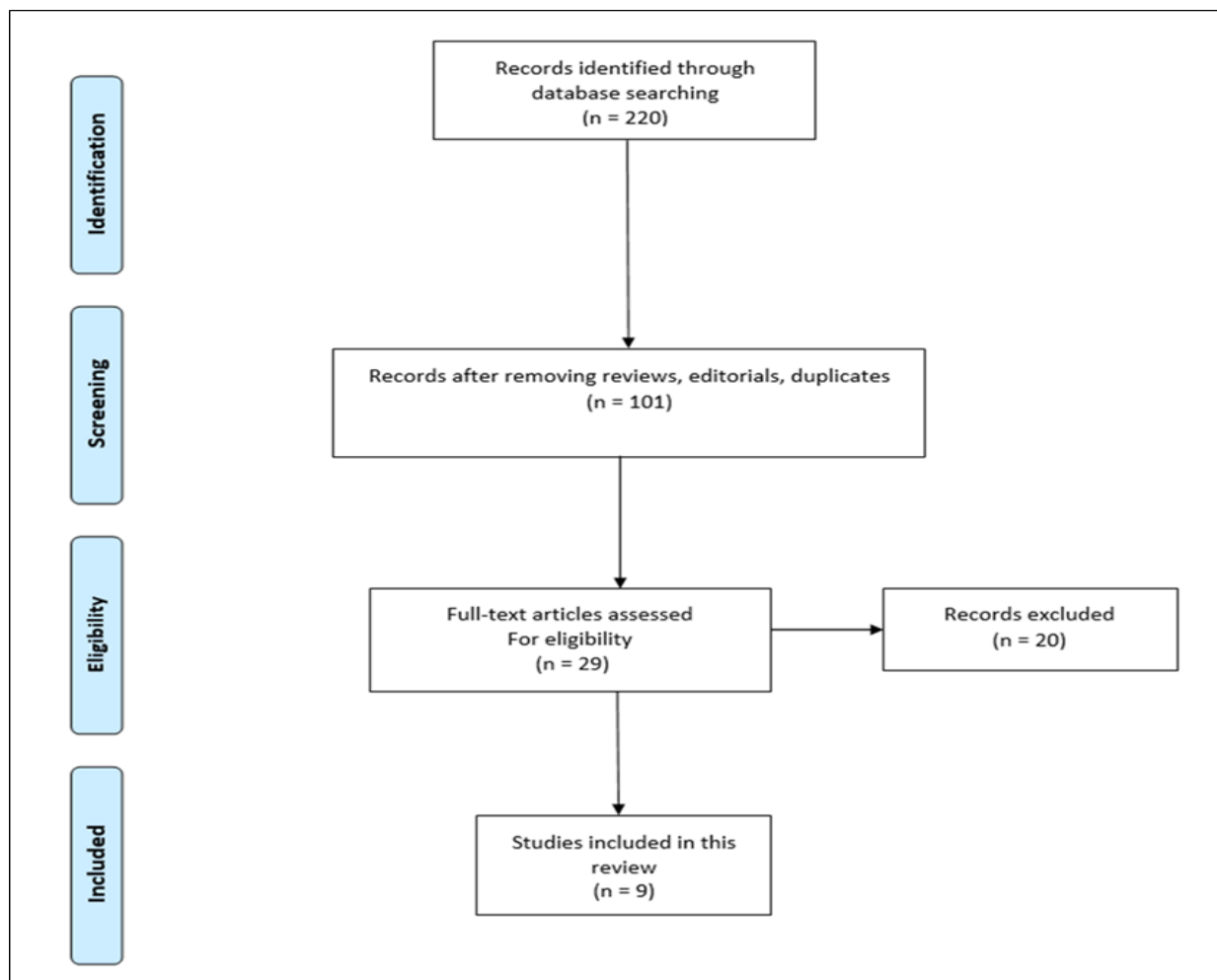


Figure 1 PRISMA Flow Diagram

2.3 Search Results

Our search strategy identified 118 articles. After elimination of the duplicates and irrelevant abstracts, 101 studies were identified to meet the pre-defined selection criteria. Two authors independently conducted a focused analysis of the gathered 29 full-text articles. The two authors then reached a consensus on what studies to include in this review, which yielded 19 studies. The findings from the study quality check method eventually led to the exclusion of 10 studies primarily due to inadequate sample size and poor statistical reporting resulting in a final selection of 9 studies.

2.4 Data Extraction and Yield

Key findings were derived from the full-text and table of the selected studies. The study designs and findings were analyzed for quality.

Table 1 Reviewed studies on Compositional Music Therapy

Author, Year, Location	Population and Setting	Sample size	Type of study	Intervention	Comparator	Duration of Treatment	Anxiety Instruments used	Outcome	Outcome (Others)	QUALITY CHECK
Jones 2005 US	21 - 69 y, patients without music therapy experience or researcher/therapist	26	Pre/post-test 2 treatment group design	Music therapy songwriting Lyric analysis	Pre/post-test	60 minutes	VAMS	Music therapy significantly increased positive emotions and decreased negative emotions.	Songwriting intervention produced greater changes in emotions than lyric analysis intervention.	Adequate overall: Adequate sample size, adequate methodology including study group, therapeutic regimen, study protocol, outcomes, and statistical analyses.
Colwell et al., 2005 US	7 - 18 y, hospitalized children and adolescents	24	Mixed method	Music composition using Making More Music	Contact control	45 - 60 minutes	PHCSS	Music composition seems to have a greater impact on the improvement of self-concept than art intervention.	Music composition group showed a greater improvement in INT than the art intervention group.	Adequate overall: Adequate sample size, adequate methodology including study group, therapeutic regimen, study protocol, outcomes, and statistical analyses.
Silverman 2011 US	Inpatients on an acute psychiatric unit	89	Two group post-test only	Music therapy songwriting group session with focus on coping skills	Control condition	1 session	Revised COPE Inventory, HAQ-II	Music therapy can be as helpful in learning coping skills as	Participants in music therapy condition had higher working alliance.	Strong overall: large sample size, strong to adequate methodology

								psychoeducation.		including study group, therapeutic regimen, study protocol, and outcomes.
Silverman 2012 US	Inpatients on the detoxification unit with minimal psychosocial treatment	99	RCT	Group songwriting session focused on change	Control condition	1 session	CMR	Music therapy group had higher means in motivation and readiness for treatment than the control.	Participants indicated that group discussions during the songwriting process were helpful.	Strong overall: large sample size, strong to adequate methodology including study group, therapeutic regimen, study protocol, and outcomes.
Colwell et al., 2013 US	6 - 17y, hospitalized children and adolescents	32	Pre/post-t-test 3 treatment group design	Music listening Music composition Orff-based music therapy	Pre/post-test	1 session	Physiological measures, Wong-Baker FACES Pain Rating Scale, STAIC	Music composition intervention significantly decreased pain and anxiety.	Music listening, music composition, and Orff-based active engagement were all equally effective.	Adequate overall: Adequate sample size, adequate methodology including study group, therapeutic regimen, study protocol, outcomes, and statistical analyses.
Baker et al., 2019 Australia	Individuals with brain or spinal cord injuries	47	Two-arm RCT	Songwriting	Control condition	12 sessions	HISDS, PHQ-9, ERQ, SWLS	Songwriting intervention has positive impact on	Identity-focused songwriting intervention	Adequate overall: Adequate sample size,

								emotion regulation and satisfaction, but did not significantly affect self-concept.	may be more beneficial for people in community-contexts.	adequate methodology including study group, therapeutic regimen, study protocol, outcomes, and statistical analyses.
Clark et al., 2020 Australia	62 - 92 y patients with dementia, 54 - 92 y family caregivers	14 dyads (people with dementia and their family caregivers)	Mixed method	Group therapeutic songwriting	Pre/post-test	6 sessions per week, 1 hour each	QCPR, CSDD, QoL-AD, PHQ-9, AQoL-8D, ZBI	There were no significant changes for all measures.	Dementia participants suggested trends toward decreased depression and improved mood. Caregiver participants suggested a trend for improvement for independent living. Qualitative data showed that songwriting intervention was a positive experience.	Adequate overall: Adequate sample size, adequate methodology including study group, therapeutic regimen, study protocol, outcomes, and statistical analyses.
Bibb et al., 2015 US	20 - 58 y, inpatients in eating disorder program	18	RCT	Songwriting	Control condition	2 sessions, 1 hour each	SUDS	Group music therapy intervention is more efficient in		Adequate overall: small sample size, adequate methodology

								reducing meal-related anxiety.		including study group, therapeutic regimen, study protocol, outcomes, and statistical analyses.
Uhlig et al., 2018 Netherlands	8 - 12 y, adolescents in grade 8	190	RCT	Therapeutic rap and singing interventions	Control condition	4 months, 16 sessions per week, 45 minutes each	SDQ, DERS, SPPC, qualitative measures	Significant improvements in the therapeutic rap and singing intervention group.		Strong overall: large sample size; strong to adequate methodology including study group, therapeutic regimen, study protocol, and outcomes.

ABBREVIATIONS: BMT: bone marrow transplantation, VAMS: Visual Analog Mood Scale, PHCSS: Piers-Harris Children’s Self-Concept Scale, INT: Intellectual and School Status, HAQ-II: Helping Alliance Questionnaire, CMR: The Circumstances, Motivation, and Readiness Scales for Substance Abuse Treatment, RCT: Randomized Control Trial, STAIC: State-Trait Anxiety Inventory for Children, FCG: family care giver, PHQ-9: Patient Health Questionnaire, PACQ: Positive Aspect of Caregiving Questionnaire, QCPR: Quality of the Caregiver Patient Relationship, ABI: Acquired Brain Injury, SWLS: Satisfaction with Life Scale, FS: Flourishing Scale, PANAS: Positive and Negative Affect Schedule, GAD: Generalized Anxiety Disorder 7-item scale, PHQ: Patient Health Questionnaire, HISD: Head Injury Semantic Differential Scale, TSCS-2: Tennessee Self-Concept Scale 2nd edition, SCI: Spinal Cord Injury, HISDS: Head Injury Semantic Differential Scale, ERQ: Emotion Regulation Questionnaire, HADS: Hospital Anxiety and Depression Scale, FIS: Four-Item Measure of Social Identification, SPIN: Social Phobia Inventory, UCLA3: Russel UCLA Loneliness Scale, FIS: Friendship Item Scale, TRIG: Texas Revised Inventory of Grief, AIS: Active Inhibition Scale, GCE: General Coping Efficacy Scale, SPPA: Self-Perception Profile for Adolescents, ISLES: Integration of Stressful Life Experiences Scale, ICP: Intensive Clinical Program, PTSD: Post-traumatic Stress Disorder, MOCS: Measurement of Current Status, CES: Coping Expectancies Scale, PCL-M: Post-traumatic Stress Disorder Checklist-Military, CSDD: Cornell Scale for Depression in Dementia, QoL-AD: Quality of Life - Alzheimer’s Dementia, AQoL-8D: Assessment of Quality of Life-8 Dimensions, ZBI: Zarit Burden Interview, MADRS: Montgomery-Asberg Depression Rating Scale, SUDS: Subjective Units of Distress Scale, SDQ: Strength and Difficulties Questionnaire, DERS: Difficulties Emotion Regulation Scale, SPPC: Self-Perception Profile Children

3 Results

3.1 Overview

The study designs and findings are detailed in Table 1. Selected studies varied in types, including randomized controlled trials (RCTs), case studies, pre/post-test, and mixed methods. Study sample sizes also varied, ranging from 24 to 190 subjects. Intervention duration ranged from 1 singular session to multiple sessions over 4 months. Several different measures were used to measure the impact of compositional music therapy on creating positive health effects.

3.1.1 *What are the characteristics of compositional music therapy?*

Compositional music therapy is characterized by its focus on the creation of original music, whether by the therapist, the patient, or both. Techniques used are varied and cater to different aspects of the creative process and therapeutic goals.

Four interventions were utilized in the reviewed studies: Songwriting, lyric analysis, instrumental composition, and therapeutic rap and singing.

- Songwriting as an intervention is characterized by the process where clients and therapists create, notate, and record lyrics and music. This process is designed to address the psychosocial, emotional, cognitive, and communication needs of the client. The goal is to increase patient/client involvement and expression within a therapeutic relationship.
- Lyric analysis involves the discussion and exploration of song lyrics to facilitate emotional and cognitive processing. It typically includes selecting songs with lyrics that clients can relate to and discussing the meanings and personal connections to those lyrics.
- Instrumental composition involves creating original instrumental music that contains melody, harmony, and rhythm. Pieces are sometimes notated or recorded at the end of the session.
- Therapeutic rap and singing as an intervention harnesses the cognitive-emotional benefits of music. Singing, particularly, intensifies the activity in the brain's right hemisphere, enhancing the emotional component of word production. Rap, characterized by its rhythmic speech and rhymed couplets set to a steady beat, allows for the expression and transformation of primary emotions into articulated verbal expressions.

3.1.2 *What is the evidence for compositional music therapy show?*

The systematic review of clinical trials examining compositional music therapy has uncovered a multifaceted body of evidence highlighting its potential to foster psychological and physiological well-being across various patient demographics. Notably, the intervention techniques and therapeutic outcomes exhibit significant heterogeneity, reflecting the individualized nature of compositional music therapy.

Two studies showed that compositional music therapy, particularly through songwriting and instrumental composition, has been associated with a reduction in anxiety levels and an enhancement of positive affective states (Baker 2019, Colwell 2013).

Compositional music therapy, especially songwriting, was consistently found to have positive impacts on emotions, self-concept, motivation, coping skills acquisition, and treatment readiness compared to control conditions across five studies (Jones 2005, Silverman 2011, Silverman 2012, Colwell 2005, Bibb 2015).

For instance, in a study involving adult patients within a psychiatric unit, a single session of music therapy songwriting focusing on coping skills was linked to beneficial outcomes as reflected by scores on the Revised COPE and HAQ-II (Silverman 2011). This suggests that the act of songwriting could catalyze the development of coping strategies and improvement in the therapeutic alliance. Similarly, therapeutic songwriting with hospitalized children and adolescents demonstrated a positive impact on self-concept (Colwell 2005; 2013).

The creative process inherent in songwriting provided a medium through which patients could articulate their internal experiences, contributing to a strengthened sense of self. This aligns with observations from a study involving individuals with brain or spinal cord injuries, where identity-focused songwriting significantly bolstered emotion regulation and satisfaction, albeit without affecting self-concept (Baker 2019).

Moreover, instrumental composition interventions seemed to be particularly impactful in fostering self-improvement concepts among hospitalized adolescents when compared to contact control conditions (Colwell 2005). This is further substantiated by evidence from RCTs in acute psychiatric units, where group songwriting sessions emphasized change and showed a more substantial reduction in the symptoms of participants compared to those in control conditions (Silverman 2011).

Both individual and group songwriting approaches appeared efficacious, with the group discussion aspect during songwriting noted as particularly helpful by participants in one study (Silverman 2012).

However, not all studies reported significant changes across measured outcomes. For example, in a trial with dyads of dementia patients and their caregivers, group therapeutic songwriting revealed no significant changes in caregiver-patient relationship scales (Clark 2020). Nonetheless, the qualitative data suggested that the intervention was a positive experience, highlighting the importance of subjective, experiential factors in therapeutic interventions.

4 Discussion and Future Directions

4.1 Compositional Music Therapy Techniques and Key Findings

Compositional music therapy, encompassing songwriting, lyric analysis, instrumental composition, and therapeutic rap and singing, emphasized active participation from the participants, focusing on internal reflection and coping skills. Experimental conditions were often based on previously built music therapy plans, with alterations to simplify them, and the therapy sessions were guided by certified music therapists. The study results showed overall general positive results and positive health effects in the nine selected studies except for one study of people with dementia and their family caregivers, where the positive effects were only detected in the caregivers. Most studies showed a trend toward improvement of self-concept, motivation, and positive thinking, suggesting the potential for compositional music therapy as an effective treatment plan in terms of teaching coping mechanisms, emotion regulation, and readiness for treatment.

4.2 Looking into the future: Introducing Digital Compositional Music Therapy

The proposal of implementing technology into music therapy practice has been a widely discussed issue especially in recent decades, becoming a topic of high interest since the 1980s (Crowe & Rio 2004). In this period, technology began to become more available in both musical and medical settings: recording technology became widespread in the music industry, software technologies such as MIDI were integrated into the composition and production of music, and simultaneously, computer technology was integrated into hospital settings for record-keeping and data-entry (Crowe & Rio 2004). By the early 2000s, a survey of practice found the introduction of adapted musical instruments, recording technology, electric/electronic musical instruments, computer applications, medical technology, assistive technology for the disabled, and technology-based music/sound healing practices into the field of music therapy (Crowe & Rio 2004). Krout (1992) initially advocated for a model for implementing DAWs to elevate music therapy practice with sound programming (creating unique sounds with synthesizers) and digital effects like reverb, delay, and distortion. Krout argued from qualitative case-by-case experience that DAWs are more interactive than normal instruments and make it possible for clients or patients “to produce more complex and potentially motivating music than might be possible with traditional acoustic and electric instruments” (1992). DAWs have a number of advantages such as polyphony, the ability to play multiple instruments or sounds at once, and sequencing, the method of organizing patterns in a structured rhythm and tempo (Krout 1992). These advantages have applications in allowing the patient/client or therapist to sing or play live instruments on top of structured instrumental, percussive, or vocal tracks in the DAW. A recent survey of practice by Rothenberg (2021) found that out of 153 respondents, 131 reported using technology in music therapy practice. 83 reported using GarageBand in practice, 15 reported using other DAWs, and 20 reported using MIDI controllers (Rothenberg 2021).

Magee and Burland (2008) identified important opportunities for (1) enabling expression, access, and control and (2) identity and participation. The first category expands on Krout’s argument that technology has more propensities for interactive music-making and for achieving sounds that are personalized and unique from conventional instruments (Magee & Burland 2008). The use of technology is also important for “giving the client a sense of being the ‘agent of making music’ and an alternative identity of being a ‘music-maker’” (Magee & Burland 2008). Aarvik (2019) found that “therapeutic goals such as agency, empowerment and mutual collaboration and constructing positive identities are facilitated and reinforced by creative processes using DAWs.” The second opportunity has to do with the accessibility of certain musical sounds or styles as they pertain to patients’ or clients’ personal needs, where the use of technology “enables clients to access with speed and ease musical sounds and styles which usually require skills outside the client’s

repertoire” (Magee & Burland 2008). The use of technology is specifically impactful for patients/clients with limited physical abilities, sensory impairments, particular needs for expressing identity, or low motivation to engage in therapy (Magee & Burland 2008).

Rothenberg’s survey of practice (2021) found that a number of respondents reported using technology for compositional methods in music therapy: song transformation (31), song writing (72), instrumental composition (42), and music collage (15). Moreover for compositional methods, 47 reported using GarageBand, 11 reported using other DAWs, and 6 reported using MIDI devices. Jackson and Heiderscheit (2022) presented 5 case illustrations, as well as a table that included 17 cases from the current literature on the use of technology in the compositional method variations described above (Jackson & Heiderscheit 2022). Out of the 5 case illustrations, 2 included synthesizers and/or drum machines, 5 included recording technology, 3 included digital programs such as DAWs, and 1 included MIDI devices (Jackson & Heiderscheit 2022). Out of the 17 cases included in the table, 7 included recording technology, 7 included digital programs such as DAWs, and 1 included MIDI devices (Jackson & Heiderscheit 2022).

There is currently no standard procedural model for technological methods in compositional music therapy; however, multiple exist for improvisational music therapy. Crooke and McFerran (2019) proposed three procedures for using beat making technologies for improvisation during music therapy sessions. “Approach’n’Play” involved having participants identify an emotion and then using devices with pre-uploaded sounds to make music that carried out that emotion (Crooke & McFerran 2019). “Clip-Jamming” encouraged participants to improvise with pre-recorded loops to create original arrangements in real time (Crooke & McFerran 2019). “MIDI-Linked Jamming” involved using multiple devices simultaneously to manipulate pre-existing arrangements (Crooke & McFerran 2019).

5 Conclusion

Compositional music therapy techniques such as songwriting, lyric analysis, instrumental composition, and therapeutic rap and singing, showed overall positive health effects, suggesting the potential for compositional music therapy as an effective treatment plan in teaching coping mechanisms and emotion regulation. A potential future direction in this field is to propose a procedure for a person-centered therapeutic model that involves the use of digital music technology for composition in the music therapy session.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

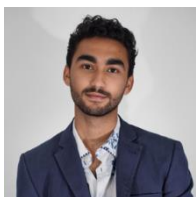
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Author’s short biography



Michael Ishak is an undergraduate student and psychology researcher at Princeton University. A native of Los Angeles, California, Ishak is a research coordinator with the Brain and Creativity Institute at the University of Southern California (USC) and a volunteer at Cedars Sinai Medical Center. He obtained early expertise in music therapy during a summer internship at the Louis Armstrong Center for Music and Medicine at Mount Sinai Hospital in 2022 and has since continued his relevant research in the field. Ishak is an avid guitarist and singer-songwriter, passionate about the intersection between music and health.