

## BRIEF REPORT

# Virtual Music Therapy for Substance Use Disorders in a Federally Qualified Health Center

Julie Schoonover, MD, Andrew Rossetti, PhD, MT-BC, LCAT, Ariel Jacobs, MPH, and Susan E. Rubin, MD, MPH

**Background:** Music therapy (MT) is an effective adjunctive treatment for substance use disorders (SUD), which is primarily available in inpatient treatment centers and rarely provided in outpatient primary care.

**Methods:** We evaluated the feasibility and acceptability of a virtual group MT program for SUD in a Federally Qualified Health Center (FQHC), and secondarily assessed patient perceptions of its effect. Feasibility was measured by implementation-related process measures, attendance and use of technology. Qualitative interviews eliciting participant perceptions were conducted to evaluate acceptability and effect. Mood scores, substance use and craving were measured before and after the intervention.

**Results:** Onboarding of the music therapist took 3.5 months. All MT sessions were attended by 1 to 5 individuals out of 6. Participants reported that group MT was “soothing” and “calming,” gave them tools to treat cravings and stress, and created a sense of community. They reported that during sessions their cravings decreased. Anxiety and depression scores trended down, as did the number of days of substance use. They all stated they would seek out MT again.

**Discussion:** Our results suggest that remote group MT is feasible and acceptable to our FQHC patients with SUD. Patients reported an improvement in mood and their ability to manage stress, and a decrease in substance use.

**Conclusion:** We wish to build on the results of this study to enhance our understanding of the effects of MT in the outpatient setting, and broaden our patients’ access to MT in primary care. (J Am Board Fam Med 2023;00:000–000.)

**Keywords:** Community Health Centers, Craving, Health Services Accessibility, Integrative Medicine, Medically Underserved Area, Minority Health, Music Therapy, Outpatients, Primary Health Care, Qualitative Research, Substance-Related Disorders, Telemedicine, Vulnerable Populations

## Introduction

Substance use disorder (SUD) treatment in outpatient primary care is expanding and requires multimodal approaches to succeed.<sup>1,2</sup> One adjunctive option to medication for addiction treatment is

music therapy (MT), which uses music as a tool within a therapeutic relationship to achieve a clinical goal.<sup>3</sup> For decades, music therapists have treated individuals with SUD in rehabilitation programs,<sup>4–8</sup> decreasing the frequency of substance use and increasing the time engaged in medical care.<sup>9,10</sup> Virtual MT has been successful for a variety of diagnoses,<sup>11</sup> and SUD can be treated via telemedicine.<sup>12</sup> Group-based treatments for opioid use disorders are feasible and acceptable,<sup>13</sup> and group MT is feasible in underserved primary care environments, specifically to treat chronic pain.<sup>14,15</sup> Despite its use in a myriad of clinical conditions, MT is rarely provided in the primary care setting.<sup>16</sup>

While separately, there is evidence and experience in virtual MT, group-based care for SUD and

This article was externally peer reviewed.  
Submitted 15 September 2022; revised 31 October 2022;  
21 April 2023; 15 May 2023; accepted 12 June 2023.

This is the Ahead of Print version of the article.

From the Institute for Family Health, New York, NY, USA (JS, AJ, SER), The Louis Armstrong Center for Music and Medicine at Mount Sinai Health Center, New York, NY, USA (AR)

**Funding:** The study was supported by a grant from the Empire Clinical Research Investigator Program (ECRIP) of New York State.

**Conflict of interest:** None.

**Corresponding author:** Julie Schoonover, MD, The Institute for Family Health, 1894 Walton Avenue, Bronx, NY 10453 (E-mail: jschoonover@institute.org).

**Table 1. Structure of Weekly Music Therapy Sessions**

Section	Description
Section 1	Music therapist improvises an opening music experience in E major tonal center on guitar that serves as an ‘invocation’ to participate in the session and as a key to ritualize the experience.
Section 2	Breath-focused music-driven meditation.
Section 3	Guided visualization experience accompanied by guitar music in D mixolydian mode with gentle suggestions to channel a “safe and comfortable place.”
Section 4	Modified “song sensation” experience <sup>21</sup> that involves listening to a song chosen by the group or therapist; sharing thoughts about the lyrics and themes; and re-actualizing the song, such that the final product carries a new meaning contextualized to the therapeutic space.
Section 5	Music therapist plays a closing song that is initially chosen by the therapist, and in subsequent sessions by the participants.

provision of MT in underserved primary care, there are no published studies about the combination of virtual group MT in underserved primary care. Thus, we designed a study to assess the feasibility and acceptability of a virtual group MT program to treat people with SUD at a Federally Qualified Health Center (FQHC). The secondary aim was to evaluate the participants’ perception of its effect on depression and anxiety levels, craving, and frequency of substance use.

## Methods

The study design is a single group intervention with prepost evaluation using mixed methods. Eligible subjects were adult patients at our FQHC network who met DSM-V criteria for active moderate-to-severe SUD.<sup>17</sup> We recruited participants via provider referrals and direct calls to patients with the goal sample size of 6. All interactions were entirely remote. The study was approved by The Institute for Family Health’s Institutional Review Board.

The intervention consisted of 8 weekly hour-long virtual MT sessions and was derived from the Medical Music Psychotherapy model<sup>18,19</sup> aimed at increasing resilience and developing coping mechanisms.<sup>20</sup> The sessions consisted of a series of structured sections that allowed for individual expression within a predictable schema (*see* Table 1). Each section created a sense of group cohesion while providing participants with resources for self-regulation, impulse control, and down-regulation. These resources were discussed throughout each session, and participants had space to process their experiences and learn how to apply techniques to their daily lives.

## Measures

Feasibility was measured by program implementation including onboarding and session completion,

participant attendance, and interactions with technology.<sup>22</sup> Acceptability was determined by satisfaction rates and qualitative data. We evaluated the intervention effect with qualitative data and survey responses.

**Table 2. Participant Characteristics (n = 6)**

Characteristic*	N (%)
Age in years	
25 to 35	3 (50.0)
36 to 45	2 (33.3)
46 to 55	1 (16.7)
Gender Identity	
Man	2 (33.3)
Woman	4 (66.7)
Race/Ethnicity	
Black, Non-Hispanic	4 (66.7)
Hispanic	1 (16.7)
White, Non-Hispanic	1 (16.7)
Location	
Rural	2 (33.3)
Urban	4 (66.7)
Substance Used	N (†)
Alcohol	6 (4)
Cannabis	5
Heroin	1 (1)
Cocaine	1 (1)
LSD and other psychedelics	1
Prescription stimulant pills	1
Molly/MDMA/ecstasy	1

\*All demographics except for location were self-reported and the language used is reflected in this table. Gender options also included Non-binary, Transgender, Prefer not to answer.

†Number of participants who identified this substance use as harmful.

Abbreviations: LSD, Lysergic acid diethylamide; MDMA, 3,4-Methylenedioxymethamphetamine.

Before and after the intervention, we administered validated surveys evaluating substance use and craving from the PhenX Toolkit,<sup>23</sup> and depression and anxiety scores (PHQ-9 and GAD-7). After each session, participants rated their satisfaction with that day's session using a 5-point Likert scale. At the end of the 2-month intervention, we conducted individual structured qualitative interviews that explored participants' overall thoughts about the experience. The interview guide was designed in response to content from the MT sessions and surveys, and tested with 2 individuals.

Three authors (JS, AJ, and SER) independently analyzed the qualitative data using grounded theory methodology. The team met twice to define emerging themes and identify relevant quotations. JS organized these into unifying themes.

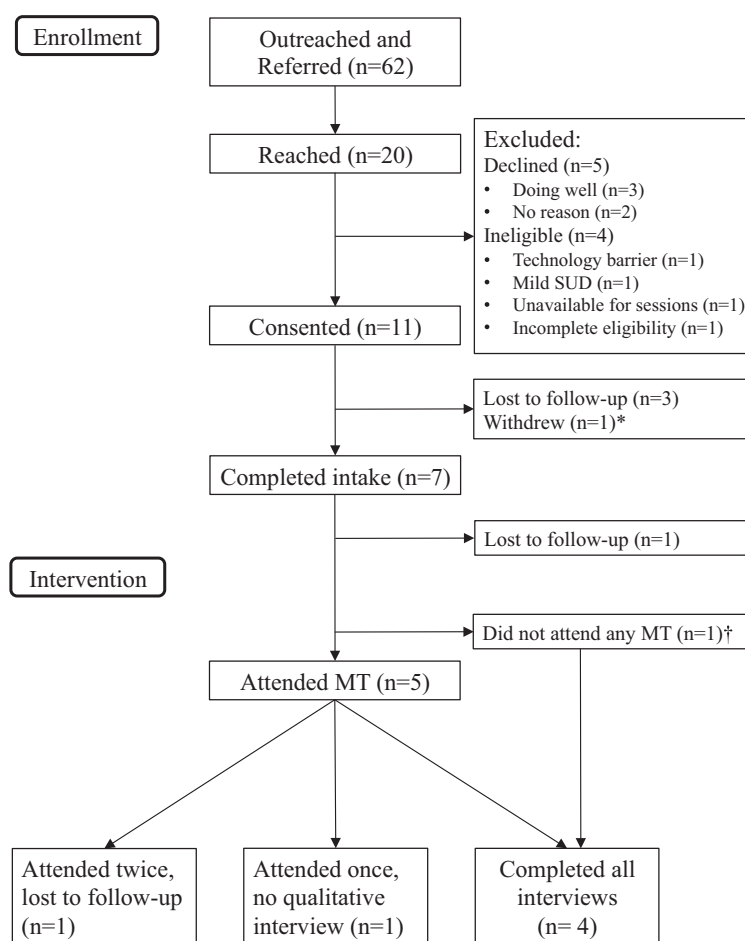
## Results

### Feasibility

We decided to assess feasibility using a combination of implementation-related process measures, attendance and use of technology, as well as qualitative data from participants relating to other barriers and facilitators.

Over 3.5 months, a board-certified music therapist was onboarded at the FQHC network. A total of 6 people enrolled in the intervention (*see* Table 2) and attended 0 to 7 MT sessions - one could not attend due to work. Three attended most sessions offered (*See* Figure 1). The groups ranged in size from 1 to 5 participants. The midday session time was a barrier for at least 2 participants, who recommended offering evening sessions.

**Figure 1. Participant recruitment flowchart.**



Abbreviations: MT, Music Therapy; SUD, Substance Use Disorder.

\*Family emergency. † Time conflict.

A technology gap due to low technological literacy and unequal Internet access became evident. Some lacked familiarity with the video platform, requiring technical support at each session. Patchy Internet and cellular service meant that individuals were sometimes unable to complete a session. A poor Internet connection could also interrupt sound or cause feedback, which affected sound quality.

### Acceptability

We evaluated survey data, and the content of the MT sessions and individual interviews to explore acceptability. Participants shared mostly positive comments about the MT, demonstrating acceptability through the themes “the importance of community,” “an appreciation of music,” and “ambivalence about in-person versus online MT” (see Table 3). Not only did they look forward to each session, they also stated that they wished to continue MT if financially feasible. After every session, participants consistently rated that they were “satisfied” or “very satisfied” with the MT.

Participants emphasized “the importance of community” in the therapeutic environment. One said, “community is the opposite of addiction.” There was a preference for group as opposed to individual MT. As stated by several, in groups “I was able to bear other peoples’ perspectives, and I think you can learn

a lot from listening.” 2 sessions had 1 participant only, who reported that while they appreciated the individual attention, something essential was lost.

Music had always been important to the participants, and they reported “an appreciation of music.” They described the music therapist’s “soothing voice” and valued the use of the guitar. Music enhanced the effect of the meditation exercise at the core of each session, facilitating relaxation and reducing anxiety. As 1 person said, “that quality to the music helps because it is easier for me to meditate or to slow down.” Several suggested that there be more group music-making and a greater variety of instruments played.

Regarding the format of the intervention, participants were “ambivalent about in-person versus online MT.” They voiced concerns over the technology gap. They also said that community-building was decreased when meeting online. On the other hand, all reported that it was more convenient to participate in MT online as it removed the need to commute. One suggested offering a hybrid option with both in-person and virtual participation.

### Effect

Using the same source material, we explored the participants’ perception of the effect of the

**Table 3. Acceptability of Virtual Music Therapy (MT) Intervention**

Theme	Representative Quotes
The Importance of Community	<p>“Community, the connection piece of it is paramount. Connection is the opposite of addiction.”</p> <p>“I think it’s been really helpful, being able to have these conversations with people that are in similar situations.”</p> <p>“It [compelled] me to listen and hear more and reflect and see the similarities. I can relate to what they were saying.”</p> <p>“I enjoyed the group sessions slightly more [than the individual one], just because I was able to hear other people’s perspectives. And I think you can learn a lot from listening.”</p> <p>“That’s the thing I like about the group aspect, the riffraff of the conversation and the community and connection.”</p> <p>“I miss the rest of the guys.”</p> <p>“I would look forward to the group therapy sessions. Like, I get to talk to people.”</p>
An Appreciation of Music	<p>“Music is very integral in my personal wellness, and I seek music to feel better and stay well and stay connected with myself.”</p> <p>“Yeah, I’m a music person. I love music. It’s part of my life, music.”</p> <p>“[Music] made me think about happier times.”</p> <p>“I liked the actual music-playing part of it.”</p> <p>“I’ve leaned in way more to music since we started this session, and I’ve always enjoyed music.”</p> <p>“So it allows [meditation] to happen easier because there’s a rhythm. It’s easier to breathe when following a rhythm of something that’s calming.”</p> <p>“There’s also the voice, the listening – he just happened to have a calming voice which was helpful.”</p>
Ambivalence About In-Person versus Online MT	<p>“I’d be willing to try both. In-person is more personal for other people.”</p> <p>“We still see the person, but you’ll just be comfortable in your own home. That’s better.”</p> <p>“I was able to attend for the little time that I did, not having to be there physically, which was cool.”</p> <p>“But there’s that in-person – it brings an added factor and benefit to see people. But they made it work.”</p>

intervention, which became apparent through the following themes: “a sense of calm and comfort,” “a means of self-care,” and “a decrease in cravings” (see Table 4).

Universally, participants reported that the MT gave them “a sense of calm and comfort.” They used words like “calming,” “soothing” and “grounding” to describe the effect. MT seemed to have an immediate effect on their mood during the meditation and visualization interventions: “*I can say that my mood has changed, and for the positive, drastically since doing those 2 exercises.*” They also found a sense of safety: “*it feels good, like, it is a flood of emotions when I know I am safe.*”

The musical exercises were designed to be applied to daily life, providing “a means of self-care.” Importantly, outside of the MT sessions, participants began to use music as a way to self-soothe when feeling cravings or stress, “*so when I do get cravings, it is like alright, slow down, let me put the music on.*” They now also use music to improve their mood: “*now I will play music that I know is going to put me in a better mind state rather than something that is going to negatively affect my emotion.*”

Participants also noticed that their cravings diminished or disappeared in anticipation of the group, “*knowing I was going into the group, that was comforting, so my cravings were lessened.*” They knew this would be a set time during which they would not use their substance, “*I do not drink at the time when I am doing [MT]. And I do not have the desire to.*” One did state that her cravings increased after some sessions ended because she would find herself alone again in her home.

Over the course of the study, participants’ depression and anxiety scores trended down, as did the frequency of substance use in the prior 2 weeks. However, the severity of craving did not seem to change.

## Discussion

This study suggests that virtual group MT for people with SUD is feasible and acceptable in the FQHC primary care setting. The intervention was successfully implemented and completed as planned, and participants looked forward to each session. While only half of participants regularly attended

**Table 4. Effect of Virtual Music Therapy (MT) Intervention**

Theme	Representative Quotes
A Sense of Calm and Comfort	<p>“Like how you do this therapy with the breathing, when you play the guitar, it’s really soothing and relaxing.”</p> <p>“So it just brings me back to a place of inner calm and peace, any time I listen to you play, because it’s a comfort thing.”</p> <p>“I was going a thousand miles an hour trying to worry about all sorts of stuff, so it’s very helpful to slow down, be present in the moment. The music helps, it definitely does.”</p> <p>“It was soothing. I really felt relaxed; and the quietness and the music blended everything. I felt like I was floating.”</p> <p>“It really calms me down, especially if I had a bad day.”</p> <p>“So it was cool to know and feel that I felt safe, at the present moment, here, in my new house. That was awesome.”</p> <p>“This was a great session today guys, really lifted my spirits.”</p> <p>“Just listening and thinking: it was a really good, de-stressing thing. So it definitely helped my mood.”</p> <p>“It really put a smile on my face. I was looking forward to it and I was happy.”</p>
A Means of Self-Care	<p>“I’ll play music, and it calms me and centers me. That’s something that I’ve found really helpful over the last couple weeks.”</p> <p>“I’m more in tune with how [music] can be beneficial.”</p> <p>“The ability to recognize that I’m in an amped up emotional state. And having one more tool to deescalate or down regulate. Having that extra tool to be, like, alright, play some soft music, breathe, slow down, is helpful.”</p> <p>“Finding different ways: whether it was a breathing exercise, or turning on the music, it just gave me different outlets that I could de-stress.”</p> <p>“It’s really soothing. Like, I get stressed out about something, I typically will turn to music and I’ll put on my acoustic, chill music because I think there’s something calming while listening to the guitar strings.”</p>
Decreased Cravings	<p>“I don’t drink at the time when I’m doing [MT]. And I don’t have the desire to when I am listening to the music.”</p> <p>“Knowing that, at that time, I wouldn’t be drinking.”</p> <p>“Knowing I was going into the group, that was comforting, so my cravings were lessened.”</p> <p>“The one substance that I was trying to get help around my usage, yes it did help with that.”</p> <p>“I try to use these MT sessions as a foundation that I’ve been really working on cutting back. So I crave it not as much as I used to - but I still definitely crave it - but I’ve been working really hard not to indulge in it.”</p>



sessions, 2 participants regretted they could not attend due to their work or school schedules, suggesting that remote MT is acceptable to individuals with SUD. Offering the MT groups at different times may improve attendance.

Participants reported positive effects from the intervention. They stated that their mood improved and they reported having new tools for self-care that helped decrease the frequency of substance use. Despite experiencing some technology barriers, participants found the remote intervention beneficial and wished to continue MT on their own time.

Our study has a number of limitations that include the phrasing of certain survey questions, self-selection bias and a small sample size. The substance use measures, while validated in larger studies, are limited as they do not distinguish between harmful and any drug use. For future studies, we plan to reword these questions to reflect harmful use of substances. A self-selection bias was inherent to this study as participants already had a positive relationship with music. Finally, the small sample size prevents us from establishing a causal relationship with the intervention.

Given the disparities in access to nonpharmacologic therapies reported in similarly underserved urban and rural populations,<sup>24,25</sup> and the urgent need to expand access to care for SUD within primary care,<sup>2</sup> virtual, group MT is another feasible and acceptable tool that can improve the care of individuals with SUD within FQHCs. The terms that came up most often, “soothing” and “calming,” suggest that this intervention may be valuable to a population carrying other diagnoses such as anxiety, depression, hypertension and insomnia. We plan to expand this project to evaluate effectiveness in SUD and other diseases. Future directions include determining ways to fund this work and bill the group sessions to insurance companies to ensure financial sustainability.

---

The authors would like to thank Matthew Beyrouy, Gabrielle Bouissou, Christina Cho, Joanne Loewy, Saskia Shuman, and Eve Walter, for their contributions to study design, implementation, and analysis.

To see this article online, please go to: <http://jabfm.org/content/00/00/000.full>.

## References

1. Saitz R, Daaleman TP. Now is the time to address substance use disorders in primary care. *Ann Fam Med* 2017;15:306–8.
2. Jemberie WB, Stewart Williams J, Eriksson M, et al. Substance use disorders and COVID-19: multi-faceted problems which require multi-pronged solutions. *Front Psychiatry* 2020;11:714.
3. What is music therapy? American Music Therapy Association (AMTA). Accessed November 23, 2020. Available at: <https://www.musictherapy.org/>.
4. Ghetti CM. Incorporating music therapy into the harm reduction approach to managing substance use problems. *Music Ther Perspect* 2004;22:84–90.
5. Murphy KM. Music therapy in addictions treatment: a systematic review of the literature and recommendations for future research. *MMD* 2017; 9:15–23.
6. Albornoz Y. The effects of group improvisational music therapy on depression in adolescents and adults with substance abuse: a randomized controlled trial. *Nord J Music Ther* 2011;20:208–24.
7. Mathis WS, Han X. The acute effect of pleasurable music on craving for alcohol: A pilot crossover study. *J Psychiatr Res* 2017;90:143–7.
8. Taets GGDC, Jomar RT, Abreu AMM, Capella MAM. Effect of music therapy on stress in chemically dependent people: a quasi-experimental study. *Rev Lat Am Enfermagem* 2019;27:e3115.
9. Murphy KM, Fridman M. Editorial. *MMD* 2017; 9:6–7.
10. Dingle GA, Gleadhill L, Baker FA. Can music therapy engage patients in group cognitive behaviour therapy for substance abuse treatment? *Drug Alcohol Rev* 2008;27:190–6.
11. Vaudreuil R, Langston DG, Magee WL, Betts D, Kass S, Levy C. Implementing music therapy through telehealth: considerations for military populations. *Disabil Rehabil Assist Technol*. 2022;17:201–10. Published online July 1.
12. Zheng W, Nickasch M, Lander L, et al. Treatment outcome comparison between telepsychiatry and face-to-face buprenorphine medication-assisted treatment for opioid use disorder: a 2-year retrospective data analysis. *J Addict Med* 2017;11:138–44.
13. Sokol R, LaVertu AE, Morrill D, Albanese C, Schuman-Olivier Z. Group-based treatment of opioid use disorder with buprenorphine: a systematic review. *J Subst Abuse Treat* 2018;84:78–87.
14. Low MY, Lacson C, Zhang F, Kesslick A, Bradt J. Vocal music therapy for chronic pain: a mixed methods feasibility study. *J Altern Complement Med* 2020;26:113–22.
15. Bradt J, Norris M, Shim M, Gracely E, Gerrity P. Vocal music therapy for chronic pain management in inner-city African Americans: a mixed methods feasibility study. *J Music Ther* 2016;53: 178–206.
16. Schoonover J, Rubin SE. Incorporating music therapy into primary care. *Am Fam Physician* 2022; 106(3).

17. Substance-related and addictive disorders. In: *Diagnostic and statistical manual of mental disorders*. DSM Library. American Psychiatric Association; 2013.
18. Loewy J. Music psychotherapy assessment. *Music Ther Perspect* 2000;18:47–58.
19. Rossetti A, Chadha M, Torres BN, et al. The impact of music therapy on anxiety in cancer patients undergoing simulation for radiation therapy. *Int J Radiat Oncol Biol Phys* 2017;99:103–10.
20. Borling J. Music therapy and addiction: addressing essential components in the recovery process. In: *Case examples of music therapy for substance use disorders*. Barcelona Publishers; 2012:80.
21. Loewy JV. Chapter 4 song sensation: how fragile we are. In: Loewy JV, Frisch Hara A, eds. *Caring for the caregiver: the use of music and music therapy in grief and trauma*. The American Music Therapy Association, Inc.; 2002.
22. Barry DT, Beitel M, Cutter CJ, et al. An evaluation of the feasibility, acceptability, and preliminary efficacy of cognitive-behavioral therapy for opioid use disorder and chronic pain. *Drug Alcohol Depend* 2019;194:460–7.
23. Hamilton CM, Strader LC, Pratt JG, et al. The PhenX toolkit: get the most from your measures. *Am J Epidemiol* 2011;174:253–60.
24. Mehl-Madrona L, Mainguy B, Plummer J. Integration of complementary and alternative medicine therapies into primary-care pain management for opiate reduction in a rural setting. *J Altern Complement Med* 2016;22:621–6.
25. Cheng T, D’Amico S, Luo M., et al Health disparities in access to nonpharmacologic therapies in an urban community. *J Altern Complement Med* 2019; 25:48–60.