

# The Earworm Technique Applied in Telehealth Music Therapy Program during the COVID-19 Outbreak in China

## 中国COVID-19疫情爆发期间应用耳虫技术的远程音乐治疗项目

Tian Gao

International Association of Music and Medicine, US/China

### Abstract

This article describes the details of a new technique, the earworm technique, which is suitable for online music therapy in the situation of the coronavirus 2019 (COVID-19) outbreak. The technique was used in a music therapy service provided through a free and publicly available hotline in China during the outbreak, with satisfactory results. Of 103 cases, 83% were successful, 8% were helpful, 7% were unsuccessful, and 3% were incomplete. The technique is a combination of Erickson's modern hypnosis techniques and music therapy. It is easy to train for and perform, making it suitable for a one-time intervention with online music therapy service.

**Keywords:** COVID-19 outbreak, Erickson, hypnosis, music therapy, earworm phenomenon

### 摘要

本文详细介绍了一项新技术，即耳虫技术，它适用于在2019年冠状病毒（COVID-19）爆发的情况下进行在线音乐治疗。在中国冠状病毒爆发期间，该技术被应用于通过一个免费和公开的热线提供的音乐治疗服务，并取得了令人满意的结果。在103个热线案例中，其中83%取得成功的效果，8%有帮助，7%不成功，3%未完成。该技术是将艾瑞克森（Erickson）的现代催眠技术和音乐治疗的结合。它易于训练和操作，使其适合于单次在线音乐治疗干预服务。

**关键词：**新冠肺炎（COVID-19）爆发，艾瑞克森，催眠，音乐治疗，耳虫现象（魔音穿脑“现象”）

The COVID-19 was first identified from an outbreak in Wuhan, China, in December 2019. The failure to control it had led to the spread of the virus worldwide. The World Health Organization (WHO) declared a public health emergency of international concern on January 30, 2020, and a pandemic on March 11, 2020. As of April 4, 2022, the pandemic had caused more than 491 million cases and 6.15 million deaths, making it one of the deadliest in history (Plooard, Morran, & Nestor-Kalinowski, 2020).

On February 10, 2020, a telehealth music therapy hotline was established by the Chinese Professional Music Therapists Association to provide a free online service for music therapies to the public. During the one-month period of service, 103 clients underwent our music therapy intervention. The objective of this article is to report the procedure and effects of this 30-day telehealth intervention program for music therapies.

## Literature Review

Modern music therapy has been developed for more than 80 years. According to Bruscia (2014), “its services have covered a wide range of fields related to medical special education, spirituality and mental health, including autistic and emotionally disturbed children, adults with psychiatric disorders, intellectually disabled children and adults, individuals with visual, hearing, speech, or motor impairments, learning-disabled children, abused children, children with behavior disorders, prisoners, addicts, medical patients, senior citizens, terminally ill children and adults, neurotic adults, traumatized groups and communities. Music therapy is also used to assist healthy individuals in stress reduction, childbirth, biofeedback techniques, pain management, self-actualization, and spiritual development” (p. 12).

There are many theoretical schools and hundreds of technical methods for music therapies; they can be classified as improvisatory methods, re-creative methods, compositional methods, and receptive methods (Bruscia, 2014). The earworm technique used in our intervention program during the COVID-19 outbreak in 2020 could be classified into the category of receptive method, which can guide clients through different therapeutic ways of music listening.

In music therapy practices, more than 20 to 30 types of techniques are used frequently in receptive music therapy, and those techniques may work on different levels: supportive, cognitive and behavioral, and subconscious. Among these techniques, the one closest, in some aspects, to the earworm technique is song discussion, which involves the clients choosing and listening to a song or songs to illustrate a biographical narrative and/or theme for discussion. Song discussion is one of the most common receptive music therapy interventions (Doak, 2013; Frohne-Hageman, 2007; Grocke & Wigram, 2007). There are multiple goals for this listening experience, such as, to increase reality orientation, improve self-expression, identify personal difficulties, identify coping skills, improve socialization skills, reduce isolation, increase awareness of others, improve self-image, and develop insight. Goldberg (1989) cites additional goals for activity therapy in the inpatient unit that are pertinent for this experience, to increase internal and external organization, increase peer relatedness, decrease internal preoccupation, and decrease withdrawal. Obviously, those therapeutic goals of traditional song discussion do not include the goal of the earworm technique: the elimination and reduction of stress and anxiety, even many types of phobia responses due to specific stress stimulus such as harmful or horrific situations. However, in the process of the development of the earworm technique, we borrowed some ideas and techniques from song discussion.

Among the methods of music therapy, the one most used to reduce tension and anxiety is termed “music, imagery, and relaxation”; with a piece of relaxing music playing, the therapist directs the imagery with a prepared script that helps the client to relax and create images in his/her mind. The goals of this method are to promote relaxation, evoke positive imagery, and empower clients to connect with their internal resources as a coping mechanism (Eyre, 2013). This method can work on different levels of intervention. When it works on a supportive level, the therapist needs only primary professional training, and when it works on a deeper level (subconscious level),

the therapist needs advanced training, which may last more than 3 years. Based on my clinical experience, I got an impression that when it works on the supportive level, it may reduce anxiety and stress symptoms temporally-wrong word- perhaps temporarily but not resolve the problems permanently.

This author has not been able to identify any literature describing the effectiveness of using song discussion or music, imagery, and relaxation as a singular method for the specific subject of this article. The reason is that, in most cases, music therapists use mixed approaches in their clinical practices; thus, many studies on the efficacy of music therapy include a combination of methods instead of a singular technique.

The earworm technique is influenced strongly by Erickson's concept of modern hypnosis. Traditional psychotherapy schools mostly focus on problems and symptoms, including psychoanalysis, cognitive-behavior, and early humanism, the so-called "problem-oriented psychotherapies." Whose term is this-please cite? However, postmodern psychotherapists have switched their focus from negative problems to positive resources, the so-called "resource-oriented psychotherapies" (Rolvjord, 2010). Erickson's interpretation of psychotherapy is that psychotherapy is about helping clients find things that therapists do not know and that clients think they do not know but they do know. What he is targeting is the precious resources that are hidden within the subconsciousness of the clients (Erickson & Rossi, 1981). The Erickson School of Hypnotherapists believes that people have far more abilities and resources than they realize. These resources have great potentials for clients to solve their own problems. By telling the clients some metaphorical stories in the trance state, Erickson has helped the client be aware of these resources, since these stories often sound irrelevant to the client's problems. After all, the client's subconscious often finds or understands the answers and solutions in these stories beyond the therapist's expectations (Gilligan, 1987).

In the situation of the COVID-19 pandemic, we need an effective method in a single-session online intervention, not only to release symptoms of stress and anxiety temporally but also to resolve the problem permanently. The method should involve a simple training for operation by most health professionals, but should not require special equipment, app, or some type of professional environment. It should be used easily in common environments such as hospital wards, home, and workplaces.

## Methods

The earworm technique, the method that I have designed and used most frequently for the telehealth music intervention during the COVID-19 pandemic, is a combination of hypnosis and music therapy. It is a one-session intervention, suitable for free public online services in the outbreak situation. The purpose of the earworm technique is to reduce and/or eliminate stress, anxiety, fear, sadness, anger caused by specific virus-based conditions, environment, or memory. In other words, the intervention can be effective in addressing minor psychological traumas that do not meet the diagnostic standards of posttraumatic stress disorder of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*. Thus, the earworm technique could be appropriate

to situations such as the use of telehealth music interventions during the COVID-19 pandemic.

The idea of the earworm technique is to use the “earworm phenomenon,” which refers to the phenomenon in which we often have a piece of music melody (especially a song) lingering in our brain, which could be used for hypnotic music intervention. The professional term for this phenomenon is “involuntary music imagery” (Herholz, Halpern, & Zatorre, 2012; Cotter, 2019). Scientists have observed how the human brain relates to a familiar piece of music and suggest that listening to and remembering music involve different cognitive processes (Society for Neuroscience, 2019). In a recent study, Ding et al. (2019) recorded electrical activity directly from the surface of the brain as participants listened to well-known pieces of music. A network of overlapping brain regions was associated with the act of listening to music and continuing the melody in one’s head. The researchers found that musical information traveled in opposite directions during these processes, flowing from the sensory to the frontal regions during listening and from the frontal to the sensory regions during recall. Put simply, this process indicates that an individual can listen to music without actual external music stimulation.

In 2018, I attended a systematic Ericksonian hypnotherapy training program and obtained the certificate from the German hypnotherapy institution (Bongartz, 2008). In the process of the training, I initiated an idea to use the earworm phenomenon of music melody lingering in mind as a carrier for some types of hypnotic suggestions by way of music. This process would potentially allow the hypnotic effect to be maintained for a longer period or be extracted at any time without the help of a hypnotherapist. Accordingly, after years of practice and exploration, a new method of combining music and hypnosis has been formed. This method improves the emotional state, especially in the areas of dealing with stress, anxiety, fear, and anger evoked by specific situations and environments. This technique is both easy to operate and learn. For example, during the period of the COVID-19 outbreak in China, it took me three hours during an online class to train our hotline music therapist volunteers.

According to Erickson, a metaphorical story contains a huge amount of information, from which clients can intelligently obtain what they need to solve their own problems. As a music therapist, I believe that a piece of music also contains a greater amount of information than a metaphorical story, because it prompts emotional and physical feelings and aesthetic experiences. All these feelings and experiences can activate vast psychological resources available within the client. Based on the characteristics of the earworm phenomenon, I have chosen either a music melody or a favorite song as a carrier of the optimal mental state experience in line with client’s own needs and purposes. Ideally, this experience of the optimal mental state can accompany clients if the specific music melody comes to their mind continuedly and repeatedly (earworm phenomenon).

### **Equipment and Platform Used**

The quality of sound equipment is a very important factor when providing music therapy interventions. That said, a mobile phone has never been my option for a music resource in my clinic. However, currently, mobile and cell phones represent the most user-friendly

consumer equipment available. Thus, in offering our free online public service for music therapy programs, we designed a framework that delivered the online service and was compatible with mobile phones to serve the most people in most circumstances. This included critical frontline personnel such as doctors and nurses, police officers, and social workers. As a result of this framework, the quality of sound is not only the best but is relatively acceptable as well, especially when a headphone is used.

In China, the most popular social media is WeChat, which is like WhatsApp. The expectation for the chosen working platform is that it must be always easily accessible by most people. Although other platforms, such as FaceTime, Zoom, and Doxy. M are recommended by the American Music Therapy Association (2020), we did not use them because WeChat is the most utilized application in China. Notwithstanding, the problem of WeChat for music therapy telehealth intervention is that it cannot transfer qualified music signals by microphones of mobile phones when therapists wish to play a piece of music for their clients. However, we discovered that if the client uses his/her own mobile phone to play music and maintains the conversation with the therapist at same time, the quality of music is acceptable. The only existing drawback to that model is that the therapist cannot hear the music. Through attempts to resolve this dilemma, we have realized that the earworm technique can be adopted for this situation, thus permitting the clients to choose their own music instead of the music therapist to choose and play it for them.

In the ideal scenario, the client uses two mobile phones, or a mobile phone and an iPad, or a mobile phone and a computer. This allows one to talk to the therapist and use another one for playing music. If the client has only one phone, he/she needs to disable the voice function when playing the music and then reconnect to the WeChat voice function after the music is finished. This makes the entire process less fluid, but it is still functional. Moreover, clients are urged to use an earphone while listening to the music for better music quality.

### **Operational Steps: The Intervention Engaged**

1. *Interview*: The therapist discusses the current difficulties and problems affecting the client. The focus of discussion should be concrete on a specific situation or event. For example, for the doctors and nurses who are working on the frontlines of the outbreak, the discussion may focus on a specific situation or environmental factor such as seeing some horrible situation, a patient on a ventilator, or a dying person. The therapist then discusses briefly the emotions and physical feelings that come with the situation, such as nervousness, fear, sadness, increased heartbeat, cold limbs, etc. It is important to find a specific disturbing picture featuring the problem. This picture will be used as the starting point of the earworm intervention process. The discussion should not focus on the general and cognitive levels, such as “I feel stressed and anxiety every day” or “I am afraid of being infected.”

2. *Optimal mental state*: Ask the client: What is the ideal reaction or attitude (optimal mental state) you would like to exhibit if you are facing the same situation? The expected

answer should be sufficiently positive, such as being very brave, calm, peaceful, optimistic, etc. Pay additional attention to the keywords the client expresses and utilize these as the goals of the intervention. These words must be specific and sufficiently positive. Words or expressions such as “I wish I were not afraid,” “I hope I feel better,” etc. are not enough. These types of expressions represent a state of mind, which is not bad, but is simply not good enough for success. The ideal answer should positively reinforce that they lie beyond his/her own expectations; for example, “I wish I could act like a hero,” “I hope I can be very peaceful and have no fear,” etc. Oftentimes, the client may think this expression is too good to be true or unrealistic. They may say, “it is impossible for anyone not being stressed or afraid when facing such a terrible situation.” The therapist then may tell the client: “you will be surprised that you are much stronger than what you think.” The therapist also may ask further questions about how the client should feel physically if he/she is in this optimal mental state; for example, “I should feel like I am full of energy in my body,” “I should breathe smoothly,” etc. This step is also important because the optimal mental state will decide what type of music should be chosen. Therapeutically, often, an “insufficiently positive mental state” will lead to choosing a “music lacking positivity.”

3. *Grading*: Ask the client to comparing his/her current mental state to the optimal mental state and rank his/her score from 1 to 7, with 1 not feeling anything positive at all and 7 feeling a completely optimal mental state. Where are you now? Note: Do not ask clients to rate their negative feelings, but only positive ones. If the client rates the negative experience, his attention will be focused on the negative feelings. Our aim is to guide the client’s attention as much as possible on the positive experience instead of the negative one. If the score is higher than 3, it should be considered that the selection of the optimal mental state (working objective) is not positive enough, and it needs to be reset.

Some professionals like to use scale systems of 1–5 or 1–10, which are all fine. I used the 1–7 rating method in the hope that there would be a certain degree of subdivision when the client scores his/her positive state and at the same time he/she should not occupy his/her attention by determining his/her state much in detail, although some clients did insist on giving a 10 instead of a 7.

4. *Choosing a song*: The therapist asks the client the following: “Do you have any favorite song that helps you feel ‘brave like a ‘hero’ or ‘very calm and peaceful’ (optimal mental state)? If so, please tell me the name of the song. Find it from your mobile phone if it is stored there or from the Internet directly. The song does not have to be an exact match of the optimal mental state; one close to it or with a partial match will work. Most people may have no problem in finding such a song, but in rare cases, clients may have difficulty matching one to their optimal mental state. In this case, the therapist may suggest one based on the empathy developed between the therapist and patient during the treatment. However, the “client-preferred” song is always the best choice.

5. *Song discussion*: The therapist and the client listen to the selected song simultaneously on both ends and then start a quick song discussion. Physically, the client is required to

be in a sitting position to relax the whole body and take five deep breaths with their eyes closed. The client then listens to the song with full attention (without any disruption) and get immersed in the emotions and physical feelings brought out by the song. The clients will find themselves more intensely affected when listening to the same song this time, than the past listening experience.

At this juncture, the therapist briefly discusses the feelings stimulated by the song with the client. For example, the therapist may ask the client whether there is any difference between his/her emotions and physical feelings during the treatment and out of the treatment in the past. “Do you have any new feelings that you did not have before and so on. Please note that the time of discussion should be limited; 3–5 minutes is enough. Do not extend to any issue other than musical experience avoiding the shift of the attention to rational thinking.

*6. Free association:* This step represents the core part of the earworm technique. It is very similar to step 5, asking the client: “Please relax your body, take five deep breaths, then play the music again.” The only difference from step 5 is that instead of paying attention to the music, the client should focus on free associations this time.

When the music is playing, the client begins to recall or imagine their unpleasant scenarios or negative pictures, as identified in step 1. After starting the free association process from the unpleasant scenarios or negative picture, the client then follows whatever imagery appeared in his/her mind. This is the important process of self-healing. The client’s subconsciousness begins to resolve the problem by his/her creative imagination. To that end, every image or every type of imagery appearing in the mind is valuable and works toward problem solving. During this time, the client should focus on the imageries of free associations instead of the music. When the music finishes, the therapist guides the client to take a deep breath, open their eyes, and discuss what came to the client’s mind...such as if the feelings related to the unpleasant scene have changed? If so, what has changed? After a brief discussion, ask the client, what score out of 1–7 would you now rate yourself? Again, the time of discussion should not be longer than 3–5 minutes.

From this point, go to the next round and do the same as in the previous round. Repeat this process until the client’s score reaches 6 or 7. Three to five rounds are usually required to reach a score of 6 or 7. During this process, we will find that under the music as a catalyst, the images, emotions, and body feelings of the client will change greatly and rapidly. This is a process of restoring memories. The process is bound to be more and more positive, until they reach their optimal mental state (score of 6 or 7). The important thing is that this goal is set by the client, which is most in line with his own inner needs and is not set by the therapist. The therapist should not guide or interrupt this self-healing process, but just to be a witness to the process of self-healing. The best explanation for self-healing is Carl Rogers’ (1942) famous theory that client knows himself better than anyone, so he is his own best therapist.

*7. Ending:* After the score of 6 or 7 has been reached, the session gets to the end. At this point, the therapist briefly makes a summary of the client’s emotional changes,

physical feelings, and cognitions related to the event during these rounds of treatment. Note that the final discussion should not be too long; otherwise, it will draw attention to the rational level and dilute the positive experiences gained from the session. Do not explore any new problem in the final summary of the session. If the client has other problems to deal with, deal with them later. Usually, one session is needed to resolve a problem associated with a specific event. Each session of earworm technique should be approximately 30–50 minutes in length.

After several rounds of repeated music listening, the melody of the song has formed an “earworm effect” that will constantly linger in the mind of the client. Hence, the positive experiences and feelings prompted by the song will change the emotional responses and physical feelings of clients when they confront similar disturbing situations and environments. In fact, when necessary, they can listen to the music again to reinforce optimal mental states. According to our clinical experience, this effect can be sustained for a lasting period. Indeed, the therapist may even tell the clients: now this song has become a conditional signal of positive experience; whenever needed, listening to this song, or just thinking of it, can help you quickly reconnect to the positive experiences again.

### Outcomes and Discussion

In the 30-day period of public online music therapy service, we have received 214 requests, but many of them are not to be considered pure needs of music therapy service. Some of them were just inquiries about the meaning of music therapy. In addition, some of them addressed their long-term problems, which were not suitable for our one-time intervention-based online services. Thus, out of 214 contacts, 103 clients received earworm technique interventions, through which we have gained a very successful outcome that have exceeded our expectations. The outcomes are listed in Table 1.

TABLE 1 | Outcomes (n=103)

Score >6 (successful)	Score 4–5 (helpful)	Score <4 (unsuccessful)	Uncompleted
85	8	7	3
83%	8%	7%	3%

Based on our criterion for this technique, the result of reaching a score of 6–7 was considered a successful intervention. As shown in Table 1, 83% of the clients treated have achieved scores >6. It is also noted that 8 of them have reported scores >7, and 4 have related their scores to be 10, even though we informed them that 7 was the highest score. They have expressed a high appreciation for our service.

In addition, 8% of the clients reported their scores to be 4–5, and they were assumed “not successful” but “helpful.” This also demonstrates progress; we believe that their emotions are getting better. Meanwhile, 7% of the clients identified their scores to be <4. We have considered those sessions to be unsuccessful. The reasons related to the



failure include the following: incorrect operation of the therapists; failure to find a favorite piece of music or a preferred song; problems (personality problems, long-term conflicts with family members or loved ones, etc.) involved not suitable for the earworm technique treatment. Finally, 3% of the clients were not able to complete the sessions due to environmental interruptions. Thus, these sessions could not proceed completely.

In total, 48 clients (doctors, nurses, patients, people who had lost their family members, social workers, police officers, and government officers whose duties are related to the outbreak, some even quarantined at home) sought help because of their problems related to COVID-19, albeit other problems were simply not related to the COVID-19 outbreak.

An important issue I would like to illustrate is that in designing the earworm technique, I have boldly abandoned the ISO principle, a fundamental music therapy concept and method of intervention in the context of mood management. In 1920, Esther Gatewood, one of the pioneers of music therapy, advocated that it is best to use patient-preferred music during surgical procedures; it is important, however, to initially match the music to the mood of the client, then to change the temperament of the patient by degree (Davis, Gfeller, & Thaut, 2008). However, instead of synchronizing the music with the current mental state of a client and then gradually guiding the client's emotional state from the negative to the positive, the earworm technique uses the positive experience of music to directly confront the existing negative and harmful emotional states of clients. The result of this intervention makes the process much more rapid and often requires only a one-time intervention to reach the therapeutic goal. Most certainly, the results of a one-month online telehealth music therapy service have met or exceeded my expectations.

This result is very encouraging for all of us, and indeed beyond our expectation. It showed the power and effectiveness of resource-oriented psychotherapy theory. It is an example of the concept that "the client is the best therapist of his own." This result also showed that music may be an ideal media and tool to evoke the resources from person's subconsciousness or inner world and to help him resolve his own problems. Future research should focus on how long the effectiveness would last and what population may or may not be suitable for the earworm technique.

### **Ethics Board Review and Consent Issues**

This article is a report of the emergency response project of the Chinese Professional Music Therapists Association for volunteer public service during the COVID-19 outbreak in Wuhan, China, in January 2020. It is not, by nature, a research project. Therefore, the project was not reviewed and approved by an ethics committee. At the same time, all the clients volunteered to participate in the project through telephone or Internet; thus, there was no routine procedure of signing informed consent.

### **About the Author**

Tian Gao, graduated from Temple University in Philadelphia, Member of American Music Therapy Association, National Registered Music Therapist, European Trauma (EMDR) Therapist, Professor of Music Therapy at the Central Conservatory of Music, and Director of Music Therapy Research Center, Central Conservatory of Music.

## References

- American Music Therapy Association. (2020). *COVID-19 resources for music therapists and students*. Retrieved from 20 December 2021 [https://www.musictherapy.org/about/covid19\\_resources/](https://www.musictherapy.org/about/covid19_resources/).
- Bongartz, W. (2008). *First continuous training program of hypnotherapy*. Beijing: German Chinese Academy for Psychotherapy.
- Bruscia, K. (2014). *Defining music therapy*, 3rd Ed. Gilsum, NH: Barcelona Publishers.
- Davis, W. B., Gfeller, K. E., & Thaut, M. H. (2008). *An introduction to music therapy theory and practice*. Silver Spring, MD: NeuroSound Music Therapy.
- Ding, Y., Zhang, Y., Zhou, W., Ling, Z., Huang, J., Hong, B., & Wang, X. (2019). Neural correlates of music listening and recall in the human brain. *Journal of Neuroscience*, *39*, 1468–1418.
- Doak, B. (2013). Children and adolescents with emotional and behavioral disorders in an inpatient psychiatric setting. In L. Eyre (Ed.), *Guidelines for music therapy practice in mental health* (pp. 180–183). Gilsum, NH: Barcelona Publishers.
- Cotter, K. N. (2019). Mental control in musical imagery: a dual component model. *Frontiers in Psychology*, *10*, 1904.
- Erickson, M. H., & Rossi, E. I. (1981). *Experiencing hypnosis: Therapeutic approaches to altered states*. New York: Irvington.
- Eyre, L. (2013). Adult groups in the inpatient setting. In L. Eyre (Ed.), *Guidelines for music therapy practice in mental health* (pp. 82–85). Gilsum, NH: Barcelona Publishers.
- Frohne-Hageman, I. (Ed.). (2007). *Receptive music therapy: Theory and practice*. Germany: Zeitpunkt music, Reichert Verlag Wiesbaden.
- Gilligan, S. G. (1987). *Therapeutic trance: The cooperation principle in Ericksonian hypnotherapy*. Oxford: Routledge.
- Goldberg, F. (1989). Music psychotherapy in acute psychiatric inpatient and private practice settings. *Music Therapy Perspectives*, *6*, 40–43.
- Grocke, E., & Wigram, T. (2007). *Receptive methods in music therapy: Techniques and clinical applications for music therapy clinicians, educators, and students*. Philadelphia, PA: Jessica Kingsley.
- Herholz, S., Halpern, A., & Zatorre, R. (2012). Neuronal correlates of perception, imagery, and memory for familiar tunes. *Journal of Cognitive Neuroscience*, *24*, 1–16.
- Plooard, C., Morran, M., & Nestor-Kalinoski, A. (2020). The COVID-19 pandemic: A global health crisis. National Library of Medicine. Retrieved from 20 December 2021 <https://pubmed.ncbi.nlm.nih.gov/32991251/>.
- Rogers, C. R. (1942). The use of electrically recorded interviews in improving psychotherapeutic techniques. *American Journal of Orthopsychiatry*, *12*, 429–434.
- Rolvjord, R. (2010). *Resource-oriented music therapy in mental health care*. Gilsum, NH: Barcelona Publishers.
- Society for Neuroscience. (2019, September 9). *Watching music move through the brain*. Retrieved from 20 December 2021 <https://scitechdaily.com/watching-music-move-through-the-brain/>.