

Music therapy

Music therapy is the use of music to improve clients' quality of life. Music therapy is an evidence-based clinical use of music interventions. The music therapist uses music and all of its facets—physical, emotional, mental, social, aesthetic, and spiritual—to help clients improve their health and quality of life. Music therapists primarily help clients improve their health in several domains, such as cognitive, motor, emotional, communication, social, sensory, and educational by using both active and receptive music experiences such as improvisation, re-creation, composition, and receptive methods and discussion of music to achieve treatment goals. There is a wide qualitative and quantitative research literature base for music therapy.^[1] Music therapy is distinctive from Musopathy, which relies on a more generic and non-cultural approach based on neural, physical, and other responses to fundamental aspects of sound.

Some commonly found music therapy practices include developmental work (communication, motor skills, etc.) with individuals with special needs, songwriting and listening in reminiscence/orientation work with the elderly, processing and relaxation work, and rhythmic entrainment for physical rehabilitation in stroke victims. Music therapy is used in some medical hospitals, cancer centers, schools, alcohol and drug recovery programs, psychiatric hospitals, and correctional facilities.^[1]

According to Dr. Daniel Levitin, "Singing and instrumental activities might have helped our species to refine motor skills, paving the way for the development of the exquisitely fine muscle control required for vocal or signed speech."^[2]

Music has proven to be an effective tool for music therapists through extensive research. It is beneficial for any individual, both physically and mentally, through improved heart rate, reduced anxiety, stimulation of the brain, and improved learning. Music therapists use their techniques to help their patients in many areas, ranging from stress relief before and after surgeries to neuropathologies such as Alzheimer's disease. One study found that children who listened to music while having an IV inserted into their arms showed less distress and felt less pain than the children who did not listen to music while having an IV inserted.^[3] Studies on patients diagnosed with mental disorders such as anxiety, depression, and schizophrenia have shown a visible improvement in their mental health after music therapy.^[4]

Music therapy



Power of Music by Louis Gallait. A brother and sister resting before an old tomb. The brother is attempting to comfort his sibling by playing the violin, and she has fallen into a deep sleep, "oblivious of all grief, mental and physical".

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Contents

Types of music therapy

- Receptive
- Active

Children

- Nordoff-Robbins
- Orff
- Bonny Method

Characteristics of music therapy

- Ternary form
- Sonata form
- Theme and variations
- Prelude
- Tone poem
- New age music
- Celtic music
- Meditative music
- Trance music
- Jazz

Use with children

- Methods
- Assessment
 - Premature infants
 - Infants in cardiac ICUs
 - In children

Medical disorders

- Autism
- Heart disease
- Stroke
- Dementia
- Aphasia

Psychiatric disorders

Cultural aspects

Usage by region

- Africa
- Australia
- Canada
- Norway
- Nigeria
- United States
- Lebanon
- United Kingdom
- India

History

Military

History

Methods

Programs

See also

Sources

Further reading

External links

Types of music therapy

There are two fundamental types of music therapy: receptive music therapy and active music therapy, which is sometimes called expressive music therapy. Active music therapy engages clients or patients in the act of making vocal or instrumental music. Receptive music therapy guides patients or clients in listening to live or recorded music.^[5]

Receptive

Receptive music therapy involves listening to recorded or live music selected by a therapist.^[6] It can improve mood, decrease stress, pain, anxiety level, and enhance relaxation. Although it doesn't affect disease, it can help with coping skills.^[7]

Active

Patients engage in some form of music-making, whether it's singing or with instruments. Baylor, Scott, and White researchers are studying the effect of harmonica playing on patients with COPD in order to determine if it helps improve lung function.^[8] Another example of active music therapy takes place in a nursing home in Japan: therapists teach the elderly how to play easy-to-use instruments so they can overcome physical difficulties.^[9]

Children

Nordoff-Robbins

Paul Nordoff, a Juilliard School graduate and Professor of Music, was a pianist and composer who, upon seeing disabled children respond so positively to music, gave up his academic career to further investigate the possibility of music as a means for therapy. Clive Robbins, a special educator, partnered with Nordoff for over 17 years in the exploration and research of music's effects on disabled children—first in the UK, and then in the US in the 1950s and 60s. Their pilot projects included placements at care units for autistic children and child psychiatry departments, where they put programs in place for children with mental disorders, emotional disturbances, developmental delays, and other handicaps. Their success at establishing a means of communication and relationship with children with cognitive impairments at the University of Pennsylvania gave rise to the National Institutes of Health's first grant given of this nature, and the 5-year study "Music therapy project for psychotic children under seven at the day care unit" involved research, publication, training and treatment.^[10] Several publications, including *Therapy in Music for Handicapped*

Children, Creative Music Therapy, Music Therapy in Special Education, as well as instrumental and song books for children, were released during this time. Nordoff and Robbins's success became known globally in the mental health community, and they were invited to share their findings and offer training on an international tour that lasted several years. Funds were granted to support the founding of the Nordoff Robbins Music Therapy Centre^[11] in Great Britain in 1974, where a one-year graduate program for students was implemented. In the early eighties, a center was opened in Australia, and various programs and institutes for music therapy were founded in Germany and other countries. In the United States, the Nordoff-Robbins Center for Music Therapy was established at New York University in 1989^[12]

The Nordoff-Robbins approach, based on the belief that everyone is capable of finding meaning in and benefiting from musical experience, is now practiced by hundreds of therapists internationally. This approach focuses on treatment through the creation of music by both therapist and client together. The therapist uses various techniques so that even the most low functioning individuals can actively participate.^[13]

Orff

Gertrude Orff developed Orff Music Therapy at the Kindezentrum München. Both the clinical setting of social pediatrics and the Orff Schulwerk (schoolwork) approach in music education (developed by German composer Carl Orff) influence this method, which is used with children with developmental problems, delays, and disabilities.^[14] Theodor Hellbrügge developed the area of social pediatrics after the Second World War in Germany. He understood that medicine alone could not meet the complex needs of developmentally disabled children. Hellbrügge consulted psychologists, occupational therapists and other mental healthcare professionals whose knowledge and skills could aid in the diagnostics and treatment of children. Gertrude Orff was asked to develop a form of therapy based on the Orff Schulwerk approach to support the emotional development of patients. Elements found in both the music therapy and education approaches include the understanding of holistic music presentation as involving word, sound and movement, the use of both music and play improvisation as providing a creative stimulus for the child to investigate and explore, Orff instrumentation, including keyboard instruments and percussion instruments as a means of participation and interaction in a therapeutic setting, and the multisensory aspects of music used by the therapist to meet the particular needs of the child, such as both feeling and hearing sound.^[14]

Corresponding with the attitudes of humanistic psychology, the developmental potential of the child- as in the acknowledgement of their strengths as well as their handicaps, and the importance of the therapist- child relationship are central factors in Orff music therapy. The strong emphasis on social integration and the involvement of parents in the therapeutic process found in social paediatrics also influence theoretical foundations. Knowledge of developmental psychology puts into perspective how developmental disabilities influence the child, as do their social and familial environments. The basis for interaction in this method is known as *responsive interaction*, in which the therapist meets the child at their level and responds according to their initiatives, combining both humanistic and developmental psychology philosophies. Involving the parents in this type of interaction by having them participate directly or observe the therapist's techniques equips the parents with ideas of how to interact appropriately with their child, thus fostering a positive parent-child relationship.^[14]

Bonny Method

Further information: Guided imagery

Music educator and therapist Helen Lindquist Bonny (1921–2010) developed an approach influenced by humanistic and transpersonal psychological views, known as the Bonny Method of guided imagery in music (GIM). Guided imagery refers to a technique used in natural and alternative medicine that involves using mental imagery to help with the physiological and psychological ailments of patients.^[15] The practitioner often suggests a relaxing and focusing image, and through the use of imagination and discussion, they aim to find constructive solutions to manage their problems. Bonny applied this psychotherapeutic method to the field of music therapy by using music as the means of guiding the patient to a higher state of consciousness where healing and constructive self-awareness can take place. Music is considered a "co-therapist" because of its importance. GIM with children can be used in one-on-one or group settings, and involves relaxation techniques, identification and sharing of personal feeling states, and improvisation to discover the self, and foster growth. The choice of music is carefully selected for the client based on their musical preferences and the goals of the session. The piece is usually classical, and it must reflect the age and attention abilities of the child in length and genre. A full explanation of the exercises must be offered at their level of understanding.^[15]

The use of guided imagery with autistic children has been found to decrease stereotypical behaviors and hyperactivity, increase attention and the ability to follow instructions, and increase self-initiated communication, both verbal and non-verbal.^[16]

Characteristics of music therapy

Bonny (Bonny Method of Guided Imagery and Music) writes a lot about the different features of music types in the classical genre.^[17]

Classical music can have multiple layers, including a melodic line, harmony structure and base line. All of these aspects work together with other things to create different layers of musical sound. Classical music is written in different forms: ternary form, sonata form, theme and variations, prelude and tone poem.

Ternary form

- associated with the Baroque era
- for therapy work
- forms a stable and safe musical container, where the repetition of the open section that is recognizable before the period of change

[17]

Sonata form

- associated with the Classical and Romantic era
- composed of three parts: introduction, exposition, development and recapitulation

[17]

Theme and variations

- uses different eras of music composition
- the melody may be played by different instruments

- the melody might become elongated by making each note twice its original length or shortened by making each note half the length

[17]

Prelude

- a short piece for an orchestra that is already completed
- the most receptive music therapy is Debussy's Prelude to the Afternoon of a Faun and Ravel's Pavane for a Dead Princess

[17]

Tone poem

- from the Romantic Era and the 20th century
- some examples include Ein Heldenleben (A Hero's Life) and Enchanted Lake

[17]

New age music

- allows relaxation while drawing images like landscapes enhanced by computer generated sounds
- Koblacka is a type of new age music that produces large volume music that has violins playing over the background of synthesized sounds
- Koblacka often very relaxing because the quality is seamless

[17]

Celtic music

- average in character
- sometimes there are vocal selections involved in Celtic music, adding to the appeal of the song choice
- 12 minutes may be able to cause deep relaxation
- one example is the Watermark by Enya

[17]

Meditative music

- has a diverse range of styles and instrumentation
- most of them have single-line melody of a wooden or pan-flute

[17]

Trance music

- musical therapists who work with adolescent-aged clients often use this type of music
- a style of electronic dance music that was created in 1990s

- has a tempo between 130 and 160 bpm
- enhances a feeling of calmness despite the rapid pace

[17]

Jazz

- emerged in the early part of the twentieth century
- generally known as the music of black Americans
- the blues is a slow kind of jazz music that is uses gentle relaxation
- a sedative in receptive music therapy methods
- examples include I Got Rhythm by Louie Armstrong or In a Mellotone by Duke Ellington

[17]

Use with children

Music therapy may be used with adolescent populations to treat disorders usually diagnosed in adolescence, such as mood/anxiety disorders and eating disorders, or inappropriate behaviors, including suicide attempts, withdrawal from family, social isolation from peers, aggression, running away, and substance abuse.^{[18][19]} Goals in treating adolescents with music therapy, especially for those at high risk, often include increased recognition and awareness of emotions and moods, improved decision-making skills, opportunities for creative self expression, decreased anxiety, increased self-confidence, improved self-esteem, and better listening skills.^[20]

Methods

Two main methods for music therapy in this age group include group meetings and individual sessions. Both methods may include listening to music, discussing concerning moods and emotions in or toward music, analyzing the meanings of specific songs, writing lyrics, composing music, performing music, and musical improvisation.^[19]

Private individual sessions can provide personal attention and are most effective when the music used is preferred by the patient. Using music that an adolescent can relate to or connect with can be successful in helping adolescent patients view the therapist as a safe and trustworthy adult, and to engage in the therapeutic process with less resistance.^[19] Music therapy conducted in groups provides opportunities for an adolescent individual to feel a sense of belonging, express their opinions, learn how to socialize and verbalize appropriately with peers, improve compromising skills, and develop tolerance and empathy.^[18] Group sessions emphasize cooperation and cohesion, and can be quite effective in working with adolescents.^[21]

Assessment

Assessment includes obtaining a full medical history, musical (ability to duplicate a melody or identify changes in rhythm, etc.) and nonmusical functioning (social, physical/motor, emotional, etc.).^{[22][23]}

Premature infants

Premature infants are those born at 37 weeks after conception or earlier. They are subject to numerous health risks, such as abnormal breathing patterns, decreased body fat and muscle tissue, as well as feeding issues. The coordination for sucking and breathing is often not fully developed, making feeding a challenge. The improved developmental activity and behavioral status of premature infants when they are discharged from the NICU, is directly related to the stimulation programs and interventions they benefited from during hospitalization, such as music therapy.

Music is typically conducted by a music therapist in the neonatal intensive care unit (NICU), with five main techniques designed to benefit premature infants:^[24]

1. **Live or recorded music:** Live or recorded music has been effective in promoting respiratory regularity and oxygen saturation levels, as well as decreasing signs of neonatal distress. Since premature infants have sensitive and immature sensory modalities, music is often performed in a gentle and controlled environment, either in the form of audio recordings or live vocalization, although live singing has been proven to have a greater effect. Live music also reduces the physiological responses in parents. Studies have shown that by combining live music, such as harp music, with the Kangaroo Care, maternal anxiety is reduced. This allows for parents, especially mothers, to spend important time bonding with their premature infants. Female singing voices are also more effective at soothing premature infants. Despite being born premature, infants show a preference for the sound of a female singing voice, making it more beneficial than instrumental music.^[25]
2. **Promotion of healthy sucking reflex:** By using a pacifier-activated lullaby device, music therapists can help promote stronger sucking reflexes, while also reducing pain perception for the infant. The Gato Box is a small rectangular instrument that stimulates a prenatal heartbeat sound in a soft and rhythmic manner that has also been effective in aiding sucking behaviours.^[26] The music therapist uses their fingers to tap on the drum, rather than using a mallet. The rhythm supports movement when feeding and promotes healthy sucking patterns. By improving sucking patterns, babies are able to coordinate the important dual mechanisms of breathing, sucking and swallowing needed to feed, thus promoting growth and weight gain. When this treatment proves effective, infants are able to leave the hospital earlier.
3. **Multimodal stimulation and music:** By combining music, such as lullabies and multimodal stimulation, premature infants were discharged from the NICU sooner than those infants who did not receive therapy. Multimodal stimulation (MMS) includes the applications of auditory, tactile, vestibular, and visual stimulation that helps aid in premature infant development. The combination of music and MMS helps premature infants sleep and conserve vital energy required to gain weight more rapidly. Studies have shown that girls respond more positively than boys during multimodal stimulation.^[27] While the voice is a popular choice for parents looking to bond with their premature infants, other effective instruments include the Remo Ocean Disk and the Gato Box. Both are used to stimulate the sounds of the womb. The Remo Ocean Disk, a round musical instrument that mimics the fluid sounds of the womb, has been shown to benefit decreased heart rate after therapeutic uses, as well as promoting healthy sleep patterns, lower respiratory rates and improve sucking behavior.^[28]
4. **Infant stimulation:** This type of intervention uses musical stimulation to compensate for the lack of normal environmental sensory stimulation found in the NICU. The sound environment the NICU provides can be disruptive, but music therapy can mask unwanted auditory stimuli and promote a calm environment that reduces the complications for high-risk or failure-to-thrive infants. Parent-infant bonding can also be affected by the noise of the NICU, which in turn can delay the interactions between parents and their premature infants. Music therapy creates a relaxing and peaceful environment for parents to speak and spend time with their babies while incubated.^[29]
5. **Parent-infant bonding:** Therapists work with parents so they may perform infant-directed singing techniques, as well as home care. Singing lullabies therapeutically can promote relaxation and decrease heart rate in premature infants. By calming premature babies, it allows for them to preserve their energy, which creates a stable environment for growth. Lullabies, such as "Twinkle Twinkle Little Star" or other culturally relevant lullabies, have been shown to greatly soothe babies. These techniques can also improve overall sleep quality, calorie intake and feeding behaviors, which aid in development of the baby while they are still in the NICU. Singing has also shown greater results in improving oxygen saturation levels for infants while incubated than has mothers' speech alone. This technique promoted high levels of oxygen for longer periods of time.^[30]

Infants in cardiac ICUs

In studies on music therapy with infants in the cardiac intensive care unit, music therapy has been used on infants in hopes of improving their lives during their time in the CICU. Many infants show a decrease in both their average heart and respiratory rates. The infants' average blood pressure typically decreases after the music therapy sessions, as well. Although there are individual differences between each of the infants, most infants show improvements after music therapy interventions.^[31]

In children

Music therapy has multiple benefits which contribute to the maintenance of health and the drive toward rehabilitation for children. Advanced technology that can monitor cortical activity offers a look at how music engages and produces changes in the brain during the perception and production of musical stimuli. Music therapy, when used with other rehabilitation methods, has increased the success rate of sensorimotor, cognitive, and communicative rehabilitation.^[32] Music therapy intervention programs typically include about 18 sessions of treatment. The achievement of a physical rehabilitation goal relies on the child's existing motivation and feelings towards music and their commitment to engage in meaningful, rewarding efforts. Regaining full functioning also confides in the prognosis of recovery, the condition of the client, and the environmental resources available. Both techniques use systematic processes where the therapists assist the client by using musical experiences and connections that collaborate as a dynamic force of change toward rehabilitation.^[33]

Music has many calming and soothing properties that can be used as a sedative in rehabilitation. For example, a patient with chronic pain may decrease the physiological result of stress and draw attention away from the pain by focusing on music.^[34]

Music therapy used in child rehabilitation has had a substantial emphasis on sensorimotor development including balance and position, locomotion, agility, mobility, range of motion, strength, laterality and directionality.^[34] Music can both motivate and provide a sense of distraction.^[33] Rhythmic stimuli has been found to help balance training for those with a brain injury.^[33]

Singing is a form of rehabilitation for neurological impairments. Neurological impairments following a brain injury can be in the form of apraxia – loss to perform purposeful movements, dysarthria, muscle control disturbances (due to damage of the central nervous system), aphasia (defect in expression causing distorted speech), or language comprehension. Singing training has been found to improve lung, speech clarity, and coordination of speech muscles, thus, accelerating rehabilitation of such neurological impairments. For example, melodic intonation therapy is the practice of communicating with others by singing to enhance speech or increase speech production by promoting socialization, and emotional expression.^[33]

Music therapy is thought to be helpful with children with autism spectrum by providing repetitive stimuli which aim to "teach" the brain other possible ways to respond that might be more useful as they grow older. Studies on the long term effects on music therapy in children with autism indicate many positive effects in children. Some of these effects include increased communication skills, decreased stress, increased social interaction, and the ability to be creative and to express themselves. Music therapy not only benefits the child with autism, but the family as a whole. Many of the mothers of children with autism claim that music therapy sessions have allowed their child to interact more with the family and the world. Music therapy is also beneficial in that it gives children an outlet to use outside of the sessions. Many children after participating in music therapy want to keep making music long after the sessions end.^[35]

Medical disorders

Autism

Music has played an important role in the research of dealing with autism, mainly in diagnosis, therapy, and behavioral abilities according to a scientific article written by Thenille Braun Janzen and Michael H. Thaut. This article concluded that music can help autistic patients hone their motor and attention skills as well as healthy neurodevelopment of socio-communication and interaction skills. Music therapy also resulted in positive improvement in selective attention, speech production, and language processing and acquisition in autistic patients [36]

Heart disease

According to a 2013 Cochrane review, listening to music may improve heart rate, respiratory rate, and blood pressure in those with coronary heart disease (CHD).[37]

Stroke

Music is useful in the recovery of motor skills.[38] In a study on stroke patients in the recovery phase, music therapy was used in addition to other types of therapy in one group of patients and was not used in the other group. While both groups showed an increase in their standard of living, the group that used the music therapy showed more of an increase than the group that didn't. The group that used music therapy also showed less anxiousness and depression after the therapy. While both groups showed an increase in the strength of their non-dominant hands, the group with music therapy showed a much larger increase. Also, patients that underwent music therapy were able to regulate their emotions better and showed increased communication as a whole.[39]

Dementia

Music therapy has been proven to be of beneficial use to older adults all over the world. Dr. Hanne Mette Ridder, a musical therapy expert from Denmark, studied the importance of the roles of musical therapists and caregivers on the mental well-being of patients suffering from dementia. The use of musical interaction has been proven as a key factor in many countries for the improvement of older adults overall health. According to Karen Stuart, South Africa has poor quality services provided by hospital care facilities to elders dealing with dementia, therefore she discovered singing to be an effective method for improving patients well-being. The playing of classical music or therapeutic singing resulted in: enjoyment, awareness, and engagement. Providing a source of music in hospitals or care centers are valuable methods for contributing to the care of the patients, while also relieving stress placed on the caregiver and forming a bond between the patient and the caretaker.[2] (<https://www.managedhealthcareconnect.com/blog/aging-well-music-therapy-impact-older-adults>)

Like many of the other disorders mentioned, some of the most common significant effects can be seen in social behaviors, leading to improvements in interaction, conversation, and other such skills. A meta-study of over 330 subjects showed that music therapy produces highly significant improvements in social behaviors, overt behaviors like wandering and restlessness, reductions in agitated behaviors, and improvements to cognitive defects, measured with reality orientation and face recognition tests. The effectiveness of the treatment seems to be strongly dependent on the patient and the quality and length of treatment.[40]

In another study, a group of adults suffering with dementia participated in group music therapy. In the group, these adults engaged in singing, drumming, improvisation, and movement. Each of these activities engaged the adults in different ways. The singing aided with memory, as these adults improved memorization skills in by taking out specific words in the chorus of a song and by repeating phrases back to the music therapist when the therapist sang a phrase of a song to them. Drumming led to increased socialization of the group, as it allowed the patients collaborate in order to create particular rhythms. Improvisation allowed the patients to get out of their comfort zone and taught them how to better deal with anxiety. Lastly, movement with either one arm or two increased social interaction between the patients.^[40]

Another meta-study examined the proposed neurological mechanisms behind music therapy's effects on these patients. Many authors suspect that music has a soothing effect on the patient by affecting how noise is perceived: music renders noise familiar, or buffers the patient from overwhelming or extraneous noise in their environment. Others suggest that music serves as a sort of mediator for social interactions, providing a vessel through which to interact with others without requiring much cognitive load.^[40]

Aphasia

Broca's aphasia, or non-fluent aphasia, is a language disorder caused by damage to Broca's area and surrounding regions in the left frontal lobe.^[41] Those with non-fluent aphasia are able to understand language fairly well, but they struggle with language production and syntax.^[42]

Neurologist, Oliver Sacks, author of *Musicophilia: Tales of music and the Brain*, has studied neurological oddities in people, trying to understand how the brain works. He concluded that people with some type of frontal lobe damage often “produced not only severe difficulties with expressive language (aphasia) but a strange access of musicality with incessant whistling, singing and a passionate interest in music. For him, this was an example of normally suppressed brain functions being released by damage to others”^[43](315). Sacks had a genuine interest in trying to help people affected with neurological disorders and other phenomena associated with music and how it can provide access to otherwise unreachable emotional states, revivify neurological avenues that have been frozen, evoke memories of earlier, lost events or states of being and attempts to bring those with neurological disorders back to a time when the world was much richer for them. He was a firm believer that music has the power to heal.

Melodic intonation therapy (MIT), developed in 1973 by Neurological researchers Sparks, Helm, and Albert, is a method used by music therapists and speech-language pathologists to help people with communication disorders caused by damage to the left hemisphere of the brain by engaging the singing abilities and possibly engaging language-capable regions in the undamaged right hemisphere.^{[44][45]}

While unable to speak fluently, patients with non-fluent aphasia are often able to sing words, phrases, and even sentences they cannot express otherwise.^[46] MIT harnesses the singing ability of patients with non-fluent aphasia as a means to improve their communication. Although its exact nature depends on the therapist, in general MIT relies on the use of intonation (the rising and falling of the voice) and rhythm (beat/speed) to train patients to produce phrases verbally.^[45] In MIT, common words and phrases are turned into melodic phrases, generally starting with two step sing-song patterns and eventually emulating typical speech intonation and rhythmic patterns.^[44] A therapist will usually begin by introducing an intonation to their patient through humming.^[45] They will accompany this humming with a rhythm produced by the tapping of the left hand.^[45] At the same time, the therapist will introduce a visual stimuli of the written phrase to be learned.^[45] The therapist then sings the phrase with the patient, and ideally the patient is eventually able to

sing the phrase on their own.^[45] With much repetition and through a process of “inner-rehearsal” (practicing internally hearing one's voice singing), a patient may eventually be able to produce the phrase verbally without singing.^[45] As the patient advances in therapy, the procedure can be adapted to give them more autonomy and to teach them more complex phrases.^[45] Through the use of MIT, a non-fluent aphasic patient can be taught numerous phrases which aid them to communicate and function during daily life.

The mechanisms of this success are yet to be fully understood. It is commonly agreed that while speech is lateralized mostly to the left hemisphere (for right-handed and most left-handed individuals), some speech functionality is also distributed in the right hemisphere.^[47] MIT is thought to stimulate these right language areas through the activation of music processing areas also in the right hemisphere ^[48] Similarly, the rhythmic tapping of the left hand stimulates the right sensorimotor cortex in order to further engage the right hemisphere in language production.^[48] Overall, by stimulating the right hemisphere during language tasks, therapists hope to decrease dependence on the left hemisphere for language production.^[45]

While results are somewhat contradictory, studies have in fact found increased right hemispheric activation in non-fluent aphasic patients after MIT.^[48] This change in activation has been interpreted as evidence of decreased dependence on the left hemisphere.^[48] There is debate, however, if changes in right hemispheric activation are part of the therapeutic process during/after MIT, or are simply a side effect of non-fluent aphasia.^[49] In hopes of making MIT more effective, researchers are continually studying the mechanisms of MIT and non-fluent aphasia.

Psychiatric disorders

A 2016 meta-analysis on the effects of music therapy in schizophrenic patients showed that the treatment in patients who underwent music therapy was more effective than patients who did not undergo music therapy with their treatments. Some of the positive effects that resulted from the music therapy sessions include decreased aggression, as well as less hallucinations and delusions.^[50]

A 2017 Cochrane review found that moderate-to-low-quality evidence suggests that music therapy as an addition to standard care improves the global state, mental state (including negative and general symptoms), social functioning, and quality of life of people with schizophrenia or schizophrenia-like disorders. However, effects were inconsistent across studies and depended on the number of music therapy sessions as well as the quality of the music therapy provided.^[51]

A 2017 review of studies of music therapy for children and adolescents with major depressive or anxiety disorders found that music-based interventions may be efficient in reducing the severity of internalizing symptoms in children and adolescents.^[52] There is moderate-quality evidence that music therapy added to treatment as usual is more effective than treatment as usual alone in people with depression.^[53]

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A 2017 theoretical review on the use of music therapy in post-traumatic stress disorder suggests that music therapy may be a useful therapeutic tool to reduce symptoms and improve functioning among individuals with trauma exposure and PTSD, though more rigorous empirical study is required.^[55]

Cultural aspects

Music has been looked upon for centuries as an accompaniment to rituals and cultural traditions. Michael Bakan, author of *World Music: Traditions and Transformations*, states that “Music is a mode of cultural production and can reveal much about how the culture works”^[56]

Usage by region

Africa

In 1999, the first program for music therapy in Africa opened in Pretoria, South Africa. Research has shown that in Tanzania patients can receive palliative care for life-threatening illnesses directly after the diagnosis of these illnesses. This is different from many Western countries, because they reserve palliative care for patients who have an incurable illness. Music is also viewed differently between Africa and Western countries. In Western countries and a majority of other countries throughout the world, music is traditionally seen as entertainment whereas in many African cultures, music is used in recounting stories, celebrating life events, or sending messages.^[57]

Australia

One of the first groups known to heal with sound were the aboriginal people of Australia. The modern name of their healing tool is the didgeridoo, but it was originally called the yidaki. The yidaki produced sounds that are similar to the sound healing techniques used in modern day. For at least 40,000 years, the healing tool was believed to assist in healing "broken bones, muscle tears and illnesses of every kind".^[58] However, here are no reliable sources stating the didgeridoo's exact age. Archaeological studies of rock art in Northern Australia suggest that the people of the Kakadu region of the Northern Territory have been using the didgeridoo for less than 1,000 years, based on the dating of paintings on cave walls and shelters from this period. A clear rock painting in Ginga Wardelirrhmeng, on the northern edge of the Arnhem Land plateau, from the freshwater period^[59] (that had begun 1500 years ago)^[60] shows a didgeridoo player and two songmen participating in an Ubarr Ceremony.^[61] Australia in 1949, music therapy (not clinical music therapy as understood today) was started through concerts organized by the Australian Red Cross along with a Red Cross Music Therapy Committee. The key Australian body, the Australian Music Therapy Association (AMTA), was founded in 1975.

Canada

In 1956, Fran Herman, one of Canada's music therapy pioneers, began a 'remedial music' program at the Home For Incurable Children, now known as the Holland Bloorview Kids Rehabilitation Hospital, in Toronto. Her group 'The Wheelchair Players' continued until 1964, and is considered to be the first music therapy group project in Canada.^[62] Its production "The Emperor's Nightingale" was the subject of a documentary film.

Composer/pianist Alfred Rosé, a professor at the University of Western Ontario, also pioneered the use of music therapy in London, Ontario at Westminster Hospital in 1952 and at the London Psychiatric Hospital in 1956.^[63]

Two other music therapy programs were initiated during the 1950s; one by Norma Sharpe at St. Thomas Psychiatric Hospital in St. Thomas, Ontario, and the other by Thérèse Pageau at the Hôpital St-Jean-de-Dieu (now Hôpital Louis-Hippolyte Lafontaine) in Montreal.

A conference in August 1974, organized by Norma Sharpe and six other music therapists, led to the founding of the Canadian Music Therapy Association, which was later renamed the Canadian Association for Music Therapy (CAMT).^[64] As of 2009, the organization had over 500 members.

Canada's first music therapy training program was founded in 1976, at Capilano College (now Capilano University) in North Vancouver, by Nancy McMaster and Carolyn Kenny.^[65]

Norway

Norway is recognized as an important country for music therapy research. Its two major research centers are the Center for Music and Health^[66] with the Norwegian Academy of Music in Oslo, and the Grieg Academy Centre for Music Therapy (GAMUT),^[67] at University of Bergen. The former was mostly developed by professor Even Ruud, while professor Brynjulf Stige is largely responsible for cultivating the latter. The centre in Bergen has 18 staff, including 2 professors and 4 associate professors, as well as lecturers and PhD students. Two of the field's major international research journals are based in Bergen: *Nordic Journal for Music Therapy*^[68] and *Voices: A World Forum for Music Therapy*.^[69] Norway's main contribution to the field is mostly in the area of "community music therapy", which tends to be as much oriented toward social work as individual psychotherapy, and music therapy research from this country uses a wide variety of methods to examine diverse methods across an array of social contexts, including community centers, medical clinics, retirement homes, and prisons.

Nigeria

The origins of Musical therapy practices in Nigeria is unknown, however the country is identified to have a lengthy lineage and history of musical therapy being utilized throughout the culture. The most common people associated with music therapy are herbalists, Witch doctors, and faith healers according to Professor Charles O. Aluede of Ambrose Alli University (Ekpoma, Edo State, Nigeria).^[70] Applying music and thematic sounds to the healing process is believed to help the patient overcome true sickness in his/her mind which then will seemingly cure the disease. Another practice involving music is called "Igbeuku", a religious practice performed by faith healers. In the practice of Igbeuku, patients are persuaded to confess their sins which cause themselves serve discomfort. Following a confession, patients feel emotionally relieved because the priest has announced them clean and subjected them to a rigorous dancing exercise. The dancing exercise is a "thank you" for the healing and tribute to the spiritual greater beings. The dance is accompanied by music and can be included among the unorthodox medical practices of Nigerian culture. While most of the music therapy practices come in the medical field, musical therapy is often utilized in the passing of a loved one. The use of song and dance in a funeral setting is very common across the continent but especially in Nigeria. Songs allude to the idea the finally resting place is Hades (hell). The music helps alleviate the sorrows felt by the family members and friends of the lost loved one. Along with music therapy being a practice for funeral events it is also implemented to those dying as a last resort tactic of healing. The Esan of Edo State of Nigeria, in particular, herbalists perform practices with an Oko – a small aerophone made of elephant tusk which is blown into dying patients' ears to resuscitate them. Nigeria is full of interesting cultural practices in which contribute a lot to the music therapy world.^[71]

United States

Music therapy has existed in its current form in the United States since 1944 when the first undergraduate degree program in the world was begun at Michigan State University and the first graduate degree program was established at the University of Kansas. The American Music Therapy Association (AMTA) was founded in 1998 as a merger between the National Association for Music Therapy (NAMT, founded in 1950) and the American Association for Music Therapy (AAMT, founded in 1971). Numerous other national organizations exist, such as the Institute for Music and Neurologic Function, Nordoff-Robbins Center For Music Therapy, and the Association for Music and Imagery. Music therapists use ideas from different disciplines such as speech and language, physical therapy, medicine, nursing, and education.

A music therapy degree candidate can earn an undergraduate, master's or doctoral degree in music therapy. Many AMTA approved programs offer equivalency and certificate degrees in music therapy for students that have completed a degree in a related field. Some practicing music therapists have held PhDs in fields other than, but usually related to, music therapy. Recently, Temple University established a PhD program in music therapy. A music therapist typically incorporates music therapy techniques with broader clinical practices such as psychotherapy, rehabilitation, and other practices depending on client needs. Music therapy services rendered within the context of a social service, educational, or health care agency are often reimbursable by insurance and sources of funding for individuals with certain needs. Music therapy services have been identified as reimbursable under Medicaid, Medicare, private insurance plans and federal and state government programs.

A degree in music therapy requires proficiency in guitar, piano, voice, music theory, music history, reading music, improvisation, as well as varying levels of skill in assessment, documentation, and other counseling and health care skills depending on the focus of the particular university's program. A music therapist may hold the designations CMT (Certified Music Therapist), ACMT (Advanced Certified Music Therapist), or RMT (Registered Music Therapist) – credentials previously conferred by the former national organizations AAMT and NAMT ; these credentials remain in force through 2020 and have not been available since 1998. The current credential available is MT-BC. To become board certified, a music therapist must complete a music therapy degree from an accredited AMTA program at a college or university, successfully complete a music therapy internship, and pass the Board Certification Examination in Music Therapy, administered through The Certification Board for Music Therapists. To maintain the credential, either 100 units of continuing education must be completed every five years, or the board exam must be retaken near the end of the five-year cycle. The units claimed for credit fall under the purview of the Certification Board for Music Therapists. North Dakota, Nevada and Georgia have established licenses for music therapists. In the State of New York, the License for Creative Arts Therapies (LCAT) incorporates the music therapy credentials within their licensure.

Lebanon

In 2006, Hamda Farhat introduced music therapy to Lebanon, developing and inventing therapeutic methods such as the triple method to treat hyperactivity, depression, anxiety, addiction, and post traumatic stress disorder. She has met with great success in working with many international organizations, and in the training of therapists, educators, and doctors.

United Kingdom

Live music was used in hospitals after both World Wars as part of the treatment program for recovering soldiers. Clinical music therapy in Britain as it is understood today was pioneered in the 1960s and 1970s by French cellist Juliette Alvin whose influence on the current generation of British music therapy lecturers remains strong. Mary Priestley, one of

Juliette Alvin's students, created "analytical music therapy". The Nordoff-Robbins approach to music therapy developed from the work of Paul Nordoff and Clive Robbins in the 1950/60s.

Practitioners are registered with the Health Professions Council and, starting from 2007, new registrants must normally hold a master's degree in music therapy. There are master's level programs in music therapy in Manchester, Bristol, Cambridge, South Wales, Edinburgh and London, and there are therapists throughout the UK. The professional body in the UK is the British Association for Music Therapy^[72] In 2002, the World Congress of Music Therapy, coordinated and promoted by the World Federation of Music Therapy, was held in Oxford on the theme of Dialogue and Debate.^[73] In November 2006, Dr. Michael J. Crawford and his colleagues again found that music therapy helped the outcomes of schizophrenic patients.^{[74][75]}

India

The roots of musical therapy in India, can be traced back to ancient Hindu mythology, Vedic texts, and local folk traditions.^[76] It is very possible that music therapy has been used for hundreds of years in the Indian culture. In the 1990s, another dimension to this known as Musopathy was postulated by Indian musician Chitravina Ravikiran based on fundamentals criteria derived from acoustic physics.

The "Indian Association of Music Therapy" was established in 2010 by Dr. Dinesh C. Sharma with a motto "to use pleasant sounds in a specific manner like drug in due course of time as green medicine"^[77] He also publish a journal "International Journal of Music Therapy (ISSN 2249-8664) to popularize and promote music therapy research on international platform^[78]

Suvarna Nalapat has studied music therapy in the Indian context. Her books *Nadalayasindhu-Ragachikilsamrutam* (2008), *Music Therapy in Management Education and Administration* (2008) and *Ragachikitsa* (2008) are accepted textbooks on music therapy and Indian arts.^{[79][80][81][82][83]}

The "Music Therapy Trust of India" is yet another venture in the country. It was started by Margaret Lobo^[84] She is the founder and director of the Otakar Kraus Music Trust and her work began in 2004.^[85]

History

According to Evan Andrews, reporting on the History Channel, ancient flutes, carved from ivory and bone, were found by archaeologists, that were determined to be from as far back as 43,000 years ago. He also states that "The earliest fragment of musical notation is found on a 4,000-year-old Sumerian clay tablet, which includes instructions and tuning for a hymn honoring the ruler Lipit-Ishtar. But for the title of oldest extant song, most historians point to "Hurrian Hymn No. 6" <https://www.youtube.com/watch?v=QpxN2VXPMLc>^[86] an ode to the goddess Nikkal that was composed in cuneiform by the ancient Hurrian's sometime around the 14th century B.C."^[87] These historic artifacts suggest that perhaps music did play a part in mankind's advancement's. The find, of the oldest known melody, Hurrian Hymn No. 6, proves that humans were composing music as far back as 3,400 years ago and leads me to believe that there was, more than likely, some form of music much farther in the past than we know. Scientific research shows that humans have been evolving over a period of millions of years. <http://humanorigins.si.edu/education/introduction-human-evolution>^[88]

Music has been used as a healing implement for centuries.^[89] Apollo is the ancient Greek god of music and of medicine. Aesculapius was said to cure diseases of the mind by using song and music, and music therapy was used in Egyptian temples. Plato said that music affected the emotions and could influence the character of an individual. Aristotle taught that music affects the soul and described music as a force that purified the emotions. Aulus Cornelius Celsus advocated the sound of cymbals and running water for the treatment of mental disorders. Music therapy was practiced in the Bible when David played the harp to rid King Saul of a bad spirit (1 Sam 16:23).^[90] As early as 400 B.C., Hippocrates played music for mental patients. In the thirteenth century, Arab hospitals contained music-rooms for the benefit of the patients.^[91] In the United States, Native American medicine men often employed chants and dances as a method of healing patients.^[92] The Turco-Persian psychologist and music theorist al-Farabi (872–950), known as Alfarabius in Europe, dealt with music therapy in his treatise *Meanings of the Intellect*, in which he discussed the therapeutic effects of music on the soul.^[93] In his *De vita libri tres* published in 1489, Platonist Marsilio Ficino gives a lengthy account of how music and songs can be used to draw celestial benefits for staying healthy.^[94] Robert Burton wrote in the 17th century in his classic work, *The Anatomy of Melancholy*, that music and dance were critical in treating mental illness, especially melancholia.^{[95][96][97]}

The rise of an understanding of the body and mind in terms of the nervous system led to the emergence of a new wave of music therapy in the eighteenth century. Earlier works on the subject, such as Athanasius Kircher's *Musurgia universalis* of 1650 and even early eighteenth-century books such as Michael Ernst Etmüller's 1714 *Disputatio effectus musicae in hominem* (Disputation on the Effect of Music on Man) or Friedrich Erhardt Niedten's 1717 *Veritophili*, still tended to discuss the medical effects of music in terms of bringing the soul and body into harmony. But from the mid-eighteenth century works on the subject such as Richard Brocklesby's 1749 *Reflections of Antient and Modern Musick*, the 1737 *Memoires* of the French Academy of Sciences, or Ernst Anton Nicolai's 1745 *Die Verbindung der Musik mit der Arzneygelahrheit* (The Connection of Music to Medicine), stressed the power of music over the nerves.^[98]

After 1800 books on music therapy often drew on the Brunonian system of medicine, arguing that the stimulation of the nerves caused by music could directly improve health. For example, Peter Lichtenthal's influential 1807 book *Der musikalische Arzt* (The Musical Doctor) was also explicitly Brunonian in its treatment of the effects of music on the body. Lichtenthal, a musician, composer and physician with links to the Mozart family, was mostly positive about music, talking of 'doses of music', which should be determined by someone who knows the "Brunonian scale".^[99]

Music therapy as we know it began in the aftermath of World Wars I and II, when, particularly in the United Kingdom, musicians would travel to hospitals and play music for soldiers suffering from war-related emotional and physical trauma.^[100]

Even as recent as 2017, music therapy has shown the ability to provide emotional relief to the members of our society. With Logic's "1-800-273-8255", suicide prevention calls experienced a 33% growth in relation to their number of calls received in the previous year.^[101]

Military

History

Music therapy finds its roots in the military. The United States Department of War issued Technical Bulletin 187 in 1945, which described the use of music in the recuperation of military service members in Army hospitals.^[102] The use of music therapy in military settings started to flourish and develop following World War II and research and endorsements from both the United States Army and the Surgeon General of the United States. Although these endorsements helped music therapy develop, there was still a recognized need to assess the true viability and value of music as a medically-based therapy. Walter Reed Army Medical Center and the Office of the Surgeon General worked together to lead one of the earliest assessments of a music therapy program. The goal of the study was to understand whether “music presented according to a specific plan” influenced recovery among service members with mental and emotional disorders.^[103] Eventually, case reports in reference to this study relayed not only the importance but also the impact of music therapy services in the recovery of military service personnel.

A music therapist from a "Blues in the Schools" program plays harmonica with a US Navy sailor at a Naval Therapy Center.

The first university sponsored music therapy course was taught by Margaret Anderton in 1919 at Columbia University.^[104] Anderton's clinical specialty was working with wounded Canadian soldiers during World War II, using music-based services to aid in their recovery process.

Today, Operation Enduring Freedom and Operation Iraqi Freedom have both presented an array of injuries; however, the two signature injuries are Post-Traumatic Stress Disorder (PTSD) and Traumatic Brain Injury (TBI). These two signature injuries are increasingly common among millennial military service members and in music therapy programs.

A person diagnosed with PTSD can associate a memory or experience with a song they have heard. This can result in either good or bad experiences. If it's a bad experience, the song's rhythm or lyrics can bring out the person's anxiety or fear response. If it's a good experience, the song can bring feelings of happiness or peace which could bring back positive emotions. Either way, music can be used as a tool to bring emotions forward and help the person cope with them.

Methods

Music therapists work with active duty military personnel, veterans, service members in transition, and their families. Music therapists strive to engage clients in music experiences that foster trust and complete participation over the course of their treatment process. Music therapists use an array of music-centered tools, techniques, and activities when working with military-associated clients, many of which are similar to the techniques used in other music therapy settings. These methods include, but are not limited to: group drumming, listening, singing, and songwriting. Songwriting is a particularly effective tool with military veterans struggling with PTSD and TBI as it creates a safe space to, "... work through traumatic experiences, and transform traumatic memories into healthier associations".^[105]

Programs

Music therapy in the military is seen in programs on military bases, VA healthcare facilities, military treatment facilities, and military communities. Music therapy programs have a large outreach because they exist for all phases of military life: pre-mobilization, deployment, post-deployment, recovery (in the case of injury), and among families of fallen military service personnel.^[106]

Resounding Joy, Inc., a San Diego, California-based music therapy program, is a pioneer for the use of music therapy in the military. Its Semper Sound program specializes in providing music therapy services to active duty military service members and veterans diagnosed with PTSD, TBI, substance abuse, and other trauma-related diagnoses. It features different programs such as The Semper Sound Band, based in San Diego, California, and the GI Jams Band, based in Chelsea, Massachusetts.^[107]

Walter Reed Army Medical Center located in Bethesda, Maryland, is another pioneer for the use of music therapy in the military. All patients at the medical center are eligible to receive music therapy services; therefore, the range of clients is wide: TBI, stroke, psychological diagnoses (anxiety, depression, PTSD), autism spectrum disorder, and more.^[106]

The Exceptional Family Member Program (EFMP) also exists to provide music therapy services to active duty military families who have a family member with a developmental, physical, emotional, or intellectual disorder. Currently, programs at the Davis-Monthan Air Force Base, Resounding Joy, Inc., and the Music Institute of Chicago partner with EFMP services to provide music therapy services to eligible military family members.^[106]

Music therapy programs primarily target active duty military members and their treatment facility in order to provide reconditioning among members convalescing in Army hospitals.^[108] Although, music therapy programs not only benefit the military but rather a wide range of clients including the U.S Air Force, American Navy, and U.S Marines Corp. Individuals exposed to trauma benefit from their essential rehabilitative tools in order to follow the course of recovery from stress disorders. Music therapists are certified professionals who possess the abilities to determine appropriate interventions to support one recovering from a physically, emotionally, or mentally traumatic experience.^[109] In addition to their skills, they play an integral part throughout the treatment process of service members diagnosed with post-traumatic stress or brain injuries. In many cases, self-expression through songwriting or utilizing instruments help restore emotions that can be lost after suffering trauma.^[109] Music has a significant effect on troops traveling overseas or between bases because many soldiers view music to be an escape from war, a connection to their homeland and families, or as motivation. By working with a certified music therapist, marines undergo sessions re-instituting concepts of cognition, memory attention, and emotional processing.^[110] Although programs primarily focus on phases of military life, other service members such as the U.S Air Force are eligible for treatment as well. For instance, during a music therapy session, a man begins to play a song to a wounded Airmen. The Airmen says “ [music] allows me to talk about something that happened without talking about it”.^[111] Music allows the active duty airmen to open up about previous experiences while reducing his anxiety level.

See also

- Affective neuroscience
- Biomusicology
- Chronobiology
- Eloise (psychiatric hospital)
- Embodied music cognition
- Expressive therapies
- Melodic intonation therapy
- Music as a coping strategy
- Musical analysis
- Music cognition
- Music therapy in Canada
- Music psychology

- [Psychoacoustics](#)
- [Psychoanalysis and music](#)
- [Psychoneuroimmunology](#)

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confine myself to my proper subject: besides that excellent power it hath to expel many other diseases, it is a sovereign remedy against [3482] despair and melancholy, and will drive away the devil himself. Canus, a Rhodian fiddler, in [3483] Philostratus, when Apollonius was inquisitive to know what he could do with his pipe, told him, 'That he would make a melancholy man merry, and him that was merry much merrier than before, a lover more enamoured, a religious man more devout.' Ismenias the Theban, [3484] Chiron the centaur, is said to have cured this and many other diseases by music alone: as now they do those, saith [3485] Bodine, that are troubled with St. Vitus's Bedlam dance."

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External links

- [Video \(04:44\): Music – Medical Benefits \(https://www.youtube.com/watch?v=R0JKCYZ8hng\)](https://www.youtube.com/watch?v=R0JKCYZ8hng) on [YouTube](#)
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