A Review on the Effectiveness of Music Therapy for Treatment of Psychological Conditions

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Abstract

The therapeutic intervention of music for psychological conditions has existed since antiquity and is only being rediscovered recently. In recent times, numerous scientific studies have been carried out, evaluating the effectiveness of music in many psychiatric disorders such as anxiety, depression, schizophrenia, manic psychosis, post-traumatic stress disorder (PSTD), and obsessive neurosis. Music therapy belongs to an area of psychology and psychotherapy categorized under the broad field of Expressive Arts Therapy. Expressive arts therapy combines psychology and the creative process to promote emotional growth and healing. Research proves that music therapy provides a mitigative effect on psychological conditions. Specifically, music therapy treats an array of psychological conditions such as depression, anxiety, panic disorders, phobias, post-traumatic stress disorder (PTSD), trauma, schizophrenia and bipolar disorder without side effect, except in a case with some bipolar patients. This literature review looks at a brief history of music interventions for psychological conditions, the nature of each psychological condition, and some early and current works carried out on different populations including elementary school pupils, secondary school students as well as tertiary institution students. Other samples include clients and patients from outside of the school environment. Some of the research methodologies used in selected studies and their effectiveness in treating each psychological condition will also be reviewed and briefly discussed.

Keywords: Music therapy, mental health, anxiety, depression, PTSD, schizophrenia, bipolar disorder and substance use disorder.

Introduction

The therapeutic intervention of music for psychological conditions has existed since antiquity and is only being rediscovered recently. Greek physicians used lyres, flutes, and zitters to heal their patients. Vibrations were used to treat mental disturbance, induce sleep, and aid digestion. Ancient Egyptians used musical incantations for therapeutic purposes and Aristotle (323-373 BCE), in his famous book *De Anima,* stated that flute music could arouse strong emotions and purify the soul (Meymandi, 2009).

One of the earliest documented evidence of the effectiveness of music therapy in the treatment of a psychological condition in a patient is found in the Christian Bible. In about 1000 BC, King Saul's medical record stated that he was troubled by a distressing spirit from the Lord that resulted in depression and fear: "But the Spirit of the LORD departed from Saul, and a distressing spirit from the LORD troubled him. (1 Samuel 16;14)". The biblical words "the distressing spirit from the Lord" could be assumed to indicate an irritable mood, psychomotor

agitation or retardation, insomnia or hypersomnia, diminished ability to think or concentrate, sadness, and or low concentration (Ben-Noun, 2013). However, King Saul's therapist, David, arrested the psychological condition by playing soothing music on the harp: "And so it was, whenever the spirit from God was upon Saul, that David would take a harp and play it with his hand. Then Saul would become refreshed and well, and the distressing spirit would depart from him (1 Samuel 16:23)". This is an ancient account of a successful intervention of psychological condition using music therapy.

Pythagoras in Greece used music to help the relief of fears, anger, and concerns. It was Plato who said, "music has the power to touch the deepest of our soul and ignites the imagination" (Dos Santos et al., 2019). Around 324 BC, the sanity of Alexander the Great was restored using the music of lyres. Also during the reign of Elizabeth I, was Thomas Campian the physicist who was also a lyricist, a composer, and a vocalist. He practiced the philosophical cure for depression and related problems through songs. Notable also in Jacobean England was Thomas Cogan and Richard Brown who provided music therapy to their patients (Oliver & Dos Santos, 2019).

The first time music therapy services were provided to a large group of mentally ill patients was in the 19th century (Jernigan, 2021). It was reported that a series of music therapy experiments took place in Blackwell's Island's insane asylum. Individual, as well as group music sessions, were given to patients who listened. In that study, physiological and psychological responses to the music sessions were taken by a team of physicians as more than 40 instrumental musicians and vocalists performed and the patients listened.

American Music Therapy Association (AMTA) described music therapy as the clinical & evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy programme (AMTA, 2005).

Hannibal et al state that music therapy with a psychodynamic and relationally orientated approach to treatment is comprised of musical and verbal interventions that are used to create the necessary conditions for psychological change and support (Hannibal et al., 2012). Musical interventions for therapy could be active whereby the client makes music by improvisation, songwriting, or music performance (Wigram, 2004), or receptive whereby the client listens and responds to music. The music for the receptive mode of intervention is sometimes chosen by the patient or at other times by the therapist (Grocke & Castle, 2011).

Having explained music therapy, it will be important to mention its counterpart – music medicine. There are two distinct differences between music therapy and music medicine. In music therapy, a therapeutic relationship must be formed with the client so that the client's health can improve and his personal goals and aspirations attained. The therapeutic relationship is needed to address the emotional, social, cognitive, and behavioural needs of the client (Raglio et al in Bellapu et al., (2021). Secondly, music therapy is defined as a process, where therapists are trained to treat clients by using music as a tool instead of as a passive intervention. Music

medicine, however, has no systematic therapeutic process associated with it (Bellapu et al., 2021).

Although music medicine does not require active interaction from the client, in a typical music therapy session, patients can take part through dialogue and active music-making (Rafieyan & Ries in Bellapu et al, 2021) as mentioned earlier. However, a meta-analysis, Bradt et al in Bellapu et al, (2021) found that there was no significant difference in the efficacy of the music therapy approach and the music medicine approach, although participants would usually opt for music therapy (Bellapu et al., 2021). This lends an argument that music has inherent strong therapeutic qualities.

In recent times, numerous scientific studies have been carried out, evaluating the effectiveness of music in many psychiatric disorders, such as anxiety, depression, schizophrenia, manic psychosis, PSTD, and obsessive neurosis. This review will look at each psychological condition one after the other.

Anxiety Disorder

Anxiety disorders are normal reactions to stress. Spielberger in Saraso II (2013), defined anxiety as an emotional state consisting of feelings of tension, apprehension, nervousness, and worry, and activation of the autonomic nervous system (Saraso II, 2013). According to APA, anxiety disorders differ from normal feelings of nervousness and involve excessive fear and anxiety. Various anxiety disorders include generalized anxiety disorders, special phobias, social anxiety disorder, panic disorder, agoraphobia, and separation anxiety disorder. Cognitive behavioural therapy, antianxiety medications and other forms of psychotherapy are used to treat anxiety.

One common anxiety disorder that affects a lot of students at all cadre including primary, secondary and tertiary levels is test anxiety which falls under the social anxiety disorder category. Test anxiety is a psychological condition in which students experience extreme distress and anxiety in testing situations (Doherty & Wenderoth, 2017). Students' performance in tests can be negatively affected by test anxiety which has a negative effect on the contribution they could make in their communities. As a result, test anxiety has the propensity to override normal thought processes in students who are susceptible to its influence, thereby lowering the probability of achieving optimal results on exams.

In a 2021 study on the effectiveness of music-based CBT intervention programme on the management of test anxiety among pupils, results showed that CBT-Music had a significant effect on the management of test-taking behavior among children (Agboeze et al., 2020). During the sessions, a Test Anxiety Questionnaire (TAQ) was administered to a randomly selected group of 53 children who showed signs of test anxiety by their scores. This provided the baseline data (pretest). Thereafter, the experimental group was exposed to 90 minutes of music-based CBT programme in an intervention programme that lasted for 12 weeks. The aim of the programme was to reduce the level of test-taking behaviors among children through the infusion

of music in nearly all aspects of CBT group therapy. The infusion activities included the use of critical listening to the musical material, playing different musical instruments, and adopting music as a point of reference in group discussions and homework assignments. The group was restricted to a traditional CBT group structure such as teamwork, and the use of CBT tools such as behavioral experiments, thought records, and homework after each session.

The findings of the study revealed that a music-based CBT intervention programme was significantly effective in the management of test-taking behavior of children in basic science. Results showed that the children in the intervention group had a significant reduction in their test anxiety rating at both post-test and follow-up measures due to their exposure to the 12 weeks intervention programme with music-based CBT. The researchers reported that this result validated the efficacy of the CBT music programme which was equally effective when used on secondary school and university students in the past.

A similar study had been carried out earlier in 1999 this time, with nursing students this time using Sarason's Test Anxiety Scale which yielded the same results in favor of the use of music therapy to eliminate test anxiety in students. The study was conducted to explore the effect of relaxation music played in the background during testing, on anxiety levels and test performance in nursing students taking a medical math exam (Dillon, 2004). 24 volunteer senior nursing students recruited from one class at a large university in New England constituted the sample. Students were randomly assigned to the control made up of a traditional quiet classroom or to an experimental group that received relaxation music while taking a medical mathematics examination. The results showed was a decrease in anxiety level post-test in the experimental group that was not seen in the control or the sample as a whole.

Sarason's Test Anxiety Scale was also used on university students on the effect of music on test anxiety. Stanton and Flinders (1973) in this study reported that when university students who were identified as "test anxious", by results on Sarason's Test Anxiety Scale (TAS), were exposed to classical music in the background while testing, students with above the mean anxiety scores received higher scores on the test than those who didn't receive the music treatment. During this process, highly test anxious students, determined by TAS, were put into 3 groups. Group 1 had silence before and during testing, group 2 had pre-treatment with relaxation music but quiet during the exam, and group 3 had music played throughout. Both groups 2 and 3 outperformed group 1 on the exam, and group 2 had the highest scores. This finding revealed that high anxiety students achieved superior results when exposed to background music (Stanton, 1973). Fudin and his team had the same result when they exposed 18-25-year-old medical students (n=20) to quiet classical music for 20 minutes before an exam. They reported that with the right music selection, music therapy can prevent students from unfavorable stress reactions before exams (Fudin et al., 1996).

Depression

According to American Psychiatric Association, depression is a common and serious medical illness that negatively affects how people feel, the way people think and how people act. Depression causes feelings of sadness and/or a loss of interest in activities once enjoyed. It can lead to a variety of emotional and physical problems and can decrease a person's ability to function at work and at home (APA).

Depression symptoms can vary from mild to severe and can include:

1. Feelings of sadness or a depressed mood.
2. Disinterest or pleasure in activities once enjoyed.
3. Loss of appetite and a consequential weight loss or gain not related to diet.
4. Insomnia or excessive sleep.
5. Energy loss or increased fatigue.
6. Increase in purposeless physical activity observable by other people.
7. Feelings of worthlessness or guilt.
8. Indecisiveness, lack of concentration and difficulty in thinking.
9. Suicidal thoughts.

A worldwide study on music therapy practice status showed that 31% of music therapists treat patients with depression and that together with developmental disorders and autism spectrum disorder, depression ranks high in the fields that employ music therapy (Geipel et al., 2022). Several systematic reviews have established that music therapy as well as other music-based interventions have proven helpful in reducing depressive symptoms in adults (Geipel et al., 2022).

One of the these systematic reviews is a Cochrane review done in a 2008 study that identified five randomized control trials of adequate methodological quality (Maratos et al., 2008). Music therapy was compared to standard care by most of them and they mostly suggested that people with depression accepted music therapy and demonstrated improvements in mood. The study utilized music listening which was a central working mode in most of the cases and active music-making, often central in music therapy practice. However, active music-making was a central working mode and in just one study the use of instrumental music for therapy needed more research work on (Maratos et al., 2008).

However, a study developed a methodology they considered more effective for the use of music therapy in tackling depression as they were of the opinion that previous studies on the use of Music therapy as reported on the Cochrane reviews for effective treatment of depression were methodologically insufficient and lacked clarity about the clinical model employed (Erkkilä et al., 2008). They came up with a methodology that combined music therapy with standard care and compared it with standard care only in the treatment of depression among working-age people. 79 Participants with an ICD– 10 diagnosis of depression were randomized to receive

individual music therapy plus standard care (20 twice a week sessions) or standard care only, and followed up at baseline, at 3 months (after intervention) and at 6 months. Clinical measures included depression, anxiety, general functioning, quality of life and alexithymia. Participants receiving music therapy plus standard care showed greater improvement than those receiving standard care only in depression symptoms, anxiety symptoms and general functioning at 3-month follow-up. The take-away here however is that music therapy has mitigative effect on individuals with depression whether combined with standard care or not. Subsequent and recent research on the field has however revealed that exclusive use of music therapy has yielded overall better results for tackling depression than when combined with or compared to exclusive standard care.

For the application of music therapy in the school system, a 2019 study reported that the application of music therapy can alleviate the depression of teachers to a large extent and has important clinical practice significance (Wang, 2019). Sixty patients with depression were selected as the study participants, and they were randomly divided into two groups, with thirty patients in the observation group and thirty patients in the control group. The experimental group underwent music therapy while the control group was given routine drug therapy for depressed teachers representing standard care. Using the Hamilton Anxiety Scale and Hamilton Depression Rating Scale, the depression treatment effects on the two groups of teachers were measured. On treatment with music therapy, the experimental group was significantly relieved of depression. The rate of reduction of the experimental group of teachers was significantly better than that of the control group.

The spiritual dimension of music therapy for depression is not left out. In 2010, a research project carried out on fifty indoor patients admitted at Gupta Hospital, Hisar for depression showed that patients had a fast recovery from depressive symptoms and exhibited normal behavior after receiving 5 days of Indian devotional Music Therapy (Arya & Parle, 2010). The devotional music intervention showed a positive effect on the cognitive parameters. Patients demonstrated stable minds, better perception, improved expression, good intellect, fine decision-making ability, and sharp memory after receiving Music Therapy of a devotional nature.

Some patients suffering from one debilitating sickness or the other can get into depression as a result of the sickness which further worsens their health condition. Various standard care methods used to alleviate anxiety and depression for sick people, come with side effects (Jasemi et al., 2016). However, music therapy has been proven to arrest depression and anxiety in chronically sick people without side effects. Such example is with cancer patients. Cancer patients often suffer from anxiety and depression. A quasi-experimental study was carried on a total number of sixty patients divided into intervention and control groups in 2016 (Jasemi et al., 2016). Patients in the intervention group were treated to music listening for 20 mins per day for three days. A Hospital Anxiety and Depression Scale was used to assess the patients' anxiety and depression level at baseline and 3 days after the music therapy. The study revealed positive

effects of music therapy on decreasing level of depression and anxiety in cancer patients. Music therapy is therefore recommended in nursing care for such cases.

Although Music therapy functions as a non-pharmacological intervention for various psychological disorders with promising results without side effects, Li et al (2022) stated that the effectiveness of music therapy for improving anxiety, depression, and sleep quality in ICU patients remained unclear. To this effect, they ran a meta-analysis by searching Randomized controlled trials (RCTs) reporting the efficacy of music therapy on improving anxiety, depression and sleep quality in ICU patients published before January 2022. The databases searched included PubMed, the Cochrane Library, Web of Science, Embase, Chinese Biomedical Literature Database, China National Knowledge Infrastructure, VIP Database, and Wan Fang Database. The results of this meta-analysis was to provide reliable evidence-based evidence for the effect of music therapy on anxiety, depression, and sleep quality in ICU patients (Li et al., 2022).

In another study applying music therapy to hospitalized people with depression, Fernandes and D'silva (2019) in Krauss (2019) investigated the effects of music therapy on hemodialysis patients. Depression is a major psychological disorder that hemodialysis patients struggle with. In this study, passive music therapy was used. The patients were exposed to a certain genre of music in order to affect their mental and emotional states. 40 subjects were analyzed using qualitative data from the Depression Anxiety Stress Scale (DASS) as the instrument. The therapy effectively decreased general stress, anxiety, and depression levels, all significant up to a 95% confidence interval. This research proved that music therapy can be effective in preventing symptoms of depression from becoming exacerbated during times of treatment, giving music therapy a viable entrance into the medical realm rather than simply the context of psychotherapy (Krauss, 2019).

Post-Traumatic Stress Disorder (PSTD).

According to American Psychiatric Association, Posttraumatic Stress Disorder (PTSD) is a psychiatric disorder that can occur in people who have experienced or witnessed a traumatic event, series of events or set of circumstances. An individual may experience this as emotionally or physically harmful or life-threatening and may affect mental, physical, social, and/or spiritual well-being. Examples include natural disasters, serious accidents, terrorist acts, war/combat, rape/sexual assault, historical trauma, intimate partner violence and bullying. Cognitive Behavioral Therapy is usually a standard intervention for patients suffering from PSTD. However, not all patients with post-traumatic stress disorder (PTSD) respond to cognitive behavioral therapy (Carr et al., 2012). A randomized controlled study carried out on adult psychiatric patients with PTSD who were unable to improve with CBT, revealed a significant decrease in PTSD symptoms after group music therapy compared to standard treatment (Carr et al., 2012).

A group music therapy study developed a song-writing technique that utilized four sessions of songwriting with children and adolescents. The results showed a positive effect on PTSD symptoms compared to games in nine psychiatric patients aged 9–17 years with histories of sexual abuse (Coulter, 2000). A study carried out on two schools in Australia on the effect of music therapy services on classroom behaviors of newly arrived refugee students manifested positive effects using music therapy. A significant decrease in externalizing behaviors was found with particular reference to hyperactivity and aggression (Baker & Jones, 2006). Individuals with PTSD do not respond well to drug treatments for insomnia (Blanaru et al., 2012). The inability for pharmacological interventions to curb this necessitated research for non-pharmacological interventions such as music therapy.

A study with refugee cases, Jespersen and Vuust discovered a significant improvement in sleep quality in a randomized controlled trial of 23 adult refugees with undiagnosed PTSD. Special pillows enhanced with loudspeakers were given to all the participants to sleep with. The experimental group listened to calming music 30 minutes before falling asleep while the other group had no music (Jespersen & Vuust, 2012). Another sleep study provided evidence that music relaxation at bedtime can be used as treatment for insomnia among individuals with PTSD. The study showed that music-guided relaxation resulted in decreased depression and increased sleep quality compared to relaxation with no music in 13 veterans (Blanaru et al., 2012).

Schizophrenia

American Psychiatric Association describes schizophrenia as a chronic brain disorder that affects about one percent of the population. Symptoms associated with a schizophrenia incident include hallucinations, delusions, incoherent speech, lack of motivation, and difficulty with thinking (APA, 2023c).

The symptoms of schizophrenia are usually classified as 'positive' (where something is added, such as hallucinations or paranoid ideation; also classified as schizophrenia type I) and 'negative' (where something is missing, such as the ability to express oneself emotionally or to form satisfying relationships with others; also classified as schizophrenia type II) (Geretsegger et al., 2017). Gold in Geretsegger et al, 2019 has stated that the aspects of schizophrenia associated with losing and regaining creativity, emotional expressiveness, social relationships, and motivation may be important in relation to music therapy (Geretsegger et al., 2017). Experts are discovering the causes of the disease by studying genetics, conducting behavioral research, and using advanced imaging to look at the brain's structure and function (APA). The lack of a cure for schizophrenia has lent research in the field of music therapy.

One of the greatest challenges for people living with schizophrenia is maintaining social networks. Group music therapy has been sown to provide an essential opportunity to help schizophrenia patients develop appropriate social and communicative skills. This is because

music therapy brings people together in a shared experience that encourages verbal and musical interaction, which in turn affects relationships (Grocke & Castle, 2011). According to a review done by Grocke and Castle, the most common music therapy method outlined in literature as effective for people with severe mental illnesses such as schizophrenia are song-singing and improvisation. According to their findings, writing original songs that are subsequently recorded is an established music therapy method that enables a person who is musically naive to compose original lyrics (often on topics that relate to his/her life situation), and with the guidance of a music therapist compose the musical structure and form, choosing the genre, melodic, rhythmic, and harmonic features. This process, they stated is acknowledged as a strengths-based approach to therapy which builds resourcefulness and resilience and in the case of people with long-standing mental illness provides an opportunity for participants to access untapped creativity (Grocke & Castle, 2011). In a study they did, participants were people with severe, long-standing mental illness (mostly schizophrenia) who were residents of the community.

Two groups wrote two songs. Each group recorded the original song/s in a professional recording studio and copies of the CD were then presented to the participants. Quality of life (Qol) and social anxiety were measured pre-and post-study and a statistically significant improvement was detected on six items of the World Health Organization (WHO) Qol BREP (Hawthorne et, al., 1999) in (Grocke & Castle, 2011) scale, and one item on the social anxiety scale (Mattick & Clarke, 1998) in (Grocke & Castle, 2011), an improvement on 'making eye contact with others' (Grocke & Castle, 2011).

A 2013 Cochrane review of the effects of music therapy, or music therapy added to standard care, compared with 'placebo' therapy, standard care or no treatment for people with serious mental disorders such as schizophrenia was carried out (Geretsegger et al., 2017). The authors included eight studies (total 483 participants). These studies examined effects of music therapy over the short- to medium-term (one to four months), with treatment 'dosage' varying from seven to 78 sessions. Music therapy added to standard care was superior to standard care for global state.

Bipolar Disorder

According to American Psychiatric Association, bipolar disorder is a brain disorder that causes changes in a person's mood, energy, and ability to function. People with bipolar disorder experience intense emotional states that typically occur during distinct periods of days to weeks, called mood episodes. These mood episodes are categorized as manic/hypomanic (abnormally happy or irritable mood) or depressive (sad mood). People with bipolar disorder generally have periods of neutral mood as well. When treated, people with bipolar disorder can lead full and productive lives (APA, 2023b). Bipolar disorder can disrupt a person’s relationships with loved ones and cause difficulty in working or going to school.

Research on music therapy for bipolar disorder is limited, and in some cases, conflicting according to Mission Harbour Behavioral Health. Stefani and Biasutti (2016) did a study that included some participants with bipolar disorder and found that music therapy (done in a group

format) was effective for reducing the required doses of some psychiatric medications among study participants, which suggests it could reduce bipolar symptoms (Degli Stefani & Biasutti, 2016). However, music therapy does not work for every bipolar patient as reported by Choppin et al, (2016). The researchers found out that participants in a euthymic bipolar group "experienced more intense complex negative emotions than the control groups when the musical excerpts induced wonder". They also reported that "patients showed greater emotional reactivity in daily life (ERS)". More so, a "greater experience of tension while listening to positive music seemed to be mediated by greater emotional reactivity and a deficit in executive functions" (Choppin et al., 2016).

Substance Use Disorder

The American Psychiatric Association states that substance use disorder encompasses varying degrees of excessive use of a substance, including: alcohol; tobacco; opioids; caffeine; cannabis; hallucinogens; inhalants; sedative, hypnotics, or anxiolytics; stimulants (e.g., amphetamine, cocaine); and more. Various mental health conditions, such as depression, may co-occur along with substance use disorder (APA, 2023a). Carter and Panisch 2020 report that music therapy may help improve mood, sense of purpose, and motivation to change in people with substance use disorder (Carter & Panisch, 2021). The objective of their study was to systematically review randomized controlled trials (RCTs) and quasi-experiments that assessed how music therapy affected the psychosocial outcomes of clients who were being treated for substance use concerns. The review included all RCTs and quasi-experiments published in English-language peer-reviewed journals since 2006 that assessed music therapy interventions for substance use. Their findings supported the possibility that music therapy is an expressive intervention that can reduce depressive symptoms, as well as increase motivation for treatment and readiness to change patterns of substance use. However, a lack of quantitative studies and a paucity of long-term research point to a need for more primary studies before any conclusions can be arrived at as regards the effectiveness of music therapy for treating substance use (Carter & Panisch, 2021).

Conclusion

The literature presented on the effectiveness of music therapy in the treatment of psychological conditions over the years has clearly shown that music therapy can be effective as a treatment option for various forms of psychological conditions without side effects except in one case with some bipolar patients. In both situations where music therapy was used alone or combined with standard conditions, the positive effects of music therapy are confirmed. In the literature, active music therapy, as opposed to receptive methods, seemed to have better efficacy especially for treating more serious cases. On the whole, a majority of the articles agreed that more research was needed in this area before definitive conclusions could be arrived at.

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