

# Music Therapy and Mental Health: A Review

Kimaya Malekar

Dept. of Electronics and Computer Science, Thakur College of Engineering and Technology, Maharashtra, India

\*\*\*

**Abstract** - This paper is a comprehensive analysis on the general application of Music Therapy, specifically pertaining to the effect it has on one's mind. It consists of a thorough review of other renowned research papers and all the physical, mental, emotional and biological aspects along with the importance of studying more about it. Lastly, it discusses some techniques and implications for future research.

**Key Words**- Music Therapy, CBMT, CBT, Depression, Anxiety, Post Traumatic Stress Disorder (PTSD), Schizophrenia, PANSS.

## 1. INTRODUCTION

Music Therapy is a practice of using music as a tool to improve the lives of people suffering from mental and emotional stresses. Often thought to be a newly invented method, it has actually existed for centuries now. Widely practiced across different cultures with their own system and beliefs, the earliest reference is known to have appeared in the late 18th century. Then the 19th century was when the practice became more prevalent. It was around that time the first known experiment was performed to improve mental health of the patients where a psychiatrist used music to 'heal' them in a way. E. Thayer Gaston also known as the "father of music therapy" proved to be a prominent figure by acting as a catalyst to move the profession forward in terms of organization and education of the people. Michigan State University was the first one to introduce a music therapy college program in the year 1944. This was shortly followed by other educational institutions like Chicago Musical College, University Of Kansas, Alverno College etc.

Different types of music therapy :

1. **Benenson Music Therapy** : It is a combination of psychoanalysis and music making. It basically searches for your " sound identity" trying to match an external sound with sound of your subconscious.
2. **Analytical Music Therapy** : It includes use of your voice for singing a song or playing an instrument that will bring out your thoughts and what is going on in your mind. It is a way of expressing without actually talking but rather taking the help of music.
3. **Community Music Therapy** : Considered to be a group activity where people sit in a group where music

therapy is not only directed towards an individual but the whole group. Used to bring a change on a community level.

4. **Cognitive Behavioral Music Therapy (CBMT)** : It is a combination of Cognitive Behavioral Therapy (CBT) and Music. Cognitive behavioral therapy (CBT) is a type of psychotherapeutic treatment that helps people learn how to identify and change the destructive or disturbing thought patterns that have a negative influence on their behavior and emotions. CBMT is used to make or break a habit of a person. May include listening to music, playing an instrument, dancing or even singing.

5. **Nordoff-Robins Music Therapy** : It is a method where the client plays a musical instrument (often a drum) while the therapist accompanies the client using another instrument. Its main objective is to bring out self-expression.

6. **Vocal Psychotherapy**: This method includes practicing vocal exercises, breathing techniques to dig deeper into one's subconscious and form a connection with our emotions.

It helps in improving one's condition regardless of the type or severity of the condition, whether it is Alzheimer's, Diabetes, Insomnia or mental disorders like Depression, Anxiety, Post Traumatic Stress Disorder (PTSD). This paper mainly focuses on how music therapy has an impact on our mind by taking the example of several mental health problems.

### 1.1 WORKING

Music Therapy works by having a positive impact on our brains. When music is played, it helps in the release of a

hormone called oxytocin. It is produced in the hypothalamus part of the brain. Its main function is to stimulate contractions during childbirth but it is also intimately linked with human behaviours like trust, empathy, attachment etc. . A study reveals that people who sing for at least half an hour note a rise in the oxytocin levels making them feel energized.

### 1.2 Background

- a) **Depression** - It is one of those type of disorders that just hinders the overall growth of a person. It

makes you so weak from the inside that you just can't look at the world with optimism. According to the World Health Organization(WHO) 3.8% of the population is affected, including 5.0% among adults and 5.7% among adults older than 60 years i.e. around 280 million people in the world have depression.It is proven to be quite fatal and can even drive people to commit suicide. Behavioural activation, cognitive behavioural therapy(CBT) and interpersonal psychotherapy or antidepressant medication such as selective serotonin reuptake inhibitors (SSRIs) and tricyclic antidepressants (TCAs) are some medical treatments known to cure depression. Music therapy however is also known to be quite effective in the same.

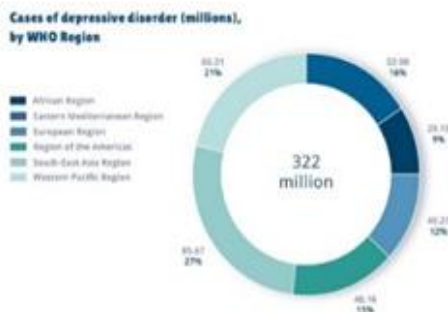


Fig -1: Cases of depression around the world

b) Anxiety Disorders- Stress is something that can be caused by almost anything. But when this stress turns into fear, one starts feeling 'anxious'. This uneasy feeling is what is termed as anxiety .It is pretty normal to feel anxious. This feeling normally comes and goes, not enough to hinder your everyday work. But if the fear stays with you all the time, becomes overbearing and intense, that is when it becomes a disorder. Anxiety is not pertained to one area but rather a vivid range. Different people have different anxiety problems that they face on a daily bases. It is not necessary that the symptoms and effect for everyone is the same.

Therefore there are several anxiety disorders like:

- Panic Disorders : one experiences what is termed as a 'panic attack', basically where the person is rendered helpless and is unable to react or get out of an intense episode of sudden fear. Usually lasts for a few minutes.
- Phobia : fear of an object, situation , person or an activity.

- Social anxiety: what teenagers call being 'socially awkward' these people always fear social interactions as they are scared of being judged by others.
- Separation anxiety: scared of being away from someone or something whether it is a person, your home or some object.

According to WHO , people with anxiety disorders make up around 3.6% of the world population. Around 260 million people in the world live with anxiety disorders, what is frightening is the number keeps increasing every year.

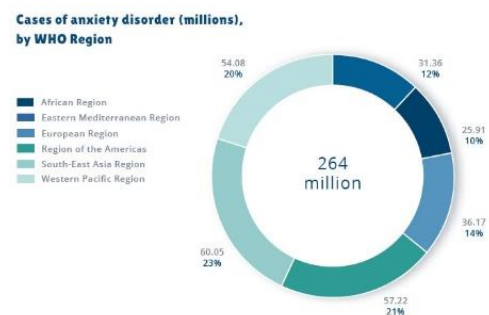


Fig -2: Anxiety cases around the world

c) Post Traumatic Stress Disorder (PTSD) - Known to be triggered by experiencing a terrifying event or even by witnessing it. Everyone goes through a rough patch or experiences a 'trauma' at some point in their lives. While some people recover , others carry it for the rest of their lives, thus getting diagnosed with PTSD. People with PTSD can get flashbacks of the event from time to time and anything related to the incident can trigger the condition.

In a previous WHO study of 21 countries, more than 10% of respondents reported witnessing violence (21.8%) or experiencing interpersonal violence (18.8%), accidents (17.7%), exposure to war (16.2%) or trauma to a loved one (12.5%). An estimated 3.6% of the world's population has suffered from post-traumatic stress disorder (PTSD).

d) Schizophrenia – It is quite a serious mental health condition that hinders the overall ability of a person to think and behave. It is a disorder that needs immediate and thorough medical attention at all times.Behaviour wise, the person may experience aggression, loneliness,social isolation which can trigger incidents of hallucinations, self-harm, paranoia and even memory loss in some cases.

WHO states that around 24 million (1 in 300) people are affected worldwide every year.

## 2. LITERATURE REVIEW

Following information is about how music therapy has helped better the condition of people with anxiety, depression, PTSD and schizophrenia. It is from different research papers that carried out these experiments.

- **For Depression:**  
An article was published in The British Journal of Psychiatry where trials were conducted to test the effect of music therapy on depression among working-age people.

Around 79 people participated it .Out of which around 33 people were assigned to music therapy while others had their normal treatment going on . The clients were filtered on the basis of several criteria like if they were suicidal, had acute or severe substance misuse,if they had less knowledge of the finnish language ( the trials were conducted in finland hence knowing finnish was necessary).the trials took place in t the Music Therapy Clinic for Research and Training, University of Jyva"skylä", Finland. This trial took place in the year 2008.

### A)Method

Psychiatric assessments were conducted in 3 and 6 months follow up one after the music therapy and another one after the program was over.All these assessments were carried out by a masked clinical psychiatric expert.A total of 20 music sessions were conducted twice a week each of them lasting for about 60 minutes.The sessions were based on expressing themselves through music using a mallet instrument, a percussion instrument or an acoustic djembe drum.The therapist and the client both had musical instruments which they played and used it as a means of communication.This can be an example of Nordoff-Robins Music Therapy as discussed above.The sessions were video recorded at all times for supervision and further studying.

### B)Observations

There were two follow ups, a 3 month follow up and a 6 month follow up. So during the 3 month follow up the data was as follows-(on Montgomery Depression Scale)

#### Music Therapy group-

- n = 67
- Mean=14.10
- Mean Difference= 4.65
- T test=2.29
- P=0.03

#### Control group-

- n = 67
- Mean=16.43
- Mean Difference= 4.65
- T test=2.29
- P=0.03

#### 6 month follow up- Music Therapy group-

- n = 64
- Mean=14.48
- Mean Difference= 3.44
- T test=1.53
- P=0.13

#### Control group-

- n = 64
- Mean=14.74
- Mean Difference= 3.44
- T test=1.53
- P=0.13

### C)Results

This trial shows that music therapy does have a positive effect on one's mind, The people in the music therapy group significantly improved their mental well being as compared to the control group. The effect size was about 0.65 for depression and 0.49 for anxiety.The NNT (No. needed to be treated) was 4 meaning 1 in 4 persons tend to improve their condition through music therapy.

- **For anxiety:**

A paper was published by Canadian Centre of Science and Education in the year 2019, termed as 'effect of classical music therapy on anxiety and well-being of university students.' A total of 15 students (7 females,8 males) from the department of Guidance and Psychological counselling at the University of Kafkas, Turkey participated in this trial. The selection criteria was that around 50 students were observed according to the Psychological well being and Trait-Scale and the students with relatively higher anxiety levels were selected.

### A)Method

As the 15 students were selected, six works of Mozart were downloaded in their phones with their consent, To make sure, they are listening to the music , they were supposed to fill their Music listening schedule everyday. At the end of 60 days the State-Trait Anxiety Inventory and the Psychological Well-being Scale were administered again.

### B) Observations

	N	Mean	Standard deviation	Std. Error Mean	t	tdf	Sig.
Pretest State Anxiety	15	41.7333	5.10555	1.318			
Posttest State Anxiety	15	44.40	5.20714	1.344	-1.311	14	0.211
Pretest Trait Anxiety	15	49.8000	4.94542	1.276			
Posttest Trait Anxiety	15	43.8667	4.76395	1.230	3.451	14	0.004
Pretest Self-acceptance	15	48.4667	10.46673	2.702			
Posttest Self-acceptance	15	65.1333	4.59606	1.186	-5.396	14	0.00

**Table -1**

C) Results

As seen in the table above, before and after changes can be seen. While the changes are quite noticeable for some criterias, others are not that affected by it. For example, there is a little difference between the pretest and post test state anxiety, but there is noticeable difference between trait anxiety. Also, pretest and posttest positive relations with others and self acceptance criteria shows the most significant difference. Right from 57.933 the mean increased to around 70.6 and from 48.466 to 65.133 respectively. Thus, we can conclude that music therapy indeed helps in bettering the condition of a mental health patient.

- For Post Traumatic Stress Disorder (PTSD) Although there are a lot of treatments available for PTSD like Cognitive Behavioral Therapy (CBT), TF-CBT;

Cohen, Kliethermes, Mannarino, & Murray, 2012), Cognitive Processing Therapy (CPT; Foa et al., 1999), Eye Movement Desensitization and Reprocessing Therapy however they are considered to be time consuming, require proper medical facilities. Music Therapy on the other hand is considered to be much simpler and effective. Therefore several trials have been conducted to treat PTSD with Music Therapy.

A)Method

When researched about people affected by PTSD, most of them were 18 years or older and had been subjected to serious trauma in their lives. Following is the compilation of the studies conducted by different institutions and people and what was the outcome of it.

B)Results and Observations

Study	Design	n	Age	Approach	Effect no.	Outcome
Carr et al (2011)	Randomized Control Trial	17	18-65	90 minute sessions of group drumming	p= 0.04	Improved condition of PTSD
Hernandez-Ruiz (2005)	Randomized Control Trial	28	mean age=35	Cognitive Based Music Therapy(CBMT)	P< 0.01	Improved quality of sleep
Gold et al (2014)	Randomized Control Trial	113	---	Music therapy for half the people, normal for others.	p= 0.33	Anxiety reduction within the group

Table-2

- For Schizophrenia Following observations are taken from a paper titled ‘Music therapy for in-patients with schizophrenia Music therapy for in-patients with schizophrenia’ published in the British journal of Psychiatry, a world renowned journal, in the year 2006. This paper particularly tells us more about schizophrenia and highlights how use of music therapy can have certain effects on the affected. Overall, the whole survey

went on for around 3 months with 115 eligible patients out of which 85 (70% of them) were randomized.

A)Method

Over the course of 12 weeks, patients went through music therapy along with standard care which was then compared with them receiving only standard care. Now the participants were filtered and chosen on the bases of various things. They were in patients from the hospitals in central and inner London- Park Royal Centre for Mental Health, Paterson Centre, St Charles’ Hospital and St Clement’s Hospital. The lot consisted of patients over 18 years primarily diagnosed with schizophrenia or schizophrenia like symptoms, patients with severe conditions and ongoing treatment as long as they consent to the trials. Adding to this, over the course of these trials patients would only be exposed to music therapy and not any other art therapies like dance, drama etc. for greater effects. Participants had to attend at least four music therapy sessions and were free to attend more if they wanted. Five music therapists were appointed for the same. The sessions took place weekly, lasting around 45 minutes. Patients were encouraged to take up an instrument and start expressing themselves to it. This would allow the therapist to closely monitor them on the basis of what they play. The therapist also plays along with the patient, trying to meet their emotional state through music. All these sessions were recorded for future observations. However, patients were encouraged to continue these practices even after the completion of the trials.

B)Results and Observations

Symptom scores	Baseline (n=81)		12 weeks follow-up (n=81)		Change in scores	Difference (t-test)
	Standard care	Music therapy	Standard care	Music therapy		
PANSS – total	70.77 (12.82)	67.81 (14.56)	73.09 (13.41)	64.09 (13.78)	2.96	6.04 (2.04)*
					9.00	
PANSS – general	35.43 (7.01)	34.54 (7.09)	37.21 (7.09)	32.35 (6.57)	0.89	3.97 (1.69)
					4.86	
PANSS – positive	16.52 (3.57)	14.57 (3.41)	16.12 (4.01)	13.61 (3.42)	1.95	0.56 (0.78)
					2.51	
PANSS – negative	18.81 (4.72)	18.51 (5.00)	19.76 (4.88)	17.04 (4.81)	0.30	2.42 (1.32)
					2.72	
Satisfaction	20.18 (4.07)	20.51 (4.19)	20.18 (5.60)	22.00 (5.05)	0.33	1.49 (0.99)
					1.82	
Global functioning	55.65 (9.81)	60.25 (9.27)	54.18 (11.39)	58.92 (10.90)	4.60	0.14 (0.69)
					4.74	

Table-3

During the study period, 123 people were screened, and 113 (92%) were deemed eligible to participate. Among the eligible patients, 31 (27%) declined to join the study, and 1 (1%) was found unsuitable for music therapy after an assessment by a music therapist. The table above indicates the major findings in their paper which talks about the condition of the patients before and after starting music therapy. It is to be noted that the results were assessed based



on the PANSS scale. It basically stands for Positive and Negative Syndrome Scale which is specifically used for symptom measuring in schizophrenic patients. The severity is measured from range of 1 to 7 with 1 being non-existent and 7 being extreme. Here, it is basically based on the average score, whether it has gone down, and if yes, then by how much. If you compare the results of only standard care versus results of standard care plus music therapy, decrease in numbers can be seen. For example the PANSS-total for standard care before 12 weeks is 70.77 and after 12 weeks is 67.81. Now, there is a difference of 2.96 so we can say that the situation improved by that much, which is a really good thing. But, if we look at the PANSS-total for music therapy, it is 73.09 before the sessions and 64.09 after. There is a difference of about 9.00 which is a very significant change that has occurred, almost thrice more than in the case of standard care. If we look at the other cases as well music therapy as a treatment definitely prevails due to the visible difference in the values. Therefore, we can say this research proved to be quite a success. As a result, patients who were a part of this program were advised to continue this practice.

As mentioned above, we can see that in all the four cases there is a positive change observed, significant in some cases, little in others. However, it can definitely act as a building block for further research.

### 3. CONCLUSION

As mentioned above, we can see that in all the four cases mentioned about Depression, Anxiety, PTSD and Schizophrenia respectively, there is a positive change observed. Although they are significant in some cases, little in others, their data and observations can definitely act as a building block for further research. Hence, we can say that Music Therapy indeed plays a major role in uplifting one's mental health. It can thus be considered as a treatment option and more and more people should be educated about it. It is not only about curing mental and physical disorders but also about simple things like uplifting one's mood or easing muscle tension or even in lowering our heart rate and blood pressure. Being such a simple concept it can be easily implemented. I hope this review paper serves as a medium to encourage everyone to know more about music therapy and thus inspire further study for the same.

### ACKNOWLEDGEMENT

I would like to thank my college i.e. Thakur College of Engineering and Technology for organizing Multicon-W, an international paper conference and giving me this opportunity to write my own paper. Furthermore, I would like to express my gratitude towards my friends, teachers and everyone who has helped me in this journey. This couldn't have been possible without them and therefore I thank them with all my heart.

### REFERENCES

- [1] <https://www.ptsduk.org/music-therapy-for-ptsd/>
- [2] <https://www.verywellmind.com/benefits-of-music-therapy-89829#toc-benefits-of-using-music-as-therapy>
- [3] Erkkilä J, Punkanen M, Fachner J, Ala-Ruona E, Pöntiö I, Tervaniemi M, Vanhala M, Gold C. Individual music therapy for depression: randomised controlled trial. *Br J Psychiatry*. 2011 Aug;199(2):132-9. doi: 10.1192/bjp.bp.110.085431. Epub 2011 Apr 7. PMID: 21474494.
- [4] <https://apps.who.int/iris/bitstream/handle/10665/254610/WHO-MSD-MER-2017.2-eng.pdf>
- [5] The Effect of Classical Music on Anxiety and Well-Being of University Students Devrim ERGINSOY OSMANOĞLU1 & Hüseyin YILMAZ21 Department of Educational Sciences, Faculty of Education, Kafkas University, Kars, Turkey.
- [6] <https://scholar.google.com/>
- [7] <https://www.who.int/health-topics/#A>
- [8] <https://www.who.int/news-room/fact-sheets/detail/mental-disorders>
- [9] Aalbers S, Fusar-Poli L, Freeman RE, Spreen M, Ket JC, Vink AC, Maratos A, Crawford M, Chen XJ, Gold C. Music therapy for depression. *Cochrane Database Syst Rev*. 2017 Nov 16; 11 (11): CD004517. doi: 10.1002/14651858.CD004517.pub3. PMID: 29144545; PMCID: PMC6486188.
- [10] Talwar N, Crawford MJ, Maratos A, Nur U, McDermott O, Procter S. Music therapy for in-patients with schizophrenia: Exploratory randomised controlled trial. *British Journal of Psychiatry*. 2006;189(5):405-409. doi:10.1192/bjp.bp.105.015073
- [11] <https://www.cambridge.org/core/journals/the-british-journal-of-psychiatry/article/music-therapy-for-inpatients-with-schizophrenia/F022B368112A712DD64E745A536AEF88>