Music and Medicine: An examination of the healing properties of music

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One might not think that singing in a choir could help alleviate the symptoms of Parkinson's disease, or that playing a piano sonata could help a patient to heal from a psychological trauma but, in fact, they can. This essay shall examine the deep relationship between music and medicine, and discuss how these two fields inform one another. We shall look at the ways music can heal with regard to daily stress, mental well-being, and, finally, physical health. And, after exploring these three different areas of human health and their connection with music; this paper will reveal that these two fields, music and medicine, which on the surface seem so different and separate, are actually deeply intertwined.

Let us first examine the relationship between music and daily stress. Day to day life can be taxing and that's not even to mention when you have to do your taxes. People try a variety of things to help make it through their days and cope with their daily stress; from meditation and yoga, to breathing techniques, and exercise. When a person feels threatened or stressed their body releases two stress hormones, cortisol and adrenaline. It has been repeatedly proven that listening to music counters this stress reaction and causes the body, instead, to relax. Further, when listening to music the body releases two pleasure hormones, dopamine and oxytocin, which are important elements in maintaining healthy daily behavior.

A study done in 2019 at Salisbury University tested the effects of listening and playing music on the stress levels of 105 university students. During this experiment three groups of students took the Trier Social Stress Test, a laboratory test which induces stress in individuals through an anticipation period and a test period in which subjects have to give a speech and do arithmetic in front of an audience. Following the stress test, the subjects' stress levels were measured both by self- report and a skin conductance test, called EDA (Electrodermal activity). All three groups showed considerable increase from their base stress levels after the Trier Social Stress Test. After this, the patients were all placed into their own separate rooms; the control group patients (CG) were each put in an empty room to recover, the music listening group (ML) patients were placed in rooms and listened to the song "Sleep" by Eric Whitacre (the patients were explicitly not given a playlist to choose from as to avoid any preference or life events affecting their song choice and thus changing the outcome of this test). And the music playing (MP) group patients were placed in a room with a xylophone in it and were asked to play the instrument for five minutes; none of the patients had any prior knowledge of this instrument or knowledge that this instrument would be in the room. Afterwards the researchers measured the three groups' stress levels. Both the music listeners (ML) and the music players (MP) exhibited considerably lower stress levels (both scientifically measured and self-reported) than the control group (CG). The research found by this test proves the

significant effect that music can have with regards to human stress levels; it is a powerful tool since human beings are almost constantly experiencing some form of daily stress and the effects of this continual stress can be severely detrimental to one's health.

This is just one of many tests that have been done to show the psychological effect of music on stress, and it exhibits the direct correlation between music and daily well-being. But music's healing powers go beyond daily mental health and can help those struggling with more serious mental disorders. Music therapy aids psychological patients in a myriad of ways. The first way is through lyrical analysis, an exercise in which patients analyze song lyrics as a way to identify and express their own emotions. Molly Warren, a music therapist in Nevada, writes, "While talk therapy allows a person to speak about topics that may be difficult to discuss, lyric analysis introduces a novel and less-threatening approach to process emotions, thoughts and experiences." That is, a lyric can be a catalyst for patients to explore their own emotions through a creative outlet. Playing music is also a way for those undergoing psychological treatment to come in touch with their emotions, as Warren writes, "Playing instruments can encourage emotional expression, socialization and exploration of various therapeutic themes (i.e. conflict, communication, grief, etc)" (Warren). Third, listening to music soothes a person because music involves the neocortex of our brains, "which calms us and reduces impulsivity" (Warren). And

lastly, songwriting can be an invaluable tool for a patient to work through psychological trauma. It is a way of distancing oneself from your experiences and looking at them from a creative stance. It also arouses pride in the patient at their own creation, empowering them in their process of healing. These are some of the major ways that music is used in psychological therapy today.

Sadly, often access to mental health care is not available to all and so we need to encourage and make known these alternative methods of therapy and harness the power of music as an affordable, accessible way to heal mental health disorders. The use of music therapy has barely been tapped into by our culture and, yet, it is such an obtainable healing tool. As a society we should encourage therapists, counselors, and other medical professionals to become familiar with music therapy, in addition to providing funding for programs that spread awareness concerning the use of music therapy for mental health.

Music is an art form whose medium is not visible, as opposed to paintings or dance. While we know there are sound waves that are carrying the music to our ears, they are not tangible and we cannot see them hitting against our eardrums. This makes even more outstanding the great effect music therapy can have on physical diseases and conditions.

Research done at the Queen Mary University of London says that listening to music has helped reduce the stress for patients undergoing operations. Patients were

encouraged to listen to music before, during, and after surgery, "Timing could be before, during, or after surgery, or a combination of these timings. Music could be played when patients were awake or anaesthetised. Duration of music varied between a few minutes to repeated episodes for several days" (Hole et al. 3). All patients showed a decrease in anxiety, postoperative pain, and analgesia use; and increased levels of expressed satisfaction overall. While the use of music in the operating room must not conflict with the surgeon's work, it could be a holistic way to avoid pain meds and, therefore, also avoid the dangerous addiction to pain medicine, such as we are dealing with in the worldwide opioid crisis.

At Johns Hopkins, patients who suffer from Parkinson's disease have the option to join a choral group geared to help with the symptoms of this illness. The hospital reports, "Singing together in the group has helped increase participants' vocal volume and clarity, rhythmic movement and confidence of emotional expression, while cultivating a sense of community." (Johns Hopkins) And a study done in Norway in 2012 found that five out of six Parkinson patients were positively affected by the use of group music therapy in some way. During the time in music therapy there was no loss of speech in the patients, showing that the use of music may slow speech decline. As Parkinson's News Today reported, "Singing encourages focus on breath support, diction, volume, and emotion. Vocal strength and articulation can challenge many Parkinson's patients. But singing reinforces some of the functions that

otherwise degrade" (Skylis). Further, the melodies and harmonies being sung by the patients are uplifting and can help with general mood and happiness, which in turn causes lower levels of stress inducing cortisol and raised production of cells that make one's immune system more able to fight off viruses trying to enter the body. And, lastly, the use of rhythm "may amplify the link between listening and movement, with improvements seen in step length and timing, coordination, balance and posture" (Skylis).

We have just barely scratched the surface in discussing all the ways that music and music therapy has been used to benefit those suffering from some sort of physical illness. Music has been seen to be extremely helpful for those recovering from brain injury, for children with autism, for those suffering dementia and Alzheimer's disease, and many more such illnesses and conditions.

To conclude, music can be a great tool in the realm of health and medicine. There is profound crossover between two areas of study which one might think are on different ends of the academic spectrum. Music is powerful and if, as a society, we want to harness this power, we can do so by supporting our medical professionals to utilize music in their practices. In addition, music therapists should play a more prominent role in our hospitals, clinics, and medical centers; working in conjunction with the doctors, nurses, and medical staff to help patients heal and recover.

Works Cited

Abbott. "How Music Therapy May Help Parkinson's Disease." https://www.lifetothefullest.abbott/en/articles/how-music-therapy-may-help-parkinson-s-disease.html. Accessed February 24 2020.

Creativesoulmusic.com. "How Can Music Reduce Stress." https://www.creativesoulmusic.com/news/how-can-music-reduce-stress. Accessed 26 February 2020.

Fallon, V. T., Rubenstein, S., Warfield, R., Ennerfelt, H., Hearn, B., & Leaver, E. (2020). "Stress reduction from a musical intervention." Psychomusicology: Music, Mind, and Brain Journal, 30(1), 20–27. https://doi.org/10.1037/pmu0000246. Accessed 19 February 2020.

Hole, Jenny. Hirsch, Martin. Ball, Elizabeth. Meads, Catherine. "Music as an aid

for postoperative recovery in adults: a systematic review and meta-analysis." The Lancet. Volume 386, Issue 1004, pp. 1659-1671. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60169-6/fulltext. Accessed 1 March 2020.

Johns Hopkins Center for Music and Medicine. "Music as Medicine." 21 November 2019. https://www.hopkinsmedicine.org/center-for-music-and-medicine/music-as-medicine.html. Accessed 20 February 2020.

McEntyre, Marilyn. *Patient Poets*. University of California Medical Humanities Press, 2012. Print.

Skylis, Mary Beth. "Harnessing the Power of Music." 12 June 2019. https://parkinsonsnewstoday.com/2019/06/12/harnessing-the-power-of-music. Accessed 23 February 2020.

Warren, Molly. "The Impact of Music Therapy and Mental Health." 19 December 2019. https://www.nami.org/Blogs/NAMI-Blog/December-2016/The-Impact-of-Music-Therapy-on-Mental-Health. Accessed 1 March 2020.

Wong, Lisa. *Scales to Scalpels*. W. W. Norton, 2012. Print.