



# The brain and music therapy: TBI patient satisfaction and motivation

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## INTRODUCTION

### What is a Traumatic brain injury?

- A Traumatic brain injury (TBI) is an injury to the brain that occurs after birth, not congenital, that changes the function and ability of the brain due to a violent jolt, bump or blow to the head. There are two types of brain injuries traumatic or anoxic, each can affect the brain differently according to the type of injury that caused it, such as a motor vehicle accident or violent trauma. (Traumatic Brain Injury | CDC Injury Center, 2020)
- The injury cases range from stroke, spinal cord injuries, anoxic brain injuries, and wheel-chair bound injuries. Limitations of each case include difficulties with memory, movement, daily living tasks such as bathing, walking, and speech impairments. (Traumatic Brain Injury | CDC Injury Center, 2020)

### What is Supportive Living Inc.?

- Supportive Living Inc. (SLI) is a non-profit organization established in 1991 that is focused on improving the quality of life for brain injury survivors. Through Supportive Living patients can access a general wellness program that includes physical fitness, mindful activities, and rehabilitation methods to achieve the goals SLI has in place for their patients.

### What effect does music therapy produce for traumatic brain injuries?

- “Doctors and researchers are implementing the use of music to retrain the injured brain, revealing that music and motor control share circuits and can improve movement in stroke patients or in people with Parkinson’s disease.” (Dana Foundation, 2010).
- “Music can increase dopamine in the putamen area of the brain and music increases rhythm response. Rhythmic music, for example has been used to help Parkinson's patient function.” (Music and the Brain: What Happens When You're Listening to Music, 2019)

## PRIMARY OBJECTIVE

- To research and present the healing benefits of music therapy for brain injury survivors.



## RELATED LITERATURE

- “Research suggests that music can affect mood, psychological state, and reduce depression in stroke patients.” ( Fallon,V.T., Rubenstein,S., Warfield, R..(2020)
- “Neurologic music therapy can help patients with language or cognitive difficulties.... Biomedical researchers have found that music is highly structured auditory language involving motor control and complex perception cognition, it can be effectively used to retrain and re-educate the injured brain.” (Dana Foundation, 2010)
- “Music-based rehabilitation has been shown to enhance cognitive functioning and neuroplasticity. This resource allows research to advance and provide natural options of treatment for patients”.((Fedotchev,A., Radchenko,G.,& Zemalianaia,A.2018)

## MATERIALS AND METHODS

- A YouTube playlist that promotes positivity and motivation.
- Bluetooth speaker.
- Member satisfaction survey.
- Notebook for notes throughout session.
- Folder with patient exercise plan.
- Pen to include feedback from patient survey.

## Methods

- Patients requested for music preference and concurrence to participate.
- Conducted music therapy for a total of 10 weeks with two groups of 5 patient participants.
- Each session was a total of 60 minutes of music and exercise with core, strength upper and lower body targeted exercises.
- Conducted a cardio routine incorporating elements of Zumba dance including playlist to introduce variety of exercise.
- Executed patient plans, transported exercise equipment, and encouraged patient progress.



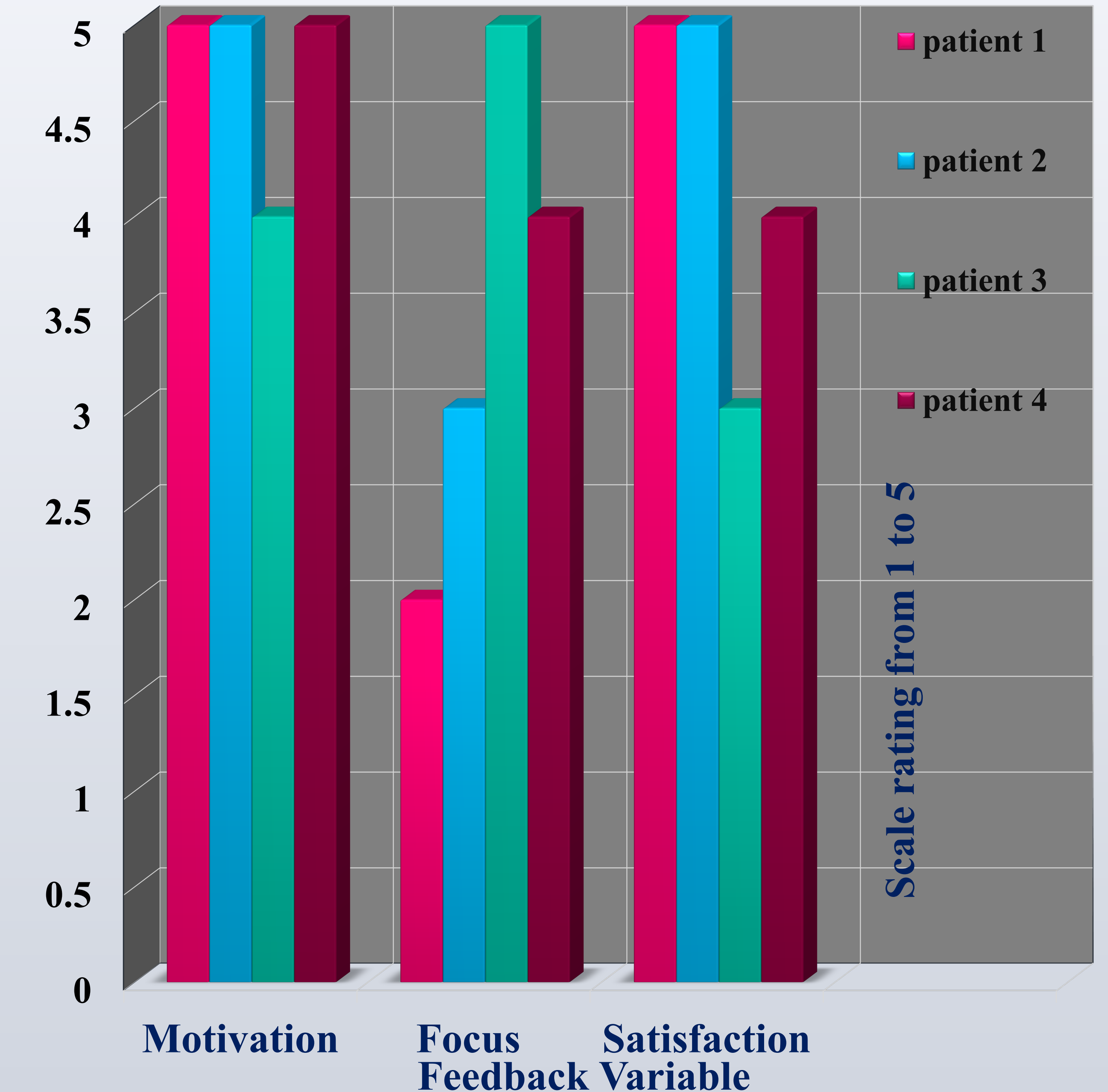
## Survey feedback

I created a survey to collect useful feedback from the participating patients on what effects the music had on their rehabilitation experience. The purpose of the survey, was the following:

- To demonstrate the results or effects of music therapy on rehab patients.
- Document therapeutic benefits of music therapy.
- Apply latest evidence to better understand motivation, focus and satisfaction.
- Introduce therapies that also benefit the brain and or injuries.

## RESULTS

### Patient feedback with music therapy



- The chart above indicates a scale rating of one to five, five being a positive outcome in focus, satisfaction or motivation. And the lowest rating of one ranking as poor or unsatisfactory.
- Each member had a positive perspective on having music incorporated in their rehabilitation session based on the overall average satisfaction feedback score.
- One patient found that the music did not enhance their focus and they were sometimes distracted.
- All patients were moderately or completely satisfied with music therapy as a motivating factor in their rehabilitation sessions.

## Conclusions

- Music therapy is proven to provide healing benefits allowing for areas of the brain to achieve increased cognitive function with the creation of multiple neuron connections.
- It became clear that music can drive plasticity in the human brain shaping it through training and learning exposure.
- Working with Supportive Living has taught me to work well with others, adapt to changing environments and develop relationships with patients.
- The research on Music therapy suggest that Music should be incorporated into rehabilitation plans.

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## References

- Dana Foundation. (2010). *Dana Foundation | Supporting Neuroscience & Brain Research*. <https://Dana.Org/Article/How-Music-Helps-to-Heal-the-Injured-Brain/>. <https://www.Dana.org>
- *Music and the Brain: What Happens When You're Listening to Music*. (2019, October 30). Pegasus Magazine. <https://www.ucf.edu/pegasus/your-brain-on-music/>
- *Traumatic Brain Injury / Concussion | Concussion | Traumatic Brain Injury | CDC Injury Center*. (2020). <https://www.Cdc.Gov/Traumaticbraininjury/Index.Html>. <https://www.cdc.gov/TraumaticBrainInjury/index.html>