

Review Article

Open Access

Impact of Music on Brain and Memory

Jayasree Sampath^{1*} and Sunder Subramaniam²

¹Plans4rehab, Barclay House, Leicester, UK

²CEO, Prem Ergo Solutions, Psychiatrist, UK

ABSTRACT

Music has been explored by all the culture for its recreational impact. Scientist have attempted to find the impact of music on brain and healing through music. Due to music being subjective it's is always challenging to design a study in a scientific perspective. This study was conducted as a trial pilot to understand the possible benefits of music on specific ragaas. To eliminate the linguistic influence and associative vocabulary the study used an instrumental music specifically composed for the study.

Method: The study was a prospective study which included four ragaas for a specific duration for specific period of time. The study was conducted on 12 patients selected with consent to participate in the study who were all admitted as inpatient for rehabilitation after road traffic accident. They were offered music intervention as listening to music and their cognition and memory was assessed pre and post intervention. Results: Significant enhancement of memory scores in memory performance.

*Corresponding author

Jayasree Sampath, Plans4rehab, Barclay House, Leicester, UK.

Received: August 26, 2025; **Accepted:** August 28, 2025; **Published:** September 09, 2025

Keywords: Memory, Rehabilitation, Cognition

Impact of Music on Brain and Memory

Music therapy has different style of practice which includes active engagement by learning music or equipment. It may also have variant of music ranging from classical Carnatic music, Hindustani or western music. For the purpose of the study author having knowledge in music and consider classical Indian music as a preference to explore the impact of it on the brain.

Introduction

Impact of music on emotions especially anxiety reduction has been proven by scientific study [1]. It would be more helpful to classify music in the form of raagas to be able to use it effectively. Research study has used different types of music but has not classified themes in to different types of raagas. Rational for choosing raagas as themes is these are considered to be the basic skeleton of songs being composed and difference in raagas were associated to different emotions traditionally [2]. Established links showing audio motor integration and audio motor coordination [3,4]. Human neurons that firing at the same time to specific sounds was studied adds more evidence to this idea of music therapy influencing brain and neurons [5]. Memory and associative mood enhancement with music [6].

Method

Population: 12 Individuals with acquired brain injury were included in the study with consent. They were assessed using cognitive screening and memory assessment tool. Individuals were offered choice to choose one of the four ragaas chosen for the

study to randomize and classify the group. Four ragas were chosen including Kadanakuthookalam, atana, sahana and subapanturali. Instrumental music was composed on these four ragaas. Mode of engagement was passive listening to music. Session was timed for 20 minutes for 20 days. Participants were assessed for their cognition and memory after the intervention.

Results

Individuals who choose kadana kuthookalam showed significant enhancement in memory assessment. This indicated the impact of specific raga in the temporal lobe. This study needs further research to understand the impact of this on various type of music, cultural variations and structure of music in other style of music composition. Two out of 16 individual had increased scores in the assessment.

Discussion

Instrumental music especially flute can have significant impact in brain potentially due to it being sound frequencies. This study did not measure EEG while they are listening to music to understand the stimulation on the specific brain lobes. However, Cognitive assessments have supplemented the benefit of music at functional level of the brain. Participants were from south India and they were familiar with classical Carnatic music either through listening or ha preference towards Carnatic music. The study was cohorted by people with no music intervention. They did not show any change in their cognitive profile. Individual who chooses ragaas associated with happy emotion specifically kadana kuthookalam has positive impact on cognitive performance. Out of four chosen ragaas, only one showed impact with significant progress in two

individuals out of 12 participants who offered music therapy. Other ragaas did not alter their cognitive profile. Further studies will be needed to explore this feature of music and investigation on the specific raga. Cognitive profile of two significant participants was tabulated (Table 1).

Table 1: Cognitive Profile (20 Session Music Listening)

Initials	MMSE	WS (MQ)	ACE III	Symptoms	Outcome
A (Pre) 32/F Quadriplegic, epileptic (TLE)	29/30	120	-	Irritability, pain, low mood, memory loss	
A(Post)	30/30	129	-	Reduced symptoms in all the domains	Effective memory rehabilitation and pain management, enhanced emotional well-being
B (Pre) 56/M Schizophrenia, Brain tumour removal, Mild cognitive impairment	22	87	66/100	Poor memory, attention, concentration, psychomotor retardation, delusion, confusion and cognitive communication disorder	
B (Post)	30	126	84/100	Enhanced memory and overall cognition, reduced psychological symptoms and behavioural challenges	Enhanced cognitive, emotional and behavioural presentation

Note: This table 1 illustrates the assessment measures including pre and post intervention of two participants who showed significant progress with music therapy intervention.

Summary and Conclusion

The study clearly indicates the impact of Indian classical music especially specific ragaas influencing cognitive performance.

References

1. Sharma S, Arun Sasidharan, Vrinda Marigowda, Mohini Vijay, Sumit Sharma, et al. (2021) Indian classical music with incremental variation in tempo and octave promotes better anxiety reduction and controlled mind wandering randomised controlled EEG study 17: 115-121.

2. Krishna R, Rajkumar E, Romate J, Allen J G, Monica D (2022) Effect of Carnatic raga-Bilahari based music therapy on anxiety, sleep disturbances and somatic symptoms among caregivers of cancer patients. Heliyon 8: e10681.

3. Schneider P, Scherg M, Dosch HG, Specht HJ, Gutschalk A, Rupp A (2002) Morphology of Heschl's gyrus reflects enhanced activation in the auditory cortex of musicians. Nat Neurosci 5: 688-694.

4. Baumann S, Koeneke S, Schmidt CF, Meyer M, Lutz K, Jancke L (2007) A network for audio-motor coordination in skilled pianists and non-musicians. Brain Res Epub 3: 65-78.

5. Lahav A, Saltzman E, Schlaug G (2007) Action representation of sound: audiomotor recognition network while listening to newly acquired actions. J Neurosci 27: 308-314.

6. Mandi Study Indian ragas could regulate emotions and facilitate learning: IIT study. The Hindu, July 05, 2025 https://www.thehindu.com/education/indian-ragas-could-regulate-emotions-and-facilitate-learning-iit-study/article69773025.ece#goog_rewarded.