

Mental Wellbeing Using Music Intervention: A Case Study of Therapeutic Role of Music, From Both Psychological and Neurocognitive Perspectives

Authors : Medha Basu, Kumardeb Banerjee, Dipak Ghosh

Abstract : After the massive blow of the COVID-19 pandemic, several health hazards have been reported all over the world. Serious cases of Major Depressive Disorder (MDD) are seen to be common in about 15% of the global population, making depression one of the leading mental health diseases, as reported by the World Health Organization. Various psychological and pharmacological treatment techniques are regularly being reported. Music, a globally accepted mode of entertainment, is often used as a therapeutic measure to treat various health conditions. We have tried to understand how Indian Classical Music can affect the overall well-being of the human brain. A case study has been reported here, where a Flute-rendition has been chosen from a detailed audience response survey, and the effects of that clip on human brain conditions have been studied from both psychological and neural perspectives. Taking help from internationally-accepted depression-rating scales, two questionnaires have been designed to understand both the prolonged and immediate effect of music on various emotional states of human lives. Thereafter, from EEG experiments on 5 participants using the same clip, the parameter 'ALAY', alpha frontal asymmetry (alpha power difference of right and left frontal hemispheres), has been calculated. Works of Richard Davidson show that an increase in the 'ALAY' value indicates a decrease in depressive symptoms. Using the non-linear technique of MFDFA on EEG analysis, we have also calculated frontal asymmetry using the complexity values of alpha-waves in both hemispheres. The results show a positive correlation between both the psychological survey and the EEG findings, revealing the prominent role of music on the human brain, leading to a decrease in mental unrest and an increase in overall well-being. In this study, we plan to propose the scientific foundation of music therapy, especially from a neurocognition perspective, with appropriate neural bio-markers to understand the positive and remedial effects of music on the human brain.

Keywords : music therapy, EEG, psychological survey, frontal alpha asymmetry, wellbeing

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