The Effects of Listening to Persian Music on the Hand Dexterity and Depression in a Patient with Stroke: A Case Report

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ABSTRACT

Introduction: Nowadays the use of music therapy for neurological disorders in developed countries is widely emphasized. Despite this, there is little scientific evidence regarding the use of this method for the treatment of Iranian patients with stroke.

Case report: Since Iranian patients are more familiar with Persian music, this study was performed to describe the effects of listening to the Persian music played with Daf (an Iranian music instrument) in a 54-year-old man with chronic stroke.

Discussion: This case report could show for the first time, the positive effect of passive listening to Persian music with Iranian Daf instrument on the hand dexterity and depression in a patient with chronic stroke.

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interventions, he still presented with poor hand function and decreased motivation. At the first assessment session he had normal muscular tone and sensation. Furthermore, goniometry revealed full range of motion of the wrist, metacarpophalangeal and interphalangeal joints in the affected hand. The study measures for assessing the patient’s hand dexterity and depression were the Minnesota Manual Dexterity Test (MMDT) and Beck Depression Inventory (BDI-II), respectively. These measures were chosen for their validity, reliability and simplicity [15-17]. For performing MMDT, the patient sat in front of a table and was asked to move as many cubes as possible within 30 seconds. The total number of cubes moved by the affected hand was counted. After performing 3 times MMDT, the mean score was 8.3 indicating poor hand dexterity. In addition, the 21-item self-report instrument of BDI-II scored 14 for him showing a mild depression [17, 18]. The treatment consisted of the patient listening to a music played with Daf in the supine position, 30-minute [19] daily for twelve sessions. Daf is a hand percussion instrument originally Persian or Kurdish and the ancestor of the western Tambourine integrated into Persian music. It has a large frame covered with goatskin, with one or more rows of metal rings or chains adding a jingling effect [20]. In this study Maqams (structural scales and melodic pieces) with old style playing made up of regular beat-based sequences, were used. These consisted of Hayy’Allah, Zekr-e-dovvom, Da’em, Haddadi, Hayy’Allah-Allah, Maddahi (another version), Compound Maqams, Geryan and Hal Gerten. No additional intervention was administered.

The tests were repeated at the 6th and 12th treatment sessions. The MMDT and BDI- II scores illustrated improvement from the pre-listening to the post-listening measurements. The post MMDT score improved in both of the 6th (score 10) and 12th sessions (score 11.3; 36% improvement). The post listening BDI-II score was 6 at the 6th session and did not change after the end of the listening to the music at 12th sessions (57% improvement).

Discussion

This case report provides evidence that 12 sessions listening to Persian music played with Daf improved the hand dexterity and depression of a patient with chronic stroke. The patient’s improvement in the MMDT suggests that listening to the Persian music may help improving motor function during the chronic stage of stroke. In other words, passive listening may facilitate neural reorganization which involves the supplementary motor area, mid premotor cortex and cerebellum and integrative auditory-sensormotor circuits [21-24]. The patient’s mood was also improved from mild depression to minimal depression. Indeed, music processing involves a wide-spread bilateral network of frontal, parietal and temporal as well as regions related to emotional processing (i.e. limbic) [25, 26] and therefore the patient’s mood was improved. However, since this research was performed on a patient; further studies including more subjects are warranted to clarify the mechanisms of the improvements.

In conclusion; this case report could show for the first time, the positive effect of passive listening to Persian music with Iranian Daf instrument on the hand dexterity and depression in a patient with chronic stroke.

Conflict of Interest: None declared.

References


