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Case Report

Impact of Carnatic Music Therapy Intervention on a Patient with Schizophrenia: A Case Report

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Abstract

Schizophrenia is a chronic mental condition that brings many challenges along it. The condition hampers the thinking, learning, perceptions, behavior, daily activities, and performances of a person immensely. Schizophrenia has a lower prevalence (0.4%) than many other mental disorders in India, and worldwide it affects 20 million people. Management of symptoms of schizophrenia with Carnatic music therapy intervention is gaining significant scientific attention. The case report reveals that Carnatic music, a genre of Indian music proved to be beneficial for improving diverse symptoms of a patient associated with the disorder. We present here a case of 20 years old woman diagnosed with schizophrenia showing behavioral issues, hallucination, irritability, the incoherence of thoughts, etc. The patient was on Ayurvedic medicine however she was not showing much improvement. On the advice of the Ayurved, her parents consulted a Carnatic Music Therapist for exploring whether music therapy could have natural healing effects on the challenges. It is the first reported case of a long-term study conducted with vocal Carnatic music intervention on any patient with schizophrenia that describes the management/ improvement of the symptoms of the reported patient to the extent that she leads a near-normal life. The study was conducted for eight years in a non-clinical setup. This study offers feasibility that long-term Carnatic music therapy intervention may help improve the disorder-specific symptoms and rehabilitate the individuals with schizophrenia in order for them to lead a superior and inclusive life.

Keywords: Carnatic music therapy, Schizophrenia, Indian music therapy, Indian raga therapy.

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Introduction

As per World Health Organization (WHO), schizophrenia is a treatable disorder [1,2]. WHO maintains programmes in countries including India have demonstrated the feasibility of providing care to people with severe mental illness through the primary health-care system by modes that include enhancing independent living skills through recovery-oriented psychosocial interventions, facilitating supported employment etc. for people with schizophrenia. Thus, natural healing measures such as music therapy (along with prescribed medication if any) are well accepted worldwide for enabling schizophrenia patients live an inclusive and quality life. A pilot study [3] examined the effect of music listening on the amplitude and latency of P300 in schizophrenia patients, who listened to the instrumental presentation of raag Bhoopali in the North-Indian-Classical-Music, for ten-minutes. Researchers noted significant increase in accuracy score and reaction time during the auditory oddball P300 task. Further, all patients rated the music excerpt as relaxing and positively valenced.

Carnatic music is one of the genres of traditional Indian Classical music; the other being Hindustani Classical music genre. The genre of Indian music offers immense scope of improvisation while rendering through its rich set of alankars (techniques in Carnatic music for improvisation of music rendering) and other techniques. In India, long-term, structured and directed training of Indian music is considered one of the effective music therapy approaches [4]. The elements, techniques and methods in this approach are used as tools for therapy, to address and achieve several non-musical goals as well as musical goals of individuals diagnosed with mental disorders.

Case Report

We present a case of an eight year long vocal Carnatic music therapy intervention for 20 years old woman diagnosed with schizophrenia to address her non-musical goals. The woman was diagnosed with schizophrenia by psychiatrist at a hospital in Bangalore, India. During 2010, her parents brought the patient to Meera Center for Music Therapy and Research (Manollasini Trust), Bangalore as advised by her then Ayurvedic doctor in order to explore the feasibility of managing her psycho-social needs through complementary, non-invasive Carnatic music therapy intervention. This is a unique study since, from India, there is no reported longitudinal study conducted for this duration with Carnatic music therapy intervention that describes the symptoms management of a patient with schizophrenia to the extent that the subject leads a near normal life.

Case Analysis

The case was studied by the music therapists and the initial observations from discussion with the parents and from reports (as was available) revealed the following:

- Her developmental milestones were delayed.
- She started talking at 2 years while volume and clarity of speech were very low; had delay in learning ability.
- She was not social and preferred to be alone.
- She developed negative attitude towards everything; became introvert, developed unknown fear to darkness, cloud, dogs, cows and other pet animals.
- She developed hallucinations and delusions, which manifested in her violent behavior frequently.
- Her abilities to do daily activities were severely hampered.
- Her cognitive functions, thinking, spatial orientation and reasoning were lost.
- She was on Ayurvedic medicine when she first came to Meera Center for Music Therapy Education and Research in 2010.

Initial observations (diagnosis)

As per initial observations, it was found that there were multiple symptoms pertaining to behaviour of the patient including attitude & social behavior, functional and learning abilities that needed attention and improvement.

Music therapy intervention process

Carnatic music therapy being a natural therapeutic measure demands multiple interventions in a systematic and repeated manner to be effective. Hence, music therapy was designed and administered in phases [Table 01], [Table 02] from simplest to complex music therapy designs.

Table 01: Carnatic music therapy intervention as administered in 4 phases during the span of eight years to the subject having schizophrenia

	Phase 1 (Year 1 – Year 2)	**Phase 2 (Year 3 – Year 4)**	**Phase 3 (Year 5 – Year 6)**	**Phase 4 (Year 7 – Year 8)**
Carnatic Music Therapy Intervention (Vocal)	Music therapy materials and methods (elements/ techniques)			
Omkara Chanting (with akara, ukara, makara)	-	-	-	-
Sanskrit Shlokas	Multiple	Multiple	Multiple	Multiple
Carnatic Classical Music Elements and Techniques	• Sarali varesegalu • Dhatu varesegalu • Taggustayi • Hechustayi • Janti varesegalu • Alankaras • Geethas • Swarajthis	• (All from first 2 Years) • Varnas • kritis - Madhyama kala &Vilamba kala • Purandara dasa Devarnama	• (All from previous 4 Years) • Keerthanas (Madhyama kala&Vilamba kala) • Deevaranamas	• (All from previous 6 Years) • Atta thala varna • Pancharatna kriti • Nava varna kriti
Bhajans, Devotional Songs, Light Music	Multiple	Multiple	Multiple	Multiple

Table 02: Carnatic Ragas used for music therapy activities in different phases of treatment

Carnatic Ragas Used			
Phase 1 (Year 1 – Year 2)	**Phase 2 (Year 3 – Year 4)**	**Phase 3 (Year 5 – Year 6)**	**Phase 4 (Year 7 – Year 8)**
• Madhyamavathi • Mayamalavagowla • Malahari • Mohana • Mechakalyani • Shudda Saveri • Kamboji • Anandabhairavi • Bilahari • Bhouli	• Kharaharapriya • Devanagari • Dheera Shankarabharanam • Hamsadhawani • Vasantha • Khamach • Kedaragowla • Kamavardhini • Aarabhi	• Durbar • Hindolam • Thodi • Begade • Navaragamalika • Bhairavi • Saraswathi • Malayamarutham • Chakravaka	• Kedaragowla • Saveri • Shri • Shriranjani • Ranjani • Revathi • Shivaranjani • Shubhapanthuvarali • Nata • Khanada

A systematic administration of Carnatic music therapy in its varied forms like chanting Omkara (akara, ukara, makara), Sanskrit shlokas, bhajans in different languages, devotional songs, classical music lessons in different swara combinations and ragas, in different tunes and speeds, with all basic lessons, rhythm and tune variations and a set of music therapy exercises were used regularly in sessions. A combination of active and passive music therapy were administered through both individual and group music therapy sessions. Parents' cooperation and involvement in therapy process was encouraged. Music therapy sessions in regular intervals were recorded (audio) for the subject to practice at home and to reach a short term goal. Periodic observations (1 observation in 2 months) and assessment by the music therapists and parents enabled for a systematic evaluation of her progress. Individual sessions were given twice a week for approximately 40 minutes each session. Approximately 800 individual sessions of music therapy were given to the subject along with 100 group sessions within a span of eight years. We used 9 point music interaction rating scale for Schizophrenia [MIR(S)] (Pavlicevic, 1991, 1995;

Pavlicevic and Trevarthen 1989; Pavlicevic, Trevarthen and Duncan 1994) [5] to evaluate co-improvisation of music therapy between the subject and the therapist. MIRS is an interactive music–centric scale that focuses on client's response (including quality of response), performance; therapist's response; musical interaction; shared musical content and clinical adjustment [6]. The scale further aims at the dynamics of strong musical as well as relational aspects between the client and the therapist [6]. Assessment of a session was done by dividing the observations into 4 time-activity units where specific music therapy activity was administered for a specific duration [Table 3]. Based on the response of the subject, a score pertaining to one of the nine levels of the MIR(S) scale was given. This enabled recording the shifts in patient's quality or participation in music therapy sessions. Mean score for each session from these 4 time-activity units was calculated, which indicated the level of MRI(S) where the subject was when session was conducted [5]. Example of observation record provided in [Table 03].

Table 03: Example: 2nd observation (at the end of 4th month) recorded as per nine MIR(S) levels for music therapy activities – duration

MIR(S) Levels/ Music therapy activities – duration	Omkara/ Akara, Ukara, Makara - 10 minutes	Shloka - 10 minutes	Carnatic Classical Music - 10 minutes	Bhajan/ Devotional Song/ Light Music–10 minutes
One (no musical contact)				1
Two (unresponsive)	2	2		
Three (non-musical response)			3	
Four (self-directed musical response)				
Five (tenuous musically directed response)				
Six (sustained musically directed response)				
Seven (tenuous mutual contact)				
Eight (sustained mutual contact)				
Nine (musical partnership)				
Mean MIR(S) Score	**2** : (indicating the subject is in level 2 after 4 months of Carnatic music therapy intervention)			

Summary of progress of the subject with Carnatic music therapy intervention

Phase 1 (year 1 – year 2)

During first few months, the music therapist started counselling and tried motivating the subject to sing any song or rhyme, which she knew or learnt. She was hesitant and reluctant. Music therapist then started with receptive music therapy chanting Omkara and Akara-Ukara-Makara for 5 minutes each followed by Sanskrit shlokas. The music therapist, in the initial sessions used a song in Kannada language in raga Madhyamavathi that has the quality of invoking positive and good feeling. This was followed by a bhajan. The subject did not show any significant response. The music seemed to have one-sided drive for about 7-8 months. 9th month onwards she started responding to therapist's music and musical exercises with slow rhythm through eye movements. Her non-musical behavior of coming to music therapy center with her father, observing other children singing and little smile in her face indicated her slight positive shift towards music and other social aspects. Gradually, the

subject started humming in her own tune with music therapist**.** In one and half years she started repeating with music therapist the sarale varase (simple Saptaswara singing) in Mayamalavagowla raga in 8 beats format. Sarala varase included singing Saptaswaras Sa re Ga Ma Pa dha Ni SA in arohi (ascending) and avrohi (descending). Her singing abilities, volume and clarity of speech improved marginally by the end of 2nd year. Some improvements were also observed in her bouts of fear and sudden violent behavior.

Phase 2 (Year 3 – Year 4)

By the end of 3rd year, response of the subject to music therapist's interventions showed a good musical direction. However, there were little disturbances in her continuous singing possibly due to difficulties in comprehending the music pieces. Her concentration was less, words were not very clear and volume was low. 4th year onwards, she was eager to take part in music therapy sessions and learn. She started to remember music pieces that were taught to her through the intervention. She improved on musical exercises and started learning Sanskrit shlokas, Carnatic classical music pieces and bhajans quite well. For example, the subject would repeat varnas (compositions developed with combination of Saptaswaras and/ or Sahitya) in Dheerashankaravarnam raga in two speeds. Varnas help in vocal exercises, sequencing activities etc. She started learning the theory and practical aspects of music fast, was less violent and was better in carrying out daily functional abilities.

Phase 3 (Year 5 – Year 6)

This period of 5th and 6th years was important since the subject showed significant improvement in various symptoms with systematic and regular intervention of Carnatic music therapy. Ayurvedic medication was completely stopped after 5 years of starting music therapy. By the end of 6th year, her response to music therapy sessions improved as was evident from her eagerness and apt to sing different music pieces. The subject at this stage was able to follow therapist in pitch, sustained musical notes, follow content and repeat independently. In addition, she would join therapist while the later sang. She would be able to learn and sing Bhajans like "Krupa Karo hari Narayana" in raga Hindolam along with other Carnatic music compositions. The subject would also improvise through alankara as she had learnt from the music therapist. Her speech parameters improved significantly. Her learning abilities, communication and expressions were better so did the interaction with the therapist. Her attitude towards life improved as it was apparent from her behavior and actions. And most importantly she became functionally independent gradually when she could do her daily activities herself.

Phase 4 (Year 7 – Year 8)

By end of 7th year, the subject began to sing in various pitches, tempos, which were musically appropriate. She could sing Swaras with increased sustenance, volume and clarity with different rhythmic patterns and also started singing songs and classical music quite well. She would be able to sing compositions of Tyagaraja, Muthuswami Dikshitar with music therapist's instructions in madyama kala (one beat), vilamva kala (two beats). During 8th year the subject and the music therapist started taking turns to lead a group of children having special needs in a musical partnership. She was able to pick from the cue given by music therapist, improvise and render. Her learning ability enhanced manifolds that were apparent from how she was grasping the complex structure of Carnatic musical lessons as well as the theories. She passed Carnatic Music Junior Grade Vocal Examination of Karnataka State, India. She was hardly showing any disease specific symptoms whether at home or at the music therapy center or elsewhere. She was confidently following instructions of music therapist on stage too.

Mean MIR(S) scores of the subject with schizophrenia after each year was measured. Phase wise mean score is provided in the table below [Table 04].

Table 04: Mean MIR(S) score of the subject after four phases of Carnatic music therapy intervention spanning 8 years

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Mean MIR(S) score of the subject with Schizophrenia per year	2.54	4.21	5.58	6.54	7.25	7.83	8.63	8.92
Mean MIR(S) score of the subject with Schizophrenia per phase	3.38		6.06		7.54		8.77	
	After Phase 1 (Year 1 – Year 2)		**After Phase 2 (Year 3 – Year 4)**		**After Phase 3 (Year 5 – Year 6)**		**After Phase 4 (Year 7 – Year 8)**	

Discussion

A report in the Cochrane Database of Systematic Reviews mentions, moderate to low-quality evidence suggests that music therapy as an addition to standard care improves the global state, mental state, social functioning and quality of life of people with schizophrenia or schizophrenia-like disorders [7]. Another study found group music therapy used for chronic schizophrenia patients was an effective intervention for improving emotional relaxation, cognitive processing abilities along with positive behavioral changes [8]. Our study outcome is in accordance with the findings of both the studies cited. The MIR(S) score of the subject after 8th year (8.92) suggested that the subject improved and rehabilitated to an extent that she could comfortably collaborate with the music therapist in music rendering. The long-term intervention of Carnatic music therapy to the subject having schizophrenia helped her reduce symptoms such as delusion, hallucination, fear and negative emotions significantly and also assisted in enhancing her self-reliance, confidence, expression and social interaction. In effect, her independent living skills improved and she was employed with a school for both normal and special children. This progress echoes exactly what WHO has emphasized about offering recovery-oriented psychosocial interventions for enhancing independent living skills and facilitating supported employment for people with schizophrenia [2]. From not responding during initial sessions to taking lead in music therapy sessions during 8th year of her therapy with music therapist's help was a promising step forward for her and for Carnatic music therapy intervention. Other than the non-musical goals, she also achieved her musical goals when she passed Carnatic Music Junior Grade Vocal Exam, India.

Conclusion

This case report with long-term Carnatic music therapy intervention to the individual with schizophrenia has offered an encouraging outcome where the intervention helped her to lead a superior and inclusive life. This case report also offers an opportunity to explore the use of long-term Carnatic music therapy intervention in clinical setups along with allocation of MIR(S) levels to find out how the duration, style and mode of intervention together have specific role(s) to play in the bio-physical alterations in individuals with schizophrenia.

Author contributions

Both the authors contributed to the planning designing, administering, analysis and interpretation of data of the long-term case report. Further, both the authors contributed to develop and review the case report for relevant and intellectual content before approving the final version of the manuscript for submission.

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We would like to thank the patient and her parents for their consent to publish the case report that is first of its kind where we could narrate how the subject's serious schizophrenia symptoms were improved with eight years long Carnatic music therapy intervention.

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Conflict of interest

Both the authors declare that they have no conflict of interest for the publication of this long-term case study.

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