



## Can Indian Classical Music Play a Role in Prevention of Substance Use Disorders and Rehabilitation of Persons Suffering from them?

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A speculation of the possible benefits of classical music from Indian sub-continent in persons prone to develop or suffering from substance use disorders, this article gives an outline of clinical promise of music as a complementary therapy for addiction and focuses on distinctive features, philosophical roots and effects of Indian classical music on emotions of the listener - raising the possibility of its efficacy in prevention of substance use disorders and rehabilitation of persons suffering from it. The aim of this perspective is to highlight the scope and clinical application of Indian classical music in this subgroup of population.

Current trends in substance use disorders raise a concern as initiation is progressively taking place at younger ages [1,2], leading to significant disability in terms of missed workdays and repeated hospitalizations [3]. Illicit drug use is on the rise [4] and continues to be a common problem. In addition gender differences in prevalence estimates are narrowing worldwide [1].

Traditional healing methods recommended by Native American community leaders to combat substance abuse include dancing, drumming, basket making etc [5]. A wide variety of complementary approaches to management of substance use disorders have been studied in clinical trials ranging from herbal and non-herbal medications, multivitamins, antioxidants, body practice which included acupuncture, reflexology; spiritual healing such as hypnosis and biofeedback [6]; yoga and mindfulness practices [7]; physical exercise [8]; to art and music therapy [9]. Racial and ethnic differences in the use and types of complementary and alternative medicines were also studied [10]. Art and music therapy are thought to provide a vent to emotions and needs that are difficult to express through other traditional forms of communication [9].

Music therapy is very versatile. The setting and type of sessions can be tailored to suit patient's requirements [11]. It also offers a wide array of activities for clinical application other than listening to music and singing such as drumming [12,13], songwriting and lyric analyses [14]. Although a study suggests that music therapy may not be of help in alcohol dependent patients, as they have impaired capacity to recognize emotions in music [15]. Various other studies on music therapy in patients with substance use disorders have found numerous benefits [14,16,17]. It also improves the state of mind by reducing anger, stress, anxiety and depression [18]. Rhythmic auditory stimuli such as drumming help in achieving a meditative

state by generating auditory drive leading to increased alpha and theta wave production [19]. Music therapy also motivates patients to receive other contemporary forms of treatment [17].

India has a very rich musical heritage and literature on the science of music described in '*gandharva tattva*' dates back to 4th century B.C. [20]. Although system of staff notation was a later development in the history of Indian music, which resulted from influence of the West [21], mention of the Indian solfa system *Sa, Ri, Ga, Ma, Pa, Dha, Ni* has been made in a very old literary work *Narada Parivrajaka Upanishad* written more than 4000 years ago [22]. *Manodharma sangita*, a special feature of Indian music is the art of music in its purest form. It is music that is extemporized and performed during concerts. The ideal of absolute music is reached through it and it represents the highest degree of musical culture [21]. The basic difference between Indian and Western music is that Indian classical music is based on melody, while western music is based on harmonic system [23]. The effect achieved by harmonic accompaniment is sought here by addition of appropriate embellishments to the notes, which are known as '*gamakas*'. Gamakas play a special role in achieving therapeutic benefits of music [21]. Indian music employs the largest number of scales of the heptatonic and transilient varieties and the largest number of rhythms. It also uses quartertones and microtones in its *ragas* in addition to the twelve semitones of the octave, which is yet another distinctive feature. Its large gamut of musical instruments of chordophonic, aerophonic, membranophonic, idiophonic and lithophonic varieties provide multitude of options to explore for the music enthusiasts [22]. Thus, there is wide scope for multiple permutations and combinations to produce intended effects to suit individual needs, when used in therapy. However, research on effects of Indian classical music in persons with substance use disorders is still in its early stages of infancy and no study from India has been published till date [24].

A trait studied in persons prone to develop addiction is their inability to regulate emotions. Adolescents with deficits in emotional self-regulation were found to have not only higher rates of substance-use disorders but also earlier onset of the problem when compared to those without the deficits [25]. This raises the question if there are any measures by which emotions can be channelized in a constructive way so as to reduce the incidence of substance use disorders. Music is the highest form of art that arouses emotions. Thus there is a strong

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association between music and emotions. It helps in expressing and experiencing emotions [26]. Melodies laced with 'bhavas' (emotions) and mathematical precisions of *tala* (rhythm) system of Indian music have impact on emotional and intellectual faculties of the listener respectively, thus balancing the analytical and emotional aspects of a personality [11]. It gives a vent to emotions and inculcates self-discipline [27]. *Raga* in this system is a combination of notes forming a tune. Ragas tuned to appropriate rhythm and beat were used to balance emotional turmoil in the past. *Aalaap* or improvisation also referred to as *aalaapana* is expanding a raga structure. It is the 'contemplative exposition of a raga in irregular phrases without rhythm'. It is highly emotional and intuitive and has been shown to have advantage of balancing emotional flow in a pleasant manner by its effects on the brain [28]. With shift in emphasis on notes, one raga can have multiple effects [29]. The eight basic emotions expressed are *stringar* (love), *hasya* (laughter), *karuna* (compassion), *vira* (heroism), *raudra* (wrath), *bhayanaka* (fear), *bibhatsa* (disgust) and *adbhuta* (wonder) [24]. A study done by Nawasalkar and Butey concluded that Indian classical music is more effective than other forms such as jazz and rock music in producing a positive effect on the listener's mind, which was evidenced by EEG findings [26].

Rehabilitation is an important phase in the management of substance use related problems as treating the acute problem itself. A lot of emphasis is laid on this phase of treatment in view of the relapsing nature of illness. Alcoholics Anonymous (AA), an association for patients suffering from substance use disorders gained success across different nations with significant improvement in drinking outcomes [30], and abstinence rates [31]. Spiritual dimension forms the core principle of this group [32]. Drumming, which was found to be similar to cognitive behavior therapy in its effects [33] was proven to be effective in patients with repeated relapses [12]. It creates a sense of connectedness with self and also has a secular approach in accessing higher power and applying spiritual perspectives to the dynamics of addiction [12]. Thus, spiritual factors seem to have an important role in the road to recovery. Indian classical music, one of the oldest musical schools of the world also has spiritual origins [27], and therefore can prove to be effective in the rehabilitative phase of persons suffering from substance use disorders.

The concept of *Nadabrahma*, which regards sound as God has been in existence for many centuries and reflects the level of importance given to music in Indian society [20]. Nada Yoga of the Indian school of philosophy is one of the practices to attain spiritual enlightenment. It encompasses various techniques and basically relies on sound vibrations to achieve the goal. It is also used to study palliative effects of music in different psychological conditions [34]. A study conducted at Haridwar in India revealed that learning music as a practice of Nada Yoga positively enhanced EEG alpha and general well being of subjects practicing Nada Yoga [35]. As alpha wave biofeedback therapy has been shown to be associated with reduction in alcohol consumption [36], decreased illicit drug use, improved self-control [37], and reduction in anxiety scores in persons with substance use disorders [36,38], it will be worthwhile to study if Nada Yoga which increases EEG alpha can benefit as an adjunct treatment for this group of population. A study exploring the link between music preference and substance use has shown that there is a positive association of listening to rap, reggae and techno with substance use [39]. Another potential area of study is the influence of initiation of Nada Yoga practices at an early age in persons who may be prone to develop substance use related problems on the onset of disorder.

Although a recent development, popularity of music therapy is increasing. However, adequate evidence is lacking to establish it as an evidence-based practice [40]. While complementary and alternative medicine users were found to be less likely to use illicit drugs (among a cohort of women with or at risk for HIV infection) owing to their health consciousness [6], and practices such as yoga and mindfulness have been proven to be promising therapies for treating and preventing addictive behaviors [7], can institution of Indian classical music, which has immense effects on emotions prevent one from developing substance use? Adolescents are more vulnerable to peer influences

and evidence suggests increasing incidence of addictive behaviors in this age group. Therefore introducing this form of therapy at an early age in individuals who are at risk of developing addiction may prove to have long-term beneficial effects. In addition it offers additional advantages such as low cost, easy accessibility and increased flexibility to suit individual needs. Also, its spiritual roots can form a basis for its application in the rehabilitative phase of management of addictive behaviors, thereby reducing the burden of substance use disorders.

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