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MUSIC THERAPY: BRIDGING TRADITIONAL HEALING SYSTEM AND MODERN SCIENCE

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ABSTRACT ▶ The aim of this paper is to introduce and discuss about how music therapy clinical practice and research initiatives in India serve as a bridge between the experiences of traditional music healing practices and scientific validations. The current status of these healing applications in the global framework of music therapy is highlighted. The multimodal approach by which aspiring music therapists engage in clinical practice and research with an individualized approach to bring about the therapeutic outcome are presented. Traditional healing resources like Vedic chanting, raga cikitsa, garbhasanskara (Learning in the Womb) time theory of ragas integrating the ancient Ayurvedic perspectives, ancient raga visual imagery and cakra activation (music and breathing technique using ragas) are enumerated. The clinical outcomes are reviewed as a way to impact biological, physiological, psychological, chrono-biological and spiritual dimensions.

INTRODUCTION

Although profession of music therapy started developing in 1940s in USA and scientific research in field of music therapy has grown significantly during last 4 decades, influence of sound on music on healthy and diseases states of mind and body seems to have been known since ancient times. With advances in integrative medicine, psychoneuroimmunology, and psychoneuroendocrinology, it has been easier for researchers to see a big, holistic picture of health which is affected both positively and negatively by multiple factors such as genetic constitution, diet & lifestyle, environment, etc. Till date, there is convincing scientific evidence showing detrimental effects of noise and positive effects of music and music therapy on human health [1, 2]. However, still there are many questions to be answered, many why's to be explained, and many how's to be demonstrated.

Scriptures and documents suggest that ancient civilizations such as Indians and Greeks were aware of healing properties of music and had been using music therapeutically[3]. The *Vedas*, the earliest Indian scriptures dating back to 1500 to 1700 B.C., contain many verses related to musicology and health. *Gandharvatattva,* literature on science of music in India, dates back to fourth century B.C.[4] *Brhaddesi*, a 6th century a landmark work in Indian musicology by Sri Matanga Muni, and *Sangitaratnakara,* a 13th century treatise by Sarangadeva, are not only important for musicological aspects but also for psychological, physiological, and metaphysical aspects.

In this article, we aim to discuss important Indian traditional healing systems in context of music therapy. We also have tried to connect the traditions with modern science by gathering latest scientific evidence that is directly or indirectly related to the ancient concepts.

INDIAN TRADITIONAL MUSIC HEALING TECHNIQUES

Musicologically, Indian classical music can be broadly divided into Karnatik music and Hindustani music systems. Both the systems are rich in numerous *ragas* (a *raga* is a specific and melodious structure of selected notes and microtones). *ragacikitsa* is a very popular term in Indian traditional music therapy, which literally means "treatment by *raga*". In context of modern music therapy, *raga cikitsa* can be considered as a form of receptive music therapy in which a patient is made to listen to one or more specific *raga/s* to experience its/their therapeutic effects. *Ragas* can be used in form of instrumental improvisations, vocal improvisations and/or pre-recorded music/performances. There is accumulating evidence showing effectiveness of specific *ragas* on specific medical conditions, including a few randomized controlled trials [5,6], however, it has been difficult to explain how listening to a particular *raga* is beneficial in a particular medical condition, considering multiple aspects of musical sound, complexity of human hearing and listening process, musical profile of patients and multifactorial nature of health and illnesses. All the more difficult it is to prove that the other ragas are ineffective in each case and a specific raga only is effective.

One possible explanation for beneficial effects of specific *ragas* on specific diseases could involve ability of specific *ragas* to evoke specific emotions in the listeners. It has been shown various ragas can elicit distinct emotions in the listeners, with tonic intervals, tonality, rhythm, and tempo as additional factors modulating overall emotional responses[7]. In face of increasing evidence suggesting role of emotional factors in diseases, beneficial effects of different *ragas* can be, at least, partly explained by eliciting positive emotions in the listeners and these emotional responses to music could be explained by several mechanisms like **(a)** brain stem reflexes, **(b)** rhythmic entrainment **(c)** evaluative conditioning (d) contagion **(e)** visual imagery **(f)** episodic memory or **(g)** musical expectancy[8]. Of course, music being a sociocultural phenomenon, it is difficult to presume that a particular *raga* would evoke same emotional response in listeners with different cultural backgrounds.

Time Theory of *Raga* is another interesting concept in Indian Classical music. As per this theory, a 24-hour-day is divided into eight *praharas* (3-hour-time periods) and each of the *ragas* is assigned a specific *prahara*. It is believed that effects of a *raga* are best produced when it is performed or listened to during the specific time period assigned to it. Scholars have explained this unique concept in context of Indian philosophy[9], however, its significance in relation to therapeutic use of *ragas* needs to be evaluated. Recently, we reported a case study of a pregnant woman with major depression who was successfully treated with receptive music therapy using Indian Classical music, integrating concepts of Time Theory of *Raga* and Ayurveda, the ancient Indian medicine system[10]. However, there is no other evidence investigating relevance of Time Theory of *Raga* in clinical settings till date.

GarbhaSanskara (literally meaning "education in womb") is another Indian traditional practice where in low frequency chants are used as auditory stimulation to pregnant women from second trimester onwards. The pregnant women chant with the therapists. The ritual is an auditory stimulation provided to manipulate the micro environment *in-utero* during the prenatal period of pregnancy which aims to provide health benefits to both the woman and the developing fetus[11]. Effects of sounds on fetuses have been well recognized and exposure to prenatal music has shown to be associated with favorable neurobehavioral outcomes[12, 13, 14] and help the fine tuning of hair cells in the ear and their neuron connection to spiral ganglion and cochlear nuclei[15, 16]. It is worth noting that *GarbhaSanskara* is a concept described in Ayurveda includes many other interventions in addition to music-based interventions.

Eastern literature, including ancient Indian texts about Ayurveda and Yoga, has described concepts of human energy (or subtle) body, *cakras* (energy wheels), and *kundalini* (dormant energy). Many traditional healing systems such as Yoga therapy, reiki, qi-gong, meditation, acupuncture, etc are believed to work on human energy body. Seven major *cakras* have been described, which regulate flow of energy in the energy body. Imbalances in the energy body or imbalances between *cakras* are believed to produce diseased states. Various *cakra* activating and *cakra* balancing techniques are described in Indian texts, which aim to restore the balance in human energy body, and therefore to restore health. In Indian music therapy context, there are seven notes in Indian Classical music ("S", "R", "G", "M", "P", "D", "N") and each one corresponds to each of the seven major *cakras*. Thus, *cakras* can be influenced by appropriate use of musical notes. Recently, concepts of energy/subtle body, *cakras*, and *kundalini* have been explored by many researchers and interesting results have been observed[17-19]. Attempts have also been made to cross-refer human energy system with meridians (described in traditional Chinese literature) and modern central nervous system[20, 21]. However, it

must be realized that as far as these esoteric concepts are concerned, modern science has more questions than has satisfactory answers. To worsen the scenario for music therapists, little scientific work has been done integrating music therapy and *cakra*system/ energy body. Recently, we reported an exploratory study that showed elevation of body temperature after a single session of musical (vocal) technique of *cakra* activation in the raga mayamalavagowla in all the subjects[22]. Hopefully, future research in areas of mind-body medicine and advanced physics would make the picture clearer. One more important Indian traditional healing practice is *mantra* (single or a group of sacred sound/s, utterance/s, syllable/s, or word/s) chanting. Reciting *mantras* had been an essential part of ancient Indian traditional life and numerous *mantras*, meant to be chanted for different purposes, are described in *Vedas*. From musicology perspective, *mantras* are usually not raga based or to say melodious, but chanting them with correct intonations, rhythm and inflection of voice is given immense importance to produce their desirable effects. Many of these *mantras* are also part of meditation techniques. In Indian traditions, "*Om*" is considered a cosmic sound with harmonizing effects[23]. *Om* chanting has shown to produce significant neurohemodynamic effects in different areas of brain[24]. Therapeutic importance of *Om mantra* and other *mantras* needs further research.

MUSIC THERAPY IN INDIA: FROM TRADITIONS TO CLINICAL PRACTICE

Music Therapy is in infancy in India and it is a huge task and challengeto integrate all musicological healing traditions into clinical practice of music therapy. This, however, is very much desirable as music therapy is strongly influenced by culture and traditions and India is rich in cultures and traditions. Many of the contemporary researchers have validated and supported ancient Indian traditions, hence it also appears highly reasonable to explore, evaluate, understand, apply, and integrate concepts of Indian music healing traditions into music therapy practice.

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