CHAPTER 2

REVIEW OF LITERATURE

Background:

Music therapy is being used largely as an adjunct to primary treatment or along with
other therapeutic interventions and, in certain cases, as the principal therapy. Music
therapy is practiced worldwide, in different modalities for different age groups viz. -
music therapy for certain psychological and psychiatric problems, e.g. - hyperactivity, emotional disturbances, personality problems, anxiety and stress
related problems, mental health disorders, etc. Music therapy finds application in
different physiological problems as well, for e.g. – in Cancer, hypertension, diabetes,
etc. and also during surgery, post-operative care and in rehabilitation centers.

In the present endeavour, the literature review is restricted to the research work
relating to the therapeutic effects of music in India, in the ancient periods and in
recent years, and the research work done in western countries relating to music
therapy on depressed patients and on stress related problems.

Music Therapy in India

Music Therapy on Stress

Music Therapy on Depression
A. Music Therapy in India

**Historical Work**

**Recent Work**

**Personal Communications**

**Historical Work:**

1 Pt. Sharangdeva, (1896) in *Sangeet-Ratnakar* has given a chart which correlates 22 shrutis with 22 naris:

<table>
<thead>
<tr>
<th>#</th>
<th>Place of pronunciation</th>
<th># of naris attached</th>
<th>Name of the note produced</th>
<th># of shrutis</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Throat</td>
<td>4</td>
<td>Shadja</td>
<td>4</td>
<td>Compare <em>Sangita-Makaranda</em> (1,11-12) for the relationship of col. 2 and 4</td>
</tr>
<tr>
<td>2</td>
<td>Root of the palate</td>
<td>3</td>
<td>Rishabh</td>
<td>3</td>
<td>Being produced from five places it is called <em>Panchama</em></td>
</tr>
<tr>
<td>3</td>
<td>Lips</td>
<td>2</td>
<td>Gandhara</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>The centre of cerebrum</td>
<td>4</td>
<td>Madyama</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Teeth, throat, cerebrum, palate and lips</td>
<td>4</td>
<td>Panchama</td>
<td>4</td>
<td>Total number of Shrutis-22</td>
</tr>
<tr>
<td>6</td>
<td>Throat and palate</td>
<td>3</td>
<td>Dhaivata</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Throat and lips</td>
<td>2</td>
<td>Nishada</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Pt. Sharangdeva relates not only the shrutis but also the swaras to the nadiis. He also presents an alternative theory, according to which the seven swaras are related to the seven supportive tissues (dhatus) in the body, viz., blood, flesh, fat, bone, marrow, skin and semen. The theory seems to rest on the contention that the internal heat (ushna) of the tissues in conjunction with prana gives rise to the seven tones through different dhamanis (arteries) that are associated to the particular tissues in the same number as that of the shrutis of the particular tones which they produce. Thus, the number of dhamanis associated with the production of the seven notes through the seven supportive tissues is also twenty-two.

Swaras as related to dhatus (supportive tissues)

<table>
<thead>
<tr>
<th>#</th>
<th>Dhatu</th>
<th>Swara</th>
<th># of supporting dhamanis</th>
<th>Location of the substratum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Semen</td>
<td>Sahdja</td>
<td>4</td>
<td>Brahma-granthi (centre of the body)</td>
</tr>
<tr>
<td>2</td>
<td>Marrow</td>
<td>Rishabha</td>
<td>3</td>
<td>Navel</td>
</tr>
<tr>
<td>3</td>
<td>Bone</td>
<td>Gandhara</td>
<td>2</td>
<td>Heart</td>
</tr>
<tr>
<td>4</td>
<td>Fat</td>
<td>Madhyma</td>
<td>4</td>
<td>Throat</td>
</tr>
<tr>
<td>5</td>
<td>Flesh</td>
<td>Panchama</td>
<td>4</td>
<td>Root of palate</td>
</tr>
<tr>
<td>6</td>
<td>Blood</td>
<td>Dhaivata</td>
<td>3</td>
<td>Cerebrum</td>
</tr>
<tr>
<td>7</td>
<td>Skin</td>
<td>Nishada</td>
<td>2</td>
<td>Sahasrara</td>
</tr>
</tbody>
</table>

2 In his book Sangeet Parijat, Pandit Ahobal has described the relationship of 22 shrutis of Indian music to 22 veins of the human body. In his book, the nature of Vata, Pitta and Kapha have also been assigned to swaras. According to Pandit Ahobal, Prakruti of Vadi and Samevdi swaras in a raga is to be determined and the raga could be used as a remedy for specific dosha (ailment). He has given various illustrations, viz- raga Gouri should be sung in the late afternoon (4 to 6 p.m.). Vadi and Samevdi swaras of raga Gouri are komal ‘Re’ and ‘Dha’, which are of Kaph-Prakruti. In the late afternoon Vat, in the body increases and the raga Gouri being of Kaph-Prakruti is useful on Vat-Dosha.
3 Prof. Dr. T.C.N. Singh (1950) of the Botany Department of Anna-Malai University, had proved that harmonic sound waves do affect the growth, flowering, fruiting and seed-yields of plants. Numerous series of pot-culture experiments were conducted for the past several years on wild plants, ornamental plants and economic plants. It was found that the experimental plants were very much more vigorous, produced darker green leaves, flowered earlier and yielded more than the control batch of plants. The best results have been found with the sound waves of violin, flute and nada-swaram (a wind instrument). Vocal music was also experimented upon and it was observed that the female voice alone could excite plants.

4 Pandit Omkarnath Thakur (1961), the famous vocalist of India has done extensive research on the effect of music on animals. Panditji was confident that the music of blowing instruments could increase milk production of the cows. In the same context, he cites the unmistakable influence of music on such fearful animals as snakes. As reported by Tiwari (1980), Panditji had observed a number of beneficial effects on human beings. A boy suffering from Insomnia was cured as a result of rendering of raga Puriya by Panditji.

5 Altekar (1968) observed that ragas like Shankara, Patdeep, Hindole have proved beneficial in bringing behavioral changes in children of 8 to 10 years age group. He observed a significant change in the mood of these children from irritating to normal after administration of music to them.

6 Musicologist Ghanashyamdas (1969) has described the therapeutic effect of music in his book ‘Bharatiya Sangeet Vigyan’. He has described Prakruti for each swara based on the principles of Ayurveda, as were described in ‘Sangeet Parijata’ of Pt. Ahobal. According to the vadi swara of a raga, he has prescribed a raga for a particular illness. In his book, he said that raga Bibhas is useful in lowering the Kapha Prokopa and raga Pilu is useful to increase the strength.
7 Dr. Bhattacharya (1970) of the M.S University, Baroda, conducted experiments on 50 inmates of a mental asylum and says they responded encouragingly to classical ragas. He used various ragas like Bihag, Lalit and Jaijaiwanti played on string and wind instruments for the cure of mentally retarded and mentally ill persons.

Recent Work:

8 Manorama Sharma (1996), studied the effects of music on mentally handicapped students. The study titled 'Effect of music education on school achievement and adjustment of mentally handicapped children in Himachal Pradesh' was undertaken in Shimla, Himachal Pradesh. Music was administered in the form of either classical music or folk music to the mentally handicapped students under the experiment. The students having music education exhibited better performance than students who did not have music education. It was observed under the study that the students receiving music education showed significant improvement in their behaviour to their classmates as compared to those students who had no music education. Students having music education exhibited better sociability, cooperation and group awareness.

9 Gupta Uma and Gupta B.S. (1997), studied the effectiveness of raga Desi-Todi on flute without tabla by a renowned Indian musician, Hari Prasad Chaurasia, in causing mental relaxation. The University students served as subjects. The subjects listened to music daily for 30 minutes for 20 days. Pre- and post-design was used for recording physiological and psychological assessments. The instrumental music led to an increase in the alpha EEG frequency, and a decrease in the indices of beta EEG frequency, the muscle action potential, state and trait anxiety, and the four components of anxiety namely the cognitive, somatic, behavioural and affective components. The results demonstrate the relaxing and soothing effects of instrumental music.

10 Miss. Asha (1991) says that according to the biological explanation of the efficacy of music, the sound waves touch certain set of neurons in the brain that get activated and increase the amount of Ethanol in the body. The level of Ethanol in
the body is related to the emotional health of the individual. Music raises the level of Ethanol as it is raised by the sedative pills. The power of sound is a well-established scientific fact. The therapist should, therefore, use music with great care.

According to L. Ramakrishnan (1990), there are four major principles of general music therapy, a) Contra: - the therapist will expose the patient to music, which is totally different to his mental state or mood. b) Similia: - this will mean playing music to fall in line with the mood of the patient. c) ISO: - In this treatment an attempt is made to intensify symptoms and then to cure them by toning down the treatment. d) Pallia: - Treatment that acts as a tranquilizer.

He writes- Music is not only entertaining but it has also tension diffusing values in the atmosphere of competition, rivalry, complexes and unfamiliarity. Generally soft music is played in such situations but sometimes loud music is also helpful like that of Shehnai (a wind instrument) in wedding that creates a friendly feeling in the minds of guests. Music, therefore, has a tonic and soothing effect.

Mamata Sharma (1992), investigated the relaxation effect of music and biofeedback on the persons having different levels of musicality, extraversions and neuroticism. The subjects were randomly selected from the post-graduate female students of Punjabi University, Patiala. The integrated results of all the three experiments showed that firstly, biofeedback training and music treatment have adequate relaxation value. Secondly, music treatment has an edge over biofeedback treatment irrespective of the personality patterns of the subjects. This was inspite of the fact that in some personality types, one treatment showed better results than the other did and in the other personality type, the other was more effective.

Kumar and Kaur (1992), investigated the efficacy of instrumental music for treatment of insomnia. It was a single case study. The results were not encouraging. The investigators strongly felt that the personality pattern of the client could be an important factor to intervene during the treatment. They
observed that there were personalities that responded more to the biofeedback treatment than to music therapy, while there were others for which the case was just the opposite.

14 Dr. B. N. Manjula, Assistant Professor of Psychiatry, at the National Institute of Mental health and Neuro-sciences (NIMHANS) in Bangalore (1996) found music therapy more useful in cases of neuroses than psychoses. For depression, she found lively, verbal music in the language of the patient useful, while for patients of anxiety neuroses, melodious music played on string instruments was particularly beneficial. According to her, in case of mania, where attention spans are shorter, faster music could be beneficial. What is important is that the patient must relate to the music from before, she says. According to her, playing an instrument or singing music by the doctor himself, works best.

15 Dr. Gauthamadas, a Psychiatrist specialising in organisational behaviour, is the managing consultant of the Institute of Behavioural Analysis and Management (1996). He undertook, along with the Raga Research Center, to evaluate the effects of Carnatic music on the mental state of individuals. A study conducted on ninety emotionally stressed individuals, divided equally into three groups, exposed one group to 20 minutes of Shankarabharanam everyday for two weeks. The second group was exposed to film music for the same duration and the third group was left untreated. After a fortnight, twenty-two individuals in the first group showed a significant decline in stress levels, while only eight in the film song group showed stress level reduction while the third group was unaffected.

16 Dr. B. Ramamoorthy (1997), the world famous Neurosurgeon of Chennai writes- Experimentally, it has been shown that gentle music played to a resting subject increases the Alpha content of the E.E.G which indicates increasing tranquillity of the brain.

17 The International Foundation for Music Therapy Delhi (1969), had organized music therapy in India on a medico-scientific basis, Dr. S. Raman, chairman of the
foundation, explained how a music therapist could cure hypertension, tension, headache, circulatory disorders, cardiac palpitations, insomnia, anxiety-neurosis, hysteria and a number of other diseases. He stressed the need for a critical analysis of the effects of the various facets of music as 'rāga alajana', singing of songs both instrumental and vocal, choirs, choruses, etc.

18 Vinayak Mahadev Kapadi (1991), a musician from Mumbai, has developed Sound Therapy, particularly the chanting of 'OM', to cure many stress related diseases. Mr. Kapadi researched, practised and perfected the sound 'OM' in the lowest octave. In his experiments, he chanted 'OM' at a particular frequency, to blood pressure patients at the K.E.M. hospital in Mumbai and obtained astounding results. He says that the note that is recited, aims at producing reverberations in the muscular frame of the human body to cause a concentration of physical, mental and spiritual energies to relieve stress.

19 The soothing power of music is harnessed at Nagjee Memorial Hospital (1991), Nashik, Maharashtra to the omnipresent lilt of Sitar (a string instrument) heard in all the areas of the sprawling complex (except the operation theatres) throughout the day via the public address system. According to Rajesh Nagjee, Chairman of the Hospital, the presence of music makes a palpable difference in the day to day life of the hospital. The moment a patient is brought into the hospital premises by anxious or distraught relatives, the magic of music begins to work in the waiting halls itself. Dr Shinde, the director, also confirms that staff remains relaxed and cheerful at their work throughout the day. Music puts the inmates in a better frame of mind.

20 Dr. S. Shrinivasan (1991), Vice President, Medical Services of the multi-national Roussel India Ltd., is a staunch believer in the therapeutic values of music. In the course of his lecture-demonstration, Dr. Shrinivasan has made an attempt to show how music as organised sound energy can be put to good use by today's busy executive in recharging his batteries and therapy indirectly improving his productivity. According to him, 'Music therapy is quite successful in various
diseases like Rheumatology, pain management, elective surgery, neurological
diseases, psychiatry and gastro-intestinal disorders’.

21 Sri Ganapati Sachchidananda Swamiji of Mysore, India (1994), himself a great
musician and a composer has been conducting spiritual music concerts for
meditation and healing (Nada Chikitsa) in India and many other countries, in
Europe, America and the Caribbean Islands. “The music therapy is combined with
Ayurveda, Psychology, Gemenotherapy and Astrology” says Sri Swamiji. He
further adds “I only effect a rapport between man and God, the supreme reality,
with help coming from man himself in good measure. I attune man to God,
through belief and music. Once that results, body-consciousness vanishes
gradually, and with that, affliction ceases to be experienced and ceases to exist.
That is healing through Music and Meditation. “Listening,” he says, “is a special
technique requiring Indriya nigraha or sense control. Cerebral sounds are aroused
and long concentration on a raga creates a healing effect on the listener”.

He himself plays a synthesizer, which produces the sounds of many instruments.
He has opted for the synthesizer to reduce the number of accompanists in his
conzert troupe. The resounding synthesizer sets pace and the other instruments
keep company, a melodious fusion sends the air.

The Swamiji said that studies proved the raga Hansadhvani could cure all kinds of
allergies, skin diseases, depression and short temper. Similarly, Bhiravi has the
qualities to prevent headaches and eye problems.

22 A Music Therapist in Chennai, Sriram Bharathi, practises a unique form of ‘Sound
and Herbal Therapy’ (1996). Patients are made to listen to the Divya Prabhadham,
which are hymns of the Alvar Saints, and eat special herbal preparations.
According to Bharathi, gradually patients will feel no need for other medical
treatment. “The language component is a limiting factor not a barrier. Surprisingly,
many Hindi speaking people from the North India have been treated positively,
says Bharathi.
23 According to Dr. Ushakant Ladiwala (1998), who achieved a doctorate in musicology in 1985 for his thesis, ‘Effects of music on mental and somatic disorders’ and who has been treating patients with music therapy at his ashram at Lonavala since the past 5 years. The Dr. said that his new therapy of rejuvenating the brain cells has been found to be highly successful in relieving stress and mental fatigue and improving memory. The equipment used by Dr. Ladiwala, in his therapy include pulse monitor, Kymo-graphs (for recording breathing, lung movements), a stroboscope and audio players.

24 A new study has demonstrated the effectiveness of a Vedic vibration technique in healing Arthritis pain described as the primary disabling ailments, in the United States. The new study evaluates the healing success of a little known treatment for the disabling pain of Arthritis called the Maharishi Vedic Vibration Technology or M.V.V.T. (2001). It demonstrates M.V.V.T.’s incredible effectiveness in healing arthritis pain, The Maharishi College of Vedic Medicine, Albuquerque, New Mexico, said. The study, titled ‘A double-blind randomized controlled trial of Maharishi Vedic Vibration Technology in subjects with Arthritis’, revealed that scientists succeeded in achieving 100% relief from painful Arthritis in 36% of the patients treated and at least 60% relief from pain in 70% cases, it said. It was recently conducted in Berlin and Paris in coordination with scientists from the Netherlands, Albuquerque, Iowa, New York and Massachusetts.

25 Professor Manas Chatterjee (1995), a trained physicist, has opened the Jibonayan Research Center a decade ago in West Bengal to study ‘the effects of music on mind and body’ along with renowned neurophysiologist Dr. A. K. Maiti. Prof. Chatterjee says the singing of raga Darbani-Kanada for instance, is actually an advanced exercise in breathing which, in his experience, has led to a complete cure for Asthma. Devotional songs with a lot of intonation are excellent stress relievers, as anyone who listens to Kirtans, hymns and Bhajans knows.

In fact, he suggests that persons suffering from diseases like wheezing, chronic obstructive pulmonary disease, asthma, bronchitis, hypoventilation syndrome, sleeplessness, disordered breathing, chronic sinusitis, pharyngitis, laryngitis and...
tonsillitis should sing songs based on appropriate ragas in order to get cured. A melodious voice is not a prerequisite.

The curative power of music emanates from the resonance of certain ragas on hormonal and glandular functions, which produce secretions that keep the body balanced and infection free. He claims that the following ragas can cure these diseases:

<table>
<thead>
<tr>
<th>Raga</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minn ki Malhar and Darbari Kanada</td>
<td>Chronic asthma</td>
</tr>
<tr>
<td>Bhairavi</td>
<td>Sinusitis</td>
</tr>
<tr>
<td>Todi and Poorvi</td>
<td>Headache and anxiety</td>
</tr>
<tr>
<td>Kafi and Khamaj</td>
<td>Sleep disorders</td>
</tr>
</tbody>
</table>

26 At New Delhi’s Batra Hospital (1997), doctors play music in the operation theatre. They find the procedure gets demystified, the staff is relaxed, the patient goes into a deeper state of sedation and recovery is faster. Similarly, music played during childbirth allows the mother to respond to relaxation techniques more easily, the physical pain is a lot less and the time taken to recover through the post-delivery stage is much faster, says Dr. A^desh Sharma, a consultant neuro-psychiatrist. He further said that in his clinic, they had music on in all the rooms, simply because it helps him to relax, making him receptive to the patient’s problem. The patients wait, they get rid of their anxiety burden and slip into a positive frame of mind. 20% of their patients undergoing ‘vague’ stress-related symptoms like fatigue or lack of concentration, leading to failed relationships, were given meditational music tapes which helped them relax and created a conducive state for treatment.

27 Balaji Tambe (Ayurvedachrya) (1999), has founded a 'holistic healing community' known as 'Atma-Santoolan' village, claims that as many as seven classical Indian ragas have beneficial effects among patients suffering from insomnia, schizophrenia, epilepsy and both high and low blood pressure. He says that raga Sarang was especially effective against epilepsy, while Shivratri is recommended.
for intellectual work and for churning of the mind. He said that music itself is a nerve tonic as sound is one of the natural forces working wonders in physical and mental level. 'realised' said Mr. Tambe, that the approach of Indian healing music is communication at all three levels. Vocal singing is very important, along with the wind instruments like flute, Shehenni, organ and harmonium. Drums that are covered with a leather skin are particularly effective in healing music as compared to other percussion instruments.

28 Giselle Whitwell, a practising prenatal music therapist in Los Angeles has edited research on prenatal music therapy. She has written about the research in India:

Gajanan Shridhar Kelkar has directed a unique prenatal program in Lonavala, India, for the last 18 years, although this program has been existing much longer than that. Music and sound are interwoven in this curriculum in the form of chants, mantras and prayers, what we would call vibrational medicine today.

One of the mantras used in the prenatal project of India is known as the Gayatri Mantra, one of the oldest Sanskrit mantras. There is a healing dimension associated with mantras as cited by a cardiologist Dr. P. Pandya from India who found that a particular mantra was able to reduce the stress level of his cardiac patients. Through his research, he found that the mantra brought not only neurological changes but also psychological ones. Reciting the mantra resulted in the release of endorphins, thereby bringing a feeling of serenity and well being.

29 Dr. T. Mythily (Music Therapy consultant for Apollo Hospital and Devaki Hospital, Chennai), conducted a research work to study the efficacy of Music Therapy for Hyperactive children, being withdrawn from stimulant medication, to include a focus on home and social relations.

Ten (10) boys in the age group of 7 to 11 years receiving stimulant medication for hyperactivity were withdrawn from the medication and enrolled in Music Therapy (MT) sessions to observe overall improvement in their behaviour. Withdrawal of stimulant medication was accomplished either immediately or on a
gradual basis, depends upon their level of hyperactivity. Although there was variation in the consumption of stimulant medication in children, the responses toward withdrawal from medication also varied. But a realistic alternative to medication in the form of MT was substantiated from this study. The children learned to function effectively in school as well as at home without medication, and parents reported that their children behaved significantly better at home, following the exposure to Music Therapy than they had while on stimulant medication. Children also learned to organize their work in a better manner and the style of presentation also improved.

30 Dr. Gopalkrishna Waghalkar, Nagpur (1993), has been practising music therapy on his patients. His research is based on music in chapter 6 of Sidhisthan in 'Charak', a book of Ayurveda. He names the therapy as ‘Gandhrva-veda Therapy’. According to him, there are specific ragas to balance doshas and dhatus. He has listed specific ragas as a remedy, for particular diseases. Viz- for anxiety- raga Puriya, Kedar, Darbari-Kanada, for depression-raga Ahir-Bhairav, Puriya and so on.

31 Dr. Goswami Nilakanth (2002), a trained and practising psychiatrist, has tried music therapy on patients suffering from depression, insomnia, restlessness and also on severely mentally challenged children. He used to play folk tunes on his flute to a patient, who was complaining of severe pain in his abdomen. Dr. Goswami played the song, ‘Kesaria Balam Mora’ in raga Mand, the expression of pain and trauma would vanish from the patient’s face. It took eight sittings of 10 minutes each to cure him and only then it was revealed that the ‘pain’ in his abdomen was due to psychological reasons, said Dr. Goswami.

*Personal Communication:*

32 The ‘Raga Research Centre’ in Chennai with the help of musicians, doctors and psychiatrists, is in the process of comprehensively studying Indian ragas and evaluating their therapeutic potential. The Centre has found the raga Ananda-Bhairav useful in cases of Hypertension, the raga Shankarabharanam beneficial for
mental illness and is currently examining three other ragas, Mohanam, Bhairavi and Nasika Bushani. 'There is a raga for pain. There is a raga that will help fight ageing', says Kunnakudi Vaidyanathan, head of the Raga Research Center.

33 Dr. Ramesh Pandit (1997), a practitioner of Ayurveda in Mumbai, is pursuing research in the field of music therapy. According to him raga Basant can stimulate, raga Bageshree and raga Tilak-kamod, (both mid-night ragas), can help in the treatment of insomnia.

34 Dr. Vijaya Lele (1997), is using music as a therapy on her patients. According to her, ragas and their sound and frequencies are useful to promote balance and integrity in mind and body. She says that doshas like Vat, Pitta and Kapha are effectively controlled by regular practice of music. According to her raga Yaman, Bhop, Kedar, Kamod are useful on Kaph-Dosha, while for Pitt-Dosha, raga Bageshri, Khamaj, Kaffi and for Vat-Dosha raga Malkans, Darbari-Kanada.

35 Sitarist Shashank Katti (1999), has been experimenting on the Sitar for some time now, along with his two colleagues, Dr. Pradeep Taranekar and Dr. Himalay Pantvaidya. He has conceived new ragas called Healing Hindol, Todi, Puriya and Darbari, which are created with certain changes in the original ragas. According to them, Raga Healing Hindol is effective in curing backache and raga Healing Todi on hypertension. Ragas Healing Puriya and Darbari are used to provide relief for people suffering from liver problems, diabetes, hypertension, cardio-vascular diseases, migraine, mind concentration, stress, insomnia etc. Dr. Pantvaidya said that the entire therapy is based on sound energy. The therapy, which is a combination of allopathy, ayurveda and kundalini yoga, mainly corrects psychosomatic diseases.

36 Dr. Salim Shaikh (1996), is a consulting psychologist, having his own clinic of music therapy, 'The Success Motivation Centre' at Tardeo, Mumbai. Any patient suffering from stress or depression can listen to the music, which may be the gurgling sounds of water, sounds of flowing down of a river or a stream, sounds
of temple or church bells. Dr. Salim claims that his technique ensures permanent cure of anxiety, phobias, guilt feelings, psychosomatic and nervous disorders.

B Music Therapy on Stress

1 Barbara L. Wheeler (1988), studied the influence of music selection, mode of presentation, and music therapy activity on the response of 2 groups of alcoholics, with 5 to 18 members and a group of 5 drug addicts. 16 music therapy trainees participated in the two music therapy training groups. Therapists provided information on their activities during each group session and session components were classified and tallied by the number of occurrences. Client responses to each session were rated for involvement, enjoyment, intensity of elicited feeling and tension level. Art and music increased the subject’s involvement and intensity of feelings while moving to music, decreased enjoyment and increased tension levels. The quantity of feelings elicited was greater when discussion was included, involvement was greater when rhythm instruments were used and the tension level was lower when classical music was used.

2 Cathie E. Guzzetta (1989), studied patients admitted to a coronary care unit with a presumptive diagnosis of acute myocardial infarction (heart attack) who were assigned to a music therapy regiment, showed that stress levels had been reduced as compared to those of a control group. These patients were divided into three groups of which one was not stimulated at all (control), the second and third groups were assigned either a relaxation or a music tape. Their therapy consisted of three days of two-twenty minute sessions of music or relaxation, followed by a survey of the patient. The stress was measured by a typical heart rate, peripheral temperature, cardiac complications and qualitative patient examination results.

3 Redinbough (1988), has shown that older adults with depression are often withdrawn and may isolate themselves by sitting with their head down, giving minimal eye contact and not initiating speech. Music in the environment may
encourage an older person to lift his head and engage with his surroundings. Redinbough demonstrated that music therapy could implement both verbal and non-verbal communication among older adults. Pollack and Namazi (1992), reported that more social behaviour occurred after music therapy than before.

4 Susanna G., Cristine Davis and Cunningham (1987), conducted a study to find out the physiological effects of music on patients, in a coronary care unit. The study was performed on twenty-four patients, twelve with Myocardial Infarction and twelve with Non-Myocardial Infarction. The effect of a thirty-seven minute tape recording of selected Western classical music on heart rate, heart rhythm and respiratory rate was determined. Results showed a significant difference in the heart rate between the two groups; however, no statistical significance was observed in the respiratory rate. But a survey on the psychological effect of music showed a significant change of a happier state in eight subjects from the experimental group and in all the four sad, depressed or worried subjects, 'a change to a less depressed state'.

5 Janel Caine (1991), (Florida state Hospital, Chattahoochee) studied the effects of music on selected stress behaviours, weigh, caloric and formula intake, and length of hospital stay of premature and low birth weight neonates in a newborn intensive care unit. (Journal of Music Therapy, 1991 (Win), vol. 28(4), 180-192)

Subjects were 11 male and 15 female preterm and low birth weight newborns and matched controls in a newborn intensive care unit (NBICU) who were in stable condition and restricted to isolettes. Controls received routine auditory stimulation consisting of approximately 60 minutes of tape recorded vocal music, including lullabies and children's music, and routine auditory stimulation. 30 minutes of segments of the recording were played alternatively with 30 minutes of routine auditory stimulation, 3 times daily. Music stimulation may have significantly reduced initial weight loss, length of the NBICU and total hospital stays and daily group mean of stress behaviors for experimental subjects.
Sammi S. Liebman and Aileen McLaren studied the effects of music and relaxation on third trimester anxiety in adolescent pregnancy. (Journal of Music Therapy, 1991 (Sum), Vol. 28(2), 89-100)

They examined the effects of music and relaxation intervention on anxiety levels within a population of pregnant adolescents. Nineteen, 13-18 year old girls provided data for the experimental group (those subjects receiving the music therapy intervention), twenty matched girls provided data for the control group (those subjects not receiving the music therapy intervention). All the subjects were administered the State-Trait Anxiety Intervention at regular intervals from the 7th - 9th month of pregnancy. Analysis revealed a significant main effect difference between the two groups on the trait anxiety scores and a significant main effect difference between groups with regard to state anxiety.

David Adridge (1991), discusses the interaction of aesthetic and scientific orientation in a case study of a 36-year-old patient with nervous depression. Through daily art therapy and weekly Music Therapy, the subject was able to express her disorientation, turbulence and lack of connectedness. As therapy progressed, the subject’s art showed a center of focus and her random uncontrolled music was replaced by structured and directed improvisations. Common elements in the language of art and music express loss of coherence and initiative, relationships and dialog. Creative art therapy is not psychological but artistic, and the terms used have their own legitimacy. Leaning a repertoire of improvisational possibilities promotes form and order in the healing process.

Carlos, E. Gonzalez (1990), describes a music therapy assisted childbirth program in terms of - 1) anxiety reduction and relaxation during late pregnancy, 2) pain management alternatives to medication during labor and, 3) pre- and post-natal infant-stimulation/relaxation through music and verbalization to influence its development. The program attempted to facilitate a reduction of stress for the working mother-to-be, as well as a direct (positive) mother-child interaction in the postnatal period. Data from 21 primitive subjects revealed benefits of the program, including a reduction in anxiety during the reproductive cycle, a high
level of satisfaction with the childbirth experience, and the ability to soothe the infant through prenatal music.

9 Michael H. Thaut (1990), (Colorado State University), measured self perceived changes in states of relaxation, mood/emotion, and thought/insight in 50 male Psychiatric prisoner patients before and after music therapy. Each subject participated in 3 different treatment modalities: Music Therapy Group, Instrumental Group improvisation and music and relaxation. Results showed a significant pretest-posttest change in self-ratings across all scales after music therapy. The magnitude of change differed significantly between scales- subjects showed similar responses and the different treatment modalities did not significantly influence the results.

10 Heten L. Bonny (1990), describes guided imagery and music (GIM) therapy and examines clinical applications, therapist qualifications and treatment categories. GIM focuses on the conscious use of imagery, arising in response to a formal program of relaxation and music in order to promote self-understanding and personal growth. GIM is most effective when used on a one-to-one basis in private practice. GIM may be applied in the treatment of neurosis and depression, in relationship therapy, in the integration of music and art therapies and with various populations (e.g. Psychiatric inpatients, hospice patients). Those least likely to benefit from GIM, include clients with psychotic symptoms, neurological impairments or insufficient ego strength.

11 Bruce M. Saperston (1990), states a stress-reduction approach for the behaviorally disturbed and mentally retarded. Music is used in MBIRT (Music based Individualised Relaxation Training) to circumvent learning and behavioral problems and functions as a reinforcing stimulus, a structural prompt, and an eliciting stimulus. Assumptions for presenting music as a stimulus for more relaxed responding are presented. Also described are 4 levels of MBIRT assessment procedures and a case study.
12 Joey Barrickman (1990), (Iowa Hospitals and clinics), describes the selection of musical activities, materials and music therapy approaches for hospitalised preschoolers (aged 2-4 years). Issues outlined are development in motor activity, production and discrimination of musical sounds and social development in preschoolers. Music may be the ideal medium to help children cope with hospitalisation because it is a natural part of their lives and provide stimulation, an outlet for self-expression and opportunities for motor response, without requiring verbalisation.

13 Paul D. Hoelzley (1992), describes how wind instruments were used to reciprocally inhibit the strong fear, anxiety and avoidance behavior of a 6 year old girl with pervasive developmental disorder. During music therapy, the subject showed improvement in fine motor skills, attention span, levels of compliance and frustration tolerance, and apprehension of cause and effect relationships.

14 Christopher J. Heaney (1993), (Illinois School of professional Psychology, Chicago) studied evaluations by 27 adult Psychiatric patients (aged 21-73 years) of music therapy and other aspects of their overall treatment. Subjects rated Music Therapy, Recreation Therapy, Traditional Therapies and general aspects of care provided during their hospitalization with a semantic differential consisting of 4 adjective pairs. Music Therapy was rated significantly higher than Art and Recreation Therapy on the pleasurable/ painful scale, but no significant differences were found among the activity therapies on the 3 remaining scales.

15 Julia E. Leonard, RN, C. (1993), (Music Therapy: Fertile Ground for Application of Research in Practice) found that Music Therapy brings about a change in the behavior states of neonates whose agitation was related to a variety of conditions including respiratory distress, postoperative agitation, inability to feed (neonates permitted nothing by mouth) and probable drug addiction (neonates whose mothers were suspected or known cocaine abusers). On numerous occasions, they have seen an agitated neonate exhibit an immediate response to music therapy, becoming organized and quietly alert or falling asleep.
16 Bannson and Susan (1995) conducted a study at Bryan memorial hospital, examine the effects of music on anxiety, in patients after coronary artery bypass. The therapy included music audiocassettes and music video cassettes for 30 minute on the 2nd and 3rd post-operative days. The results showed significant improvement in the mood ratings among subjects in the music intervention group. After 2nd intervention the significant effects over time for heart rate and blood pressure indicated physiological relaxation response.

17 Mehmet, Gerard, Whitworth and Eric (1998) offered 'Music Therapy' under complementary medicine program in surgical word. This modality uses music's influence on the mind and body, to ease the stress patients endure when undergoing open- heart surgery. Patients listen to specially designed 'hemisync', 5-tonal, or popular music tapes through headphones while anesthetized during surgery. Patients are encouraged to listen to the tapes pre-operatively and post-operatively to support the recovery process. Of the patients entering the complementary medicine program, 80% chose this modality.

18 CH. Mckinney, MH. Antoni, M. Kumar, FC. Tims, and PM. McCabe (1997), studied the 'Effects of Guided Imagery and Music (GIM) therapy on mood and Cortisol in healthy adults'. Twenty-eight healthy individuals participated in a randomized trial of Bonny Method of Guided Imagery and Music (GIM). Measures of mood and cortisol were obtained from the subjects. Treatment group and wait-list controls completed the Profile of Mood States and donated 15cc. of blood before and after the 13 week intervention and again at a 6 week follow-up. Results show after 6 biweekly sessions, GIM participants reported significant decreases between pre- and post session depression, fatigue and total mood disturbance and had significant decreases in cortisol level by follow-up. Pretest to follow-up decrease in cortisol levels was significantly related to decreases in mood disturbance. The authors conclude that even a short trial of GIM may positively affect mood and reduce cortisol levels in healthy adults. Such changes in hormonal regulation may have health implications for chronically depressed individuals.
R. McCraty (1999), examined the effects of music and positive emotional states on the immune system in healthy individuals (n = 10). Autonomic activity was assessed using power spectral density analysis of heart rate variability, and secretory immunoglobulin A (S-IgA), measured from saliva samples, was used as a marker of immunity. The autonomic and immune effects of rock and New Age music selections were compared to those produced by Heart Zones, music designed to facilitate stress reduction and promote emotional balance. Listening to Heart Zones for 15 minutes produced a significant increase in total autonomic activity (p < .05) and an average increase of 55% in S-IgA levels (p < .01). In contrast neither rock, New Age music nor a control period of silence produced significant changes in total autonomic activity or in S-IgA concentrations. Rock music decreased power in the high frequency region of the heart rate variability power spectrum (p < .05), suggesting a reduction in parasympathetic activity.

In conclusion, results indicate that music can be designed to potentiate the immuno-enhancing effects of positive emotional states.

Herbert Benson (2000), M.D. of the Mind/Body Medical Institute at Boston’s Deaconess Medical Center and author of Timeless Healing, The Power and Biology of belief (Scribner, 1996), has studied the effects of chanting mantras on human physiology. He has found that by repeating a single word (such as ‘OM’) measurable changes are produced in energy consumption, respiration rate, heartbeat, pulse and metabolic rate. An increase in alpha brain waves, associated with daydreaming and meditation, also has been observed. His studies have further demonstrated that through meditation and relaxation, it’s possible to improve immune function and alleviate and prevent heart disease, stroke and many other chronic health problems.

At Florida State University’s Center for Music Research, researchers found that premature infants exposed to lullaby singing and multimodal stimulation helped reduce the number of days to discharge and helped increase weight gain. Lane, one of the researchers says that preliminary results from a study at Children’s Hospital Medical Center in Akron, Ohio, have yielded similar results.
Dr. Karen Allen, (2001) and his team of researchers have found that listening to music helps to minimize the rise in blood pressure associated with surgery. However, they say the best results are likely to come from people being able to listen to the music of their choice, rather than being given music thought to be soothing.

A team from the State University of New York at Buffalo tested their theory on 40 volunteers, most of whom were scheduled to have surgery for glaucoma or cataract removal. Although they had normal blood pressure a week before surgery, they had significantly higher blood pressure on the morning of their operation. This appeared to be a result of high levels of stress and apprehension about surgery. One group of volunteers was given headphones and a choice of 22 types of music, including classical guitar, chamber and pop. The rest were offered no music at all. Within five minutes of listening to their chosen music, the blood pressure levels of the music group members dropped to normal and stayed that way during and after surgery. The no-music group, by contrast, had elevated blood pressure levels for the whole surgical experience. Lead researcher Dr. Karen Allen said: "Our results provide evidence that music can have beneficial cardiovascular and cognitive effects and can normalize high blood pressure caused by the stress of ambulatory (walk-in) surgery. We believe music has potential applications in many types of ambulatory surgery, among many patient age-groups".

C Music Therapy on Depression

E.P. Herman (1956), has elaborated the case studies under the title 'Music Therapy in Depression'. He writes that music of a lively nature is indicated in cases of the 'blues'. Such music has definite effects on all the processes of the body. It increases bodily metabolism, which is usually decreased in a state of depression. It increases muscular energy, which is retarded when one feels 'down in the dumps'. It increases the blood pressure and pulse rate which are definitely slowed down in any depressive state. It helps to decrease fatigue, which is an outstanding symptom of depression. It reduces suggestibility, which very often is among the
prime causes of depression. It also has a tendency to reduce the extent of illusions by acting as a distracting factor.

2 Konovalov and Otmarkova (1983) and Jausovec (1985) demonstrated integrative brain function in response to music. This activation allows for learning new ways to respond to life's events in group work where patients can learn to identify and name feeling states, practice new modes of self-expression and communication, and explore obstacles to changes in life patterns.

In a group of depressed patients who have few words to describe response, music therapy can begin to open the door to the development of a descriptive vocabulary. Words that match an emotionally charged experience are more likely to be committed to memory and used again. So, by responding to music-recorded or improvised—and describing it in concrete or feeling terms, group members learn descriptors from one another.

Group members may also be asked to improvise individually, using sound to describe the extant feeling and allowing the sound to shift out of that feeling state. Helping the improviser to describe that feeling again contributes to the building of vocabulary. More important, however, is the experience itself, of giving sound to what is within, hearing that sound and responding to it as the improvisation happens over time.

3 Rajeswaki et al (1982), presented the active forms of music therapy in the treatment of depressed patients. They saw the influence of periodically applied active music therapy on clinical and experimental patients with endogenous and psychogenic depressed syndrome. Subjects were administered a general feeling with the help of Piorkowski apparatus and the tapping test. The music therapy was found to be effective on the nosologic diagnosis and the kind of therapeutic activities.

4 Reinhardt, Uwe and Ehrig Lange (1982) studied the effects of various forms of music and an acoustic non-musical comparative stimulus on the condition and efficiency of depressed persons. These persons react in the not uniform manner to
the performance of Vienna Waltzes and slow phrases of piano concertos by Mozart, partly with considerable improvements of their condition and increase in efficiency while contrary reactions were produced by other forms of music. Persons suffering from depressive defect schizophrenia with reduced drive showed positive effects after waltz and folk songs.

5 Ellen M Redinbaugh (1989), presents a case study to illustrate the use of music therapy as a means of increasing verbal and nonverbal communication in a withdrawn, depressed 91 year old black female. Once the subject had developed a system of communicating through music, she exhibited an increase in participation in social activity groups, which led to the information of a social support system for her.

6 Carol L. Shultis, M.Ed, (1990) writes that in a group of depressed patients who have few words to describe response, music therapy can begin to open the door to the development of a descriptive vocabulary. Words that match an emotionally charged experience are more likely to be committed to memory and used again. So, by responding to music recorded or improvised – and describing it in concrete or feeling terms – group members learn descriptors from one another.

7 A Davies (1995), writes about his work with depression and how aspects of loss are linked with depressive states. He writes in the paper published in British Journal of Music Therapy about how, through the use of music, patients stuck in the depth of painful depression are able to begin to express feelings through an experience in music and how this gives them access to feelings that can then be articulated in words.

8 S. B. Hanser and S. W. Thompson (1994), developed a music-facilitated psycho-educational strategy as a cost-effective and accessible intervention for older adults experiencing symptoms of depression, distress and anxiety. Thirty older adults who had been diagnosed with major or minor depressive disorder were randomly assigned to one of three 8-week conditions.
1) A home-based program where participants learned music listening stress education techniques at weekly home visits by a music therapist, 2) a self-administered program where participants applied their same techniques with moderate therapist intervention (a weekly telephone call) or 3) a wait-list control.

Participants in both music conditions performed significantly better than the controls on standardized tests of depression, distress, self-esteem and mood. These improvements were clinically significant and maintained over 9-month follow-up period. The potential for this type of intervention with homebound elders and others who have limited access to services is discussed.

9 John Ortiz, Ph.D., (1997) a ‘psycho-musicologist’ based in CampHill, Penn, studied a case of severe depression of Charisse Lavelle, 45-year old marketing executive. She had no energy, insomnia, difficulty in concentration and had lost interest in her friends and family. She was on antidepressants but no improvement was seen. John asked her to select 3 songs that sound like her depression. Three that feel like what she wants to feel and three in between. Then he had her make an ‘entertainment’ tape of all nine. She was to fill the rest of the tape with her favorite music. Shopping for the music and making her own tape restored her sense of having some control in her life. Her next step was music to exercise and dance to, which got her moving again. Within a matter of months of psychological and sound therapy, Charisse was feeling significantly better and off antidepressants.

10 Frederick Tims, Ph.D., (1998), MT-BC, Chairperson of Music Therapy at Michigan State University conducted the study in cooperation with the American Music Therapy Association and Fletcher Music Center. Scientific findings show that music making helps make active older Americans healthier. The study followed various health measures in 130 people during 1998. The experimental group consisted of 61 retirees taking group keyboard lessons in Florida over a period of two 10-week semesters. The health measures were administered before the lessons and after each semester. The control group included 69 retirees in Michigan not receiving group keyboard lessons, with the health measures administered at the same times as the experimental group in Florida.
In three separate areas, important quality of life measures showed a significant change from pre-to-post-test in the experimental group (keyboard group), with no change occurring in the control group. The Michigan control group was a good comparison group for the Florida group, since both were equivalent with respect to age, gender, and ethnicity. Forty-five men and 85 women participated in the study. Slightly more than one-half of the participants in each group were married.

On the Mental Health Inventory (MHI) Anxiety scores, anxiety decreased in the keyboard group but not in the control group. This decrease in anxiety was evident early on and appeared after only 10 weeks of lessons, remaining after 20 weeks of lessons. Decreased anxiety is related to improvement in cognitive performance, as well as to enhancement of learning, decision-making, and feelings of well-being.

On the Profile of Mood States (POMS) Depression/Deposition scores, depression scores decreased in the keyboard group but not in the control group, and took into account differences in life events and social support. Depression is a major problem in the aging population. With decreased depression scores, people report a brighter mood.

On the UCLA Loneliness Scale, the loneliness scores of the keyboard group decreased across the span of the lessons, while the control group scores stayed the same. This, according to Dr. Tims, indicates that the keyboard students changed their perception of loneliness, or sense of being alone. Interestingly, the Lubben Social Support scores did not change. This indicates again the positive effects of the keyboard lessons since the Social Support scores measure external support, such as family and significant other support, whereas the Loneliness scale measures internal perception of support. In other words, it was from the lessons that this feeling most likely derived. Loneliness is a major problem with older people, and has major effects on health and feelings of well-being.

11 NA Jones, T Field (1999) reported that massage and music therapy could alter brain patterns and offer therapeutic help for patients suffering from anxiety and depression. There are a number of clinical research studies showing the benefits of both of these therapies, and this prompted researchers at Florida Atlantic University, USA to investigate exactly how and why these therapies work so well.
The researchers monitored brain activity in depressed teenagers. It is known that EEG asymmetry, specifically greater relative right frontal activation, is associated with negative emotions and depression, and examination of depressed adults invariably shows this phenomenon. The researchers therefore decided to assess the effects of massage therapy and music therapy on frontal EEG asymmetry in thirty depressed teenagers, all showing greater relative right frontal EEG activation and symptoms of depression.

Fourteen of the teenagers were given massage therapy or and sixteen were given music therapy. EEG levels were recorded for three-minute periods before, during, and after each therapy session.

The results revealed that the frontal EEG asymmetry was significantly improved both during and after the massage and music sessions. The study demonstrates that both massage therapy and music therapy have positive effects on brain activity in depressed teenagers and indicate that these therapies should be more closely reviewed for inclusion in conventional treatment programmes.

A research team set up a comparative research study to lend validity to their observations of the success of the music therapy group. The research team, which included doctoral candidates Beth Robinson, Jamie Cheek, Shane Haberstroh, and Perry Collins, assembled two therapy groups for comparison. One group used traditional group therapy, and the other used music therapy techniques. Both groups were composed of students who showed depressive symptoms.

A pre- and post-test on the Beck Depression Inventory and the Piers-Harris Self Esteem Inventory were conducted as part of the comparative study. The results were very significant, with the group using music therapy techniques overshadowing the group that did not, said Jerry Parr, a professor of counselor education at Texas Tech who performed the data analysis.

"Significantly greater gains were made in improving self-concept and in lowering depression for students randomly assigned to the music therapy group, compared
with those students who received group counselling without music,” said Parr. “These findings did not vary by the students’ sex, ethnicity, or age”.

“The results of the study showed there was an overwhelmingly significant difference in the attitudes of these adolescents after the music therapy group,” said Bradley. “The reason this group was so successful, I think, was that the counsellors were able to establish rapport with the kids through their music, and that helped them to listen to our counselling”.