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# EFFECTIVENESS OF MUSIC THERAPY AMONG CHRONIC HYPERTENSIVE INDIVIDUALS BY USING RAGA THODI AND RAGA AHIR BHAIRAVI

**V. G. Leena Lakshmi Prasanna[1], G. Shashi Bhushan[2], Mannonmani S[3]**

[1]Tutor, Department of Physiology, PESIMSR, KUPPAM, India.
[2]Associate Professor, Department of Anatomy, PESIMSR, KUPPAM, India.
[3]Assistant Professor, Department of Anatomy, PESIMSR, KUPPAM, India.

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**Corresponding Author:** Dr. G. Shashi Bhushan, Department of Anatomy, PESIMSR, KUPPAM, India.
**Email:** drshashibhushang@gmail.com

## Abstract

**Background:** Music therapy, using music to treat diseases and enhance well-being, dates back to ancient Greece with Pythagoras acknowledging its therapeutic benefits. This study involved 130 hypertensive patients divided into two groups of 65 each. One group listened to Raga Thodi and the other to Raga Ahir Bhairavi, along with their usual medication. Blood pressure was measured daily at 10:00 AM over a week. Results showed that Raga Ahir Bhairavi significantly lowered systolic and diastolic blood pressure and mean arterial pressure, more effectively than Raga Thodi, which also lowered systolic and diastolic pressure but not mean arterial pressure. The study confirms music therapy, particularly Raga Ahir Bhairavi, as an effective method for reducing blood pressure.

## Introduction

Music is a universal language that influences various aspects of human life. It serves as a medium for communication and can be a soothing and healing experience. Music therapy, which involves the specialized use of music to treat individuals with mental and physical health needs, is gaining recognition. It is a scientific method of treating illnesses through the power of music, aimed at restoring, maintaining, and improving emotional, psychological, and physiological well-being[1,2,3]**.** The concept of music therapy dates back to ancient Greece, with figures like Pythagoras, Plato, and Aristotle recognizing the preventive and therapeutic powers of music[4]. In Hindustani classical music, specific ragas are believed to depict certain moods[5]. Music therapy has notable effects on the brain, such as reducing cortisol levels and promoting vasodilation, which can help lower blood pressure and reduce the risk of cardiovascular diseases[6,7]. Cardiovascular diseases are among the leading causes of death globally, with ischemic heart disease and cerebrovascular diseases like stroke causing millions of deaths annually[8].The global population of people over 60 is expected to double by 2050[9], and in India, around 50% of the elderly population suffers from hypertension[10]. Hypertension contributes to 13% of global deaths[11] and is linked to stress, which is responsible for approximately 70% of diseases, including nervous breakdowns, high blood pressure, depression, heart conditions, and ulcers[12,13]. Managing hypertension is crucial due to its association with severe complications like stroke, myocardial infarction, sudden death, heart failure, and kidney disease[14,15].

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In the modern world, stress is increasing, leading to a rise in hypertension. According to the World Health Organization (WHO), 26.4% of adults worldwide and 24.6% of adults in India suffer from hypertension[16,17]. Hypertension can be managed through both pharmacological and non-pharmacological therapies. In the 21st century, there is a growing focus on alternative therapies such as relaxation, meditation, laughter therapy, aroma therapy, and music therapy, alongside pharmacological management[18, 19, 20,21,22,23]. Music therapy is particularly effective for hypertensive and pre-hypertensive adults[24,25]. It involves techniques like music improvisation, listening to music, songwriting, lyric discussion, imagery, relaxation, and musical performance[26]. Scientists attribute the relaxing effects of music to complex neurophysiological phenomena that impact the nervous system and stress hormones[27]. Music therapy is easy to practice, requires no prior medications, can be done at any time, and is generally well-accepted by the public. It is safe and an affordable intervention technique[28,29].Studies suggest that non-drug-based interventions, including music therapy, have therapeutic effects on vital signs in patients with various conditions like anxiety and essential hypertension. For instance, research by Stoudenmire (1975), Kim and Lee (1989), and Rasid and Parish (1998) supports these findings[30,31,32]. Additionally, antihypertensive medications often have negative side effects such as nausea, weakness, and sleep disorders, and they pose an economic burden on patients[33]. Music therapy offers an alternative or complementary therapeutic approach that is affordable, free of side effects, and not prone to overdose or contamination[34].To explore these benefits, studies have examined the effectiveness of music therapy using specific ragas like Raga Thodi and Raga Ahir Bhairavi on individuals with chronic hypertension[35].

## Research Methodology

### Population and Sample

This study include 65 hypertensive cases treated with RAGA THODI and 65 hypertensive cases treated with RAGA AHIR BHAIRAVI. The subjects were continued to take anti-hypertensive treatment. The BP of the signed subjects was measured with sphygmomanometer ahead and after the music remedy in sitting posture at10.00 am by both Palpatory and Auscultatory styles. The subject is asked to sit in a relaxed position with his headphones and android mobile phone ready. This study was conducted by me in AASHRAYA OLD AGE HOME, SVIMS out cases to cardiology department, in Tirupathi for one week on individuals with habitual hypertension after taking their concurrence in original language. The individuals are made into two groups aimlessly and separate ragas were allocated to them and they were made to hear for about 40 minutes.

**Inclusion criteria**: Age above 30 years

Gender: Both Male & female

Given hypertensives with drug since 3 times individualities who are willing to share in the study

**Exclusion criteria**: Age below 30 years

Complications of hypertension similar as Cardio Vascular Disease/ habitual order conditions

Campaigners on regular exercise

Campaigners not willing to share in the study

**Study design**: A Comparative study

**Sample size**: this study include 65 hypertensive cases treated with RAGA TODI and 65 hypertensive cases treated with RAGA AHIR BHAIRAVI. The subjects were continued to take anti- hypertensive treatment

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**Statistical analysis**: Data was described as mean standard divagation for nonstop variables for p value<0.05 was considered to be significant. Comparison between the two groups was done by Paired 'T' test.

**PERMISSION:** This study was conducted during the period of December 2019- march 2020. Permission was taken from Institutional Ethical Committee (IEC) by circular dated 15.06.2020 (IEC NO. 995)

## Method

**Blood Pressure Recording:** It is recorded by using traditional method of recording blood pressure.

## Results And Discussion

**TABLE 1: Comparison of SBP, DBP, PP, MAP both prior and post intervention of music therapy by Raga Ahir Bhairavi:**

| | Prior Intervention | Post Intervention | P Value |
|---|---|---|---|
| SBP | 134.43 ± 10.09 | 129.35 ± 8.53 | <0.05* |
| DBP | 96.86 ± 8.74 | 88.52 ± 7.63 | <0.05* |
| PP | 34.12 ± 7.45 | 33.78 ± 6.38 | >0.05 |
| MAP | 94.08 ± 8.74 | 89.25 ± 7.63 | <0.05* |

NOTE: SBP, DBP, MAP P value are statistically significant <0.05*. Whereas the P value for PP is statistically nonsignificant>0.05

**TABLE 2: Comparison of SBP, DBP, PP, MAP both prior and post intervention of music therapy by Raga Thodi:**

| | Prior Intervention | Post Intervention | P Value |
|---|---|---|---|
| SBP | 132.92± 8.9 | 129.44± 7.4 | <0.05* |
| DBP | 97.69± 7.14 | 93.81± 6.3 | <0.05* |
| PP | 35.23± 8.05 | 35.07± 7.2 | >0.05 |
| MAP | 96.45± 14.05 | 94.26± 6.4 | >0.05 |

NOTE: SBP, DBP, P value are statistically significant <0.05*. Whereas the P value for MAP and PP are statistically nonsignificant>0.05

**TABLE-3: Comparison of difference of SBP, DBP, PP, MAP before and after music therapy in both the groups:**

| | SBP | DBP | PP | MAP |
|---|---|---|---|---|
| Ahir Bhairavi | 5.08 | 4.34 | 0.34 | 4.83 |
| Thodi | 3.48 | 3.88 | 0.16 | 2.19 |

NOTE: By Table-3 we can tell that there is major effect of reduction of SBP, DBP, MAP in patients who undergone music therapy by Raga Ahir Bhairavi than Raga Thodi. There is also a mild difference in Pulse pressure by Ahir Bhairavi raga.

## Discussion

Hypertension is a major health issue, and managing pre-hypertension is crucial. Indian classical music, based on the time theory of Ragas, can enhance emotional impact and potentially lower blood pressure (BP). This study at SVIMS Tirupati involved 130 hypertensive patients divided into two groups: 65 patients (Group A) received Ahir Bhairavi Raga, and 65 patients (Group B) received Raga Thodi for one week. Results showed significant reductions in systolic BP (SBP) and diastolic BP (DBP) for both ragas, with Ahir Bhairavi having a greater impact on mean arterial pressure (MAP) than Thodi. Group A's

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SBP decreased from 134.43±10.09 to 129.35±8.53 and DBP from 92.86±8.74 to 88.52±7.63, while Group B's SBP decreased from 132.92±8.9 to 129.44±7.4 and DBP from 97.69±7.14 to 93.81±6.3. Pulse pressure (PP) changes were not significant in either group. These findings suggest Raga Ahir Bhairavi is more effective in reducing BP than Raga Thodi, likely due to music's positive impact on the neuroendocrine and autonomic nervous systems, promoting cardiovascular health.

**Deviation / Limitation**

The study duration was reduced from four weeks to one week due to the COVID-19 pandemic.

**Summary**

This study compared 65 hypertensive patients treated with Raga Ahir Bhairavi to 65 patients treated with Raga Thodi, all continuing their regular medication. Blood pressure was measured before and after one week of music therapy. Ahir Bhairavi proved more effective in reducing blood pressure than Thodi.

**Conclusion**

Music therapy effectively reduces blood pressure, with Raga Ahir Bhairavi showing greater effectiveness than Raga Thodi. It is recommended to consider music therapy as an adjuvant therapy alongside medication.

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