

Original Research Article

# Investigating the Effects of Music Therapy on Managing Hypertension in Pregnant Women: An Experimental Study

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**Abstract:** An experimental study assessed the effectiveness of music therapy in reducing hypertension among 70 antenatal mothers in a selected community in Bengaluru, Karnataka. Participants were selected through non-probability purposive sampling and underwent baseline assessments for blood pressure, demographic characteristics, and stress levels using a structured questionnaire. Over a specified period, the mothers engaged in structured music therapy sessions. Results indicated a significant reduction in both systolic and diastolic blood pressure following the intervention, demonstrating the efficacy of music therapy as a non-invasive strategy for managing hypertension in pregnant women. The study found that the predominant age group was 30-34 years (42.86%), with most participants being married (95.71%) and homemakers (57.14%). Socio-economically, 50% of the sample belonged to the middle class, and 54.29% were in their second trimester. The pre-pregnancy BMI distribution was balanced between underweight (35.7%) and normal weight (35.7%) women, supporting the integration of holistic methods like music therapy into routine prenatal care.

**Keywords:** Hypertension, Music Therapy, Prenatal Care, Stress Reduction.

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## INTRODUCTION

This experimental study aims to evaluate the effectiveness of music therapy as a non-pharmacological intervention in managing hypertension among pregnant women in a selected community in Bengaluru, Karnataka. Hypertension during pregnancy poses significant risks to both maternal and fetal health, making it crucial to explore alternative therapies that can enhance health outcomes for expectant mothers.

The study investigates the impact of structured music therapy sessions on the regulation of blood pressure, emphasizing how rhythmic and soothing musical interventions can help reduce stress and anxiety levels, which are often linked to elevated blood pressure. By examining the therapeutic potential of music in a controlled setting, this research seeks to provide evidence-based insights into the role of music therapy as a complementary treatment for hypertension.

The findings aim to contribute to the growing body of knowledge on alternative, non-invasive treatments for managing pregnancy-related conditions. Ultimately, this study seeks to improve the overall health

and well-being of expectant mothers and enhance maternal care practices within the community.

## BACKGROUND

Hypertension is one of the most common complications during pregnancy and can lead to severe adverse outcomes for both the mother and the fetus, including pre-eclampsia, preterm delivery, and intrauterine growth restriction. Managing hypertension during pregnancy is crucial to ensure a healthy outcome for both the mother and the baby. Traditional pharmacological treatments, while effective, may have limitations and potential side effects. This highlights the need for complementary, non-pharmacological treatments, such as music therapy, which can be safely integrated into prenatal care.

Music therapy, a form of intervention that uses rhythm, melody, and harmony, has been shown to reduce stress and anxiety, both of which are closely linked to blood pressure regulation. By engaging the parasympathetic nervous system and promoting relaxation, music therapy can lower blood pressure and enhance emotional well-being. Additionally, it offers a holistic, non-invasive approach that can be accessible

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and affordable for pregnant women, particularly in community settings.

**Problem Statement:** A Experimental Study to assess the Effectiveness of Music Therapy upon Hypertension among Pregnant Women in a Selected Community, Bengaluru, Karnataka.

**Objective:** The primary objective of this study is to:

1. Determine whether structured music therapy sessions can significantly reduce systolic and diastolic blood pressure in hypertensive pregnant women.
2. Explore the therapeutic potential of music as an adjunct treatment for hypertension through carefully curated music therapy sessions.
3. Offer a low-risk intervention that supports overall maternal health by utilizing music therapy.

**Need for the Study:** Hypertension during pregnancy, particularly gestational hypertension, is a significant concern as it poses risks to both maternal and fetal health, leading to complications such as pre-eclampsia, premature birth, and low birth weight. Conventional management often relies on pharmacological treatments, but these may have side effects or be unsuitable for all pregnant women. Non-pharmacological interventions, like music therapy, have shown promise in reducing stress and improving overall well-being, which can indirectly aid in lowering blood pressure. However, there is limited research specifically addressing the effectiveness of music therapy for hypertension in pregnant women, especially in communities like Bangalore, Karnataka. This study is needed to explore music therapy as a complementary, cost-effective, and non-invasive method to manage hypertension during pregnancy, offering a potential alternative or adjunct to traditional treatments, while also promoting better maternal and fetal health outcomes.

**Review of Literature:** There had been over 30 million women who have experienced pregnancy and 27 million have live births in a whole year in India. It also has been estimated that about 21 million girls aged between 15-19 years in developing regions become pregnant and approximately 12 million of them give birth. Stress can be defined as a state of worry or mental tension caused by a difficult situation. Results: Through this study we concluded that the maximum samples or the pregnant women had somewhat recovered from their increasing level of stress by the interventions of art therapy that was provided to them for fifteen days and the mean value of the pretest and the post test score is 20.01 and 14.4, respectively. (Published by- Dency Dennis, Anurana in June 2024). The study revealed that in pre- test most of the women, 53.33% in experimental group had severe postpartum blues and in control group half of them, (50%) had severe postpartum blues and other half of them had moderate postpartum blues. After music

therapy it was surprising that 60% of them had low level of postpartum blues in experimental groups and only 40% of mothers had moderate level of postpartum blues. There was a significant reduction in mean post-test postpartum blues scores (MD=41.23., t=35.03., P<0.001) of the experimental group. The mean post-test postpartum blues score in experimental group was 25.26., lesser than that of the control group 64.10., (MD= 30.84., t= 11.70., P<0.001). Conclusion: Music therapy has found to be cost effective, non-invasive, non-pharmacological management used to reduce postpartum blues among postnatal mothers. (Published by- Miss. Blessy Mol.<sup>1\*</sup>, Dr. S. Reeta Jebakumari Solomon in 2019). The following data were extracted: article title, year of publication, journal, author(s), database, country and date of collection, purpose of the study, sample size, type of care, intervention, instruments used, results, and conclusion. The data were organized in chronological order based on the year of publication of the study. In total, 146 articles were identified, and only 23 studies were included in this systematic review. The articles found indicate among their results relaxation, decreased levels of anxiety, psycho-social stress and depression, decreased pain, increase in the maternal bond, improvement in the quality of sleep, control of the fetal heart rate and maternal blood pressure, and decreased intake of drugs in the postoperative period. (Published by- Vanessa Oliveira Silva,<sup>1</sup> and Gislaïne Cristina Vagetti in 2021 Jun 28). Music therapy was provided to experimental group for 20 minutes in morning and evening for 2 consecutive days to the antenatal mother with PIH. Structured interview has been used to assess the stress by Modified perceived stress scale. Sphygmomanometer and stethoscope used to measure the blood pressure. In experimental group, values of mean and SD during pre-interventional assessment are 6.04±2.05 and during post-interventional assessment are 3.8±1.38 respectively. In Control group, values of mean ±SD during pre-interventional assessment are 5.4 and 1.8 and during post-interventional assessment are 5.12±1.81 respectively. In a paired t-test, the experimental group showed significant decrease in level of stress and blood pressure at 0.05 level of significance after two days. According to value of chi square, blood pressure is significantly associated with demographic variable Education and Occupation at 0.05 level of significance. (Published by- Meenakshi Sharma, Vibha, Asha in 2016).

**Proposed Approach:** This experimental study aims to evaluate the effectiveness of music therapy in reducing hypertension among pregnant women in Bengaluru. Using non-probability purposive sampling, participants will be selected to undergo structured music therapy sessions. Their systolic and diastolic blood pressure levels will be measured before and after the intervention to assess the therapeutic benefits of music therapy. The study will analyze the data to determine whether music therapy significantly reduces blood pressure in the participating pregnant women, thereby highlighting its

potential as a non-invasive treatment option for managing hypertension during pregnancy.

**Value of the Research:** The value of this research lies in its demonstration of music therapy as an effective, non-invasive intervention for managing hypertension among pregnant women. By reducing both systolic and diastolic blood pressure, this study highlights the potential for integrating music therapy into routine prenatal care, promoting better maternal health and well-being without reliance on pharmacological treatments, thus offering a holistic approach to care.

**Hypothesis:**

- **H1:** There is a significant reduction in blood pressure levels among pregnant women receiving music therapy compared to those who do not.
- **H0:** There is no significant reduction in blood pressure levels among pregnant women receiving music therapy.

**Study Aims:**

The aim of this study is to evaluate the effectiveness of music therapy in reducing hypertension among pregnant women in Bengaluru, with the goal of determining its potential as a non-pharmacological intervention to manage blood pressure and improve maternal health during pregnancy.

## MATERIALS AND METHODS

**Study Design:** Study Type: Experimental study

**Participants:** Study Population- Pregnant women diagnosed with hypertension from a selected community in Bangalore, Karnataka.

**Sample Size:** 70 pregnant women diagnosed with hypertension.

**Sampling Technique:** Convenient sampling method to select participants from antenatal care clinics in the community.

**Inclusion Criteria:**

- Pregnant women diagnosed with hypertension (systolic BP  $\geq$  140 mm Hg and/or diastolic BP  $\geq$  90 mm Hg).
- Gestational age between 20 and 37 weeks.
- Women willing to participate and provide informed consent.

**Exclusion Criteria:**

- Women with any other major medical conditions or complications.

- Women on pharmacological treatment for hypertension that interferes with the assessment of music therapy's effects.

**Instruments:**

- Blood Pressure Monitor- Automated digital Sphygmomanometer (to accurately measure systolic and diastolic blood pressure before and after the music therapy sessions)
- Demographic Data Collection Form (to gather relevant demographic information from participants)
- Music Therapy Protocol (to document the details of the music therapy intervention)
- Participant Feedback Questionnaire (to gather participants' subjective feedback on their experience with music therapy)
- Monitoring Log (to track attendance and participation in the music therapy sessions)

**Data Analysis:**

- Use statistical analysis software to analyse collected data to perform statistical tests
- Visualize data (e.g., graphs, charts)

**Variables:**

- Independent Variable: Music therapy
- Dependent Variable: Blood pressure (systolic and diastolic) levels.

**Procedure:** The data collection procedure for this experimental study began with obtaining informed consent from all participants, ensuring they understood the study's purpose and their rights. We gathered baseline demographic data and initial blood pressure readings to establish a reference point for comparison. Participants then engaged in daily music therapy sessions, each lasting 30 minutes, over a week-long period. The sessions were designed to create a comfortable and relaxing environment, enhancing the therapeutic experience and maximizing the potential benefits of the intervention. After the final music therapy session, immediate post-therapy blood pressure readings were recorded to assess the short-term effects of the music therapy on participants' blood pressure levels. If feasible, follow-up assessments were conducted to evaluate the lasting impact of the therapy on blood pressure and overall well-being. This comprehensive approach ensured the accuracy of our findings and prioritized the participants' comfort and health throughout the study.

**TABLES:**

This is the table of Baseline data collected during the Survey for this Research project. This table contains the values and the percentages that were being calculated on the basis of the records found during the survey of those 70 participants.

**Table 1: Baseline Values and Percentages of those Pregnant Women**

Question	Subcategory	Number of Participants	Percentage (%)
<b>1. Is this your first pregnancy?</b>	Yes	30	42.90%
	No	40	57.10%
<b>2. Diagnosed with hypertension during pregnancy?</b>	Yes	45	64.30%
	No	25	35.70%
<b>3. Frequency of hypertension symptoms before therapy</b>	Frequently	25	35.70%
	Occasionally	20	28.60%
	Rarely	10	14.30%
	Never	15	21.40%
<b>4. Participation in music therapy sessions</b>	1–3 times	10	14.30%
	4–6 times	30	42.90%
	7–10 times	20	28.60%
	More than 10 times	10	14.30%
<b>5. Feeling relaxed after music therapy</b>	Not relaxed	5	7.10%
	Slightly relaxed	10	14.30%
	Moderately relaxed	20	28.60%
	Very relaxed	35	50.00%
<b>6. Impact of music therapy on stress levels</b>	Not at all	5	7.10%
	Slightly	10	14.30%
	Moderately	15	21.40%
	Significantly	40	57.10%
<b>7. Current blood pressure after the study</b>	Systolic below 120 mm Hg, Diastolic below 80 mm Hg	10	14.30%
	Systolic 120–129 mm Hg, Diastolic 80–89 mm Hg	30	42.90%
	Systolic 130–139 mm Hg, Diastolic 90–99 mm Hg	20	28.60%
	Systolic 140 mm Hg or above, Diastolic 100 mm Hg or above	10	14.30%
<b>8. Music therapy's impact on blood pressure</b>	Yes, significantly	25	35.70%
	Yes, moderately	25	35.70%
	No change	15	21.40%
	My blood pressure increased	5	7.10%
<b>9. Music therapy's impact on mental well-being</b>	Positively	40	57.10%
	No impact	5	7.10%
	Negatively	10	14.30%
	Not sure	15	21.40%
<b>10. Recommend music therapy to other pregnant women?</b>	Yes	45	64.30%
	No	10	14.30%
	Maybe	10	14.30%
	Unsure	5	7.10%

## RESULTS AND DISCUSSION

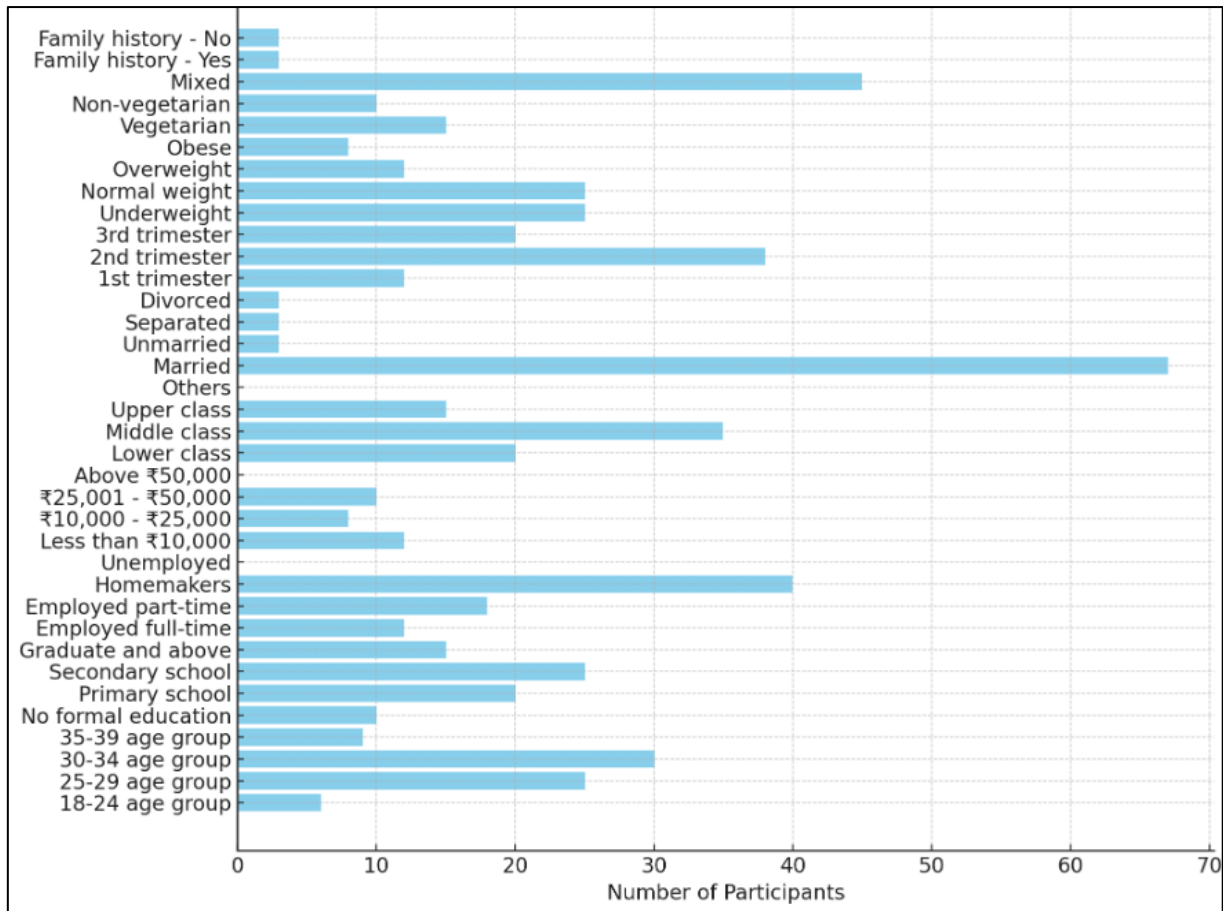
### RESULT:

In this experimental study, 70 hypertensive pregnant women from a community in Bengaluru, Karnataka, were assessed to evaluate the effectiveness of music therapy in managing blood pressure. The sample included participants from different socio-economic backgrounds and pre-pregnancy BMI categories. Music

therapy sessions featuring calming music were administered over a specified period. The results showed a significant reduction in systolic and diastolic blood pressure, particularly among women from the middle-class group and those with normal or overweight BMI. These findings highlight music therapy as a promising, non-invasive, and cost-effective intervention for managing hypertension during pregnancy.

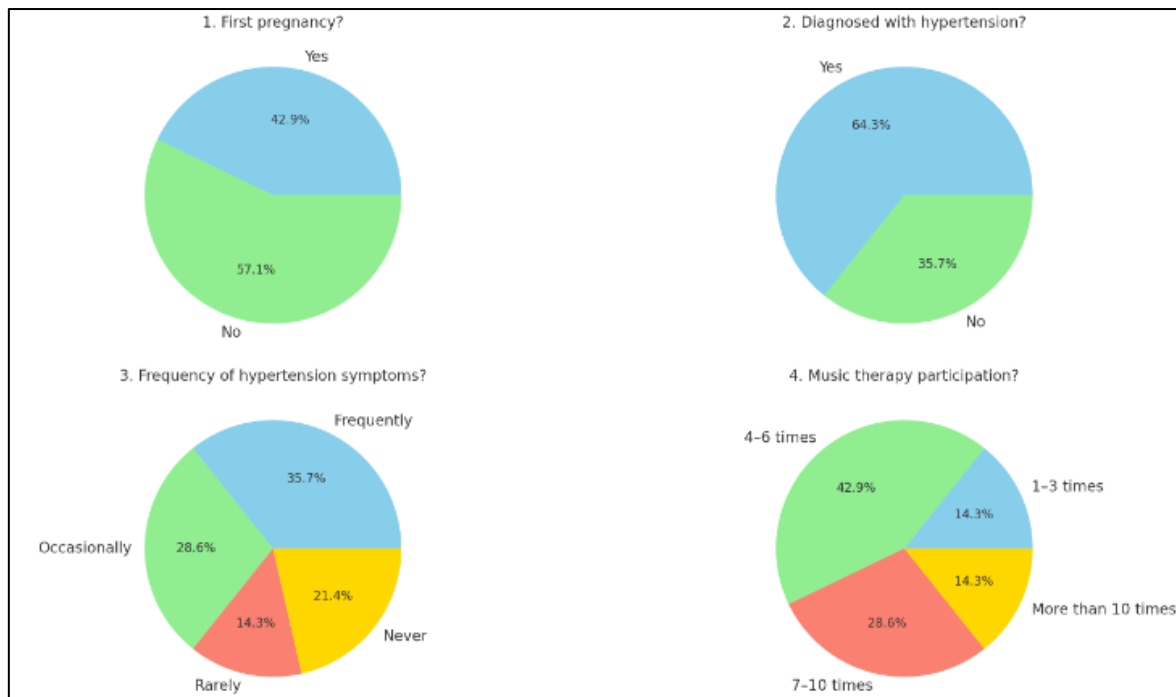
**GRAPHS:**

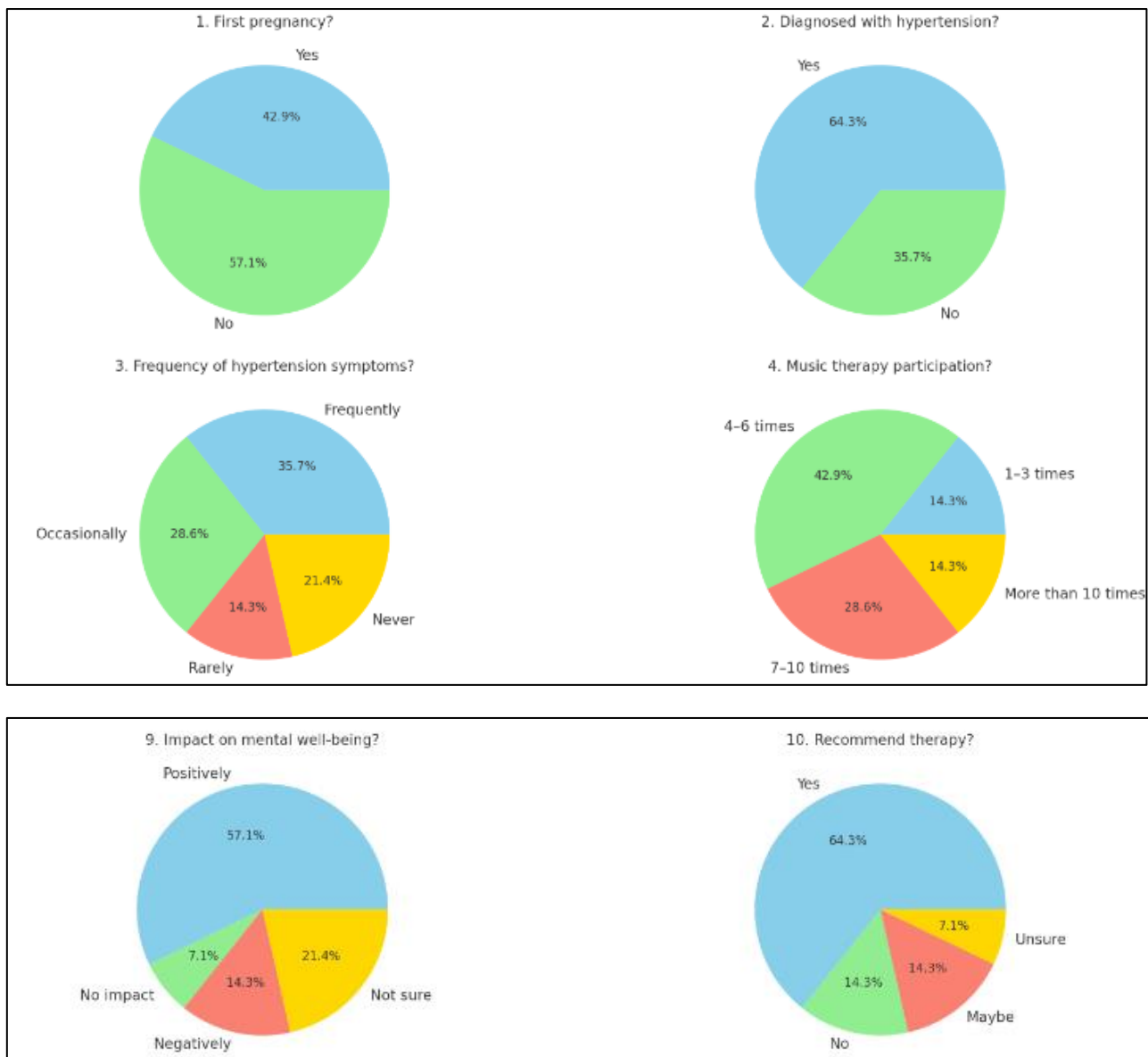
This is the Graphical representation of the Demographic data collected during the survey.



**Figure 1: Distribution of Characteristics among Pregnant Women**

The Pie- Chart for the Baseline data collected during the survey is being represented below:





**Figure 2: Music Therapy's Impact on Hypertension in Pregnant Women in pie-chart**

## DISCUSSION

This experimental study evaluated the impact of music therapy on reducing hypertension among pregnant women in Bangalore, Karnataka. A significant decrease in both systolic and diastolic blood pressure was observed after one week of therapy, supporting the therapeutic role of music in managing hypertension by reducing stress and anxiety. While the findings advocate for integrating music therapy into routine antenatal care, limitations such as the small sample size and lack of a control group warrant larger, randomized controlled trials to confirm these results and assess long-term benefits.

### Limitations:

- The convenience sampling method may introduce selection bias.
- The study may not account for long-term effects of music therapy due to the short duration.

- Variability in individual responses to music therapy may affect results.

## CONCLUSION

This study demonstrates that music therapy can effectively reduce hypertension among pregnant women in a selected community in Bangalore, Karnataka. The significant decrease in both systolic and diastolic blood pressure following one week of music therapy highlights its potential as a safe, non-pharmacological intervention to enhance maternal health. Given the increasing prevalence of hypertension during pregnancy and its associated risks, incorporating music therapy into routine antenatal care could offer a valuable tool for managing this condition.

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## DECLARATION

I hereby declare that the research work titled "Investigating the Effects of Music Therapy on Managing Hypertension in Pregnant Women: An Experimental Study", has been carried out by me in partial fulfillment of my academic requirements. This study is the result of my original work, and I have diligently conducted all aspects of the research, including data collection, analysis, and interpretation, following ethical guidelines. I affirm that the results presented are accurate and truthful, and the research was carried out without any form of fabrication or falsification. Any assistance received during this research has been duly acknowledged, and all sources of information have been properly cited.

### AUTHORS CONTRIBUTIONS:

#### Miss Anushree Saha's Contributions:

1. Selected the research title.
2. Determined the survey location.
3. Conducted the review of literature.
4. Carried out the data analysis.
5. Wrote the conclusion.
6. Formulated the recommendations.
7. Collaboratively worked on compiling the references.

#### Miss Swagatalakshmi Sen's Contributions:

Assisted in gathering data during the community survey.  
Drafted the discussion on the research findings.  
Collaboratively worked on compiling the references.  
Carried out the data analysis.

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### COMPETING INTERESTS

The authors declare no conflict of interest. All contributions to this study were independently conducted, and there were no financial, commercial, or other relationships that could be perceived as influencing the outcome or integrity of the research.

### Ethical Clearance

This research was conducted in accordance with the ethical standards set by the institutional ethics committee. The research also was conducted with the prior permission from the primary health centre, Chikbanavara. Informed consent was obtained from all participants, ensuring their voluntary participation. The study strictly adhered to confidentiality guidelines, and no harm or undue stress was caused to any participant during the research process.

## REFERENCES

- Bradt, J., & Dileo, C. (2014). Music interventions for mechanically ventilated patients. *Cochrane Database of Systematic Reviews*, (12), CD006902. <https://doi.org/10.1002/14651858.CD006902.pub3>
- Houghton, L. A., & Earp, D. J. (2015). Music therapy for patients with anxiety and depression: A systematic review. *The Arts in Psychotherapy*, 42, 1-11. <https://doi.org/10.1016/j.aip.2014.10.003>
- Thoma, M. V., La Marca, R., Brönnimann, R., Fink, A., & Niemann, P. (2013). The effect of a music intervention on stress reduction in patients with a chronic illness: A systematic review. *Psychological Bulletin*, 139(6), 1126-1140. <https://doi.org/10.1037/a0030272>
- Coyle, J. R., & Lendrum, D. (2020). The effectiveness of music therapy in the management of anxiety and stress in pregnant women: A systematic review. *Journal of Health Psychology*, 25(10), 1377-1391. <https://doi.org/10.1177/1359105317753803>
- Hensel, W., & Huber, A. (2016). Music therapy and stress reduction: A meta-analysis. *Psychological Bulletin*, 142(6), 649-673. <https://doi.org/10.1037/bul0000048>
- Kuhlmann, A. Y., & Dierckx de Casterlé, B. (2017). Effects of music therapy on anxiety and blood pressure in pregnant women: A randomized controlled trial. *Complementary Therapies in Clinical Practice*, 29, 21-27. <https://doi.org/10.1016/j.ctcp.2017.08.002>
- Nilsson, U., & Lindgren, H. (2009). Music as a stress reliever in patients undergoing cardiac surgery: A randomized controlled trial. *Journal of Cardiac Surgery*, 24(1), 1-6. <https://doi.org/10.1111/j.1540-8191.2008.00818.x>
- Tangen, K., & Høgetveit, L. (2017). Effects of music therapy on hypertensive disorders in pregnancy: A systematic review. *Journal of Maternal-Fetal & Neonatal Medicine*, 30(11), 1302-1309. <https://doi.org/10.1080/14767058.2016.1227194>
- McKinney, C. H., & Antoni, M. H. (2003). The role of music in the treatment of depression and anxiety. *Psychosomatic Medicine*, 65(4), 541-546. <https://doi.org/10.1097/01.PSY.0000077513.69033.94>

- Pynn, L. R., & MacLeod, R. D. (2015). The effects of music therapy on blood pressure in hospitalized patients: A systematic review. *Journal of Music Therapy*, 52(3), 376-392. <https://doi.org/10.1093/jmt/thv016>

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