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DOI:

10.4103/kleuhsj.kleuhsj\_178\_21

# Effectiveness of music therapy on anxiety among antenatal mothers with pregnancy-induced hypertension

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## Abstract:

**BACKGROUND:** Every pregnancy is special and each and every pregnant woman must receive special care. It was estimated, by the WHO that deaths due to hypertensive disorders of pregnancy represented 13% of all maternal deaths. The study was conducted with an aim to assess the effect of music therapy on anxiety among antenatal mothers with pregnancy-induced hypertension (PIH).

**MATERIALS AND METHODS:** A true experimental research approach with Pretest posttest control group design was adopted for the study. Simple random sampling technique was applied to select 60 participants (30 experimental and 30 controls) but assignment of participants to the respective group was done through odd and even methods. Data was collected by using standardized Spielberger's state trait anxiety inventory and structured observation schedule for demographic data and clinical profile.

**RESULTS:** The present study investigated that in the experiment group, mean anxiety scores in pretest and posttest were  $55.23 \pm 9.09$  and  $27.53 \pm 4.56$  respectively. While in control group, pretest mean anxiety score was  $50.73 \pm 9.34$  and the posttest score was  $43.53 \pm 8.4$ . Furthermore, the obtained "t" value was 9.17 with  $P < 0.00001$  which indicated that music therapy was significantly effective in reducing the anxiety scores among pregnant women. In addition, posttest anxiety scores have no significant association with age ( $P = 0.51$ ), parity ( $P = 0.82$ ), and period of gestation ( $P = 0.06$ ).

**CONCLUSION:** Music therapy is effective in reducing anxiety of antenatal mothers with PIH. The therapy can be implemented in clinical settings to decline the levels of anxiety among women with PIH.

## Keywords:

Antenatal mothers, anxiety, music therapy, pregnancy-induced hypertension

## Introduction

Pregnancy is a normal physiological condition and one of the most crucial period of a woman's life.<sup>[1]</sup> Pregnancy is journey of a woman to motherhood, when she is healthy she can enjoy this journey, but anxiety during pregnancy is inevitable. Every pregnancy is special and each and every pregnant woman must receive special care.<sup>[2]</sup> Worldwide about 10% of pregnant women experience a mental disorder, primarily anxiety and depression.<sup>[3]</sup> According to a large

meta-analysis, the overall prevalence of self-reported anxiety symptoms is 22.9% and the prevalence of any anxiety disorder is 15.2% across the three pregnancy trimesters.<sup>[4]</sup> Gestational stress and anxiety can also have a negative impact on postpartum maternal well-being such as postpartum depression.<sup>[5,6]</sup> Pregnant women with depression and/or anxiety prior to pregnancy are at higher risk of preterm birth, breastfeeding problems, postpartum depression, and disruption of the mother-infant attachment.<sup>[7]</sup> Prenatal sleep disturbance has been associated with undesirable birthing outcomes.<sup>[8]</sup> Prenatal

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**How to cite this article:** Jyoti, Babu M, Shokanda S, Pareek S. Effectiveness of music therapy on anxiety among antenatal mothers with pregnancy-induced hypertension. Indian J Health Sci Biomed Res 2022;15:126-30.

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Received: 27 June 2021,

Revised: 21 December,  
2021,

Accepted: 07 January  
2022,

Published: 24 May 2022

anxiety and depression are distressing for the expectant mother and can have adverse effects on her fetus and subsequently, her child.<sup>[9]</sup> Hypertension (HTN) is the most commonly encountered disorder during pregnancy. High blood pressure has a negative impact on the mother and the fetus. It was estimated, by WHO that deaths due to hypertensive disorders of pregnancy represented 13% of all maternal deaths, with this there is growing demand for natural, and nonpharmacological methods to reduce anxiety and blood pressure.<sup>[10]</sup> The prevalence of pre-eclampsia is more common among rural women compared to urban women. Pre-eclampsia is a life-threatening complication of pregnancy that also known as pregnancy-induced HTN typically starts after the 20<sup>th</sup> week of pregnancy.<sup>[11]</sup> Complications during pregnancy lead to morbid and fatal conditions to pregnant woman and her fetus.<sup>[12]</sup> Various nonpharmacological measures like progressive relaxation, acupressure music therapy, etc., are used to treat mothers with pregnancy-induced hypertension (PIH) among pregnant women. Listening to soothing music for half an hour a day while breathing deeply can significantly reduce your blood pressure without drugs.<sup>[13]</sup> A recent study suggested that music therapy had a significant effect in altering the patient's anxiety prior to gynecological surgery.<sup>[14]</sup> Music therapy is a nonpharmacological intervention that can decline pain and anxiety in women during labor.<sup>[15]</sup> Music is best known for its relaxing effect, and modern science believes in music as a therapy to relax the body and reduce anxiety and also lowers blood pressure. Music therapy is a vital complement to the nonpharmacological methods applied in the treatment of psychiatric and behavioral disorders.<sup>[16]</sup> The investigator felt that music therapy will be an effective noninvasive measure to decline the levels of anxiety among pregnant women. Hence, the investigator undertook this study to evaluate the impact of music therapy on anxiety among antenatal mothers with pregnancy-induced HTN.

## Materials and Methods

In the present study, a true experimental research approach with research design was Pretest posttest control group design to evaluate the effectiveness of music therapy on anxiety among antenatal mothers with Pregnancy-Induced HTN. The simple random sampling technique was adopted to select 60 patients (30 experimental and 30 controls) but the assignment of subjects to the group was through odd and even methods. Data were collected using a structured interview schedule, standardized Spielberger's state-trait anxiety inventory, and structured observation schedule. The tool was validated and reliability was 0.80 which was established using inter-rater/inter-observer. The letter no. was IEC/

SJH/VMMC/PROJECT/NOVEMBER-2016/661 dated. 11-12-2016.

## Plan for data collection

Formal administrative approval was taken from the director/medical superintendent of the V. M.M.C and Safdarjung Hospital New Delhi, self-introduction to the nature of the study was given, the establishment of the rapport was done by the investigation. Data were collected from December 2016 to January 2017 from antenatal mothers with PIH in Maternal units. The samples were selected by randomized sampling technique and with random assignment by odd-even method. Pretest and posttest data were collected by using respective tools and the music therapy was given for only the subjects in the experimental group. Music therapy was given for 30 min twice daily for 3 days preceded by the pretest and followed by posttest, music was administered with headphones Posttest done from day 1 to day 3 data obtained were tabulated and analyzed.

## Statically analysis

The descriptive and inferential statistics were applied for data analysis. The present data were equally distributed and continuous. Student "t-test" was applied to evaluate the effectiveness of music therapy on anxiety among antenatal mothers with Pregnancy-Induced HTN. A Chi-square test was done to determine factors associated with anxiety of the mothers. All the analysis was done by SPSS-20 (SPSS Version 20.0. IBM Corporation, Armonk, New York, USA).

## Results

The major findings of the study revealed that in age-wise distribution, most of the sample (53.33%) were in the age of 20–24 years and (36.66%) were in the age group of 25–30 years and only 1.68% of the mothers were in the age group of 30 years. More than average (65%) of the antenatal mothers were Hindu and 30% were Muslim. In terms of education half of antenatal mothers had education up to matric and 25% had senior secondary level education and 23.43% had no formal education [Table 1]. In terms of profession majority (71.66%) of the antenatal mothers were homemaker and 25% were Laborer. Nearly two-third of the antenatal mothers were in gestational age of 28–34 weeks. All of the mothers (100%) were not having previous experience of any relaxation therapy (yoga/exercise, mediation, music). Maximum of the samples (75%) were primipara followed by 25% were multipara. Furthermore, Table 2 highlights that mean anxiety was high in experiment group in pretest with the score of  $55.23 \pm 9.09$  and  $27.53 \pm 4.56$  in posttest. In the control group, Pretest mean anxiety score was  $50.73 \pm 9.34$  while posttest mean score was  $43.53 \pm 8.43$ .

**Table 1: Frequency and percentage distribution of sample characteristics in experimental and control groups (n=60)**

Demographic variables	Experimental group (n=30), n (%)	Control group (n=30), n (%)	Total (n=60), n (%)
Age of mothers (years)			
Below 20	0	0	0
20-24	16 (53.33)	21 (70)	37 (61.66)
25-30	13 (43.33)	9 (30)	22 (36.66)
Above 30	1 (3.4)	0	1 (1.68)
Religion			
Hindu	18 (60)	21 (70)	39 (65.0)
Sikh	1 (3.3)	1 (3.4)	2 (3.33)
Muslim	10 (33.4)	8 (26.66)	18 (30.0)
Christian	1 (3.4)	0	1 (1.6)
Education status			
No formal education	6 (60)	8 (26.66)	14 (23.43)
Up to matric	13 (3.3)	17 (56.66)	30 (50)
Senior secondary	10 (33.4)	5 (16.76)	15 (25)
Graduation and above	1 (3.4)	0	1 (1.6)
Occupation			
Home maker	22 (73.4)	21 (70)	43 (71.66)
Laborer	6 (20.0)	9 (30)	15 (25)
Employee	2 (6.60)	0	2 (3.34)
Business	0	0	0
Gestational age (weeks)			
28-34	18 (60)	21 (70)	39 (65)
35-40	12 (40)	9 (30)	21 (35)
Dietary pattern			
Vegetarian	18 (60)	14 (46.66)	32 (53.34)
Nonvegetarian	12 (40)	16 (53.34)	28 (46.66)
Previous experience of any relaxation therapy			
Yes	0	0	0
No	30 (100)	30 (100)	60 (100)
Parity			
Primipara	24 (80)	21 (70)	45 (75)
Multipara	6 (20)	9 (30)	15 (25)

**Table 2: Pretest and posttest anxiety scores of antenatal mothers with pregnancy induced hypertension in experimental and control group (n=60)**

Group	Test	Mean±SD
Experimental group (n=30)	Pretest	55.23±9.09
	Posttest	27.53±4.56
Control group (n=30)	Pretest	50.73±9.34
	Posttest	43.53±8.43

SD: Standard deviation

**Table 3: Posttest anxiety scores of antenatal mothers with pregnancy induced hypertension in experimental and control group (n=60)**

Group	Posttest anxiety scores (mean±SD)	Mean	t	P
Experimental group	27.53±4.56	16.0	9.17	<0.00001
Control group	43.53±8.43			

SD: Standard deviation

Moreover, Table 3 shown that the mean posttest anxiety scores of the experiment group was 27.53 ± 4.56 is lower than the mean posttest anxiety score of the control group (43.53 ± 8.43). The obtained “t” value was 9.17

with  $P < 0.00001$ . In addition, data presented in Table 4 reported that computed Chi-square between posttest anxiety scores and age ( $P = 0.51$ ), parity ( $P = 0.82$ ), and period of gestation ( $P = 0.06$ ) were found to be statistically nonsignificant at 0.05 level of significance.

## Discussion

Music therapy is a health care profession that uses music to accomplish therapeutic goals. It is provided by a certified music therapist and involves a variety of methods, inclusive active methods (composition or playing musical instruments) and receptive methods.<sup>[17]</sup> The addition of music therapy with standard treatment proved to the pregnant women has reduced the slow-flowing anxiety accompanying depression.<sup>[16]</sup> The present investigated that in the experiment group, mean anxiety scores in pretest and posttest were 55.23 ± 9.09 and 27.53 ± 4.56 respectively. While in the control group, pretest mean anxiety score was 50.73 ± 9.34 and the posttest score was 43.53 ± 8.4. The results of the present study were indicative of a significant mean difference

**Table 4: Chi-Square value showing association between mean posttest anxiety scores and selected demographic variables of experimental group (n=30)**

Variables	Obtained $\chi^2$	P
Age (years)	2.32	0.51
Parity	0.05	0.82
Period of gestation	3.44	0.06

in posttest anxiety scores between experimental and control groups. Furthermore, the obtained “t” value was 9.17 with  $P < 0.00001$  which indicated that music therapy was significantly effective in reducing the anxiety scores among pregnant women. In this context, Pia *et al.* also reported that there was high initial self-reported anxiety among the pregnant women and their anxiety was significantly reduced during the 3-day period after musical intervention.<sup>[18]</sup> In a randomized study, Garcia-Gonzalez *et al.*<sup>[19]</sup> assessed maternal anxiety among 409 women using the Spielberger state-trait anxiety inventory. The women from the experimental group showed significantly lower scores in state anxiety (odds ratio = 0.87;  $P < 0.001$ ) as well as trait anxiety ( $P < 0.001$ ) compare to the control group. The findings were similar to the present study’s outcomes. In another study, Liu *et al.*<sup>[8]</sup> communicated that 2 weeks of music listening interventions may decrease stress and anxiety among sleep-disturbed pregnant women. Similarly, Chang *et al.*<sup>[20]</sup> highlighted that the music therapy was significantly effective in decreasing the stress level among pregnant women after 2 weeks. According to the outcomes of the current study, anxiety levels were declined after music therapy. In this regard, Nwebube *et al.* revealed that the music therapy was significantly effective in reducing trait anxiety ( $P = 0.0001$ ) and state anxiety ( $P = 0.02$ ) among the women.<sup>[9]</sup> Various systematic analyses conducted by Lin *et al.*<sup>[17]</sup>, Corbijn *et al.*<sup>[21]</sup> and Goodman *et al.*<sup>[22]</sup> had evidenced that music therapy intervention is significantly decreased anxiety levels among pregnant women. In this study, no significant associations were observed between posttest anxiety scores and age ( $P = 0.51$ ), parity ( $P = 0.82$ ), and period of gestation ( $P = 0.06$ ) and there was no study to compare the current findings. In general, anxiety scores are independent in this study. Music therapy was effective on levels of anxiety. Hence, it is suggested that music therapy may be advised to the mothers with PIH to decrease the anxiety level.

### Conclusion

Music therapy is a nonpharmacological, noninvasive, and effective method to relieve anxiety of pregnant women with PIH. It may be concluded that the present study showed that music therapy is an effective intervention to minimize the anxiety level of pregnant women with PIH. Whereas, apart from pregnancy, music

therapy is found effective to relieve stress and anxiety in all age groups. The present study also highlighted that anxiety level has no significant association with variables such as age, parity, and gestation period. Our findings suggested that anxiety can be reduced through the music therapy intervention. Therefore, this nonpharmacological intervention can be implemented in clinical settings to decline the level of anxiety among pregnant women with PIH.

### Limitation

The present study was conducted in a single setting with a limited sample size. The study was focused on pregnant woman diagnosed with PIH.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

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