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EFFECTIVENESS OF MUSIC THERAPY VS TRANQUILIZING PRANAYAMA ON PHYSIOLOGICAL PARAMETERS AMONG ANTENATAL MOTHER WITH PREGNANCY INDUCED HYPERTENSION

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ABSTRACT

Pregnancy induced hypertension is one of the most important and common medical disorder during pregnancy and up to 10-13% of pregnancies are complicated by hypertension, increasing mortality and morbidity of both mother and baby. Despite of many known consequences, there is no definitive, effective treatment. The controversy surrounding the use of anti-hypertensive medications during pregnancy. Therefore, there is an urgent need for new and different methods of treating hypertension during pregnancy; in particular, non-pharmacological options. There are many non pharmacological measures among those music therapy and pranayama is common and cost effective.

Objectives of the study

The main purpose of the study was to assess the effectiveness of music therapy Vs tranquilizing pranayama on physiological parameters among antenatal mothers with pregnancy induced hypertension

Methods

A quasi experimental two group pretest and post test design was adopted. 20 (10 for music therapy, 10 for tranquilizing pranayama) antenatal mothers with PIH were selected by using purposive sampling technique at Rajiv Gandhi Government Women and Children Hospital, Pondicherry. Demographic variables were collected and physiological parameters were assessed. For both group intervention was administered, after 4 weeks post test carried out. The collected were analyzed.

Results

The results reveals that both intervention are effective and had positive influence on physiological parameters. While comparing music therapy with tranquilizing pranayama, tranquilizing pranayama shows more effective.

Key words- music therapy, effectiveness, pranayama, antenatal mother with PIH

INTRODUCTION

Pregnancy is a unique, exciting and often joyous time in a woman's life, as it highlights the woman's amazing creative and nurturing powers while providing a bridge to the future. The growing fetus depends entirely on its mother's health for all needs. Consequently, pregnant women must take steps to remain as healthy and well-nourished as they possibly can.

During pregnancy the women body undergoes many physiological and psychological changes. Pregnancy is a dynamic process associated with significant physiological changes in the cardiovascular system. These changes are mechanisms that the body has adapted to meet the increased metabolic demands of the mother and fetus and to ensure adequate utero-placental circulation for fetal growth and development. Insufficient hemodynamic changes can result in maternal and fetal morbidity, as seen in pre-eclampsia and intrauterine growth retardation. In addition, maternal inability to adapt to these

physiological changes can expose underlying, previously silent, cardiac pathology, which is why some call pregnancy nature's stress test

Pregnancy-induced hypertension (PIH) is a common pregnancy complication, affecting approximately 12-13% of pregnant women worldwide, and is one of the primary causes of death for pregnant mothers. The onset of PIH typically occurs at 20 weeks gestation and is marked by elevated blood pressure, albuminuria, and edema. Multiple organs dysfunction can occur, endangering the life of the mother and fetus. There are various etiological factors for pregnancy induced hypertension. This is a disorder of hypothesis and affliction to involve all organs in the body. The potential causes of pregnancy induced hypertension are, Abnormal placentation, Vasculopathy and inflammatory changes, Immunological factors, Genetic factors, Nutritional factors etc.

Management of pregnancy induced hypertension based on the cause, mainly the causes are maternal anxiety, stress, and maternal nutrition etc. Management includes pharmacological as well as non-pharmacological modalities. Complementary therapies are currently one of the most discussed and debated health care topics. There are many therapies like progressive muscle relaxation, Benson relaxation therapy, yoga, guided imagery, aromatherapy and music therapies were used for controlling the high blood pressure and reduce the stress & anxiety. These therapies are cost effective and have fewer side effects.

The main focus of this study was to assess the effectiveness of music therapy and tranquilizing pranayama on blood pressure control and to improve the physiological and psychological parameters, maternal and neonatal health outcome by preventing complications due to pregnancy induced hypertension in a cost effective and simple way.

Title of the study

Effectiveness of Music Therapy Vs Tranquilizing Pranayama on Physiological parameters among Antenatal Mother with Pregnancy Induced Hypertension at Selected Hospitals in Puducherry

Objectives

1. To assess the Pre-test level of physiological parameters among antenatal mothers with pregnancy induced hypertension in Intervention group I and II
2. To assess the effectiveness of music therapy on physiological parameters among antenatal mothers with pregnancy induced hypertension
3. To assess the effectiveness of Tranquilizing Pranayama on physiological parameters among antenatal mothers with pregnancy induced hypertension
4. To compare the effectiveness of physiological parameters, maternal and fetal outcome among the antenatal mothers with Pregnancy Induced Hypertension between Intervention group I&II

Hypothesis

1. There will be a significant difference between the Pre and Post-intervention level of Physiological parameters among antenatal mothers with Pregnancy Induced Hypertension in Intervention group I
2. There will be a significant difference between the Pre and Post-intervention level of Physiological parameters among antenatal mothers with Pregnancy Induced Hypertension in Intervention group II
3. There will be a significant difference between Intervention group I&II on physiological parameters among antenatal mothers with Pregnancy Induced Hypertension

METHODOLOGY

Research Approach- Quantitative approach.

Research Design- Quasi-Experimental design –two group pretest and post test design

Research Variables

- Dependent Variables-Physiological and Psychological parameters, maternal & fetal outcome
- Independent variables-Music therapy- Anandabairavi raga and Tranquilizing Pranayama

Research Setting-The study was conducted in Rajiv Gandhi Government Women and Children Hospital, Puducherry.

Population-All antenatal mothers who are attending OPD and admitted Antenatal ward in Rajiv Gandhi Government Women Hospital, Puducherry.

Sample-Sample of this study consists of antenatal mothers with pregnancy induced hypertension who fulfill the inclusion criteria.

Inclusion Criteria

- Antenatal mothers who were above 32 weeks of gestational age.
- Antenatal mothers who were diagnosed with mild (140-149/90-99mm of hg) and moderate (150-159/100-109 mm of hg) pregnancy induced hypertension.
- Antenatal mothers who were willing to participate
- Antenatal mothers who can understand Tamil and English.

Exclusion Criteria

- Antenatal mothers with severe PIH (above 160/110mm of hg)
- Antenatal mothers who had co morbidity like known hypertension cardiac problem, anemia, hydramnios, multiple pregnancy, epilepsy and asthma
- Antenatal mother with Bad Obstetrical history

Sample Size-The sample size consisted of 20 mothers with PIH (10 in the Intervention Group-I, 10 in the Intervention Group-II) who fulfilled the inclusion criteria.

Sampling Technique-Non-probability purposive sampling technique

Description of tool-This section contains 4 parts

Part-A-Demographic variables includes age, region, education, religion, income, family type, and life style

Clinical variables- weight of the mother, height of the mother, BMI, gravida, gestational week, type of pregnancy.

Part -B-Physiological parameters-

- Blood pressure- by Sphygmomanometer
- Edema - by edema scale
- Proteinuria -by urine test
- Uric acid-by blood test

Description of the intervention

Both Intervention group I&II, antenatal mothers with pregnancy induced hypertension from 32 weeks onwards taken for the intervention and it is given for 4 weeks.

Music therapy

Anandabairavi Raga is having therapeutic effect of reducing blood pressure, stress & anxiety and it will be played for 20 minutes for three times a day from the day as selected as a sample to 4 weeks.

Tranquilizing pranayama- Chandra bhedana

Advised to practice 20 minutes pranayama for three times a day from the day as selected as a sample to 4 weeks

Data Collection Procedure

Obtained formal permission from concern authority. Antenatal mothers with pregnancy induced hypertension who met inclusion criteria are selected by purposive sampling technique. Samples are block randomized (day randomization) for intervention. Intervention I (music therapy) will be administered on Monday, Wednesday and Friday. Intervention II (Tranquilizing pranayama) will be administered on Tuesday, Thursday and Saturday. After sample selection antenatal mothers will be gathered in a small group for explaining the study purpose and objectives. After getting written consent from individual samples, Pre-test was carried out among selected antenatal mothers with pregnancy induced hypertension.

Administered the Intervention-I (Music therapy) and Intervention-II (Tranquilizing pranayama). For both groups follow up will be done through SMS alert, getting help from village health nurse, direct supervision by researcher, enquiry by phone call and also when they attend OPD for regular checkup. Minimum period of intervention was 4 weeks. Post test was carried out after 4 weeks of intervention. Same tool used to assess the physiological parameter. After the delivery, maternal & fetal outcomes are observed and recorded. Collected data will be analyzed by using descriptive and inferential statistics

RESULTS

The data collected from samples were analyzed by using descriptive and inferential statistics, tabulated as below

Table 1: Frequency and Percentage wise Distribution of demographic variables

N=20(10+10)

DEMOGRAPHIC VARIABLES	MUSIC THERAPY GROUP		TRANQUILIZING PRANAYAMA GROUP	
	N	%	N	%
AGE				
18-22	1	10	0	0
23-26	5	50	1	10
27-30	3	30	5	50
31-34	1	10	3	30
35 & above	0	0	1	10
	10	100	10	100
Weight				
Below 46	0	0	0	0
46-55kg	0	0	0	0
56-65kg	4	40	2	20
66-75kg	5	50	4	40
Above 75kg	1	10	4	40
	10	100	10	100
Height				
130-140 cm	0	0	0	0
141-150 cm	1	10	2	20
151-160 cm	7	70	6	60
161-170 cm	2	20	3	30
BMI				
Less than 18.5(Underweight)	0	0	0	0
18.5-24.5 (Normal)	1	10	0	0
25-29.9 (Overweight)	7	70	6	60
30 and above (Obese)	2	20	4	40
Gravida				
Primigravida	6	60	6	60
Multigravida	4	40	4	40
Gestational week				
32-34wks	0	0	0	0
34-35wks	6	60	5	50
36-38wks	4	40	5	50
39-40wks	0	0	0	0

Region				
Urban	5	50	6	60
Rural	5	50	4	40
Education				
Primary	0	0	0	0
Middle school	1	10	0	0
High school	0	0	3	30
Higher secondary	3	30	5	50
Undergraduate	5	50	2	20
Postgraduate & above	1	10	0	0
Religion				
Hindu	8	80	8	80
Christians	2	20	2	20
Muslims	0	0	0	0
Type of pregnancy				
Planned	9	90	7	70
Unplanned	1	10	3	30
Family				
Nuclear family	7	70	5	50
Joint family	3	30	5	50
Income per month				

10000-20000	0	0	0	0
20000-30000	7	70	4	40
30000-40000	1	10	4	40
40000 & above	2	20	2	20
Working pattern				
Skilled	3	30	1	10
Unskilled	1	10	2	20
Housewife	6	60	7	70

Table-1 shows Frequency and percentage distribution of demographic variables. In music therapy Group 5 (50%) half of them were in the age group between 23-26 years, whereas in Tranquilizing pranayama group 5 (50%) half of them were in the age group between 27-30 years. In weight distribution, the music therapy 5 (50%) half of them had 65-70kg and Tranquilizing pranayama group 4(40%) of antenatal mothers belongs to the 65-70kg respectively. Both in music therapy 7(70%) and Tranquilizing pranayama group 6(60%) majority of antenatal mothers belongs to the 151-160cm respectively and majority belongs to over weight category music therapy 7(70%) and Tranquilizing pranayama group 6(60%). Majority 6(60%) of antenatal mothers belongs to primigravida in both group. Majority 6(60%) of the antenatal mothers in music group belongs to 32-34 weeks of gestation whereas in Tranquilizing pranayama group 5(50%) in 32-33 weeks and 5(50%) in 34-35 weeks. In case of region both group belongs to equally. Majority 5(50%) had completed undergraduate in music group and higher secondary in Tranquilizing pranayama group 5(50%). Most of them in Music group 9(90%) and Tranquilizing pranayama group 7(70%) had planned pregnancy. Music group 7(70%) and Tranquilizing pranayama group 5(50%) were belonged nuclear family. In Music group 6 (60%) majority and Tranquilizing pranayama group 7(70%) were housewife. In Music group 7 (70%) majority of antenatal mother belongs to Rs 20000-30000 family income per month whereas in Tranquilizing pranayama group is 4 (40%).

Table 2: Frequency and Percentage wise Distribution of physiological parameters in pre test and post test
N=20(10+10)

	MUSIC THERAPY				TRANQUILIZING PRANAYAMA			
	PRETEST		POSTTEST		PRETEST		POSTTEST	
	N	%	N	%	N	%	N	%
BLOOD PRESSURE								
NORMAL	0	0	4	40	0	0	4	40
MILD	3	30	5	50	9	90	6	60
MODERATE	7	70	1	10	1	10	0	0
SEVERE	0	0	0	0	0	0	0	0
EDEMA								
GRADE-1	4	40	8	80	1	10	5	50
GRADE-2	5	50	2	20	4	40	5	50
GRADE-3	1	10	0	0	5	50	0	0
GRADE-4	0	0	0	0	0	0	0	0
PROTEINURIA								
TRACE								
1+	1	10	6	60	1	10	7	70
2+	8	80	4	40	6	60	3	30
3+	1	10	0	0	3	30	0	0
4+	0	0	0	0	0	0	0	0
URIC ACID								
BELOW 6mg/dl	8	80	9	90	6	60	9	90
ABOVE 6mg/dl	2	20	1	10	4	40	1	10

Table-2 & Figure 1 to 4 shows the Frequency and Percentage wise Distribution of physiological parameters.

Music group -In pretest 7(70%) antenatal mothers had moderate blood pressure, only 3(30%) antenatal mothers had mild blood pressure. In post test 4(40%) antenatal mothers had normal blood pressure and 5(50%) antenatal mothers had mild blood pressure. In pretest 4(40%) antenatal mothers had grade one edema, 5(50%) antenatal mothers had grade two edema and only one antenatal mother had grade three edema. In case of post test 8(80%) had grade one and 2 (20%) antenatal mothers had grade two. 8(80%) antenatal mothers had 2+ level of proteinuria, 1(10%) had 1+ and 3+ level of proteinuria in pretest. In post test 6(60%) had 1+ and 4(40%) had 2+ level of proteinuria. In uric acid level both pre and post test majority 8(80%) of the antenatal mother had below 6mg/dl.

Tranquilizing group -In pretest 9(90%) antenatal mother had mild blood pressure and only one (10%) antenatal mother had moderate blood pressure, while post test 4(40%) antenatal mother had normal blood pressure and 6(60%) antenatal mother had mild blood pressure. In Pre-test 5(50%) had grade three edema, 4(40%) antenatal mother had grade two edema and one (10%) antenatal mother had grade one edema, in case of post-test half of 5(50%) antenatal mother had grade two and half had antenatal mother grade one edema. In pretest 6(60%) antenatal mother had 2+ proteinuria, 3(30%) antenatal mother had 3+ proteinuria and one(10%) had 1+ proteinuria. In post test 7(70%) antenatal mother had 1+ and 3(30%) antenatal mother had 2+ proteinuria. 6(60%) antenatal mother had uric acid level below 6mg/dl and 4(40%) antenatal mother had above 6mg/dl in pretest. In post-test 9(90%) antenatal mother had uric acid level below 6mg/dl and 1(10%) antenatal mother had above 6mg/dl.

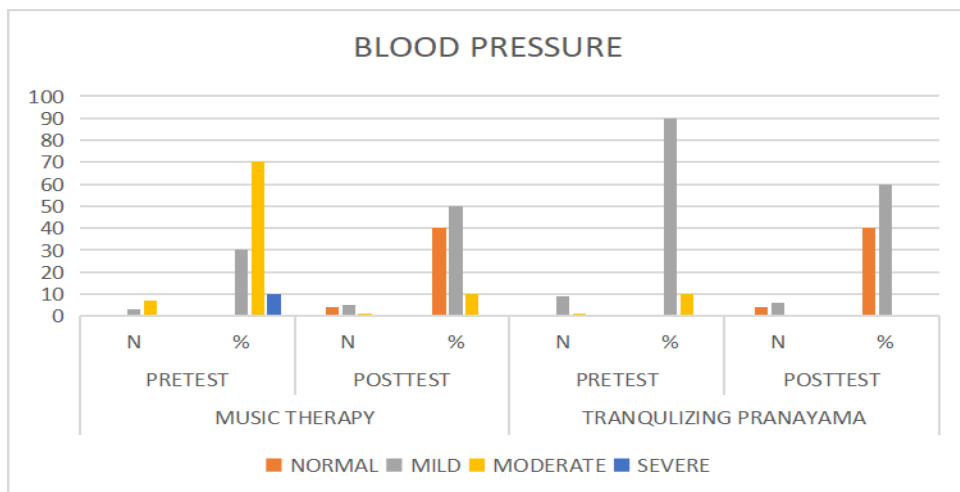


Figure-1 illustrate the level of blood pressure in Pre & Post test between Music therapy and Tranquilizing group

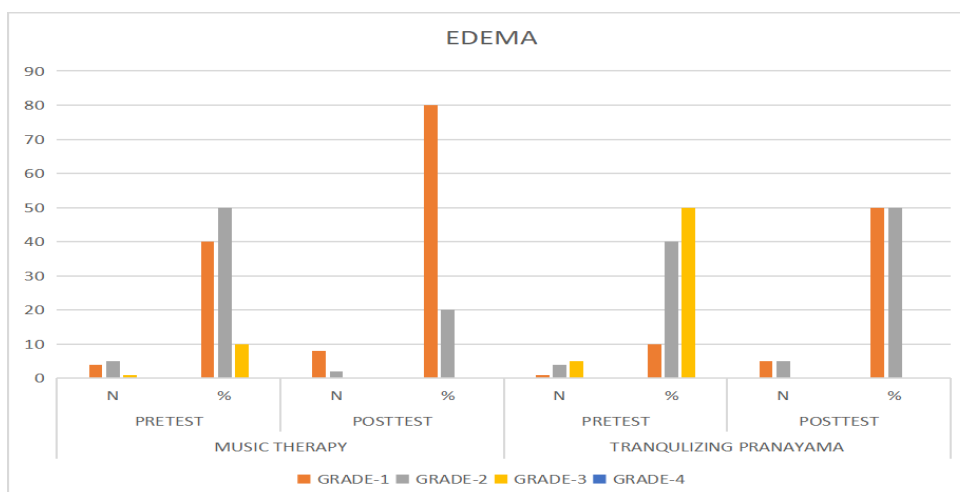


Figure-2 illustrate the degree of edema in Pre & Post test between Music therapy and Tranquilizing group

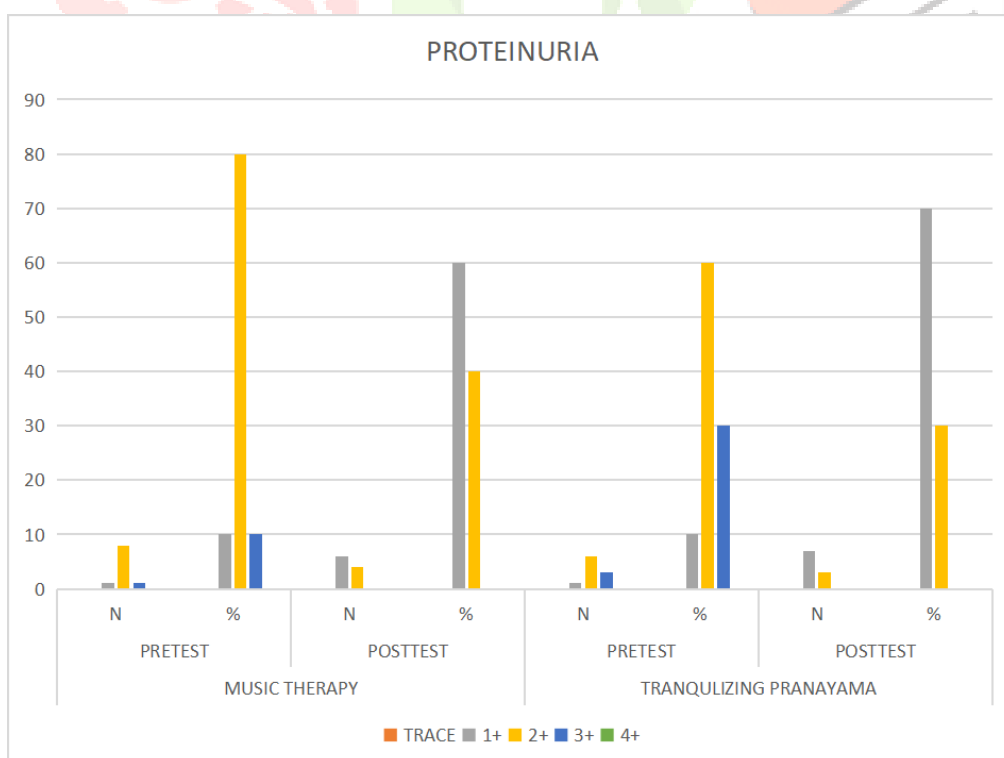


Figure-3 illustrate the level of Proteinuria in Pre & Post test between Music therapy and Tranquilizing group

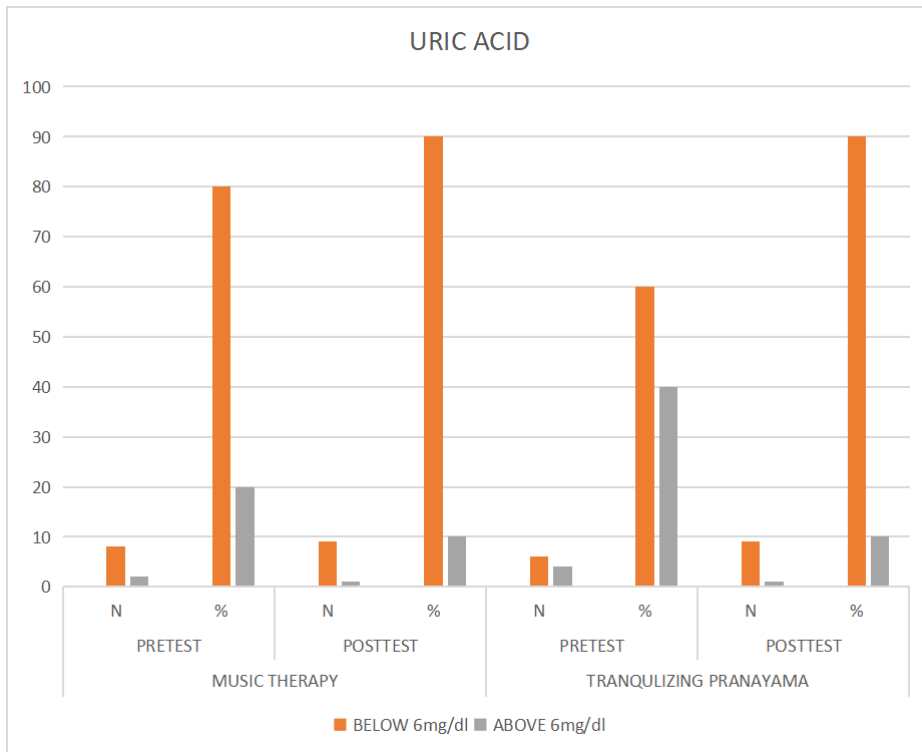


Figure-4 illustrate the level of Uric acid in Pre & Post test between Music therapy and Tranquilizing group

Table 3: Effectiveness of the Music therapy and Tranquilizing pranayama on physiological parameters among antenatal mother with Pregnancy Induced Hypertension

N=20(10+10)

	TEST	MEAN	STANDARD DEVIATION	MEAN DIFFERENCE	't' VALUE Paired t test	df	'p' VALUE
SYSTOLIC BLOOD PRESSURE							
Music group	Pre-test	151.20	5.594	1.933	5.483	9	.000
	Post-test	140.60	6.328				
Tranquilizing pranayama group	Pre-test	152.60	3.658	1.579	8.486	9	.000
	Post-test	139.20	4.826				
DIASTOLIC BLOOD PRESSURE							
Music group	Pre-test	98.20	4.566	1.618	4.540	9	.001
	Post-test	90.00	4.422				

Tranquilizing pranayama group	Pre-test	101.20	5.007	1.438	9.043	9	.000
	Post-test	88.20	5.029				
EDEMA							
Music group	Pre-test	3.0000	1.05409	1.45737	2.753	9	.022
	Post-test	2.2000	.42164				
Tranquilizing Pranayama group	Pre-test	3.9000	1.19722	.37268	4.025	9	.003
	Post-test	2.4000	.69921				
PROTEINURIA							
Music group	Pre-test	.3200	.13166	.29059	3.597	9	.006
	Post-test	.1500	.05270				
Tranquilizing pranayama group	Pre-test	.4700	.22136	.06831	4.392	9	.002
	Post-test	.1700	.06749				
URIC ACID							
Music group	Pre-test	3.5200	1.65851	.17704	6.044	9	.000
	Post-test	2.4500	1.60918				
Tranquilizing pranayama group	Pre-test	4.3300	1.98049	.25263	5.383	9	.000
	Post-test	2.9700	1.65801				

Table 3 depicts the effectiveness of Music Therapy group and Tranquilizing Pranayama on physiological parameters among antenatal mother with Pregnancy Induced Hypertension. Both Music therapy and Tranquilizing pranayama is significant in reducing systolic blood pressure and diastolic blood pressure with p value of 0.00 respectively. There is no significant in degree of edema in both intervention group. Tranquilizing pranayama had the significant difference in Pre and post test value of proteinuria with p value 0.002. Both Music therapy and Tranquilizing pranayama had significant difference in uric acid level with p value 0.000

Table: 4 Between group Comparison of Effectiveness of Music Therapy group and Tranquilizing Pranayama on physiological parameters among antenatal mother with Pregnancy Induced Hypertension
N=20(10+10)

	GROUP	MEAN	STANDARD DEVIATON	MEAN DIFFERENCE	't' VALUE Paired t test	df	'p' VALUE
SYSTOLIC BLOOD PRESSURE							
Pre-test	Music group	151.20	5.594	-1.400	-.662	18	.238
	Tranquilizing pranayama group	152.60	3.658				
Post-test	Music group	140.60	6.328	1.400	.556	18	.331
	Tranquilizing pranayama group	139.20	4.826				
DIASTOLIC BLOOD PRESSURE							
Pre-test	Music group	98.20	4.566	-3.000	-1.400	18	.731
	Tranquilizing pranayama group	101.20	5.007				
Post-test	Music group	90.00	4.422	1.800	.850	18	.407
	Tranquilizing pranayama group	88.20	5.029				
EDEMA							
Pre-test	Music group	3.0000	1.05409	-.90000	-1.784	18	.192
	Tranquilizing pranayama group	3.9000	1.19722				
Post-test	Music group	2.2000	.42164	-.20000	-.775	18	.036
	Tranquilizing pranayama group	2.4000	.69921				
PROTEINURIA							
Pre-test	Music group	.3200	.13166	-.1500	-1.842	18	.240
	Tranquilizing pranayama group	.4700	.22136				
Post-test	Music group	.1500	.05270	-.0200	-.739	18	.569

	Tranquilizing pranayama group	.1700	.06749				
URIC ACID							
Pre-test	Music group	3.5200	1.65851	-.81000	-.992	18	.154
	Tranquilizing pranayama group	4.3300	1.98049				
Post-test	Music group	2.4500	1.60918	-.52000	-.712	18	.595
	Tranquilizing pranayama group	2.9700	1.65801				

Table 4 shows the Comparison of Effectiveness of Music Therapy group and Tranquilizing Pranayama on physiological parameters among antenatal mother with Pregnancy Induced Hypertension. There was no significant difference between the two intervention on physiological parameters.

DISCUSSION

Major findings are

- In music therapy Group 5 (50%) half of them were in the age group between 23-26 years, whereas in Tranquilizing pranayama group 5 (50%) half of them were in the age group between 27-30 years. In weight distribution, the music therapy 5 (50%) half of them had 65-70kg and Tranquilizing pranayama group 4(40%) of antenatal mothers belongs to the 65-70kg respectively. Both in music therapy 7(70%) and Tranquilizing pranayama group 6(60%) majority of antenatal mothers belongs to the 151-160cm respectively and majority belongs to over weight category music therapy 7(70%) and Tranquilizing pranayama group 6(60%). Majority 6(60%) of antenatal mothers belongs to primigravida in both group. Majority 6(60%) of the antenatal mothers in music group belongs to 32-34 weeks of gestation whereas in Tranquilizing pranayama group 5(50%) in 32-33 weeks and 5(50%) in 34-35 weeks. In case of region both group belongs to equally. Majority 5(50%) had completed undergraduate in music group and higher secondary in Tranquilizing pranayama group 5(50%). Most of them in Music group 9(90%) and Tranquilizing pranayama group 7(70%) had planned pregnancy. Music group 7(70%) and Tranquilizing pranayama group 5(50%) were belonged nuclear family. In Music group 6(60%) majority and Tranquilizing pranayama group 7(70%) were housewife. In Music group 7(70%) majority of antenatal mother belongs to Rs 20000-30000 family income per month whereas in Tranquilizing pranayama group is 4(40%).
- **Music group** -In pretest 7(70%) antenatal mothers had moderate blood pressure, only 3(30%) antenatal mothers had mild blood pressure. In post test 4(40%) antenatal mothers had normal blood pressure and 5(50%) antenatal mothers had mild blood pressure. In pretest 4(40%) antenatal mothers had grade one edema, 5(50%) antenatal mothers had grade two edema and only one antenatal mother had grade three edema. In case of post test 8(80%) had grade one and 2(20%) antenatal mothers had grade two. 8(80%) antenatal mothers had 2+ level of proteinuria, 1(10%) had 1+ and 3+ level of proteinuria in pretest. In post test 6(60%) had 1+ and 4(40%) had 2+ level of proteinuria. In uric acid level both pre and post test majority 8(80%) of the antenatal mother had below 6mg/dl.
- **Tranquilizing group** -In pretest 9(90%) antenatal mother had mild blood pressure and only one (10%) antenatal mother had moderate blood pressure, while post test 4(40%) antenatal mother had normal blood pressure and 6(60%) antenatal mother had mild blood pressure. In Pre-test 5(50%) had grade three edema, 4(40%) antenatal mother had grade two edema and one (10%) antenatal mother had grade one edema, in case of post-test half of 5(50%) antenatal mother had grade two and half had antenatal mother grade one edema. In pretest 6(60%) antenatal mother had 2+ proteinuria, 3(30%) antenatal mother had 3+ proteinuria and one(10%) had 1+ proteinuria. In post test 7(70%) antenatal mother had 1+ and 3(30%) antenatal mother had 2+ proteinuria. 6(60%) antenatal mother had uric acid level below 6mg/dl and 4(40%) antenatal mother had above 6mg/dl in pretest. In post-test 9(90%) antenatal mother had uric acid level below 6mg/dl and 1(10%) antenatal mother had above 6mg/dl.
- Both Music therapy and Tranquilizing pranayama is significant in reducing systolic blood pressure and diastolic blood pressure with p value of 0.00 respectively. There is no significant in degree of edema in both intervention group. Tranquilizing pranayama had the significant difference in Pre and post test value of proteinuria with p value 0.002. Both Music therapy and Tranquilizing pranayama had significant difference in uric acid level with p value 0.000
- There was no significant difference between the two intervention on physiological parameters. Both are having same effect.

CONCLUSION

It can be concluded that both interventions music therapy and tranquilizing pranayama were equally effective in reducing blood pressure, edema, proteinuria and uric acid level. Music therapy is can be easy to implement in bedside compare to tranquilizing pranayama. Both intervention are cost effective and simple to practice. It is an pilot study result, there may be a better result for main study.

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