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Effectiveness of Bhramari Pranayama on Hypertension

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Abstract: ***The present study was conducted to assess the Effectiveness of Bhramari Pranayamaon Hypertension among Adults residing in Kannanoor Community at Kanyakumari District. The study design adopted was Quasi Experimental design. The Sampling technique adopted was Non-Probability Convenient Sampling Technique. The effective sample size was 60. Mercury sphygmomanometer used to measure the blood pressure. Data Analysis showed that, regarding pre- test level of systolic blood pressure, majority of samples 17 out of 30(56.7%) had mild level of Hypertension(140-159), diastolic blood pressure (77.04±3.35) and there was a significant association in reduction of systolic and diastolic blood pressure. with Age, Sex, Height.***

Keywords: Bhramari Pranayama, Hypertension

1. Introduction

Hypertension is the most common cardiovascular disease. It is one of the risk factor for developing 57% stroke and 24% Coronary heart disease in India. The prevalence of Hypertension in Indian population is about 30-40%. Hypertension is one of the most prevalent vascular diseases in the world and poses as a major public health problem. WHO reported that Hypertension is an important public health problem in developing countries. It also reported that in adults it is the highest among Indian men as compared to those of 20 other developing countries. **- (WHO, 2017)**

Bhramari pranayama produced gamma wave indicating parasympathetic dominance. Pranayama increases frequency and duration of inhibitory neural impulses by activating stretch receptors of the lungs during above tidal volume inhalation as in Herring-Breuer reflex. Inhibitory impulses, produced by slowly adapting receptors in the lungs during inflation playa role in controlling typically autonomic functions such as systemic vascular resistance and heart rate. Inhibitory current synchronizes rhythmic cellular activity between the cardiopulmonary center and the central nervous system. Inhibitory current regulates excitability of nervous tissue and is known to elicit synchronization of neural elements, which typically is indicative of a state of relaxation. Synchronization within the hypothalamus and the brainstem is likely responsible for inducing the parasympathetic response during breathing exercises.

- (Fuzzy Bot, 2018)

Statement of the Problem:

"A study to assess the Effectiveness of Bhramari pranayama on Hypertension among adults residing in Kannanoor Community at Kanyakumari district".

Objectives:

- To assess the pre-test and post-test level of blood pressure among patients with Hypertension in experimental and control group.
- To evaluate the effectiveness of Bhramari Pranayama on blood pressure among patients with Hypertension in experimental group.
- To compare the post-test level of blood pressure among Hypertension patients between the experimental and the control group.
- To find out the association between the post-test level of Hypertension and selected demographic variables.

2. Operational Definitions

➢ **Effectiveness:** In this study, effectiveness refers to the extent to which the adult has achieved a significant reduction in the level of Hypertension after practicing Bhramari pranayama once daily for 10 minutes for a period of one month under supervision by the researcher.

Bhramari Pranayama (Humming bee breathing techniques): In this study,

1. Sit in a quiet and well ventilated corner and close your eyes.

2. Place your index fingers on your ears right at the cartilage.

3. Breathe in and while breathing out press the cartilage with your fingers. Keep the cartilage pressed while making a loud humming sound like a bee.

4. Breathe in again and out and continue the same pattern for around 5 times.

- **Hypertension**: In this study, Hypertension refers to a condition where the patient's systolic blood pressure>140 and diastolic blood pressure >90 mm Hg which is obtained after checking blood pressure using sphygmomanometer.
- **Adult:** In this study, adult refers to matured or fully grown person age group between 30-60 years of both genders.

3. Conceptual Frame Work

The conceptual framework for the present study is Roy's adaptation theory in 1976; Sister Callista Roy developed the Adaptation Model of Nursing, a prominent nursing theory.

Table I: Data pertaining to frequency and percentage distribution of selected socio demographic variables among adult patients with Hypertension in experimental and control group.

(n=60)

S.No	Socio demographic variables	Experimental Group (n=30)		Control Group(n=30)	
		F	%	F	%
1)	**Age**				
	a) 30-40 years	1	3.3	5	16.7
	b) 41-50 years	9	30	7	23.3
	c) 51-60 years	20	66.7	18	60
2)	**Gender**				
	a) Male	12	40	15	50
	b) Female	18	60	15	50
3)	**Marital Status**				
	a) Married	21	70	16	53.3
	b) Unmarried	1	3.3	9	30
	c) Divorced / Separated	1	3.3	2	6.7
	d) Widow / Widower	7	23.3	3	10
4)	**Religion**				
	a) Hindu	15	50	19	63.3
	b)Christian	15	50	11	36.7
	c) Muslim	0	0	0	0
	d) Others	0	0	0	0
5)	**Educational Status**				
	a) Illiterate	20	66.7	10	33.3
	b) Primary School	2	6.7	6	20

	c) High School	6	20	6	20

Table 2: Data pertaining to frequency and percentage distribution of pre-test and post -test level of blood pressure among adult patients with Hypertension in experimental group.

Pre test and Post test in Experimental Group									
	Pre -Test		Pos-t Test			Pre- Test		Post -Test	
SYSTOLIC	F	%	F	%	DIASTOLIC	F	%	F	%
Normal (<130mm Hg)	0	0	10	33.3	85-89mm Hg	0	0	0	0
Mild (140 - 159 mm Hg)	17	56.7	20	66.7	90 - 99 mm Hg	0	0	16	53.3
Moderate (160 - 179 mm Hg)	13	43.3	0	0	100 - 109 mm Hg	20	66.7	14	46.7
Severe (>180 mm Hg)	0	0	0	0	>110 mm Hg	10	33.3	0	0

Table 2 shows the frequency and percentage distribution of pre test level of systolic blood pressure, majority of the samples 17 out of 30(56.7%) of samples having mild level of Hypertension (140-159 mm of Hg), pre test diastolic blood pressure majority of the samples 20out of 30(66.7%) of samples having moderate level of Hypertension (100-109 mm of Hg) in the experimental group. group.

In post test systolic blood pressure, majority of the samples 20 out of 30(66.7%) of samples having mild level of Hypertension(140-159 mm of Hg), post test diastolic blood pressure majority of the samples 16 out of 30(53.3%) of samples having mild level of Hypertension (90-99 mm of Hg)in the experimental group.

Table 3: Data pertaining to frequency and percentage distribution of pre-test and post -test level of blood pressure among adult patients in control group

Pre test and Post in control Group									
	Pre Test		Post Test			Pre Test		Post Test	
SYSTOLIC	F	%	F	%	DIASTOLIC	F	%	F	%
Normal (<130mm Hg)	0	0	0	0	85-89 mmHg	0	0	0	0
Mild (140 - 159 mm Hg)	25	83.3	27	90	90 - 99 mm Hg	0	0	2	6.7
Moderate (160 - 179 mm Hg)	5	16.7	3	10	100 - 109 mm Hg	12	40	15	50
Severe (>180 mm Hg)	0	0	0	0	>110 mm Hg	18	60	13	43.3

Table 3 shows the frequency and percentage distribution of pre- test level of systolic blood pressure, majority of the samples 25 out of 30(83.3%) of samples having mild level of Hypertension (140-159 mm of Hg), pre -test diastolic blood pressure majority of the samples 18 out of 30(60%) of samples having severe level of Hypertension (>110 mm of Hg) in the control group.

In post- test systolic blood pressure, majority of the samples 27out of 30(90%) of samples having mild level of Hypertension(140-159 mm of Hg), post -test diastolic blood pressure majority of the samples 15 out of 30(50%) of samples having moderate level of Hypertension (100-109 mm of Hg)in the control group.

4. Discussion

Objectives:

1. To assess the pre- test and post -test level of blood pressure among adult Hypertensive patients in experimental and control group.

Regarding pre test level of systolic blood pressure, majority of samples 17 out of 30(56.7%) had mild level of Hypertension(140-159 mm of Hg), In regard to pre test diastolic blood pressure, majority of samples 20out of 30(66.7%) had moderate level of Hypertension (100-109 mm of Hg)in the experimental group.

Regarding post test systolic blood pressure, majority of samples 20 out of 30(66.7%) had mild level of Hypertension(140-159 mm of Hg), In regard to post test diastolic blood pressure majority of the samples 16 out of 30(53.3%) had mild level of Hypertension (90-99 mm of Hg)in the experimental group.

The findings were supported by the study done by **Dr. Ramesh Chand Yadav (2016)**, conducted an experimental study to find out the effect of pranayama practices on primary high blood pressure patients. Sample was selected randomly for experimental and control group between the age group of 30-50 years. Each group comprising of 15 subjects, who were voluntarily participated in the study. At the end of twelve weeks post test was conducted in both groups. Blood pressure was measured with the sphygmomanometer .The results indicates that there was a prompts reduction in systolic and diastolic blood pressure for hypertension patients.

2. To evaluate the effectiveness of Bhramari Pranayama on blood pressure among adult Hypertensive patients in experimental group

On analyzing the data regarding pre test level of systolic blood pressure, majority of samples 17 out of 30(56.7%) had mild level of Hypertension(140-159 mm of Hg), In regard to pre test diastolic blood pressure majority of the samples 20out of 30(66.7%) had moderate level of hypertension (100-109 mm of Hg)in the experimental group.

On analyzing the data regarding post test systolic blood pressure, majority of samples 20 out of 30(66.7%) had mild level of Hypertension(140-159 mm of Hg), In regard to post test diastolic blood pressure majority of the samples 16 out of 30(53.3%) had mild level of Hypertension (90-99 mm of Hg)in the experimental group.

The findings were supported by the study done by **T Pramanik et al., (2010)** conducted an experimental study to evaluate the immediate effect of Bhramari Pranayama on blood pressure and heart rate.30 samples were selected by random sampling technique for one month of practice. A slow breathing exercise was done for 5 minutes and heart rate, blood pressure were recorded. Post-intervention statistical analysis revealed that there was a significant reduction in heart rate and a highly significant reduction in systolic pressure, pulse pressure, mean arterial pressure, rate-pressure product and double product with an insignificant fall in diastolic pressure which concluded that pranayama has a positive effect on heart rate and blood pressure in hypertensive patients within 5 minutes of practice.

3. To compare the post test level of blood pressure1 between the experimental and control group.

On analyzing the data regarding post test level of systolic blood pressure, majority of the samples 20 out of 30(66.7%) in the experimental group and 27 out of 30(90%) in the control group subjects were had mild level of Hypertension (140-159mm of Hg).

On analyzing the data regarding post test level of diastolic blood pressure, majority of the samples 16 out of 30(53.3%) had mild level of Hypertension(90-99 mm of Hg) in the experimental group and 15out of 30(50%) of samples had moderate level of Hypertension (100-109 mm of Hg)in the control group.

The findings were supported by the study done by **Mooventhan et. al., (2014)**, conducted a study to find out the effect of Bhramari Pranayam on Hypertension. A total of 82 subjects were selected by randomized method and deputed for study group (SG) (n = 41) and control group (CG) (n = 41). Baseline assessment was performed before intervention for both groups. For Experimental group practiced Bhramari Pranayama was administered for the duration of 10 min (5 min for each practice)/day for the period of 6 days/week for 2 weeks and with held for control group. After intervention post-assessment was performed for SG (n = 40) and CG (n = 39). Statistical analysis was done by Independent t-test and Student's paired t-test with the use of statistical package 16.

4. To find out the association between the post test level of blood pressure and selected demographic variables.

Findings showed that there is a significant association between post test level of systolic blood pressure in experimental group with demographic variables such as age, gender, Marital status, educational status, occupation, type of family, family income. There is a significant association between post test level of diastolic blood pressure in experimental group with demographic variables such as age, Marital status, religion, educational status, occupation, type of family, family income. Hence the research hypothesis (H3) was accepted.

Findings showed that there is a significant association between post test level of systolic blood pressure in control group with demographic variables such as age, marital status, educational status, occupation, family income. The findings showed that there is a significant association between post test level of diastolic blood pressure in control group with demographic variables such as age, gender, marital status, religion, educational status, occupation, type of family, family income. Hence the research hypothesis (H3) was accepted.

The findings were supported by the study done by **M. Sharma et. al., (2013),** conducted a study to determine the effect of yoga pranayama training on hypertension at medical college, Rajasthan, India. The study group practices Bhramari Pranayama for 5 days in a week for three months. The study was conducted for 50 hypertensive patients aged between 40-50 years. Samples were selected by randomized method. The data were analyzed using paired and unpaired 't' test by SPSS software. Result in the study was systolic blood pressure (121.12±8.18), diastolic blood pressure (77.04±3.35).The study concludes that there was a significant reduction in the systolic and diastolic blood pressure.(Age, Sex, Height).

5. Conclusion

Bhramari Pranayama was found to be effective in reducing Hypertension among adults which was denoted by significant reduction of blood pressure in Hypertension at Kannanoor community in Kanyakumari District.

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