

# EFFECT OF YOGA ON BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION IN SELECTED HOSPITAL AT PUDUCHERRY

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### **Abstract**

Hypertension is one of the high risk for developing cardiovascular related mortality and morbidity among hypertensive patients. Yoga is a life based practice that includes selective postures, breath control and meditation. The main aim is to find the effectiveness of selected yoga practice on blood pressure among patients with hypertension. A quantitative quasi experimental study with pretest and posttest design was used for the study with 200 patients. The convenience sampling technique were used to select the samples for both the groups at SVMCH&RC. The patients with hypertension aged between 40-60 years were included in the study. Demographic and clinical variable data were collected by using structured questionnaires and BP was assessed by using a modified American heart association scale. After intervention the post test was conducted with the same questionnaires and tools. The results of the present study show that yoga therapy may be the effective strategy for controlling or preventing high blood pressure.

**Keywords:** hypertension, yoga, blood pressure

### **INTRODUCTION**

Hypertension is a major non-communicable cardiovascular issue in developing countries. The prevalence of hypertension among adults aged between 30 to 79 years out of 1,201 population-based studies on blood pressure treatment of approximately 104 million adults was estimated as elevated blood pressure having SBP  $\geq 140$  mmHg, DBP  $\geq 90$  mmHg, or taking medication for hypertension. The main causes for all chronic diseases are either elevated blood pressure or increased weight. Hypertension is one of the preventable and treatable diseases worldwide. Yoga therapy may prove to be beneficial in hypertensive and prehypertensive populations. There is a significant positive effect of yoga among hypertensive population. Yoga therapy is one of the effective methods to maintain bio

physiological variables such as blood pressure, heart rate, BMI, etc. The aim of this study was to find out the effectiveness of yoga on blood pressure.

## **STATEMENT OF THE PROBLEM**

“Effectiveness of yoga on blood pressure among patients with hypertension in a selected hospital at Puducherry”.

## **OBJECTIVES**

1. To assess the level of blood pressure among patients with hypertension in study and control groups.
2. To evaluate the effectiveness of yoga on the level of blood pressure among patients with hypertension in study group and control group.
3. To find out the association between level of blood pressure with selected demographic and clinical variables among patients with hypertension.

## **METHODOLOGY**

**Research Approach:** The quantitative research approach was used in this study.

**Research Design:** Quasi experimental pre and posttest with control group design was adopted in this study.

### **Variables:**

**Dependent Variable:** The dependent variable of this study was blood pressure among patients with hypertension.

**Independent Variable:** The independent variable of this study was selected yoga.

**Research Setting:** The study was conducted at SVMCH&RC, Puducherry.

**Population:** The study population consisted of the patients with hypertension.

**Sample:** Samples of this study was the patients with stage 1&2 hypertension who were admitted in SVMCH&RC at Puducherry and who were fulfilling the inclusion criteria.

**Sample size:** The sample size of the study was 200 patients with hypertension 100 patients were in study and 100 patients were in the control group.

**Sampling techniques:** convenience sampling technique was adopted to select the samples.

### **Sampling criteria:**

#### **Inclusion criteria**

1. Patients diagnosed and admitted with stage 1&2 hypertension.
2. Patients who were taking regular treatment.

3. Patients who were actively participating in this study.
4. Patients who could speak and understand both Tamil and English.

#### **Exclusion criteria**

1. Patients who were critically ill and having co morbidity
2. Patients who were already following any other non-pharmacological management.

#### **Development and description of the tool:**

Part I: Demographic and clinical variables.

Part II: Modified WHO BMI scale.

#### **Results and Discussion:**

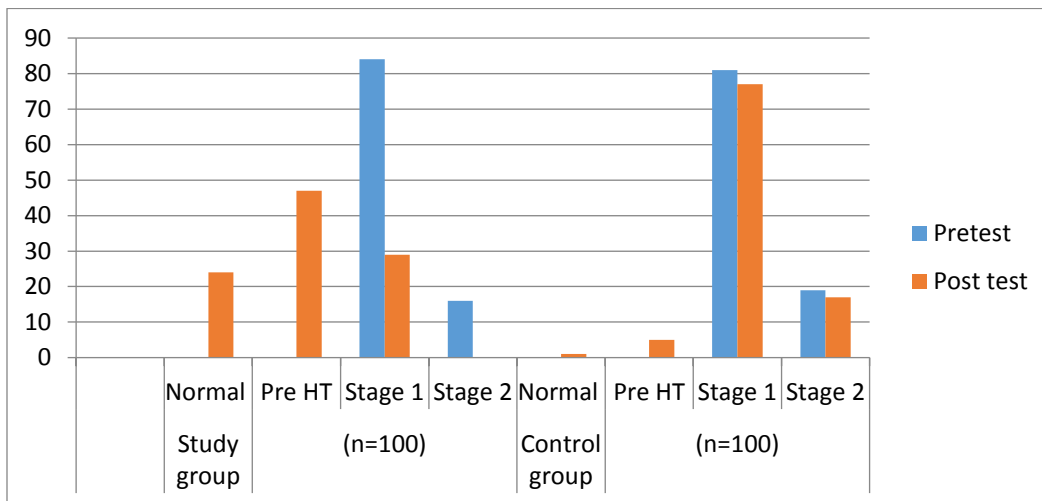
##### **SECTION A: Distribution of demographic and clinical variables among patients with hypertension.**

Regarding demographic variables among 200 hypertensive patients in study group and control group the majority of patients, 39% were in the age group of 51 – 55 years, On gender 50% of them both study and control group. In education, 25% in the study group and 23% in the control group have primary education. Regarding marital status, 89% of the patients in the study group and 87% in the control group were married patients. About 73% of them are from rural areas. With regard to type of family, 60% in the study group and 57% in the control group are in the nuclear family. In relation to food pattern 86% in the study group and 83% in the control group had mixed diet.

Regarding clinical variables in both study group and control group, 47% of patients from study group and 39% of patients from control group are not having history of exposure with any life events. 56% of patients have no family history of hypertension in the study group and 52% of patients had family history of hypertension in the control group. Most of the patients are not able to specify the relationship in both study group 56% and control group 48%. In the stage of hypertension 56% and 61% in both study and control group had stage 1 hypertension. With regard to the duration of hypertension, 40% in the study group and 42% had 4 - 6 years. Regarding treatment duration in the study group, 42% had a treatment in between 4-6 years and 40% of the subjects in the control group had a treatment in between 1 - 3 years. 53% from the study group had a history of hospitalization for hypertension treatment and 56% from the control group had no history of hospitalization for hypertension treatment. Related to drug intake most of the patients had amlodipine from both groups 64% and 69% respectively, and duration of drug 62% in study group and 68% in control group had once in a day.

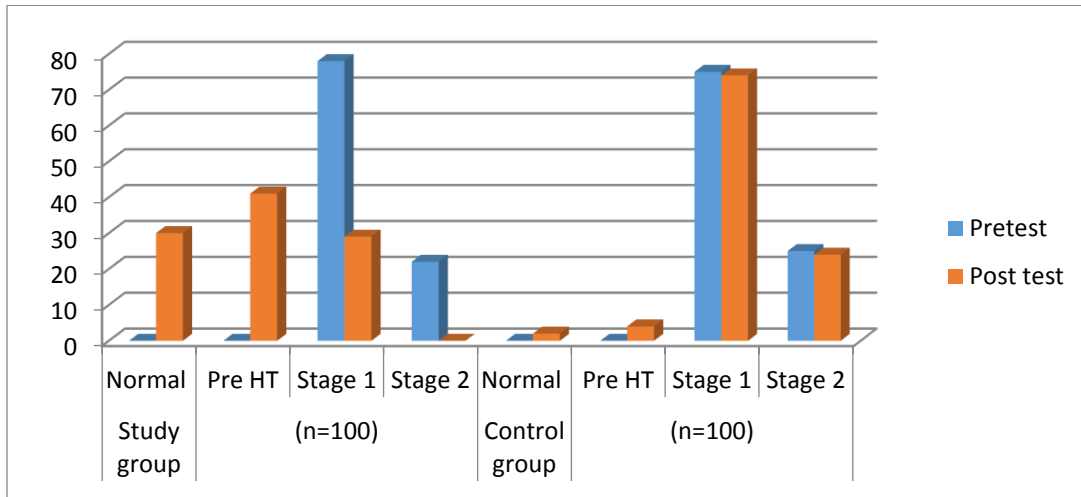
**Table 1: Frequency and percentage distribution of pretest and posttest level of systolic blood pressure among patients with hypertension study and control group (N=200)**

Assessment	Level of SBP	Pretest		Post test	
		N	%	N	%
<b>Study group (n=100)</b>	Normal	0	0.00	24	24.00
	Pre HT	0	0.00	47	47.00
	Stage 1	84	84.00	29	29.00
	Stage 2	16	16.00	0	0.00
<b>Control group (n=100)</b>	Normal	0	0.00	1	1.00
	Pre HT	0	00.00	5	5.00
	Stage 1	81	81.00	77	74.00
	Stage 2	19	19.00	17	17.00



**Table 2: Frequency and percentage distribution of pretest and posttest level of diastolic blood pressure among patients with hypertension study and control group (N=200)**

Assessment	Level of DBP	Pretest		Post test	
		N	%	N	%
<b>Study group (n=100)</b>	Normal	0	0.00	30	30.00
	Pre HT	0	0.00	41	41.00
	Stage 1	78	78.00	29	29.00
	Stage 2	22	22.00	0	0.00
<b>Control group (n=100)</b>	Normal	0	0.00	2	2.00
	Pre HT	0	00.00	4	5.00
	Stage 1	75	75.00	74	74.00
	Stage 2	25	25.00	24	24.00



**SECTION B: Effectiveness of yoga on blood pressure among patients with hypertension.**

**Table 3: Effectiveness of yoga on blood pressure among patients with hypertension in study group and control group. (N=200)**

BP score		Study group (n=100)		Control group (n=100)		MD	Student Independent t – test
		Mean	SD	Mean	SD		
SBP	Pretest	154.30	9.67	154.71	9.32	0.41	t=0.30 P=0.76
	Post test	134.05	12.34	153.36	10.52	19.31	t=11.91 P=0.001***
DBP	Pretest	92.40	4.29	92.50	4.35	0.10	t=0.16 P=0.87
	Post test	81.03	6.05	91.75	6.21	10.72	t=12.36 P=0.001***

**Table 4: Effectiveness of yoga and generalization of systolic blood pressure reduction score**

Group		Baseline score	Mean SBP score	MD of SBP reduction from baseline score with 95% CI	Percentage of SBP reduction from baseline score with 95% CI
Study Group	Pretest	154.30	154.30	20.25	13.12%
	Posttest		134.05	(18.88 – 21.61)	(11.78%–14.01%)
Control Group	Pretest	154.71	154.71	1.35	0.87%
	Posttest		153.36	(-0.10 – 2.80)	(-0.06% –1.81%)

**Table 5: Effectiveness of yoga and generalization of diastolic blood pressure reduction score**

Group		Baseline score	Mean SBP score	MD of DBP reduction from baseline score with 95% CI	Percentage of DBP reduction from baseline score with 95% CI
Study Group	Pretest	92.40	92.40	11.37 (10.18 – 12.56)	12.31 (11.02%–13.59%)
	Posttest		83.75		
Control Group	Pretest	92.50	92.50	0.75 (-0.09 – 1.59)	0.81% (-0.10% –1.72%)
	Posttest		91.75		

**SECTION C: Association between blood pressure with selected demographic and clinical variables among patients with hypertension.**

The significance association were found in between SBP with demographic variables among study group of patients with hypertension are Less income group patients **t=2.35 p=0.02\*** joint family patients **F=3.40 p=0.04\*** and rural area patients **t=2.68 p=0.01\*\*** are reduced more systolic blood pressure than others and in Clinical variables 4-6 years hypertension patients **F=2.84 p=0.05\*** are reduced more SBP than other demographic and clinical variables.

The associations between DBP reduction score with demographic variables are found in less income group patients **F=2.52 p=0.05\***, rural patients **t=2.12 p=0.04\*** and joint family patients **F=3.21 p=0.05\***. In clinical variables 4-6 years hypertension patients **F=2.90 p=0.03\***, and no habits patients **F=2.32 p=0.05\*** are reduced more DBP scores than others in both groups.

**DISCUSSION**

The results of the current study found that 12 weeks of yoga therapy reduces the blood pressure of the study group than the control group. Yoga among study and control groups shows significant difference in mean difference 20.25 (18.88 – 21.61) of SBP as well as DBP 11.37 (10.18 – 12.56) after intervention and maintaining the blood pressure. Hence, it proves that yoga therapy is an effective alternative therapy to control and maintain normal BP among patients with hypertension.

**CONCLUSION**

Yoga therapy may be shown to be significant in the reduction of blood pressure among patients with hypertension; yoga can be recommended for hypertensive patients. The Percentage of overall reduction score from baseline score on an average, in posttest, after having intervention patients are reduced 13.12% of SBP, 12.31% of DBP score than pretest score. Considering the existing finding of the study concludes that yoga is a very effective complementary therapy in control and maintenance of blood pressure among patients with hypertension.

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