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### A study to assess the effectiveness of breathing exercise among hypertensive patients

Cecyli C<sup>1</sup>, Marieswari B<sup>2</sup>, Sebastin Inigo A<sup>2</sup>

Clinical Instructor, Department of Medical and Surgical Nursing, Saveetha College of Nursing, SIMATS, Thandalam, Chennai, Tamil Nadu, India<sup>1</sup>

B.Sc (N) IV Year, Saveetha College of Nursing, SIMATS, Chennai, India<sup>2</sup>

#### Abstract

Hypertension is a significant general health issue in India and world, due to its high recurrence and corresponding, there is a danger of cardiovascular and kidney disorders. The hypertension makes individuals multiple times more inclined to stroke and multiple times bound to have coronary failures. The purpose of this study was to evaluate the effect of deep breathing exercise on blood pressure among patients with hypertension. A Quasi-Experimental one Group Pre- test Post- test design was adopted. A sample of 50 Hypertensive patients was selected using convenient sampling technique at Urban Primary Health Centre, Koyambedu. Data on demographic variables were assessed. Deep breathing exercise was demonstrated to the participants and their level of blood pressure was measured by sphygmomanometer before and after the intervention. The result displays that Inpre-testout of 50 samples, (48%) had pre- hypertension, (40%) had Stage I hypertension, (8%) had Stage II hypertension and (4%) have Normal Blood Pressure. Whereas after intervention, Post- test results shows that out of 50 samples (46%) have Normal Blood Pressure, (50%) had Pre- hypertension and (4%) had Stage I Hypertension among clients with Hypertension. The pretest mean score among patients with Hypertension was 125.5 with standard deviation 11.352 and posttest mean score among patient with Hypertension was 110.7 with standard deviation 9.090. The calculated paired 't' test value is  $t=7.971$  was found to be statistically significant at  $p \text{ value} < .0001$ . Thus, there was a reduction in the level of blood pressure after deep breathing exercise among posttest group patients.

**Keywords:** Hypertension, breathing exercise, hypertensive patients

#### Introduction

As per the WHO, one out of three individual's world over experiences hypertension. In India, the quantity of hypertensive people is foreseen to almost twofold from 118 million out of 2000 to 213 million by 2025. According to late gauges there are roughly 140 million hypertensive, 31.8 million coronary artery disease and 1.2 million stroke patients [1]. It has been assessed that hypertension represents 6% of passing's around the world. A report by WHO (world wellbeing association) expresses that there are 42% individuals with pre – hypertension. Fifteen percent are with recently analyzed hypertension and 31% of individuals are known instance of hypertensive. It has been accounted for that 26.4% of the general worldwide populace had hypertension in 2000, a number that was extended to increment to 29.2% by 2025 [2]. As per the World Health Organization, roughly 22% of grown-ups matured 18 and over have raised circulatory strain [3]. According to Mahtani *et al.* (2016), Breathing is done consistently and gradually can diminish circulatory strain so this activity is truly appropriate in the decision of treatment. Deep breathing additionally assumes a function in the cardiovascular framework, breath and sympathetic nervous activity [4]. Albeit numerous pharmacological medicines are given, the patient's blood pressure stays uncontrolled so the requirement for non-pharmacologic treatment is

fundamental in addition to or substitutes for pharmacological treatment [5]. Henceforth the investigators are interested to examine with the objective to evaluate the effectiveness of deep breathing exercises on hypertension among hypertensive patients.

#### Materials and Methods

A Quasi- Experimental One Group Pre-test Post- test research design was used to conduct the study at Urban Primary Health Centre, Koyambedu among 50 Hypertensive samples using a convenience sampling technique. The criteria for sample selection were known Hypertensive Patient and who is medically fit to do Breathing exercise. The exclusion criteria were smokers and Women under contraceptives. The data collection was done with prior permission from Chief Medical Officer. The purpose of the study was explained to the patients and written informed consent was obtained. The demographic data was collected by using questionnaire and the pretest level of Blood Pressure was measured by using Sphygmomanometer. After the pre-test, the investigator demonstrated the deep breathing exercise to the patients and Repetitive trails were given to the patients for 10-20 minutes twice a day, for 5 consecutive days. On the 6th day, the posttest level of blood pressure was assessed by using sphygmomanometer and recordings are noted in the chart. The data was analyzed

using descriptive and inferential statistics. The sample characteristics and level of Blood pressure were described using frequency and percentage. Chi- square was used to associate the pre- test and post- test level of blood pressure with the selected demographic variables.

**Results and Discussion**

**Section A:** Frequency and percentage distribution of demographic variables of patients with hypertension showed that Out of 50 samples, in regards to the age 40% belongs to 50-60 years, 28% belongs to 40-50 years, 20% belongs to

60-70 years and 12% belongs to 30-40 years. With respect to religion, 68% were Hindu, 16% were Muslim and Christian. Educational status shows that 40% are instructed up to higher secondary. According to occupation 46% are Employee. As far as dietary pattern concerned as 80% are Non- vegetarian and 20% are vegetarian.

**Section B:** Determine the effectiveness of deep breathing exercise on level of blood pressure among patients with hypertension (N=50)

**Table 1:** Result shows that in the pre-test, out of 50 samples (48%) had pre- hypertension, (40%) had Stage I hypertension, (8%) had Stage II hypertension and (4%) have Normal Blood Pressure.

Hypertension	Normal blood pressure <120/80 mm Hg		Pre- Hypertension 120/80-139/90 mm Hg		Stage I 140/90- 159/100 mm Hg		Stage II >160/100 mm Hg	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Pre- test	2	4%	24	48%	20	40%	4	8%
Post- test	23	46%	25	50%	2	4%	0	0%

Table 1 result shows that in the pre-test, out of 50 samples (48%) had pre- hypertension, (40%) had Stage I hypertension, (8%) had Stage II hypertension and (4%) have Normal Blood Pressure. Whereas in the Post- test after intervention, out of 50 samples (46%) have Normal Blood

Pressure, (50%) had Pre- hypertension and (4%) had Stage I Hypertension among patients with Hypertension.

**Section C:** Mean and Standard Deviation of Pre-Test and Post-Test Among Patients with Hypertension.

Table 2 shows pretest mean score was 125.5 with standard deviation 11.352; the posttest mean score was 110.7 with standard deviation 9.090.

Blood pressure	Mean	Standard deviation	Paired 't' test value
Pretest	125.5	11.298	t=7.971 pvalue<.0001 s***
Posttest	110.7	9.090	

Table 2 shows pretest mean score was 125.5 with standard deviation 11.352; the posttest mean score was 110.7 with standard deviation 9.090. The calculated paired 't' test value was t=7.971 was found to be statistically highly significant. The results supported by Vasuki, & Sweet (2017) conducted a study to evaluate the effectiveness of deep breathing on blood pressure parameters in patients with prehypertension and hypertension among 60 hypertensive patients. The outcomes demonstrated that there was a highly significant reduction in both systolic and diastolic blood pressure was found in the experimental group compared with the control group individuals. The findings supported by Eman Elsayed Hussein Mohammad *et al.* (2018) conducted a Study to Assess the Effectiveness of Breathing Exercise in Lowering High Blood Pressure among Hypertensive Patients at General Hospital, Alnamas, and Kingdom of Saudi Arabia. The findings revealed that, the mean pre-test score was 40 and mean post-test score was observed to be 26.66. There was significant reduction in level of blood pressure over breathing exercise was significant at p 0.05.

**Section D:** Association of Post Test Level of Blood Pressure among Patients with Hypertensive Patients with Selected Demographic Variables

The result discovered that there is no significant association between level of blood pressure with selected demographic variables such as Age, Religion, Educational status, occupation and dietary pattern of hypertensive patients.

**Conclusion**

Regular practice of deep breathing exercise is viable in lessening systolic and diastolic blood pressure by upgrading parasympathetic action and reducing sympathetic excitability thereby effectively reducing the blood pressure.

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