# To Assess The Effectiveness Of Breathing Exercise On Regulation Of Blood Pressure Among Hypertensive Clients



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## Abstract

**Introduction:** High blood pressure or hypertension means high pressure tension in the arteries.Arteries are vessels that carry blood from the pumping heart to all the tissues and organs of the body . Community health nurses play a crucial role in regulating blood pressure among hypertensive clients.
**Aim:** The aim of the study to assess effectiveness of breathing exercise on reducing blood pressure level among hypertensive clients.
**Material and Methods**: The style adopted for the study is quasi experimental design with two group pre – test post test design keeping in the view of objectives of the study. To find out the effectiveness of breathing exercise in reducing high blood pressure. This study was conducted in rural areas of Rajanagaram. The sample size consisted of sixty hypertensive clients residing in Rural areas of Rajanagaram Simple random sampling technique was used for the choice of sample. Blood pressure was measured by sing sphygmomanometer and the levels of Blood pressure is classified as mild, moderate and severe. Data were analysed using descriptive and inferential statistics.
**Result:** The results of this study showed that, experimental and control groups mean were 151.6 and 171.3 respectively. The standard deviation was 9.33 and 6.57 respectively. Hence calculated' value 10 was greater than tabulated 't' value 2. 'p' value is 0.0001 shows that there was a significant difference in systolic high blood pressure scores between post test scores in both experimental and control groups. Which shows Relaxation exercise was effective in regulation of blood pressure.
**Conclusion:** The findings of the study concluded that, the breathing exercise was effective on regulating blood pressure levels among hypertensive clients.

**Key Words:** Assess, Effectiveness, breathing exercise, systolic, diastolic, blood pressure, hypertension.

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## INTRODUCTION

High blood pressure or hypertension means high pressure tension in the arteries. Arteries are vessels that carry blood from the pumping heart to all the tissues and organs of the body. Normal blood pressure is below 120/80; blood pressure between 120/80 and 139/89 is called "pre-hypertension", and a blood pressure of 140/90 or above is considered high. It is classified as either primary or secondary. About 90– 95% of cases are termed "primary hypertension", which refers to high blood pressurefor which no medical cause can be found. The remaining 5–10% of cases are Secondary hypertension is caused by other conditions that affect the kidneys, arteries, heart, or endocrine system. Persistent hypertension is one of the risk factors for stroke, myocardial infarction, heart failure and arterial aneurysm, and is a leading cause of chronic kidney failure.

Treatment includes a change in lifestyle risk factors where these can be improved losing weight if you are overweight, regular physical activity like walking, running, exercise is now so prominent in encouraging a wide range of physical activity rather than other treatments which includes deep breathing exercises, abdominal exercises which are also known as diaphragmatic breathing exercise which increases the oxygen supply and let the carbon dioxide out very efficiently, a healthy diet, cuttingback if you drink a lot of alcohol, stop smoking, and a low salt and caffeine intake. If needed, medication can lower blood pressure.

Abdominal breathing exercise is considered to be the most beneficial effect in reducing the blood pressure among the hypertensive patients. Recent studies have shown that abdominal breathing exercise patients have stopped taking antihypertensive drugs and stick on the exercise regimen.

A study, published in "Depression and Anxiety" by the Group Health ResearchInstitute, reported that the participant's anxiety and depression had decreased by 40 percent after a 10 min treatment, 12-week period study. The research reveals the power of breathing exercises.

Hypertension is the second most common cause of kidney failure after Heart-disease, Hardened arteries the measures to control hypertension includes antihypertensive drugs, diet control and exercise Overall prevalence for hypertensionin India was 29.8% confidence Significant differences in hypertension prevalence werenoted between rural and urban parts 27.6% and 33.8% $P$=0.05. Regional estimates for the prevalence of hypertension were as follows: 14.5 %, 31.7%, 18.1% and 21.1%for rural north, east, west, and south India; and 28.8%, 34.5%, 35.8%, and 31.8% for urban north, east, west, and south India, respectively. Overall estimates for the prevalence of awareness, treatment, and control of Blood Pressure were 25.3%, %, and 10.7% for rural Indians; and 42.0%, 37.6%, and 20.2% for urban Indians. About 33% urban and 25%rural Indians are hypertensive. Of these, 25% rural and 42% urban Indians are aware of their hypertensive status. Only 25% rural and 38% of urban Indians are being treated for hypertension. One-tenth of rural and one-fifth of urban Indian hypertensive population have their Blood Pressure under control.

The Central India Eye and Medical Study have conducted a study on Prevalence, Awareness, Control, and Associations of Arterial Hypertension in a Rural Central India Population. In a rural Central Indian population of ages 30+ years, the prevalence of arterial hypertension was 22.1 ± 0.6% with an awareness rate of 20% and a treatment rate of 8%. The low awareness and treatment rate may demand increasing public health efforts. This study is done only in rural areas excluding urbanareas and this study shows the emergence of the management of hypertension majorly in rural area population of India.

According to a study by National Institute of Nutrition Andhra Pradesh stands second on a list of 16 states. As many as 36.2% of urban men in the state suffers fromhypertension, while the national average stands at 31%.[11]

Hypertension exerts a substantial public health burden on cardiovascular health status and healthcare systems in India. The WHO rates hypertension as one of the most important causes of premature death worldwide. Hypertension is presently affecting about 32 million rural Indians and 34 million urban Indians. Anoop Mishra, Fortis group of hospitals had stated that hypertension was directly responsible for 57%deaths due to stroke and 24% of deaths caused by heart attack and complications, the rate of non- compliance is high.

Abdominal breathing exercise is considered to be mostbeneficial effect in reducing blood pressure and it also improves vagal activity and therefore decreases baseline heart rate and blood pressure. This is associated by improving vagal tone and by decreasing sympathetic discharge. Improvement in both sympathetic and parasympathetic reactivity may be the mechanism that is associated in those practicing the abdominal breathing exercises. Abdominal Breathing increases baro reflex sensitivity and reduces sympathetic activity, it suggests a potentially beneficial effect in hypertension; where, baro reflex is the system in the body that regulates blood pressure by controlling heart rate, strength of heart contractions, and diameter of blood vessels. It reduces blood pressure and enhancesbaroreflex sensitivity in hypertensive patients.

Abdominal breathing increases blood and oxygen flow to the brain to function in its optimal state. It creates a connection between mind and body that can lead to greater self-awareness, mindfulness and clear thinking, improves circulation, which improves heart health, energy levels and helps the body eliminate toxins, as well as reduces blood pressure. Hence the researchers interested to examine the

## STATEMENT OF THE PROBLEM:

"A study to assess the effectiveness of breathing exercise on regulation of blood pressure among hypertensive clients residing in rural areas of Rajanagaram."

## OBJECTIVES OF THE STUDY:

1. To assess the pre-test level of blood pressure among hypertensive clients in experimental and control groups in selected rural areas of rajanagaram.
2. To administer breathing exercise among hypertensive clients in Experimental group of selected ruralareas of rajanagaram.
3. To compare the pre and post-test levels of blood pressure among hypertensive clients in experimental group of selected rural areas of rajanagaram.
4. To compare the post-test levels of blood pressure among hypertensive clients in Experimental and control group of selected areas of rajanagaram.
5. To find out the association between the post-test levels of blood pressure among hypertensive clients in experimental group with theirselected demographic variables

## HYPOTHESIS:

- **H1:** There will be significant difference in pre-test and post-testblood pressureamong hypertensive clients.
- **H2**: There will be significantly difference in post-test Experimental group and post-test control group Blood pressure among hypertensive clients

## ASSUMPTIONS

- The study is based on the following assumption
- Clients with may have elevated blood pressure
- Blood pressure may vary from one person to another
- Breathing exercise may alter the blood pressure

## Research Approach:

The research method adopted for the present study was quantitative evaluative approach

## Research design

In the present study the investigator selected the quasi experimental design with two group pre – test post test design, keeping in the view of objectives of the study.

## Setting of the study

The present study was conducted in rural area Rajanagaram

## Population

The population of the study includes the hypertensive clients residing in rural area of Rajanagaram

## Sample and sampling technique

In the present study, Simple random sampling technique used by the investigator.

## Sample Size

Total sample size for this study is 60 hypertensive clients

## SAMPLING CRITERIA

### Inclusion criteria:

- Hypertensive clients those who are willing to participate in study
- Clients who are diagnosed with Hypertension

### Exclusion criteria:

- Hypertensive clients those who are bedridden and psychologically unstable
- Severe hypertension clients those who are hospitalized
- Hypertensive clients who are already on other naturopathy.

## Description of the tool

The data collection tool has been divided in to two sections.

**Section 1:** Consisting of patient's baseline information and seven items referring to demographic variables such as gender, age, education level, religion, marital status, occupation, using of hypertensive drugs, duration of hypertension, and family history of hypertension.

**Section 2:** Consists of assessment profile observational checklist for blood pressure

## INTERPRETATION OF THE SCORE

The resulting scores were arranged on high blood pressure

| CATEGORY | SYSTOLIC BLOOD PRESSURE | DIASTOLIC BLOOD PRESSURE |
|---|---|---|
| MILD | 140-159 | 90 – 99 |
| MODERATE | 160 -179 | 100 - 109 |
| SEVERE | MORE THAN 180 | MORE THAN 110 |

## STATISTICS

### Descriptive statistics

Percentage, mean, standard deviation, were used to assess the effectiveness of Breathing exercises on high blood pressure among hypertensive clients.

### Inferential statistics

Paired' test was used for the comparison of pre-test and post-test blood pressure score among experimental group and unpaired 't' test was used for the comparison of post-test blood pressure score among experimental and control groups. The chi – square test was used to determine the association be- tween posttest blood pressure scores in experimental group with demographic variables

## RESULTS

The data were entered into master sheet for tabulation and statistical processing the obtained data were analyzed, organized, and presented under the following headings:

**Section -1:** Demographic data of Hypertensive clients

**Section -2:** Frequency and percentage distribution of Hypertensive clients scores in pretest and post-test

### Section -1: Demographic data of Hypertensive clients

**TABLE –** 1FREQUENCY AND PERCENTAGE DISTRIBUTION OF HYPERTENSIVE CLIENTS IN EXPERIMENTAL AND CONTROL GROUP ACCORDING TO DEMOGRAPHIC VARIABLES *(n = 60)*

| Sl. No. | Demographic Variables | Experimental | | Control | |
|---|---|---|---|---|---|
| | | f | % | f | % |
| 1. | **Age in years** | | | | |
| | a. 50-55 | 07 | 23 | 06 | 20 |
| | b. 56-60 | 12 | 40 | 14 | 47 |
| | c. 61 and above | 11 | 37 | 10 | 33 |
| 2. | **Gender** | | | | |
| | a. Male | 08 | 27 | 09 | 30 |
| | b. Female | 22 | 73 | 21 | 70 |
| 3. | **Religion** | | | | |
| | a. Christian | 10 | 33 | 08 | 27 |
| | b. Hindu | 18 | 60 | 22 | 73 |
| | c. Muslim | 02 | 07 | 00 | 00 |
| | d. Others | 00 | 00 | 00 | 00 |
| 4. | **Marital Status** | | | | |
| | c. Married | 14 | 47 | 16 | 53 |
| | d. Unmarried | 00 | 00 | 00 | 00 |
| | e. Widowed | 13 | 43 | 12 | 40 |
| | d. Divorced | 03 | 10 | 02 | 07 |
| 5. | **Educational status** | | | | |
| | a. Non-literate | 06 | 20 | 06 | 20 |
| | b. Primary education | 16 | 53 | 18 | 60 |
| | c. Higher education | 08 | 27 | 06 | 20 |
| | d. Graduation and above | 00 | 00 | 00 | 00 |
| 6. | **Occupation** | | | | |
| | a. Unemployed | 19 | 63 | 22 | 73 |
| | b. Retired | 03 | 10 | 05 | 17 |
| | c. Private employee | 06 | 20 | 02 | 07 |
| | d. Government Employee | 02 | 07 | 01 | 03 |
| 7. | **Do you take any hypertensive drugs?** | | | | |
| | a. Yes | 07 | 23 | 06 | 20 |
| | b. No | 23 | 77 | 24 | 80 |
| 8. | **Habits** | | | | |
| | a. Smoking | 08 | 27 | 05 | 17 |
| | b. Alcoholism | 01 | 03 | 01 | 03 |
| | c. Tobacco Chewing | 05 | 17 | 04 | 13 |
| | d. No bad Habits | 16 | 53 | 20 | 67 |
| 9. | **Duration of Hypertension** | | | | |
| | a. One year and above | 07 | 23 | 05 | 17 |
| | b. 2-6 years | 11 | 37 | 15 | 50 |
| | c. 7-10 years | 12 | 40 | 10 | 33 |
| | d. 10 years and above | 00 | 00 | 00 | 00 |
| 10 | **Family history of Hypertension** | | | | |
| | a. Yes | 17 | 57 | 17 | 57 |
| | b. No | 13 | 43 | 13 | 43 |

### Table – 1 shows that

In experimental group majority of 12(40%) respondents be- longs to 50-55 years of age group and 07(23%) respondents belongs to 61-and above age group. In control group majority of respondents 14(47%) respondents be- longs to 50-55 years of age group and 06 (20%) respondents belongs to 61-and above age group. In experimental and control group majority of respondents were female rather than males. In experimental group majority of

18 (60%) belongs to Hindu religion and in Control group 22 (73%) belongs to Hindu religion. In experimental group majority of 16(53%) were having primary education and none of them had graduation. In control group majority of 18 (60%) completed their primary education. In experimental group 14(47%) of respondents were married and in control group 16(53%) respondents were married. Majority 19(63%) are unemployed In experimental group and 22(73%) in control group respectively. 7 (23%), 06 (20%) are taking hypertensive drugs respectively in experimental and control groups. Majority 16 (53%) are not having any bad habits and in control group 20 (67%) had no bad habits. In experimental group majority of the clients 12 (40%) are having the duration of hypertension 7-10 years, and in control group 15 (50%) are having the duration of hypertension 2-6 years. And 17(53%) of clients are having family history of hypertension and experimental group and control group

**TABLE – 2** FREQUENCY AND PERCENTAGE DISTRIBUTION OF HIGH BLOOD PRESSURE IN PRETEST AMONG HYPERTENSIVE CLIENTS IN EXPERIMENTAL AND CONTROL GROUP(n=60)

| GROUP | BLOOD PRESSURE LEVELS | | | | | |
|---|---|---|---|---|---|---|
| | MILD | | MODERATE | | SEVERE | |
| | f | % | f | % | f | % |
| EXPERIMENTAL GROUP | - | - | 16 | 53 | 14 | 47 |
| CONTROLGROUP | - | - | 10 | 33 | 20 | 67 |

## Table - 2 shows that

In experimental group out of 30 samples pretest high blood pressure score reveals that 16 samples (53%) had moderate and 14 samples (47%) had severe high blood pressure where as in control group out of 30 samples, 1 samples (33%) had moderate and 20 samples (67%) had severe high blood pressure

**TABLE – 3** FREQUENCY AND PERCENTAGE DISTRIBUTION OF HIGH BLOOD PRESSURE IN POSTTEST AMONG HYPERTENSIVE CLIENTS IN EXPERIMENTAL AND CONTROL GROUP(n=60)

| GROUP | BLOOD PRESSURE LEVELS | | | | | |
|---|---|---|---|---|---|---|
| | MILD | | MODERATE | | SEVERE | |
| | f | % | f | % | f | % |
| EXPERIMENTAL GROUP | 22 | 73 | 08 | 27 | - | - |
| CONTROL GROUP | - | - | 16 | 53 | 14 | 47 |

## Table - 3 shows that

In experimental group out of 30 samples pretest high blood pressure score reveals that 22 samples (73%) had mild and 08 samples (27%) had moderate high blood pressure where as in control group out of 30 samples, 16 samples (53%) had moderate and 14 samples (47%) had severe high blood pressure

**TABLE- 4** DIFFERENCE BETWEEN PRE TEST AND POST TEST SYSTOLIC BLOOD PRESSURE SCORES AMONG HYPERTENSIVE CLIENTS IN EXPERIMENTAL GROUP (n=60)

| Category | Mean | Mean difference | S.D | Paired 't' Test | | 'p' Value | Significant |
|---|---|---|---|---|---|---|---|
| | | | | Calculated value | Table value | | |
| PRETEST | 173.3 | 51.7 | 9.06 | 10.86 | 2.05 | 0.001 | significant at the levelof 0.05 |
| POSTTEST | 151.6 | | 9.33 | | | | |

## Table 4 shows that

Pre test and post test systolic high blood pressure mean were 173.3 and 151.6 respectively. The mean difference was 51.7. The standard deviations were 9.06 and 9.33 respectively. Hence calculated 't' value 10.86 greater than tabulated 't' value 2.05. 'p' value is 0.001 shows that there was a significant difference in systolic high blood pressure scores between pretest and posttest. Relaxation exercise was effective in regulation of blood pressure Hence H1 stating that there will be significant difference in pre-test and post-test blood pressure among hypertensive clients in experimental group was accepted.

**TABLE- 5** DIFFERENCE BETWEEN PRE TEST AND POST TEST DIASTOLIC BLOOD PRESSURE SCORE AMONG HYPERTENSIVE CLIENTS IN EXPERIMENTAL GROUP (n=60)

| Category | Mean | Mean difference | S.D | Paired 't' Test | | 'p' Value | Significant |
|---|---|---|---|---|---|---|---|
| | | | | Calculated value | Table value | | |
| PRETEST | 102.6 | 9.27 | 5.73 | 12.15 | 2.05 | 0.001 | significant at the level of 0.05 |
| POSTTEST | 93.33 | | 3.79 | | | | |

## Table 5 shows that

Pre test and post test diastolic high blood pressure mean were 102.6 and 93.33 respectively. The mean difference was 9.27. The standard deviations were 5.73 and 3.79 respectively. Hence calculated 't' value 12.15 greater than tabulated 't' value 2.05. 'p' value is 0.001 shows that there was a significant difference in diastolic high blood pressure scores between pretest and posttest. Relaxation exercise was effective in regulation of blood pressure

Hence H1 stating that there will be significant difference in pre-test and post-test blood pressure among hypertensive clients in experimental group was accepted.

**TABLE- 6** DIFFERENCE BETWEEN POST SYSTOLIC HIGH BLOOD PRESSURE SCORES AMONG HYPERTENSIVE CLIENTS IN EXPERIMENTAL AND CONTROL GROUP (n=60)

| GROUP | MEAN | S.D | UNPAIRED 't' TEST | | 'P' value | significant |
|---|---|---|---|---|---|---|
| | | | calculated value | Table Value | | |
| EXPERIMENTAL | 151.6 | 9.33 | 10 | 2 | 0.0001 | Significant at the level of 0.05 |
| CONTROL | 171.3 | 6.57 | | | | |

## Table 6 shows that

Post test systolic blood pressure levels of experimental and control groups mean were 151.6 and 171.3 respectively. The standard deviation was 9.33 and 6.57 respectively. Hence calculated' value 10 was greater than tabulated 't' value 2. 'p' value is 0.0001 shows that there was a significant difference in systolic high blood pressure scores between post test scores in both experimental and control groups. Which shows Relaxation exercise was effective in regulation of blood pressure Hence H2 stating that there will be significantly difference in post-test Experimental group and post-test control group Blood pressure among hypertensive clients was accepted.

**TABLE- 7** DIFFERENCE BETWEEN POST DIASTOLIC HIGH BLOOD PRESSURE SCORES AMONG HYPERTENSIVE CLIENTS IN EXPERIMENTAL AND CONTROL GROUP (n=60)

| GROUP | MEAN | S.D | UNPAIRED 't' TEST | | 'P' value | significant |
|---|---|---|---|---|---|---|
| | | | calculated value | table value | | |
| EXPERIMENTAL | 93.3 | 4.751 | 15.06 | 2.0 | 0.002 | Significant at the level of 0.05 |
| CONTROL | 98.3 | 7.781 | | | | |

## Table 7 shows that

Post test diastolic blood pressure levels of experimental and control groups mean were 93.3 and 98.3 respectively. The standard deviation was 4.751 and 7.781 respectively. Hence calculated 't' value 15.06 was greater than tabulated 't' value 2.0 'p' value is 0.002 shows that there was a significant difference in diastolic high blood pressure scores between post test scores in both experimental and control groups. Which shows Relaxation exercise was effective in regulation of blood pressure Hence H2 stating that there will be significantly difference in post-test Experimental group and post-test control group Blood pressure among hypertensive clients was accepted.

**TABLE – 8** ASSOCIATION OF POST TEST LEVELS OF BLOOD PRESURE SCORES AMONG HYPERTENSIVE CLIENTS IN EXPERIMENTAL GROUP WITH THEIR DEMOGRAPHIC VARIABLES (n=30)

| SL. NO | DEMOGRAPHIC VARIABLES | HIGH BLOOD PRESSURE | | | CHI SQUARE $\chi^2$ | | | INFERENCE |
|---|---|---|---|---|---|---|---|---|
| | | MILD | MIDERATE | SEVERE | CV | TV | df | |
| 1 | **Age in years** | | | | 1.06 | 5.99 | 2 | NS |
| | a) 50-55 | 06 | 01 | 0 | | | | |
| | b) 56-60 | 09 | 03 | 0 | | | | |
| | c) 61 and above | 07 | 04 | 0 | | | | |
| 2. | **GENDER** | | | | 1.10 | 3.84 | 1 | NS |
| | d) Male | 07 | 01 | 0 | | | | |
| | e) Female | 15 | 07 | 0 | | | | |
| 3. | **Religion** | | | | 1.27 | 3.84 | 2 | NS |
| | e. Christi an | 06 | 04 | 0 | | | | |
| | f. Hindu | 14 | 04 | 0 | | | | |
| | g. Muslim | 02 | 00 | 0 | | | | |
| | h. Others | 00 | 00 | 0 | | | | |
| 4. | **Marital Status** | | | | 0.69 | 5.99 | 3 | NS |
| | f. Married | 11 | 03 | 0 | | | | |
| | g. Unmarried | 00 | 00 | 0 | | | | |
| | h. Widowed | 08 | 05 | 0 | | | | |
| | d. Divorced | 03 | 00 | 0 | | | | |
| 5. | **Educational status** | | | | 1.08 | 5.99 | 2 | NS |
| | e. Non-literate | | | | | | | |
| | f. Primary education | 04 | 02 | 0 | | | | |
| | | 11 | 05 | 0 | | | | |
| | g. Higher education | 07 | 01 | 0 | | | | |
| | | 00 | 00 | 0 | | | | |
| | h. Graduation and above | | | | | | | |
| 6 | **Occupation** | | | | 1.03 | 7.82 | 3 | NS |
| | a. Unemployed | 15 | 04 | 0 | | | | |
| | b. Retired | 02 | 01 | 0 | | | | |
| | c. Private employee | 04 | 02 | 0 | | | | |
| | | 01 | 01 | 0 | | | | |
| | d. Government Employee | | | | | | | |
| 7 | **Do you take any hypertensive drugs?** | | | | 1.44 | 3.84 | 1 | NS |
| | a. Yes | 07 | 0 | | | | | |
| | No | 15 | 08 | | | | | |
| 8 | **Habits** | | | | 3.82 | 7.82 | 3 | NS |
| | e.Smoking | 07 | 01 | 0 | | | | |
| | f. Alcoholism | 01 | 0 | 0 | | | | |
| | g.Tobacco Chewing | 02 | 03 | 0 | | | | |
| | h.No bad Habits | 12 | 04 | 0 | | | | |
| 9 | **Duration of Hypertension** | | | | 4.41 | 5.99 | 2 | NS |
| | e. One year and above | 07 | 00 | 0 | | | | |
| | | 09 | 02 | 0 | | | | |
| | f. 2-6 years | 06 | 06 | 0 | | | | |
| | g. 7-10 years | 00 | 00 | 0 | | | | |
| | h. 10 years and above | | | | | | | |
| 10 | **Family history of Hypertension** | | | | 4.18 | 3.84 | 1 | NS |
| | c. Yes | 10 | 07 | 0 | | | | |
| | d. No | 12 | 01 | 0 | | | | |

## Table 8 shows that

There is no statistically significant association between high blood pressure and demographic variables

## DISCUSSION

1. **To assess the pre-test level of blood pressure among hypertensive clients in experimental and control groups in selected rural areas of rajanagaram.**

In experimental group out of 30 samples pretest high blood pressure score reveals that 16 samples (53%) had moderate and 14 samples (47%) had severe high blood pressure where as in control group out of 30 samples, 1 samples (33%) had moderate and 20 samples (67%) had severe high blood pressure

**Viswen et al..,** Conducted a study on effectiveness of Breathing exercises on blood pressure among hypertensive clients at Saveetha medical College and Hospital, Pretest level of blood pressure was measured by using sphygmomanometer for the both groups, the study conclude that there is a difference in high blood pressure in both the experimental and control group



2. **To administer breathing exercise among hypertensive clients in Experimental group of selected ruralareas of rajanagaram.**

Post test systolic blood pressure levels of experimental and control groups mean were 151.6 and 171.3 respectively. The standard deviation was 9.33 and 6.57 respectively. Hence calculated' value 10 was greater than tabulated 't' value 2. 'p' value is 0.0001 shows that there was a significant difference in systolic high blood pressure scores between post test scores in both experimental and control groups. Which shows Relaxation exercise was effective in regulation of blood pressure **Maria therisa** was conducted a study to determine the effectiveness of breathing exercise on reduction of BP. Pre test and post test in each group as well as pretest and posttest across group were carried out. Control group showed no difference but rather a slight decline in BP was noticed. But results demonstrated a significant reduction in DBP & SBP in the patients who participated in breathing exercise compared to the control group. The result imply that simple breathin exercise may be useful as a supplementary BP therapy in addition to medical treatment. It is well known that breathing exercise has effect of lowering BP. For those patients who are not affordable for medications.

3.**To compare the pre and post-test levels of blood pressure among hypertensive clients in experimental and group of s elected rural areas of rajanagaram.**

Post test systolic blood pressure levels of experimental and control groups mean were 151.6 and 171.3 respectively. The standard deviation was 9.33 and 6.57 respectively. Hence calculated' value 10 was greater than tabulated 't' value 2. 'p' value is 0.0001 shows that there was a significant difference in systolic high blood pressure scores between post test scores in both experimental and control groups. Which shows Relaxation exercise was effective in

regulation of blood pressure Post test diastolic blood pressure levels of experimental and control groups mean were 93.3 and 98.3 respectively. The standard deviation was 4.751 and 7.781 respectively. Hence calculated 't' value 15.06 was greater than tabulated 't' value 2.0 'p' value is 0.002 shows that there was a significant difference in diastolic high blood pressure scores between post test scores in both experimental and control groups. Which shows Relaxation exercise was effective in regulation of blood pressure **Fathima D silva et al..,** conducted a quasi experimental study t assess the effectiveness of breathing exercise on the blood pressure and anxiety among coronary arterty disease patients in Mangalore. Randamized control design was adopted for the study . out of 65 clients, 45 clients were choosen for this study, patients were trained in deep breathing exercise for 2- 3 days, were instructed to practice the exercise twice a day for 10 min for a period of 2 weeks. Results of the study revealed that pretest systolic blood pressure 132± 13.32 posttest 122.00± 6.16. researcher concluded that deep breathing exercise was found to be effective in reducing the systolic and diastolic blood pressure and anxiety among CAD patients.

**4. To compare the post-test levels of blood pressure among hypertensive clients in Experimental and control group of selected areas of rajanagaram.**

Post test systolic blood pressure levels of experimental and control groups mean were 151.6 and 171.3 respectively. The standard deviation was 9.33 and 6.57 respectively. Hence calculated' value 10 was greater than tabulated 't' value 2. 'p' value is 0.0001 shows that there was a significant difference in systolic high blood pressure scores between post test scores in both experimental and control groups. Which shows Relaxation exercise was effective in regulation of blood pressure Post test diastolic blood pressure levels of experimental and control groups mean were 93.3 and 98.3 respectively. The standard deviation was 4.751 and 7.781 respectively. Hence calculated 't' value 15.06 was greater than tabulated 't' value 2.0 'p' value is 0.002 shows that there was a significant difference in diastolic high blood pressure scores between post test scores in both experimental and control groups. Which shows Relaxation exercise was effective in regulation of blood pressure Rure and et all.., found that the use of breathing exercise found that a twenty minute exercise was a feasible amount of time for a significant decrease in systolic blood pressure, and diastolic blood pressure. Analysis found that there was a significant lowering of blood pressure by breathing exercise.

**5. To find out the association between the post-test levels of blood pressure among hypertensive clients in experimental group with theirselected demographic variables**

The result show that there is no statical significant association between high blood pressure score with demographic variables such as gender, age, education level, religion, marital status, occupation, using of hypertensive drugs, duration of hypertension, and family history of hypertension.

Merly chuhi et al.., conducted a study regarding the high blood pressure prevalence and significant corelates the results shows that except age no other demographic variables ar statistically significant.

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