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"A STUDY TO EVALUATE THE IMMEDIATE EFFECT OF SLOW BREATHING EXERCISE ON BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION ADMITTED AT SDM HOSPITAL, DHARWAD

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Abstract: life of today is called the era of fast-moving with the emergence of science and technology which has greatly influenced humans and brought signatory changes in our health of mankind. every person is expected here to work hard and fulfill the expectations and compete in society which causes strain and tensions, which are leading causes of all diseases. Hypertension is also one among them. so to overcome a researcher thought of a natural way of decreasing the blood pressure of patients by slow deep breathing exercises

Objectives:

i. To assess the level of blood pressure among hypertensive patients in the experimental group and control group before the administration of slow breathing exercise.
ii. To evaluate the effectiveness of slow breathing exercise among patients with hypertension in the experimental group.
iii. To compare the pre and post-test values of blood pressure of patients with hypertension after slow breathing exercises and rest in the experimental group and control group respectively

Methodology: A quasi experimental research approach was taken. In the analysis of data, a total of 60 samples were selected,30 in control and 30 in experimental group.with purposive sampling technique.data was collected by structured interview schedule and observational schedule for monitoring of blood pressure. A Structured Teaching Plan was administered at the end of pre test and post test data was collected from samples of both experimental and control group by using same tool . data obtained was analyzed in terms of the objectives of the study using descriptive and inferential statistics.

Results: The present study confirms that the mean SPB of experimental group was 159.9 mm of Hg with standard deviation ±14.07 mm of Hg and the mean DBP was 91.6 mm of Hg with standard deviation of ±9.6 mm of Hg. In control group the mean SPB was 156.2 mm of Hg with standard deviation of ±15.75 mm of Hg. The mean DBP was 93.3 mm of Hg with standard deviation of ±8.43 mm of Hg. after slow breathing exercise was 154.4 mm of Hg with standard deviation ±14.54 mm of Hg and the mean DBP was 90.0 mm of Hg with standard deviation of ±8.98 mm of Hg. In control group the mean SPB was 159.4 mm of Hg with standard deviation of ±15.13 mm of Hg. The mean DBP was 94.4 mm of Hg with standard deviation of ±6.40 mm of Hg. The mean difference between pre test and post test SBP of experimental group is 6.47±4.19 mm of hg whereas in control group is -3.2±6.0 mm of hg. The mean difference between pre test and post test DBP of

experimental group is 1.6±6.57 mm of Hg whereas in control group is -1.07±3.67 mm of hg. It is found that slow breathing exercise was effective in reducing blood pressure of hypertensive patients in experimental group whereas in control group found that rest was ineffective in reducing blood pressure of hypertensive group.

Conclusion: It is found that slow breathing exercises was effective in reducing blood pressure of hypertensive patients in the experimental group whereas in the control group found that rest was ineffective in reducing the blood pressure of the hypertensive group.

Keywords: hypertension, slow breathing exercise, diseases, patients,

Introduction:

Science and technology have transformed man's lifestyle. [1]Lifestyle changes usually imply a shift in food, level of activity, interactions, and stress. Increased standard of living, reduced workload, and exercise have provided immense comfort to humanity. In today's fast-paced world, everyone works hard to fulfill their own desires as well as the expectations of others. The rising competitiveness in society causes physical strain and emotional tension.[2] Most individuals find it difficult to consider such a big change in the way they live. People are constantly confronted by fast-accumulating stressors as they strive to live a successful life in accordance with societal expectations and conventions.[2]

In today's world, stress is increasing in daily life. Hypertension causes numerous consequences, including stroke, retinopathy, coronary artery disease, and renal failure[4] Hypertension is defined as a sustained rise in blood pressure over time, which is a major risk factor for cardiovascular disease. Essential hypertension makes up about 90% of all types of hypertension. There are numerous risk factors for essential hypertension, including advanced age, gender (male), race (black), family history of hypertension, obesity, atherosclerosis, a high salt diet, smoking, sedentary lifestyle, alcohol, and emotional stress. Hypertension is the number one cause of cardiovascular disease worldwide. Hypertension is known as the "silent killer" since approximately one-third of those who suffer from it are unaware of their condition.[5]

Most people with high blood pressure don't exhibit any symptoms, even when their readings are dangerously high. While some individuals with early-stage hypertension could encounter symptoms like dull headaches, light headedness, or increased nosebleeds, these indications typically surface once hypertension has reached a more severe and potentially lethal degree. Six

The national family survey conducted in India revealed that the prevalence of hypertension increased with age, reaching 22.4% in the 18–39 age group, 54.5% in the 40–59 age group, and 74.5% in the 60and above age group.

Globally, 972 million people are expected to have had hypertension in 2000, and by 2023, 1.56 billion people are expected to have the disease. This indicates that in 2000, 26.4% of the population as a whole—26.6% of men and 26.1% of women—had hypertension. By 2025[9], it is anticipated that the prevalence will have increased to 29.2% overall, 29.0% among men, and 29.5% among women. Overall 54% of people are with hypertension among them 42% take treatment, and 21% people are under control of their blood pressure reported according to WHO.

World Hypertension Day (WHD) is an annual event coordinated by the World Hypertension League (WHL) on May 17. Since its inception in May 2005, the WHD has grown to be a yearly occasion. World Hypertension Day (WHD) is an international event that attempts to increase public awareness of hypertension and motivate people everywhere to stop and manage this silent killer epidemic.[12]

The Hypertension future publications provide information on the non-drug therapy of hypertension prevention and treatment concluded by the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of hypertension.

Today, a busy family physician does not have enough time to discuss various food and lifestyle changes to the patient before prescribing medications. Every patient with hypertension, from pre-hypertension to grade-2 hypertension, should get non-drug therapy. If non-drug therapy is properly followed, pre-hypertension cases can be prevented from advancing to hypertension, and Grade I hypertension drugs can be reduced or discontinued. It is discussed the benefits of a low salt, high potassium diet, caffeine intake, calcium and magnesium supplements, fish oil intake, cigarette smoking, alcohol consumption, physical exercise, stress reduction and biofeedback, yoga, meditation, and acupuncture in lowering and controlling hypertension without drugs.[13]

Maintaining appropriate blood pressure not only benefits health and extends life in the obvious way: it prevents mortality from a heart attack or stroke. Slow breathing is simply one of several lifestyle and natural strategies for managing stress and lowering blood pressure, ultimately improving and lengthening life. Slow and quiet your breathing, and the heart will follow. The relationship between the respiratory and circulatory systems has been known since antiquity. In at least a dozen rigorous research investigations, slow breathing for 15 minutes per day was demonstrated to reduce high blood pressure. Thousands of people have demonstrated this in real life by practicing slow breathing. The procedure is undoubtedly one of the most powerful - and completely safe - natural ways to decrease bloodpressure[8]

Controlled slow breathing causes profound relaxation and a relaxing impact, reducing the stress and strains of daily life. This, in turn, causes a reduction in hypertension. Overactivity of the sympathetic nervous system induces blood vessel constriction, which raises blood pressure; this mechanism of breathing reduces sympathetic activity of nervous system which helps in reduction of blood pressure.The cardiac, blood pressure and pulmonary systems are linked by an interconnected autonomic nerve system. However, breathing advantages for hypertension go beyond just soothing and relaxing. Reducing the breathing rate to around five or six breaths per minute appears to be critical for causing so-called "resonance" of the interacting heart and blood pressure homeostatic control systems, which correlates with relaxation.

METHODOLOGY:

Research approach: In the present study, quasi-experimental research approach is taken

Research design: Quasi-experimental, pre-test and post-test control group design was selected in order to evaluate the effectiveness of slow breathing exercise on blood pressure among patients with hypertension.

Sampling technique& sample size the sample size of 60 hypertensive patients, 30 in the experimental group and 30 in the control group. with a Purposive sampling technique of nonprobability type is used for the current study.

Setting: Shri Dharmasthala Manjunatheshwara College of Medical Sciences and Hospital Dharwad

Hypothesis:

There is a significant difference between pre-test and post-test levels of blood pressure among patients with hypertension in the experimental group.

Tools used: An Interview Schedule was used in the study to obtain the demographic data of hypertensive patients and an observation tool to monitor blood pressure of patients in both experimental and control groups.

Section 1 structured interview schedule to collect demographic variables of hypertensive patients like age, sex, educational status, occupation, marital status, height, weight, type of family, monthly income, type of diet, duration of illness, smoking, alcoholism, and practice of health-promoting activities.

Section 2: observation schedule to monitor blood pressure in the pretest and posttest of both experimental and control groups.

Development of a structured teaching program under the following:

* General Information about slow breathing exercise
* Meaning of slow breathing exercise
* Advantage of slow breathing exercises on various system
* Instructions to be followed before slow breathing exercise
* Techniques of slow breathing exercise

Planning to Implement the STP

The date and time to implement the STP was planned and decided.

Informing the Participants

It was planned to inform the participants well in advance about the STP so that they can plan their schedule to attend to the STP conveniently.

Determining the Method of Evaluating STP

The evaluation of STP was done by re-demonstration of slow breathing exercise and asked to practice.

Data collection and procedure

1. Formal permission was obtained from the authorities

Techniques of slow breathing exercises methods

- Straightly sit up or lie down in a comfortably making sure that your back is straight.
- Inhale slowly and deeply through the nose, at the same time, relax the belly muscles. Feel as though the belly is filling with air.
- After filling the belly, keep inhaling. Fill up the middle of your chest. Feel your chest and rib cage expand.

- Hold your breath in for a few seconds

  Begin exhaling slowly through the mouth, pursing your lips as if you're going to whistle.
- Pursing the lips helps to control how fast you exhale and keeps airway open as long as possible as the air is slowly let out, relax your chest and rib cage. Begin to pull your belly in to force out the remaining breath.
- Close your eyes, and concentrate on your breathing and relax your mind.
- Repeat the inhale–exhale cycle, and continue for about 15 to 20 minutes.

For pilot study Six samples were selected, 3 experimental and 3 control for the study and these six were excluded for the final study. The pre-test was conducted by measuring blood pressure using observation schedule followed by Structured Teaching Program on slow breathing methods . Post-test was conducted by using the same observation schedule for evaluating the effectiveness of STP of slow breathing methods on changes of blood pressure). The findings of the Pilot Study revealed that the study is feasible and effective.

Pretest

After selecting samples to experimental and control group using purposive sampling technique, pretest data was collected using an interview schedule and observation schedule in male and female medical wards at SDM Institute of Medical Sciences, Hospital

Implementation of STP

After collecting pretest data from both the samples of the experimental group and control group STP on slow breathing exercise was conducted only for the experimental group using relevant teaching methods and AV aids for a duration of 20 minutes and in the same time samples of the control group were allowed to take rest.

Post Test

Post-test data on blood pressure was collected from the samples of both the experimental and control groups using the same tool after 15 minutes of practice slow breathing session and resting session from the experimental group and control group respectively

Data analysis The plan for data analysis was as follows:

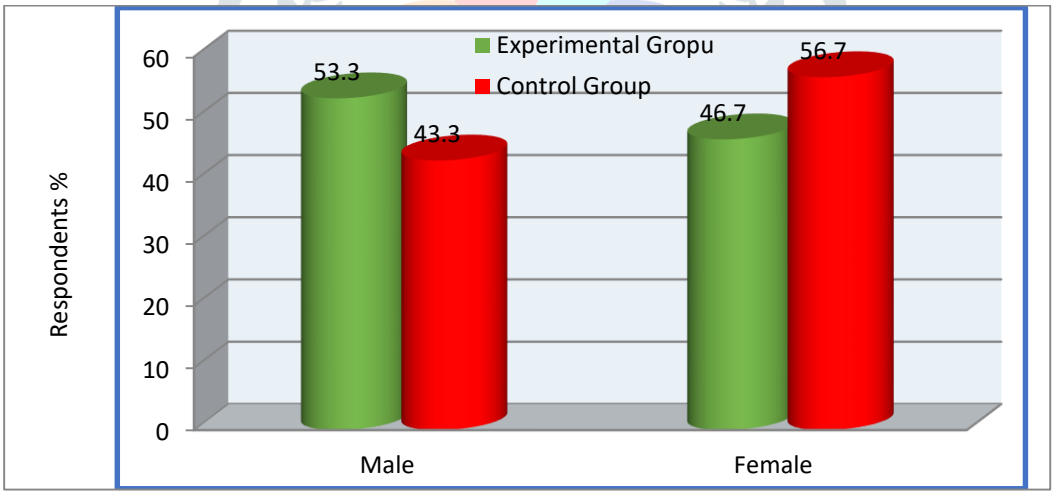
* Entering the data in the master sheet.
* Frequencies and percentages to be used for analysis of demographic data
* Calculation of mean, standard deviation of pre-test and post-test scores
* Application of paired "t" test to test whether there is a significant difference in the mean percentage blood pressure level of pre-test and post-test values at a 5% level of significance in experimental and control group
* Application of the Chi-square test to measure the association between the post-test blood pressure level and the selected demographic variables in the control group and experimental group.

Distribution of respondents according to demographic variables;

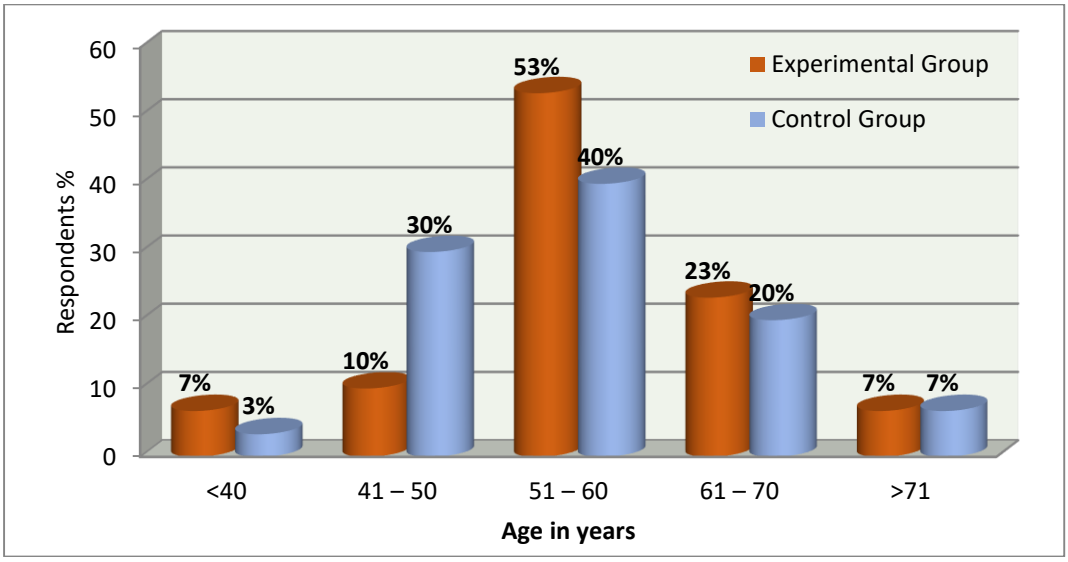
Characteristics	Category	Experiment Group		Control Group	
		N	%	N	%
Gender	Male	16	53.3	13	43.3
	Female	14	46.7	17	56.7
Age group(yrs)	Below 40 years	2	6.7	1	3.3
	41 – 50	3	10	9	30
	51 – 60	16	53.3	12	40
	61 – 70	7	23.3	6	20
	Above 71 Years	2	6.7	2	6.7
Total		**30**	**100**	**30**	**100**

Table 1:In Experimental group out of 30 subjects, 16 (53.3%) of subjects were male and 14 (46.7%) of subjects were female, whereas in control group, 13 (43.3%) were males and 17 (56.7%) were females.

The present study reveals that in the experimental group, 2 (6.7 %) subjects are in the age group of less than 40 years, 3 (10%) subjects are in the age group of 41-50 years, 16 (53.3%) are in between the age group of 51-60, 7 (23.3%) are in the age group of 61-70 and 2 (6.7%) are older than 71 years. Whereas in control group (3.3 %) subjects are in the age group of less than 40 years, 9 (30%) subjects are in the age group of 41-50 years, 12 (40%) are in between the age group of 51-60, 6 (20%) are in the age group of 61-70 and 2 (6.7%) are older than 71 years.



Sex-wise distribution of hypertensive subjects



Age-wise distribution of hypertensive subjects

Table 2: Religion- and type of family-wise distribution of hypertensive subjects

Characteristics	Category	Experiment Group		Control Group	
		N	%	N	%
Religion	Hindu	25	83.3	26	86.7
	Muslim	5	16.7	4	13.3
Marital status	Married	30	100	30	100
Type of family	Nuclear	10	33.3	7	23.3
	Joint	20	66.7	23	76.7
Total		**30**	**100**	**30**	**100**

Table 2: The present study reveals 26 (86.7) Hindus and 4 (13.3%) Muslims were there in the experimental, whereas in the control group 25 (83.3%) of Hindus and 5 (16.7%) of Muslims.

In the present study, all subjects in experimental group 30 (100%) and control group 30 (100%) were married and in the present study 10 (33.3%) subjects belong to nuclear families and 20 (66.7%) belongs to joint family in experimental group, whereas in control group 7 (23.3%) belongs to nuclear family and 23 (76.7%) belongs to joint family.

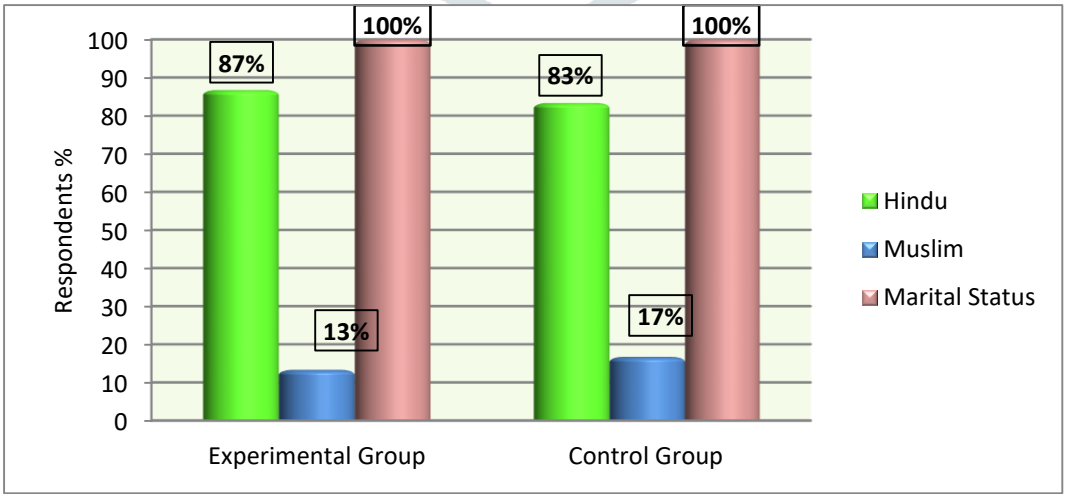


Figure 5: Religion-wise distribution of hypertensive subjects

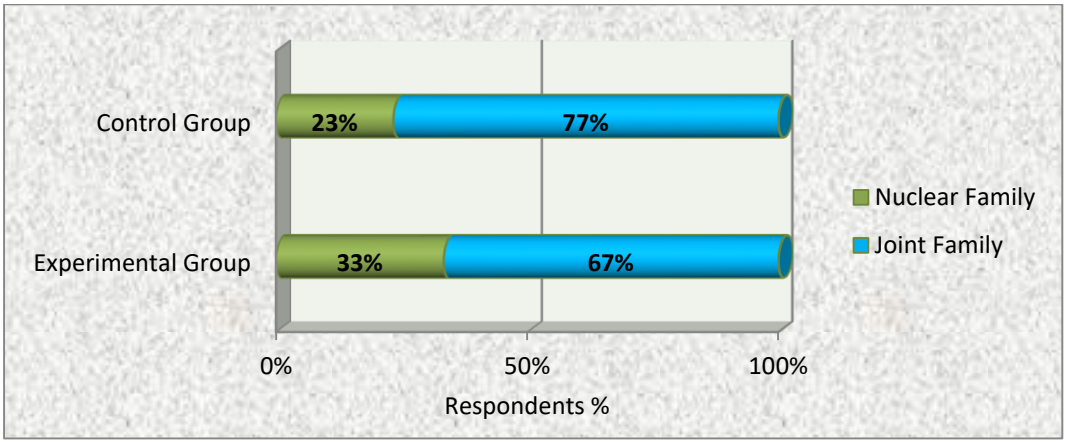


Figure 6: Distribution of hypertensive subjects based on type of family

Table 3: Distribution of subjects based on Educational status

Educational level	**Experiment Group**		**Control Group**	
	N	**%**	**N**	**%**
Graduate/ Post-graduate	5	16.7	3	10
Pre-university/Diploma	6	20	1	3.3
High school	9	30	14	46.7
Middle school	5	16.7	10	33.3
Primary school	1	3.3	0	0
Not undergone any formal education	4	13.3	2	6.7
Total	**30**	**100**	**30**	**100**

The present study depicts that in the experimental group maximum subjects that is 9 (30%) had education up to high school level, 6 (20%) subjects studied up to PUC/Diploma level, 5 (16.7 %) subjects had gone up to middle school, 5 (16.7 %) subjects studied up to Graduate/Post graduate level, 4 (13.3%) had no formal education, and only 1 (3.3 %) studied up to primary level. Whereas in the control group maximum subjects that is 14 (46.7%) had education up to high school level, 10 (33.3%) had gone up to middle school, 3 (10%) subjects studied up to Graduate/Post graduate level, 2 (6.7%) had no formal education**,** only 1 (3.3%) subjects studied up to PUC/Diploma level.

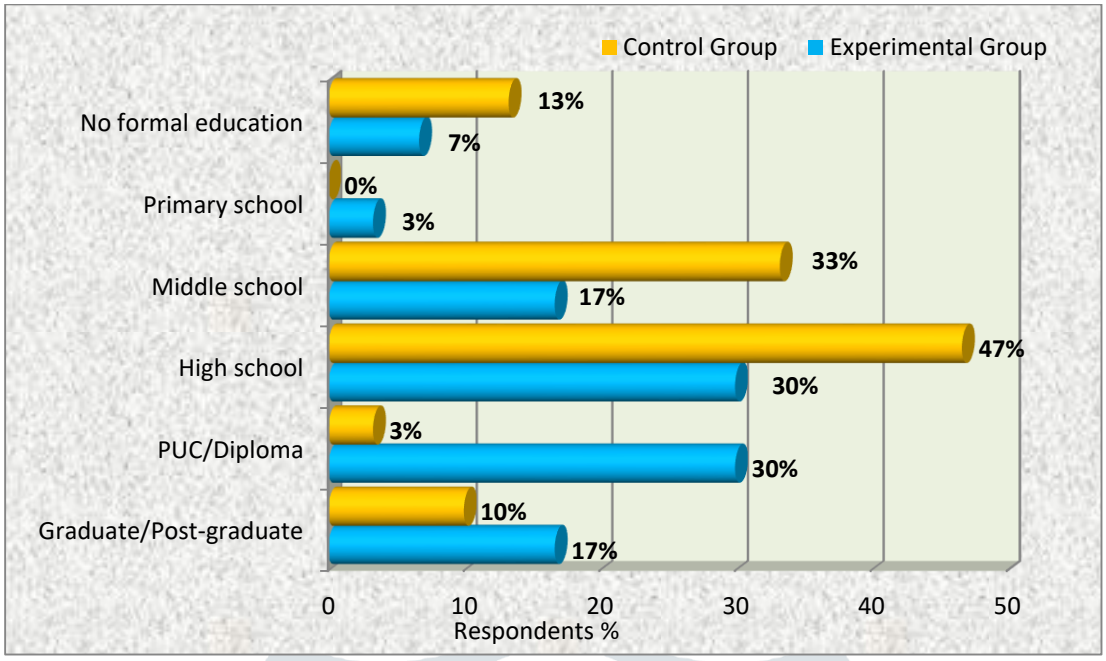


Figure 7: Distribution of subjects based on Educational status

Table 4: Distribution of hypertensive subjects based on occupation

Occupation	Experiment Group		Control Group	
	N	%	N	%
Agriculture	2	6.7	2	6.7
Government Employer	1	3.3	0	
Private employer	2	6.7	1	23.3
Self Employed	6	20	7	23.3
Housewife	13	43.3	18	60
Unemployed	6	20	2	6.7
Total	**30**	**100**	**30**	**100**

The present study revealed that in the experimental group maximum number of subjects, that is 13 (43.3%) were house wives, 6 (20%) were self employed, 2 (6.7%) were agriculturists, 2 (6.7%) were private employee, 1(3.3%) was Government employee, and the rest 6 (20%) had no employment. Whereas in the control group maximum number of subjects that is 18 (60%) were house wives, 7 (23.3%) were self employed, 2 (6.7%) were agriculturists, 1 (3.3%) were private employee, and the rest 2 (6.7%) had no employment.

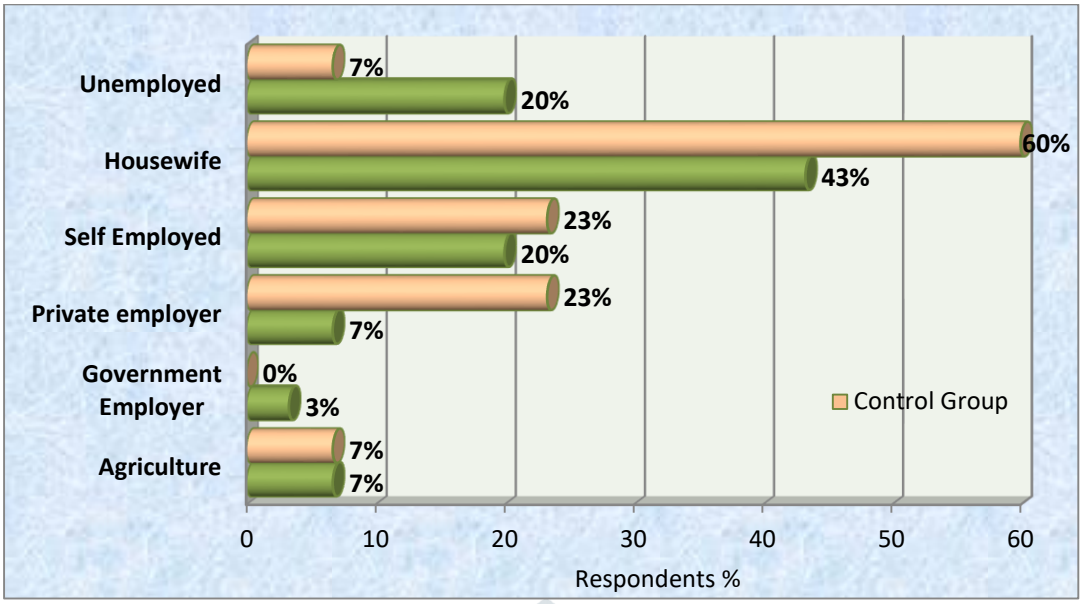


Figure 8: Distribution of hypertensive subjects based on occupation

Table 5: Distribution of subjects based on family income and duration of illness

Characteristics	Category	Experiment Group		Control Group	
		N	%	N	%
Family income/month	10,000-20000	3	10	15	50
	> 20000	27	90	15	50
Duration of Illness	Less than 5 years	15	50	17	56.7
	5 – 10 years	10	33.3	8	26.7
	More than 10 years	5	16.7	5	16.7
Total		**30**	**100**	**30**	**100**

In the present study 3 (10%) subjects family income is lies between 10000-20000 Rs per month and 27 (90%) cross over 20000 Rs per month, whereas in control group 15 (50%) subjects family income lies between 10000-20000 Rs per month and 15 (50%) cross over 20000 Rs per month.

In the present study from experimental group 15 (50%) subjects were hypertensive less than 5 years, 10 (33.3%) of subjects suffered hypertension for 5-10 years and only 5 (16.7%) subjects suffered hypertension for more than 10 years. Whereas in control group 17 (56.7%) subjects has hypertension for less than 5 years, 8 (26.7%) has hypertension for 5-10 years and 5 (16.7%) subjects has hypertension for more than 10 years.

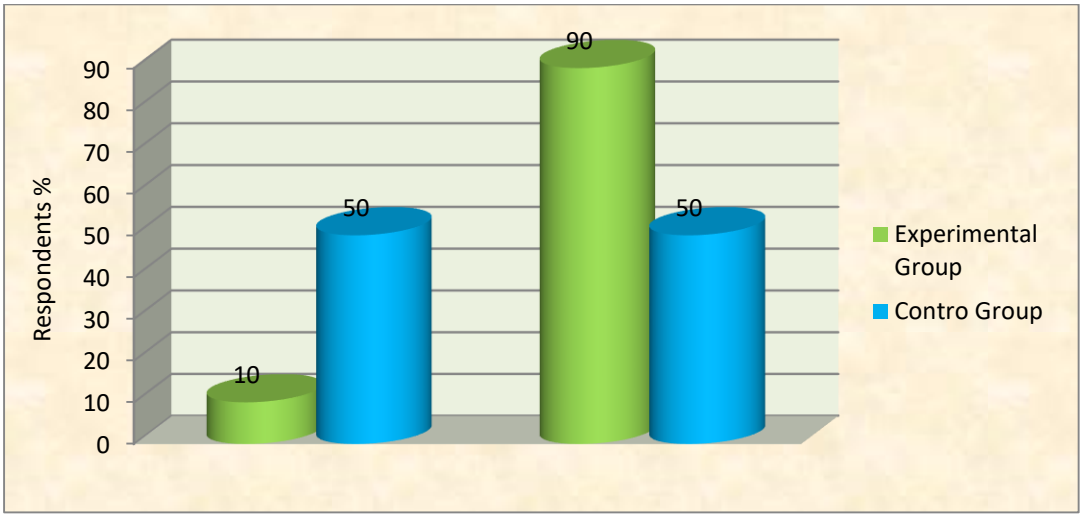


Figure 9: Distribution of clients based on Income of family per month

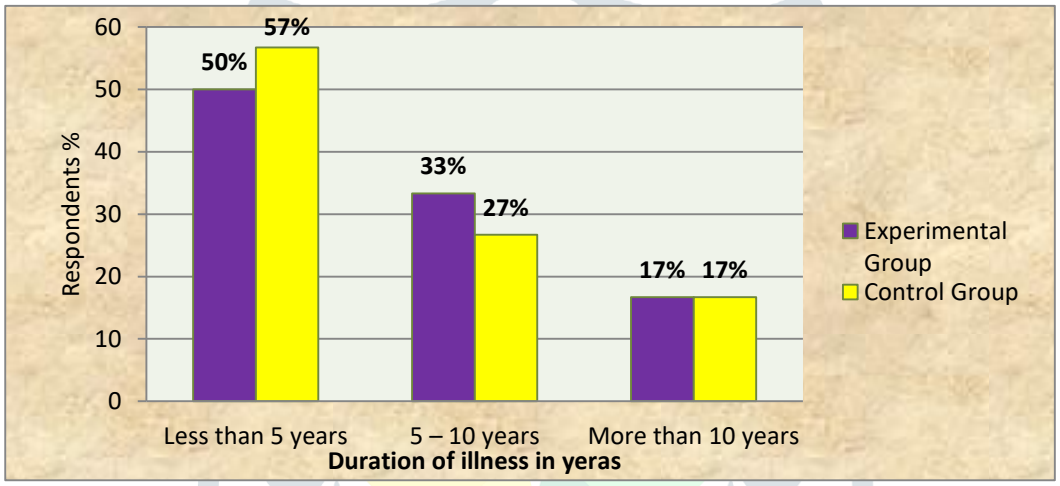


Figure 10: Distribution of hypertensive subjects based on duration of illness

Table 6: Distribution of hypertensive subjectsbased BMI and food habits

Characteristics	Category	Experiment Group		Control Group	
		N	%	N	%
Body Mass Index	Normal weight (18.51 – 24.99)	16	53.3	7	23.3
	Overweight (25 – 29.99)	9	30	17	56.7
	Obese (30 – 34.99)	4	13.3	6	20
	Extremely obese (35 – 39.99)	1	3.3	0	0
Food Habits	Vegetarian	13	43.3	1	3.3
	Mixed	17	56.7	29	96.7
Total		**30**	**100**	**30**	**100**

In the present study, in the experimental group, 16 (53.3%) subjects had normal weight, 9(30%) were overweight, 4 (13.3%) were obese, and only 1 (3.3%) subject was extremely obese. Whereas in the control group, 7 (23.3%) had normal weight, 17 (56.7%) subjects were overweight, and the remaining 6 (20%) subjects were obese.

In the present study from the experimental group 13 (43.3%) subjects are vegetarians and 17 (56.7%) are following a mixed diet, whereas only 1 (3.3%) subject is vegetarian and the remaining 29 (96.7%) is fallowing a mixed type of diet.

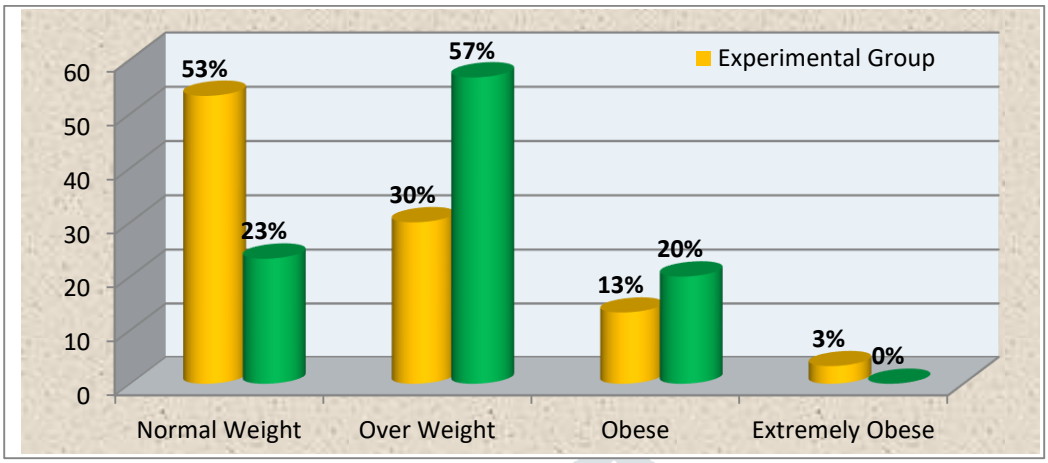


Figure 11: Distribution of hypertensive subjects based BMI

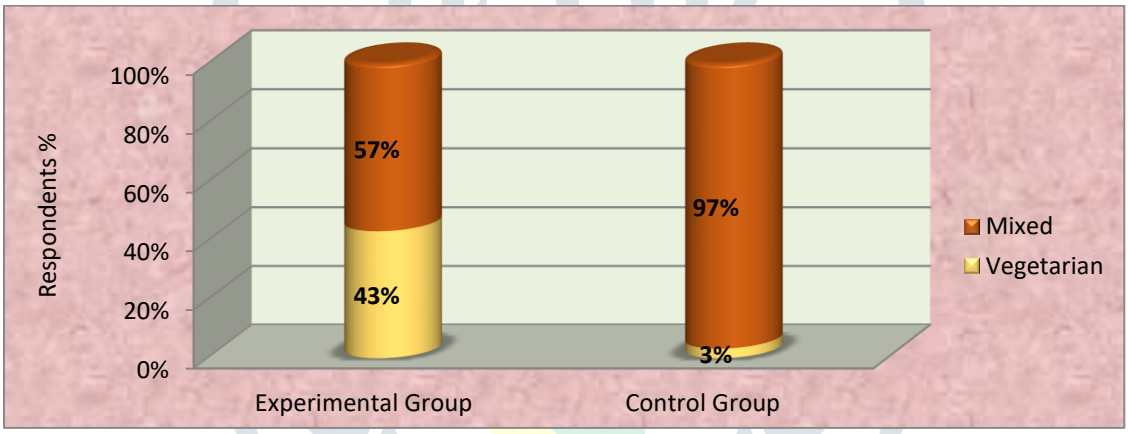


Figure 12: Distribution of hypertensive subjects based on food habits

Table 7: Distribution of hypertensive subjects based On promoting activities

Health-promoting exercises	Experiment Group		Control Group	
	N	%	N	%
Yoga/Pranayama	13	43.3	1	3.3
Jogging	1	3.3	0	0
Nil	16	53.3	29	96.7
Total	**30**	**100**	**30**	**100**

In the present study from the experimental group 13 (43.3%) are practicing yoga and paranayama exercises and only 1 subject practicing jogging and walking exercises and the remaining 16 (53.3%) subjects are not doing any kind of exercises, whereas in the control group only 1 subject practicing yoga and paranayama exercises and other 29 (96.7%) subjects are not practicing any kind of exercises

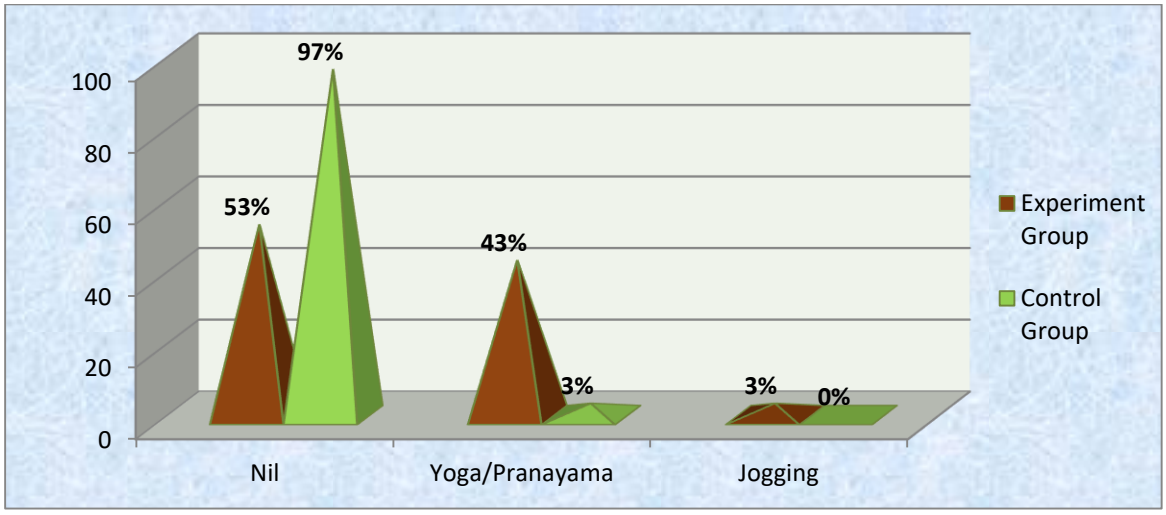


Figure13: Distribution of subjects based Health promoting activities

Section B: Comparison of pre-test and post-test blood pressure levels in experimental group and control group

Table 8: Comparison of the level of Systolic blood pressure between the experimental group and control group

Groups		Before Intervention	After Intervention	Mean Difference	"t" value
Experiment	Mean ± SD	159.9 ±14.07	153.4 ± 14.54	6.47 ± 4.19	8.450*
Control	Mean ± SD	156.2 ± 15.75	159.4 ± 15.13	- 3.2 ± 6.05	-2.898*

* Significant at 5% level NS- Not significant at 5% t(0.05, 29df)= 2.045

Table 16. In experimental group the mean standard deviation of systolic blood pressure before slow breathing is 159.9± 14.07, which reduced to 153.4 ± 14.54 after slow breathing exercise with the mean difference 4.05% (4.05 % of reduction, p=0.001 Sig*). Whereas in control group the mean standard deviation of systolic blood pressure before intervention is 156.2 ± 15.75, which increased to 159.4 ± 15.13 after intervention with mean difference of - 3.2 ± 6.05 (-2.05% of increase, p=0.001 Sig*).

The mean pre test and post test systolic blood pressures of both experimental and control group is subjected to paired "t" test to find out the mean differences in the blood pressure. Significant difference was found in experimental group (t=8.450, $p<0.05$) and whereas negative significant correlation was found in control group (t= -2.898, $p<0.05$).

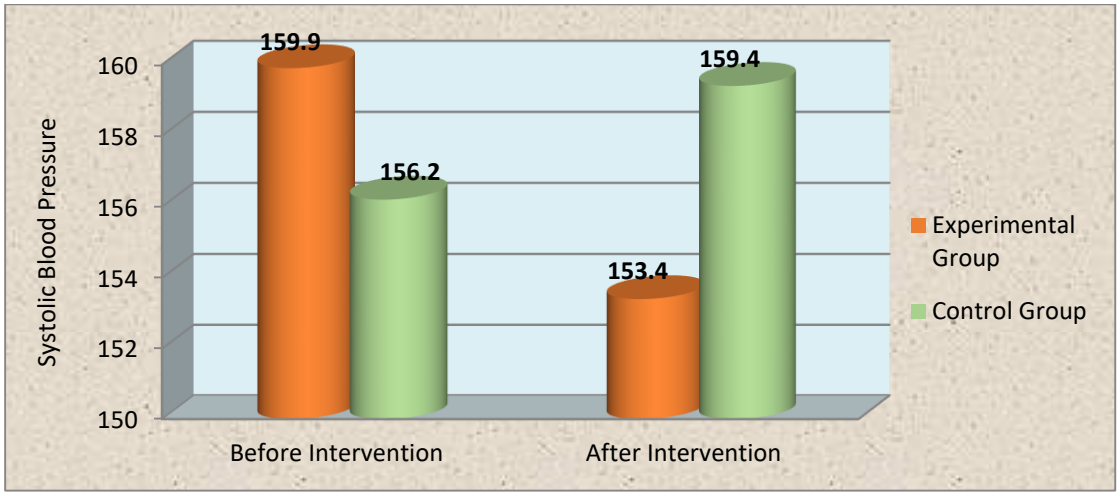


Table 9: Comparison of Diastolic blood pressure between the experimental group and control group

Groups		**Before Intervention**	**After Intervention**	**Mean Difference**	**"t" value**
Experiment	Mean ± SD	91.6 ± 9.6	90.0 ± 8.98	1.6 ± 6.57	1.334^{NS}
Control	Mean ± SD	93.3 ± 8.43	94.4 ± 6.40	- 1.07 ± 3.67	-2.898*

* Significant at 5% level NS- Not significant at 5% t(0.05, 29df)= 2.045

Table 16.In experimental group the mean standard deviation of diastolic blood pressure before slow breathing is 91.6±9.6, and it is reduced to 90.0±8.98 after slow breathing exercise with the mean difference 1.6±6.57 (1.75% of reduction, P=0.19 NS). Whereas in control group the mean standard deviation of diastolic blood pressure (pre test) is 93.3±8.43, which is increased to 94.4±6.40 with mean difference of -1.07±3.67 (-1.15 % increase, P=0.12 NS*).

The mean pre test and post test diastolic blood pressures of both experimental and control group is subjected to paired t test to find out the mean differences in the blood pressure. No significant difference was found in experimental group ($t=1.334$, $p>0.05$) and negative significant correlation was found in control group ($t= -2.898$, $p<0.05$).

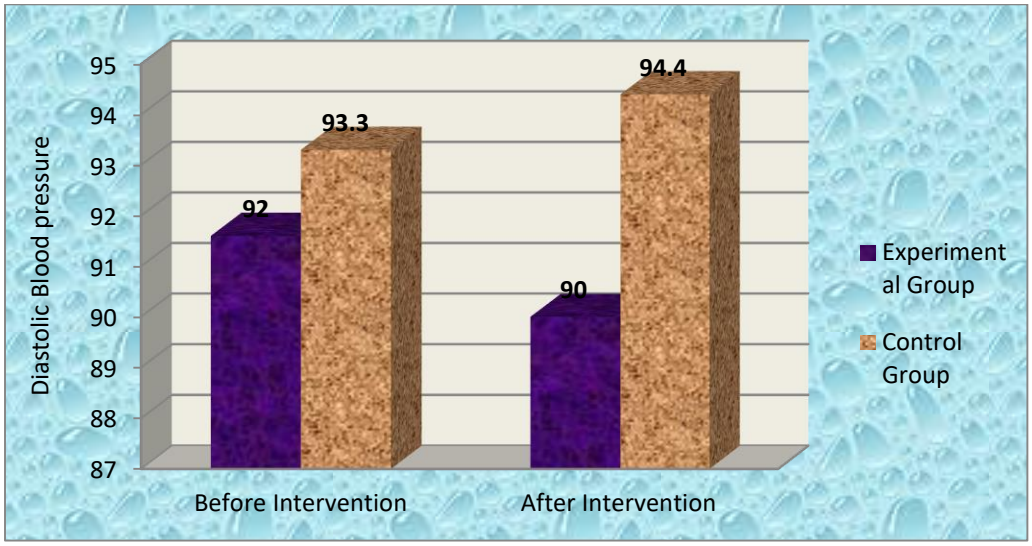


Figure 15: Comparison of diastolic blood pressure between experimental group and control group

DISCUSSIONS:

The findings of the study are discussed under the following headings:

1. Assessment of blood pressure of both experimental and control group
2. Evaluating the effectiveness of slow breathing exercise
3. Testing of the hypothesis

1. Assessment of blood pressure of both experimental control and control group

The present study confirms that the mean SPB of the experimental group was 159.9 mm of Hg with a standard deviation of ±14.07 mm of Hg and the mean DBP was 91.6 mm of Hg with a standard deviation of ±9.6 mm of Hg. In the control group the mean SPB was 156.2 mm of Hg with standard deviation of ±15.75 mm of Hg. The mean DBP was 93.3 mm of Hg with a standard deviation of ±8.43 mm of Hg.

2. Evaluating the effectiveness slow breathing exercise on blood pressure

The present study confirms that the mean SPB of experimental group after slow breathing exercise was 154.4 mm of Hg with standard deviation ±14.54 mm of Hg and the mean DBP was 90.0 mm of Hg with standard deviation of ±8.98 mm of Hg. In control group the mean SPB was 159.4 mm of Hg with standard deviation of ±15.13 mm of Hg. The mean DBP was 94.4 mm of Hg with standard deviation of ±6.40 mm of Hg. The mean difference between pre test and post test SBP of experimental group is 6.47±4.19 mm of hg whereas in control group is -3.2±6.0 mm of hg. The mean difference between pre test and post test DBP of experimental group is 1.6±6.57 mm of Hg whereas in control group is -1.07±3.67 mm of hg. It is found that slow breathing exercise was effective in reducing blood pressure of hypertensive patients in

experimental group whereas in control group found that rest was ineffective in reducing blood pressure of hypertensive group.

3. A similar study conducted by. Shilpa T M., Jenifer D' Souza in rural area of Mangalore 2020 that Regular practice of ingestion of lemon juice as complementary therapy would have a positive impact in controlling blood pressure; among 50 hypertensive patients

   The mean pre-test SBP reading 156.40±8.7 was more than the post-test I 153.44±9.7 and post-test II 143.04±11.0 in the experimental group. The mean pre-test SBP reading 153.28±9.7 is more the than post-test I 149.60±12.0 and post-test II 148.80±11.2 in control group. The mean pretest DBP reading 98.08±3.5 is more than the post-test I 93.84±5.3 and post-test II 88.72±5.0 in the experimental group. The mean pretest DBP reading 96.80±4.2 is more the than post-test I 94.72±5.4 and post-test II 94.48±4.0 in the control group. Study concludes that, lemon juice is a non-pharmacological and cost effective intervention in reducing blood pressure in hypertensive clients

4. A similar study conducted by Anupama Tyagi, and Marc Cohen, A systematic review of all published studies on yoga and hypertension was performed revealing 39 cohort studies, 30 non-randomised controlled trials, 48 randomised controlled trials and 3 case reports with durations ranging from 1 week to 4 years and involving a total of 6693 subjects. Most studies reported that yoga effectively reduced blood pressure in both normotensive and hypertensive populations. These studies suggest that yoga could be an effective adjunct therapy for hypertension

5. **Testing of the hypothesis**

There was significant difference found between the experimental group and (6.47±4.19 mm of hg) and control group (-3.2±6.0 mm of hg) mean systolic blood pressure level ($P < 0.05$ level (5%)). Hence, the stated hypothesis is accepted since, there was a significant reduction in blood pressure in experimental group when compare to control group.

There was significant difference found between the experimental group and (1.6±6.57 mm of hg) and control group (-1.07±3.67 mm of hg) mean diastolic blood pressure ($P < 0.05$ level (5%)). Hence, the stated hypothesis is accepted by considering significant difference between pre test and post test systolic blood pressure and diastolic blood pressure in experimental group and control group.

IMPLICATIONS:

1. Nursing Practice

The clinical nurse, fully equipped with the knowledge can introduce and train the patient and the patient's family members regarding slow breathing exercises and its benefits on the health of the individual. The nurse can bring health awareness in the community through health education mainly by focusing on slow breathing exercises as a nonpharmacological intervention for the treatment of hypertension, thus promoting their health. Nursing professional in Primary Health Centre can educate and encourage the community people regarding practice slow breathing exercise as a non pharmacological intervention.

2. Nursing Administration

As an administrator, she can avail the multidimensional approach for the treatment of hypertension. Nurse Administrators should make a policy decision to use slow breathing exercise as non pharmacological intervention in the treatment of hypertension in ward settings. They should plan and organize a Staff Development Programme regard the same. Nursing Personnel should be prepared to take leadership role in educating the patients and patient's family members.

3. Nursing Education

As a nurse educator, she can introduce the slow breathing effects and other non pharmacological intervention programme in the curriculum. She can develop skill in conducting group meeting with patients and family members. The interventional programme can assist the nursing students to help plan the nursing process. In-service Education can be planned and provided for the nursing professionals working in wards.

4. Nursing Research

Better Health through nursing research is the theme adopted by trained nurses association of India. Thus research help to plan and implementing slow breathing in better way. Thus, the present investigation offer infinite scope and potential implications for nursing practice, administration and research aspects of slow breathing exercise and its benefits on health.

RECOMMENDATIONS:

1. Same study can be conducted on a larger sample for wider generalization.
2. Comparison could be done with the normal population and within the population.
3. An experimental study with follow up care for longer periods can be undertaken with control group for effective comparison.
4. Manuals, information booklets and self-instruction module may be developed in areas non pharmacological intervention for the treatment of hypertension.
5. A comparative study can be conducted to find the effectiveness of slow breathing exercise as a non pharmacological intervention against drug therapy.
6. A study can be conducted to evaluate various teaching strategies like structured teaching programme, information booklet, pamphlets, leaflets and computer-assisted instruction.

7. Follow up study can be conducted for better evaluation of the self instructional module regarding benefits of slow breathing exercises on health.

CONCLUSION:

Mindful breathing for 15 min a day, at a rate of 6 breaths per minute is effective in lowering blood pressure and has both an immediate, and a short-term effect (over several days)

Slow breathing is the best way to calm and relax It has been proved that slow breathing not only helps in controlling or lowering blood pressure but also helps full to another system too.

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