Effectiveness of Anapanasati meditation on Blood Pressure among patients with Hypertension

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INTRODUCTION

Hypertension is a serious medical condition that can be easily detected at primary health care centres and it can be controlled with low-cost treatment. Hypertension diagnosis among 200 countries report says that, India ranked 193rd for women and 170th for men. Cardiovascular diseases remain the top cause of global mortality, with an estimated 17.9 million attributed deaths in 2016 (31% of global deaths). Hypertension is consistently related to the development of ischemic heart disease, heart failure, stroke, and chronic kidney disease; an estimated 67%and 24% of stroke and coronary artery disease-related deaths, respectively are due to hypertension. According to the golden burden of disease estimate 2015, it is the most important cause of mortality as well as the loss of disability-adjusted life years.

The hypertension study was conducted by a global network of physicians and researchers with data taken from 1201 studies including 104 million participants in the age group of 30 to 70 years. The study covered the period between 1990–2019. Globally, the number of adults with hypertension jumped from 650 million to 1.28 billion over the period of 30 years, the study said, adding that the burden had shifted from wealthy nations to low- and middle-income countries.

The prevalence of hypertension is much higher and currently is around 33% for the whole of south asia , and specifically around 33% in urban India and 25% in rural India . The reasons for this increase are multifactorial. Changing lifestyles leading to a more sedentary behaviour could be a major factor.

According to the National Family Health Survey in 2017, one in eight Indians suffer from hypertension which translates to 207 million people (men 112 million, women 95 million). In India, high blood pressure is one of the leading causes of premature deaths.

Providing continuum of care from early detection to control of hypertension and improving quality of care is a critical factor for leading a healthy life. It can also lead to decrease in morbidity and mortality due to CVDs.

Nearly 63% of total deaths in India are due to noncommunicable diseases, of which 27% are attributed to cardiovascular disease which affects 45% people in the 40-69 age group. Raised blood pressure is among the most important risk factors for CVDs. Moreover, it remains poorly controlled due to low awareness about hypertension, lack of appropriate care through primary care and poor follow up. (WHO 2022)

Current treatment guidelines for hypertension include antihypertensive medications and health-promoting lifestyle modifications such as weight reduction, the DASH eating plan (increased fruits and vegetables, and low fat dairy products with reduced saturated and total fat), reduced dietary sodium, increased physical activity, and moderation of alcohol consumption. Ideally, antihypertensive medications and lifestyle modifications successfully reduce BP to optimal levels.

PURPOSE OF STUDY

High blood pressure is an one of the main risk factor for diseases related to cardiovascular system and is directly associated with high oxidative stress, inflammation and vascular endothelial dysfunction.

There are several non-pharmacological measures also available beyond medical treatment to reduce hypertension, that can contribute to the effective management of hypertension.

Insomnia, sedation, dry mouth, drowsiness, impotence, and headache are some side effects that produced by hypertensive medications. Due to difficulty adhering, side effects, and prescription drug costs, hypertensive individuals may desire a non-pharmacologic intervention to avoid or complement their antihypertensive medication regimen. Therefore, whereas continued improvement in pharmacologic treatments is necessary, these advancements must be complemented by nonpharmacological approaches to BP control. Toward that end, mind-body interventions such as relaxation, stress management, and meditation—whether used alone or in combination with lifestyle modifications.

Meditation, a mind-body practice is shown to promote relaxation, shows promise as a means of keeping your blood pressure in check. Blood pressure is a measurement of the force of blood against the walls of your arteries and can become elevated due to a number of factors (such as age-related narrowing of the arteries, underlying medical problems, and excessive sodium intake). By using meditation to manage your blood pressure, you may be able to boost your defence against heart

disease, stroke, and chronic kidney disease.

Meditation is one of the well-known practices which bestows increased attention and deep internal relaxation. There are different techniques of meditation to practice. Anapanasati meditation is one of the meditation techniques discussed in Theravada School of Buddhism. It is a meditation in which one obtains mastery over one's unruly mind through objective observation of one's own natural and normal breath. In Pali literature, it is known as "anapanasati," which means awareness of one's own respiration. This practice of anapanasati meditation helps to sharpen the mind and to induce peace of mind. The practice may affect activity in the autonomic nervous system (which regulates blood pressure).

Meditation appears to calm activity in the sympathetic nervous system (known to narrow the blood vessels in response to stress) and increases activity in the parasympathetic nervous system (known to promote widening of the blood vessels).

STATEMENT OF THE PROBLEM

A study to evaluate the effectiveness of Anapanasati meditation in reducing blood pressure among hypertensive clients at selected Hospital. Thoothukudi.

OBJECTIVES

- To assess the pre and post test level of the blood pressure among hypertensive clients in control group and experimental group
- To compare the pre and post test level of blood pressure among hypertensive clients in control group and experimental group.
- To find out the effectiveness of Anapanasati meditation on posttest level of blood pressure among hypertensive clients between control group and experimental group.
- To determine association between the pretest blood pressure level among client with hypertension with their selected demographic variables such as age, gender, educational status, occupation, duration of hypertension, family history, food pattern.

HYPOTHESIS

H_1: There will be a significant difference in pre and posttest level of blood pressure level among hypertensive client in experimental and control group

H_2: There will be a significant difference between the posttest level blood pressure among hypertensive clients in experimental and control group.

H_3: There will be significant association between pretest level of blood pressure among hypertensive clients with their selected demographic variables like age, gender, educational status, occupation, duration of hypertension, food pattern, Family history

CONCEPTUAL FRAMEWORK

The present study was aim to evaluate the effectiveness of Anapanasati meditation on blood pressure level among client with hypertension at selected hospital in kovilpatti, Tamilnadu. The framework of the study is based on the general system theory.

RESEARCH APPROACH

Quantitative research approach was used for this study.

RESEARCH METHODOLOGY

The research design adopted for this study was True experimental pre and post test design. The research design chosen for this study is presented in the figure as follows

Group	Pre-test	Intervention	Post-test
Experimental	O_1	X	O_2
Control	O_1	-	O_2

Key:

O_1- pre test blood pressure level among experimental and control group. X-

practice OF Anapanasati meditation to the experimental group.

O_2- post test blood pressure level among experimental and control group.

DEMOGRAPHIC VARIABLES

The present study demographic variables were Age, gender, educational status, occupation, duration of illness, food pattern, Family history.

SETTING OF THE STUDY

The study was conducted in Sasidharan cardiology center in Kovilpatti, Tamilnadu, Thoothukudi District.

STUDY POPULATION

The study population comprised of hypertensive clients aged 36-65 years. Whose blood pressure is between 130/90-160/100 those who are attending cardiology outpatient department in sasidharan hospital,Kovilpatti.

SAMPLE

In this study the sample of known hypertensive clients aged 36-65 years the blood pressure level 130/90-160/100mmHg and also who fulfill the inclusion criteria attending cardiac OPD in sasidharan Hospital,Kovilpatti.

SAMPLE SIZE

The sample size of the study was 60, among them 30 control group 30 Experimental group

SAMPLING TECHNIQUE

In this study samples where selected by simple random sampling techniques by lottery method. The first 30 samples selected by lottery method was included for control group and remaining 30 for control group.

CRITERIA FOR SAMPLE SELECTION

The sample was selected based on the following inclusion and exclusion criteria.

Inclusion criteria:

Clients who are -

1. whose blood pressure level is between 130/90-160/100mmHg

2. willing to participate in the study

Exclusion criteria:

Client who are -

1. diagnosed as hypertension with other medical disease like cardiac disease, diabetes mellitus etc.

DESCRIPTION OF THE TOOL

The tool is the written device that a researcher uses to collect the data. The tool consists of two sections.

Section A:

Comprised of demographic data of the sample which consist of age, gender, occupation, food pattern, duration of hypertension, education, Family history.

Section B:

Sphygmomanometer is used to determine the blood pressure level

METHOD OF DATA COLLECTION

After obtaining permission from ethical committee from Hospital, the researcher started collecting data.

The study was conducted at Sasidharan Hospital. The investigator screened the hypertensive cases from the cardiac OPD,320 hypertensive cases were identified. Introduction about investigator and study was given to the samples. 60 samples were selected according to inclusion criteria.

Sampling technique used to select the sample was lottery method. Samples were divided into control and experimental group. Consisting of 30 hypertensive clients in each group. pretest score of blood pressure was assessed by using sphygmomanometer. Anapanasati meditation was given for experimental group for 30 days, 20 minutes per day. Patients were collected in group and meditation given initially 4 consecutive days in Hospital Room. After that audio recorder given to patients to continue practice in home for 30 days. And follow up phone call was done by researcher to verify the follow up practice. If any clarification during study period, patients were called for discussion and clarification and if they needed more practice it was given directly in hospital set up. Post test score of blood pressure was assessed for both control and experimental group.

ANAPANASATI MEDTATION TECHNIQUE

Satipaṭṭhāna	Ānāpānasati	Tetrads
1. Contemplation of the body	1. Breathing long (Knowing Breath)	First Tetrad
	2. Breathing short (Knowing Breath)	
	3. Experiencing the whole body	
	4. Tranquillising the bodily activities	
2. Contemplation of feelings	5. Experiencing rapture	Second Tetrad
	6. Experiencing bliss	
	7. Experiencing mental activities	
	8. Tranquillising mental activities	
3. Contemplation of the mind	9. Experiencing the mind	Third Tetrad
	10. Gladdening the mind	
	11. Centering the mind in samadhi	
	12. Releasing the mind	
4. Contemplation of Dhammas	13. Contemplating impermanence	Fourth Tetrad
	14. Contemplating fading of lust	
	15. Contemplating cessation	
	16. Contemplating relinquishment	

PLAN FOR DATA ANALYSIS

Both descriptive and inferential statistics were used to analysis the data.

Descriptive statistics:

- Frequency and percentage distribution was to used to analyses the demographic variables.
- Mean and standard deviation was used to evaluate effectiveness of Anapanasati meditation in blood pressure level.

Inferential statistics

- Paired _t'test was used to compare the pretest and posttest blood pressure level in experimental and control group.
- Chi- square test was used to find out the association of the pretest blood pressure level in experimental group and control group with the selected demographic variables.

DEMOGRAPHIC VARIABLES

SECTION A

Frequency and percentage distribution of the sample according to the demographic variables in experimental group and control group.

Frequency and percentage distribution of demographic variables among client with hypertension with respect to age, gender, occupation, food pattern, duration of illness, education, Family history in experimental group and control group.

(N =60)

Sl.No	Variables	Experimental group		Control group	
		f	%	f	%
1.	Age				
	a) 36-45 years	7	23.33	8	26.67
	b) 46-55 years	10	33.33	10	33.33
	c) 56-65years	13	43.34	12	40.00
2.	Gender				
	a) Male	14	46.67	15	50.00
	b) Female	16	53.33	15	50.00
3.	Occupation				
	a) Sedentary worker	8	26.67	9	30.00
	b) Moderate worker	13	43.33	12	40.00
	c) Heavy worker	9	30.00	9	30.00
4.	Food pattern				
	a) Vegetarian	8	26.67	9	30.00
	b) Non vegetarian	22	73.33	21	70.00
5.	Duration of hypertension				
	a) Since 3 month	9	30.00	10	33.34
	b) Since 6 month	14	46.67	13	43.33

c) Since 1 year	7	23.33	7	23.33
6. Education				
a) Literate	30	100.00	30	100.00
b) Illiterate	0	0.00	0	0.00
7. Family history				
a) Hereditary	14	46.67	15	50.00
b) Non- Hereditary	16	53.33	15	53.33

SECTION B

Assessment of blood pressure level among client with hypertension in experimental group and control group before intervention.

Frequency and percentage distribution among client with hypertension according to the blood pressure level in experimental group and control group before intervention

(N=60)

Level of blood pressure	Experimental group		Control group	
	f	%	f	%
Normal	0	0.00	0	0.00
Pre hypertension	6	20.00	7	23.33
Stage 1 hypertension	18	60.00	17	56.67
Stage 2 hypertension	6	20.00	6	20.00

Assessment of blood pressure level among client with hypertension in experimental group and control group after intervention.

Frequency and percentage distribution among clients with hypertension according to the blood pressure level in Experimental group and control group after intervention

(N=60)

Level of blood pressure	Experimental group		Control group	
	F	%	f	%
Normal	9	30.00	3	10.00
Pre hypertension	12	40.00	4	13.33
Stage 1 hypertension	9	30.00	18	60.00
Stage 2 hypertension	0	0.00	5	16.67

SECTION C:

Comparison of pre-test and post-test blood pressure level among client with hypertension in experimental group and control group

Mean, standard deviation and paired t test value on pre and posttest blood pressure level among clients with hypertension in experimental group and control group.

Group	Test	Mean	SD	Mean Difference	Paired t test	5% level of significance
	Pre test	3.0	1.0			29,df
Experimental				1.3	7.28	
	Post test	1.70	0.80			2.042
Control	Pre test	2.92	0.98			29,df
				0.13	0.75	
	Post test	2.83	0.91			2.042

Table: 4 represent, the mean score on blood pressure level in experimental group was 3.0 in pre test and 1.70 in post test. The paired _t' value was 7.28 which is significant at $p>0.05$. It shows that yoga was effective in reducing the blood pressure level among clients with hypertension. Hence the research hypothesis (H1) is accepted.

In control group the mean score on blood pressure level was 2.96 in pretest and 2.83 in post test. The paired _t' value was 0.75 which is not significant.

Comparison of post test blood pressure level among client with hypertension in experimental group and control group.

Table : 5

Mean, standard deviation and _t' value on blood pressure level among client with hypertension in experimental group and control group after intervention

N=60.

Group	Test SD	Mean	Mean difference	„t" value	5% level of significant
Experimental	Post test	Con		t r	o l

Post test	1.70	0.88				
			1.13	5.16		58 df
					2.0	, significant
	2.83	0.91				

Table:5 represent, the mean score of blood pressure level in experimental group was 1.70 in post test and 2.83 in control group post test. The estimated value was 5.16 which is significant at p>0.05. It shows that yoga was effective in reducing the blood pressure level among client with hypertension. Hence the research hypothesis (H2) is accepted

SECTION D:

Association between the pre test blood pressure level among client with hypertension of selected demographic variables in experimental group and control group.

Sl.no	Variables	Experimental group	X^2	Control group	X^2	5% level of significance
1.	Age					
	a)36-45 years	7		8		9.46
	b)46-55 years	10	15.73	10	14.61	NS
	c)56- 75 years	13		12		
2	Gender					
	Male	14		15		5.99
	Female	16	3.2	15	3.15	NS
3	Occupation					
	Sedentary worker	8		9		9.49
	Moderate worker	13	6.22	12	7.06	NS
	Heavy worker	9		9		
4	Food Pattern					
	Veg	8		9		5.99
	Non- Veg	22	12.36	21	10.32	S
5.	Duration of hypertension					
	Since 3 months	9		10		9.49
	Since 6 months	14	7.36	13	7.53	NS
	Since 1 year	7		7		
6.	Family history					
	Hereditary	14	1.42	15	1.78	5.99
	Non - hereditary	16		15		NS

Table:6 shows that there is no association between pre test level of blood pressure among the hypertensive clients and their selected demographic variables like occupation, Gender, Duration of hypertension, family history expect age, Food pattern.

CONCLUSION

From the result of the study, it was concluded that Anapanasati meditation was effective in reducing the blood pressure level among clients with hypertension.

IMPLICATIONS

Research implications for nursing practice report that focuses on nursing implications usually includes specific suggestions for nursing practice, education, administration and nursing research that can be used in the following areas of profession.

Implications for nursing practice

- Nursing person should develop in depth knowledge about hypertension in adults.
- Nurses should be knowledgeable regarding the benefits and effects of various types of yoga and meditation effects for heart disease patients.
- Nurses should promote and encourage to practice the meditation for hypertensive clients.

Implications for Nursing Education

- The nurse educators need to be equipped with adequate knowledge regarding the traditional meditation for hypertensive clients.
- Nursing students should receive adequate training regarding the benefits of meditation and its effectiveness.
- Conduct workshops or conferences for students regarding the benefits of different types of meditation and scientific evidence for hypertensive clients in day today nursing practice.

Implications for Nursing Administration

- Nurse administrator should be take initiate to conduct the periodical in service education programme in order to minimize the complication of hypertension.
- Nurse administrator should emphasize and encourage the staff regarding the practice of meditation.
- Nursing administrator can organize conferences, seminars, and workshops for nurses to encourage the practice meditation for home in hypertensive clients.

Implications for nursing research

- Nurses should conduct research to further clarify the effectiveness and optimal association of meditation for hypertensive clients.
- Encourage further research to be conducted regarding the effects of meditation for hypertensive clients.

- Publish the findings of research through conferences, seminars, and publishing in nursing journals.

Recommendations

The following studies can be undertaken to strengthen traditional meditation on reducing blood pressure level as a good remedy for hypertensive clients.

- A similar study can be conducted with increased in the sample size.
- A similar study can be conducted among another hypertensive client.
- A similar study can be conducted in various disease patients.

REFERENCES

BOOKS

1. Brunner & suddarth's. (2012). Text book of medical and surgical nursing. (5th edition). Elsevier publication. PP :684-689

2. Daniel. (2007).Biostatistics: A Foundation for analysis in the Health Sciences. (2nd edition).Philadelphia: John Wiley & Sons Publications.PP: 144-149.

3. Dhaar, G.M &Robbani, I. (2005). Foundations of Community Medicine. (1st edition). Elsevier Publications. PP: 789-792.

4. Gupta, S.P. (2008). Statistical Methods. (2nd edition). Sultan Chand and Sons: Educational Publications. PP:22-26.

5. Lewis.,Heitkemper., Dirksen., O'Brien & Bucher. (2006).Medical Surgical Nursing. (4th edition.). New Delhi: Mosby Publications, PP: 623-626.

JOURNALS

1. Anand Bk(1991). Yoga and medical sciences. Indian journal physio pharmacology, 35(2), 84-87

2. Almahrezi A(2008), journal of control of hypertension, 8(2), 179-184

STUDY REFERENCE

1. Guru deo et al, "Effect of anapanasati meditation technique through electrophotonic imaging parameters: A pilot study Int J Yoga. 2015 Jul-Dec; 8(2): 117–121.

2. Anjalee Thanuja Amarasekera , Dennis Chang ,Integrative Medicine Research 8(2019) 252-256, Buddhist meditation for vascular function: a narrative review.