

**EFFECTIVENESS OF LAUGHTER THERAPY ON BLOOD PRESSURE
AMONG PATIENTS WITH HYPERTENSION AT A SELECTED
HOSPITAL IN KANCHEEPURAM DISTRICT**

**By
Ms. JEMMI PRIYA.J**



**A DISSERTATION SUBMITTED TO
THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY, CHENNAI
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF SCIENCE IN NURSING**

APRIL – 2016

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CERTIFICATE

This is to certify that “**A STUDY TO IDENTIFY THE EFFECTIVENESS OF LAUGHTER THERAPY ON BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION AT A SELECTED HOSPITAL IN KANCHEEPURAM-DISTRICT**” is a bonafide work done by **Ms.JEMMI PRIYA.J, M.Sc.(N) II Year**, Karpaga Vinayaga College of Nursing, Kancheepuram District, in partial fulfilment of **The Tamilnadu Dr. M.G.R. Medical University** rules and regulations towards the award of the degree of Master of Science in Nursing, Branch-I, Medical surgical Nursing, under my guidance and supervision during the academic year 2014-2016.

Date:

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INTERNAL EXAMINER

EXTERNAL EXAMINER

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SYNOPSIS

Hypertension is a major non communicable disease prevailing globally. A study was conducted to identify “the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital, in kancheepuram District. The objectives were 1.To identify the effectiveness of laughter therapy on blood pressure among patients with hypertension.2.To associate the demographic, health and clinical variables with the level of blood pressure in the post test among patients with hypertension.

A quantitative approach of pre experimental one group pre and post test design was chosen for this study. A total of 50 samples were included in the study by using purposive sampling technique. Pre-test was done by using structured instrument and laughter therapy was implemented following which post test was done for all the study group participants. Both descriptive and inferential statistics were used for analysis. The result revealed that there was a statistically significant difference between pre and post test in systolic and diastolic blood pressure at level $p < 0.001$ within study group. There study findings implied that laughter therapy was effective to sustain the blood pressure within the optimal level among patients with hypertension.

Keywords :- Hypertension, laughter therapy, Blood pressure.

TABLE OF CONTENTS

CHAPTER NO	TITLE	PAGE NO.
I	INTRODUCTION	1-17
	Background of the study	1
	Need for the study	6
	Statement of the problem	14
	Objectives of the study	15
	Operational definitions	15
	Hypotheses	16
	Limitations	17
	Projected Outcomes	17
II	REVIEW OF LITERATURE	18-37
	Literature related to the hypertension and its management	18
	Literature related to the effect of laughter therapy on blood pressure	29
	Conceptual framework	38-40
III	METHODOLOGY	41-53
	Research approach	41
	Research design	41
	Setting of the study	43
	Population	43
	Sample	43
	Sampling technique	44
	Sampling size	44

CHAPTER NO	TITLE	PAGE NO.
	Criteria for sample selection	44
	Selection and development of study instrument	45
	Validity of the tool	48
	Reliability	48
	Pilot study	48
	Data collection procedure	49
	Plan for data analysis	53
IV	DATA ANALYSIS AND INTERPRETATION	54-74
V	DISCUSSION	75-78
VI	SUMMARY, CONCLUSION, RECOMMENDATIONS, LIMITATIONS AND IMPLICATIONS	79-82
VII	REFERENCES	83-88
VII	APPENDICES	i-iv

LIST OF TABLES

TABLE NO	TITLE	PAGE NO.
1	Research design	41
2	Plan for data analysis	53
3	Distribution of demographic variables among study group	55
4	Distribution of health variables among study group	59
5	Distribution of clinical variables among study group	66
6	Distribution of level of blood pressure in pre and post test among study group	68
7	Comparison of pre and post test blood pressure within study group	70
8	Association of demographic variables with level of blood pressure in post test among study group in post test	72
9	Association of health variables with level of blood pressure in post test	73
10	Association of clinical variables with level of blood pressure in post test	74

LIST OF FIGURES

FIGURE NO	TITLE	PAGE NO.
1	Conceptual frame work on modified Callista Roy's Adaptation Model	39
2	Schematic representation of research methodology	42
3	Percentage distribution of age among study group	57
4	Percentage distribution of occupational status among study group	58
5	Percentage distribution of body mass index among study group	61
6	Percentage distribution of sleeping pattern (hrs/day) among study group	62
7	Percentage distribution of history of smoking among study group	63
8	Percentage distribution of history of alcoholism among study group	64
9	Percentage distribution of history of chewing tobacco among study group	65
10	Percentage distribution of duration of treatment among study group	67
11	Percentage distribution of level of blood pressure among study group	69
12	comparison of pre and post test mean blood pressure among study group	71

LIST OF APPENDICES

S. No	Title	Page No.
A	Letter seeking permission for conducting the study	i
B	Letter permitting to conduct the study	ii
C	Laughter therapy training certificate	iii
C ₁	Laughter therapy session	iv
D	Letter seeking experts opinion for the content validity of the tool	v
D ₁	Acceptance of tool validation	vi
E	Research participants consent form- English	vii
E ₁	Research participants consent form- Tamil	viii
F	Certificate for English editing	ix
F ₁	Certificate for Tamil editing	x
G	List of experts	xi
H	Tool for the study	xii-xxi xxii-xlv
I	Lesson plan- English Lesson plan- Tamil	
J	Data sheet	xlvi-xlviii
K	Photographs of this study	xlix-lv

CHAPTER - 1

INTRODUCTION

The human race has one really effective weapon, and that is laughter.

- Mark Twain

BACKGROUND OF THE STUDY

Laughter is a natural part of life and is the best medicine. Laughter is a powerful antidote to stress, pain, and conflict. Laughter lightens the burden, inspires hopes, connects someone to others, and keeps the individual, focused, and alert. With so much power to heal and renew, the ability to laugh easily and frequently is a tremendous resource for surmounting problems, enhancing relationships, and supporting both physical and emotional health.

Laughter is defined as a psychological response to either humour or any other stimuli with the following characteristics:

- Powerful contractions of the diaphragm together with repetitive vocal sounds produced by the action of the resonating chambers of pharynx, mouth and nasal cavities;
- Typical facial expression (motion of about 50 facial muscles, mainly around the mouth), which may include the release of tears;
- Motion of several groups of muscles of the body (more than 300 may be distinct) and

- A sequence of associated neurophysiological process (cardiovascular and respiratory changes, activation of neuroendocrine and immune circuits)

Laughter and playful communication strengthen the relationships by triggering positive feelings and fostering emotional connection. When an individual laugh with someone, a positive bond is created. This bond acts as a strong buffer against stress, disagreements, and disappointment. The sound of roaring laughter is far more contagious than any cough, sniffle, or sneeze. When laughter is shared, it binds people together and increases happiness and intimacy. Laughter also triggers healthy physical changes in the body. Researchers showed that humour and laughter strengthens the immune system, boosts energy, diminishes pain, and protects the body from the damaging effects of stress.

As the old proverb says “Laughter is the best medicine” laugh can make miracles. Best of all, this priceless medicine is fun, free, and easy to use. **Dr. Madan Kataria,(2011)** the lead investigator of the study conducted in India, said that laughter needs to be prolonged in order to bring about physiological and biochemical changes. He also claimed that one does not even need to feel happy, as long as the person has a heartily laugh for a protracted period of time.

World Laughter Day was created in 1998 by Dr.Madan Kataria, founder of the worldwide Laughter yoga movement. The celebration of World Laughter Day is a positive manifestation of world peace and is intended to build up a global consciousness of brotherhood and friendship through laughter. Its popularity has grown exponentially with that of the laughter yoga movement. The first World

Laughter Day gathering took place in Mumbai, India, on the 11th of January 1998. 12,000 members from local and international Laughter Clubs joined in a mega laughter session.

World Laughter Day is now organised on the first Sunday of May every year. Hundreds of people gather worldwide on that day to laugh together. Laughter is a positive and powerful emotion that has all the ingredients required for individuals to change themselves and to change the world in a peaceful and positive way. It directly impacts on electro-magnetic field and creates a positive aura around that person. Laughter Yoga is practiced around the world at Laughter clubs, laughter studies, work place and in many schools, government departments, military, hospitals and hospice etc.

Chaya M. et al., (2008) investigated the effects of ‘hearty extended unconditional (HEU) laughter using laughter yoga techniques on physiological, psychological, and immunological parameters in the workplace.’ Laughter therapy for an example, which combines laughter with exercises, yoga and breathing that significantly lowered blood pressure and reduced the levels of cortisol or stress hormone. The most obvious effect of laughter is our mood, but laughter is also known to keep away negative emotions like anxiety and depression. Besides the positive psychological effects, laughing increases circulation and improves the delivery of oxygen and nutrients to body tissue. Laughing lowers blood pressure, helps the immune system function properly, and wards off respiratory problems. It has also been shown to reduce at least four of neuro endocrine hormones associated with stress response — epinephrine, cortisol, dopa, and growth hormone. Laughter

helps in pain control by increasing endorphins and by reducing the frequency and intensity of arthritic pain and muscular spasm. It is known to help with insomnia, migraines, allergies and ulcers.

Laughing helps protect the heart. There are studies that explain mental stress impairs the endothelium, which is the protective barrier lining of a person's blood vessels. Once the endothelium is impaired, it can cause a series of inflammatory reactions that lead to deposition of fat in coronary arteries, which can ultimately cause a heart attack. Steve Sultanoff (2012), a psychologist explains that people who are chronically angry and hostile have a greater likelihood for heart attack. People who live in an anxious, stressed out lifestyles have greater blockages in their coronary arteries and people who are chronically depressed have two times greater chance of heart disease.

Kruse BG, (2006) stated that Laughter the physical response to perceived humor which has demonstrated positive effects on physical and psychological well being. **Wooten. P (2006)**, explained that a sense of humour and the ability to laugh can be therapeutic for both patient and care giver. It reduces stress, enhances hope, relieves tension and stimulates the immune system.

Hypertension is synonymous with high blood pressure. Blood pressure is a measure of the force of blood against the walls of arteries, which carry blood from heart to other parts of the body. In some people blood cannot flow easily through these arteries. For example, if the arteries are narrowed for some reason, the pressure will go up to keep the blood flowing. This is known as high blood pressure. It is

essential that patients understand that sustained elevation of blood pressure leads inexorably to atherosclerosis, heart failure, kidney failure, stroke, and heart attack. Many people can keep their hypertension under control by making some changes in their daily activities, such as increasing exercise and eating a healthier diet and some therapies like laughter therapy, relaxation therapy etc. There are two types of hypertension primary or essential hypertension and secondary hypertension; primary hypertension, meaning that the reason for the elevation in blood pressure cannot be identified whereas, secondary hypertension is the term used to signify high blood pressure from an identified cause. About 95% of all people with high blood pressure have primary hypertension.

When the blood pressure is high, heart has to work harder just to pump the normal amount of blood throughout the body. The higher pressure in the arteries may cause them to weaken and bleed, resulting in a stroke. Laughter helps to control blood pressure by reducing the release of stress related hormones and bring relaxation. As far as lowering the blood pressure, studies showed that people who laugh heartily on a regular basis have lower standing blood pressure than the average person. After a hearty laugh, at first the blood pressure rises, but then it decreases to levels below normal. Breathing then becomes deeper, which sends oxygen enriched blood and nutrients throughout the body.

Laughter differs between sexes. Cultural differences are also contributes to the type of laughter. Women smile more than laugh. Loud, raucous laughter with exaggerated movements and expressions is considered unfeminine in most cultures and is much more common among men, particularly if they are with other men. In

several situations one can see laughter used, apparently and unconsciously, to help get things as diverse as power, friendship or truthful behaviour from subordinates.

Experiments have proved that there is a drop of 10-20 mm in blood pressure after participating in 10 minutes of laughter session. Laughter also helps in stopping the further progress of heart disease as it improves blood circulation and oxygen supply to the heart muscles. Due to improvement of blood circulation there are less chances of forming blood clots and reduce morbidity. Thus laughter therapy helps the patients with hypertension to improve their standard of living.

NEED FOR THE STUDY

Hypertension is an important medical and public health issue. It exists worldwide at epidemic rates affecting an estimated 1 billion people. Worldwide, raised blood pressure is estimated to cause 7.5 million deaths, about 12.8% of the total of all deaths **WHO (2015)**. The prevalence of hypertension in Indians is 25% in urban and 10% in rural population. According to estimates there are nearly 31.5 million hypertensive in rural and 34 million in urban populations. Projections show that by 2030, an additional 27 million people could have hypertension. Hypertension is directly responsible for 57% of stroke deaths and 24% of coronary artery disease deaths in India according to **S.P.Sharma (2014)**. The number of people living with hypertension is predicted to be 1.56 billion worldwide by the year 2025, according to **Markeus macgill (dec 2015)**.

Hypertension is often described as the “silent killer” because 30% of those affected are unaware they have seriously elevated blood pressure. Hypertension is so

widespread in industrialized societies that even a normotensive person at age 55 years has a 90% lifetime risk of developing hypertension. This implies that even normotensive persons should adopt interventions to maintain a normal blood pressure.

Raised blood pressure is a major risk factor for coronary heart disease and ischemic as well as hemorrhagic stroke. Blood pressure levels have been shown to be positively and continuously related to the risk for stroke and coronary heart disease. In some age groups, the risk of cardiovascular disease doubles for each increment of 20/10 mmHg of blood pressure, starting as low as 115/75 mmHg. In addition to coronary heart diseases and stroke, complications of raised blood pressure include heart failure, peripheral vascular disease, renal impairment, retinal hemorrhage and visual impairment. Treating systolic blood pressure and diastolic blood pressure until they are less than 140/90 mmHg is associated with a reduction in cardiovascular complications.

“Every individual has the power to prevent high blood pressure by adopting a healthy lifestyle- eating a balanced diet, reducing salt, regular exercise, avoiding harmful use of alcohol, quitting tobacco and checking their blood pressure regularly” said Dr. Samlee Plianbangchang, WHO Regional Director for South-East Asia. “Governments need to create health promoting environments that enable people to adopt healthy lifestyles. Regulations need to be in place to decrease the amount of salt in packaged food and make healthier foods affordable and accessible” he added. Preventing, detecting and treating hypertension early is cheaper than interventions

such as cardiac bypass surgery or dialysis that may be needed if the condition is diagnosed late.

The American Accreditation Health Care Commission (2004) reports that inadequately controlled hypertension is the major cause for the higher mortality rate from heart disease. It adds on further stating that nearly one billion people worldwide have hypertension. Less than half of these people are on medication and only half of this group have their blood pressure under control with such agents. Therefore people think of alternative approaches to control their hypertension irrespective of medical treatment. Laugh therapy is now recognized as one of the suitable alternative therapy in lowering hypertension. A hundred laugh a day is equal to 10 minutes of morning jogging or workout on a rowing machine or 15 minutes on a stationery exercise making it a excellent aerobic workout. (Mumbai Today 2002) In addition to it laughing 15 minutes a day help to create an emotional balance and train the brain to think.

Effects of laughter

Laughter yields numerous positive effects on the body. In the last few decades, researchers have studied laughter's effects on the body and turned up some potentially interesting information on how it affects the body:

Neurobiological effects of laughter

Laughter is associated with many bio-chemical reactions in the body. These include:

- ❖ Relaxed muscle tone, (Paskind, 1932; Overeem et al. 2004) often lasting up to 45 minutes.
- ❖ Activation of the sympathetic system (Averill, 1969).
- ❖ Increased urinary epinephrine and norepineprine secretion (Levi, 1965).
- ❖ Increased heart rate, respiratory rate and oxygen consumption (Fry, 1971; Fry 1977). A subsequent period of muscle relaxation is associated with a decrease in heart rate, respiratory rate and blood pressure.
- ❖ Decreased anxiety (Yovetich et al. 1990).
- ❖ Decrease in serum cortisol, growth hormone and plasma dopac (Berk et al. 1989).
- ❖ Increased natural killer cell activity (Berk et al. 1989).
- ❖ Increased salivary IgA (Lefcourt et al. 1990).
- ❖ Increased beta-endorphins (Dunbar et al. 2012).

Stress, anxiety and depression

Laughter has a beneficial effect on stress (Bennett et al. 2003). It can be an effective self help tool (Wooten, 1996). Stress related hormones such as cortisol, growth hormone and plasma dopac all show a decrease trend following the exhibition of humorous movies (Berk et al. 1989). Anticipatory anxiety is lower in people with the highest sense of humor (Yovetich et al. 1990). Humor and laughter

play a role in reducing stress and anxiety in gravely sick patients (Leiber, 1986; Ashworth, 1999). Laughter therapy also benefits patients with depression (Shahidi et al. 2011). Introduction of humor and laughter into high stress workplaces improves creativity, productivity, motivation and morale (Brown, 1991). Laughter also improves personal psychological well being (Huntley, 2009).

Pain

Incorporation of laughter lead to a significant reduction of pain in ankylosing spondylitis, as was documented by Normal Cousins (Cousins, 1979). Laughter raises discomfort thresholds, and the ability to tolerate pain is enhanced after exposure to humorous movies (Cogan et al. 1987; Dunbar et al. 2012). According to one study, there was a 61% decrease in requests for minor analgesics (eg, aspirin, minor tranquilizers) on the second day after surgery (Rotton et al. 1996).

Immunity

Several clinical and experimental studies have documented that humor and laughter results in an increase in salivary IgA, (Lefcourt et al. 1990) and an improved or increased natural killer (NK) cell activity (Bennett et al. 2003).

Blood pressure

Blood pressure increases with the onset of mirthful laughter but is then followed by a brief decrease following its cessation. In a study involving 200 individuals involved in a regular practice of mirthful laughter, there was a: 6.18 mm/Hg reduction in systolic blood pressure 3.82 mm/Hg reduction in diastolic blood

pressure (Chaya et al. 2008). A reduction in blood pressure, as noted in this study, should result in clinical measurable reductions in major cardiovascular events.

Blood sugar

Laughter therapy decreases postprandial blood glucose level through modulation of natural killer (NK) cell activity caused by up regulation of relating genes. Laughter may prevent exacerbation of diabetic nephropathy and diabetic microvascular complications.

Endothelium

Positive emotions like laughter have salutary effects on the endothelium (Miller et al. 2009). When compared to mental stress, mirthful laughter increases flow mediated vasodilatation while the former reduces it (Miller et al. 2006). Blood vessels constricted by as much as 30% to 50% on watching the stressful movie, whereas vasodilation occurred in subjects watching comedies (Miller et al. 2011). This positive endothelial benefit may translate into reduced atherogenic vascular disease in the future.

Respiration

Laughter empties more air than it takes in resulting in a cleaning effect. It causes decreased bronchial responsiveness in asthmatic patients and reduce hyperinflation in severe and very severe COPD patients.

Skin

Laughter reduced allergen- induced wheal reactions, reduced allergen specific IgE production, improved night time wakening and reduced neurotrophin levels.

Aerobic Exercise

Mirthful laughter is associated with short term 'aerobic exercise' like effects, as evidenced by muscle contractions, sharply fast and sporadic deep breathing (Fry, 1977), increased heart-rate and oxygen consumption (Fry et al. 1988). Controlled studies in healthy students have demonstrated that laughter is associated with significant increases in stroke volume and cardiac output. There are associated decreases in arterio-venous oxygen difference and total peripheral resistance (Boone et al. 2000). Laughter also helps motivate the elderly to participate in physical activity and to adhere to exercise programs (Hirosaki et al. 2013).

Physiological benefits of laughter

Humour, mirth and laughter have numerous effects involving the muscular, cardiovascular, respiratory, endocrine, immune and central nervous systems. The physiological benefits include:

- ❖ Exercises and relaxes muscles.
- ❖ Improves respiration.
- ❖ Stimulates circulation.
- ❖ Decreases stress hormones.

- ❖ Increases immune system's defence.
- ❖ Elevates pain threshold and tolerance.
- ❖ Enhances mental functioning.

Psychological benefits of laughter

The psychological benefits of laughter can be summarized as follows:

- Reduces stress anxiety and tension and counteracts symptoms of depression.
- Elevates mood, self esteem, hope, energy and vigour.
- Enhances memory, creative thinking and problem solving.
- Improves interpersonal relationship, attraction and closeness.
- Increases friendliness and helpfulness and builds group identity, solidarity and cohesiveness.
- Promotes psychological well-being.
- Improves quality of life and patient care.
- Intensifies mirth and is contagious.

Therefore Laughter therapy has well established physiological, psychological, social and spiritual benefits. Emerging data also substantiates the role of humour and mirthful laughter in beneficially modulating health outcomes

(Bennett et al. 2006; Bennett et al. 2007). Used therapeutically, it can help improve the quality of life of many patients.

The investigator during the clinical experience found that more number of hypertensive patients were visiting the hospital with had poor psychological well-being too. Many articles and reports provide generalized statements on the benefits of laugh therapy in various disorders. Hence the investigator was motivated to create empirical evidence on the efficacy of laugh therapy in hypertension. This will also provide a sound scientific base principle for implementing this laugh therapy as a nursing intervention for patients with hypertension to provide a holistic care. With this motive the investigator embarked a rigorous research to test the efficacy of laughter therapy on blood pressure among patients with hypertension.

Most of these deaths can be prevented through healthy lifestyles, early detection and treatment. Hypertension is a silent killer because many people do not realize that they have it or are reluctant to start treatment on time, putting them at risk of complications. It is treatable through medication. Preventing high blood pressure must be a public health, social, economic and development priority. This is only possible through political will and increased public awareness.

STATEMENT OF THE PROBLEM

A study to identify the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital in Kancheepuram District.

OBJECTIVES OF THE STUDY

1. To identify the effectiveness of laughter therapy on blood pressure among patients with hypertension.
2. To associate the demographic, health and clinical variables with the level of blood pressure in the post test among patients with hypertension.

OPERATIONAL DEFINITIONS

Effectiveness

It refers to the extent, to which laughter therapy significantly reduced the systolic and diastolic blood pressures among patients with hypertension, as measured by auscultation method using sphygmomanometer and stethoscope in pre and post test.

Laughter therapy

It refers to the nursing intervention designed for patients with hypertension and taught to them by lecture cum demonstration method by the investigator. It included blend of deep breathing and ten steps of laughter for 20 minutes which has to be practiced once in a day in the morning time for fourteen days consecutively.

Blood pressure

It refers to the pressure exerted by blood against the walls of the blood vessels of the patients with hypertension as measured by using sphygmomanometer and stethoscope in pre and post test.

Hypertension

It refers to a systolic blood pressure equal to or above 140 mm Hg and/or diastolic blood pressure equal to or above 90 mm Hg, as measured by using sphygmomanometer and stethoscope made on three consecutive clinical visits.

Patients

It refers to the patients aged between 35 - 45 years, both male and female diagnosed to have primary hypertension.

HYPOTHESES

H₁: There is a significant difference in the systolic and diastolic blood pressure between pre and post test among patients with hypertension who had been subjected to laughter therapy.

H₂: There is a significant association of selected demographic, health and clinical variables with the blood pressure in post test among patients with hypertension.

ASSUMPTIONS

1. Laughter therapy improves the standards of wellbeing among patients with hypertension.
2. Maintenance of optimum level of blood pressure reduces complications among patients with hypertension.

LIMITATION

This study was limited to;

1. the period of 6 weeks.
2. patients who were aged between 35- 45 years and diagnosed to have primary hypertension.
3. patients who were able to understand Tamil or English.
4. patients who visited the Outpatient department at Karpaga Vinayaga Medical Institution and Research Centre, Madhurantakam during the period of study.
5. sample size of 50.

PROJECTED OUTCOME

The findings of the study will help the nurses to evaluate the effectiveness of laughter therapy as an alternative therapy to lower blood pressure and help the patients with hypertension to maintain their blood pressure within normal limit throughout their survivorship.

CHAPTER - II

REVIEW OF LITERATURE

This chapter deals with the literature related to the hypertension and the effect of laughter therapy on blood pressure among patients with hypertension. The literature was collected extensively and organised under the following headings.

1. Literature related to the hypertension and its management

2. Literature related to the effect of laughter therapy on blood pressure

1. Literature related to the hypertension and its management

Yao Lu, Minggen Lu, Haijiang Dai (2015) studied whether healthy lifestyle decreases the risk of developing hypertension in pre-hypertensive patients by randomly selected pre-hypertensive young adults 20-45 years old without any vascular disease such as stroke or diabetes. The study included four lifestyle factors (a body mass index [BMI] of 18.5-24.9 kg/m², regular physical activity, no alcohol use and 6-8 h of sleep per day), individually and in combination. During a median follow-up of 4.7 years, 1009 patients were enrolled in the study, and 182 patients developed hypertension. Compared with a BMI of 18.5-24.9 kg/m², a BMI of 25-30 kg/m² and a BMI of >30 kg/m² were associated with an increased risk of hypertension occurrence. Compared with sleep duration of >8 h/day, 6-8 h/day of sleep was associated with a lower risk of hypertension occurrence. There were no statistically significant associations between physical activity or alcohol use and

hypertension occurrence ($P>0.05$). Healthy BMI ($18.5-24.9 \text{ kg/m}^2$) and sleep duration (6-8 h/day) were associated with a lower risk of the occurrence of hypertension in pre-hypertension patients.

Balint EM, Boseva P, Schury K (2015) revealed the association between posttraumatic stress disorder (PTSD) and higher rate of arterial hypertension. 145 patients with primary hypertension from March to November 2012 at the cardiologic outpatient clinic were selected. Symptoms of PTSD, perceived stress, depression and anxiety were assessed by self-report. Blood pressure was measured and medical data were collected. The study revealed PTSD is highly prevalent in hypertensive patients, especially in those with controlled hypertension.

Dhiraj Biswas, Aparajita Das Gupta, Amitava Kumar (2015) conducted a study to find out the magnitude of hypertension and its association with socio demographic and behavioral characteristics. A cross-sectional study was conducted on 200 elderly people (age ≥ 60 years), during a study period of 2 months. The blood pressure of participants was measured following the standard operation procedures as laid down by the WHO. Sociodemographic characteristics and other risk factors were assessed during the study with the help of a semi-structured, pretested questionnaire. The overall prevalence of hypertension was 64%. The prevalence among male and female subjects was 62.8% and 64.9%, respectively. About 40.6% cases of hypertension were newly detected. Among the hypertensive people, 92.6% of them were smokers, 83.7% of them consumed alcohols, 66% of them used smokeless tobacco, and 70.3% of them were taking extra salt. This study revealed

that hypertension was significantly associated with age, social class, physical activity, alcohol intake and smoking.

Awosan, Ibrahim, Essien (2014) reviewed dietary pattern, lifestyle, nutrition status and prevalence of hypertension. The study was conducted among 390 men selected by multistage sampling technique from November to December, 2013. Anthropometric and blood pressure measurements were done for the participants, together with questionnaire administration. High prevalence of unhealthy eating habits was recorded among the participants; 50.7% eat their largest meal at dinner, 49.9% eat snacks everyday, 66.7% eat fatty foods, 27.1% and 33.0% drink fruit juice and carbonated drinks, respectively thrice weekly or more, 56.0 and 58.8% eat fruits and vegetables, respectively less than thrice in a week or not at all. Also, 50.7% live a sedentary lifestyle, 5.2% currently smoke cigarette and 10.8% had consumed alcohol within the past 30 days. Similarly, the prevalence of overweight (28.9%), obesity (28.1%) and hypertension (29.1%) was high among the participants. This study demonstrated high prevalence of unhealthy eating habits and lifestyle; together with high prevalence of overweight, obesity and hypertension. Health education and other interventions to promote healthy eating habits and lifestyle, especially among high risk groups are suggested.

Lang L, Xu T, Li H (2014) evaluated the effect of hypertension and alcohol drinking on stroke incidence and whether alcohol drinking would increase the risk of stroke in hypertension participants. A prospective cohort study from June 2003 to July 2012 was conducted among 2535 people aged 20 years and older. A total of 120 stroke patients were observed during the follow-up period. The result of the study

was hypertension was an independent risk factor of stroke participants. Drinkers with hypertension seem to be more susceptible to stroke. Larger-sample prospective cohort studies are still required to examine the cumulative effect of drinking and hypertension on stroke incidence.

Chen SC, Lo Tc, Chang Jh (2014) conducted a study on obesity, sex, menopause, and gender effects on hypertension. A total 9621 subjects aged 20 and over participated in this community-based study. Trained nurses collected blood pressure (BP) measurements and anthropometric indices, including weight, height, hip circumference (HC), waist circumference (WC), body mass index (BMI), waist to height ratio (whtr), and waist to hip ratio (WHR). Obesity indices were significantly correlated with the risk of hypertension across gender and age, with BMI having the highest relative potency. The effect of obesity on the risk of hypertension was especially high in premenopausal women, implying a relationship between hormones and hypertension.

Barros CL, Souza AL, Chinem BM (2014) revealed the impact of light salt substitution for regular salt on blood pressure among patients with hypertension. Uncontrolled hypertensive patients of both sexes, 20 to 65 old and on stable doses of anti-hypertensive drugs were randomised into intervention group and control group. Systolic blood pressure and diastolic blood pressure were analysed by casual blood pressure measurements. The intervention group showed a significant reduction in both systolic blood pressure and diastolic blood pressure on casual measurements ($p < 0.05$). The light salt substitution for regular salt significantly reduced blood pressure of hypertensive patients.

Siervo M, Lara J, Chowdury S (2014) conducted a study on the effect of dietary approaches to stop hypertension (DASH) diet on cardiovascular risk factors. A total of twenty articles reporting data for 1917 participants were included in the meta-analysis. The duration of interventions ranged from 2 to 24 weeks. The DASH diet was found to result in significant decreases in systolic BP (- 5.2 mmHg, 95 % CI - 7.0, - 3.4; $P < 0.001$) and diastolic BP (- 2.6 mmHg, 95 % CI - 3.5, - 1.7; $P < 0.001$) and in the concentrations of total cholesterol. The DASH diet was very effective to reduce the blood pressure significantly.

Sanjee P, AlehiAborgouei, Azadbakht (2014) reviewed the Dietary Approaches to Stop Hypertension (DASH) diet on blood pressure. The aim was to review systematically and perform a meta-analysis to assess the magnitude of the effect of the DASH diet on blood pressure in randomized controlled trials among adults. Seventeen RCTs contributing 20 comparisons with 2561 participants were included. Meta-analysis showed that the DASH diet significantly reduced systolic blood pressure by 6.74 mmHg and diastolic blood pressure by 3.54 mmHg. The results revealed the profitable reducing effect of the DASH-like diet on both systolic and diastolic blood pressure in adults.

Heo SG, Hwanq, Uhmnn S (2014) conducted a study on the risk of genetic and non- genetic risk factors in the occurrence of hypertension and related diseases, with considerations of potential confounding factors and age gender stratification. Genome-wide association analyses were conducted in 12 groups stratified by age and gender after adjusting for potential covariates fewer than three genetic models. Age, rural area residence, body mass index, family history of hypertension, male

gender, current alcohol drinking status, and current smoking status were significantly associated with hypertension. The result showed that the male persons were more prone to get hypertension and metabolic disorders.

Su T, Majid H, Nahar A (2014) studied the effectiveness of a life style modification and peer support home blood pressure in control of hypertension. The study was a two armed, parallel group, un-blinded; cluster randomized controlled trial undertaken within lower income areas in Kuala Lumpur. Two housing complexes were assigned to the intervention group and the other two housing complexes were allocated to the control group. Based on power analysis, 320 participants were recruited. The participants in the intervention group (n = 160) underwent three main components in the intervention which were the peer support for home blood pressure monitoring, face to face health coaching on healthy diet and demonstration and training for indoor home based exercise activities while the control group received a pamphlet containing information on hypertension. The primary outcomes were systolic and diastolic blood pressure. Secondary outcome measures include practice of self-blood pressure monitoring, dietary intake, level of physical activity and physical fitness. The result disclosed that there was a significant reduction of blood pressure ($p < 0.05$) among intervention group than in control group.

Helene Lelong, Pilar Galan, Emmanuelle Kesse-Guyot, (2014) evaluated the relative impact of lifestyle and nutritional factors on BP level. 8,670 volunteers were selected and dietary intakes were assessed using three 24-hour records. Information on lifestyle factors was collected using questionnaires and 3 BP

measurements following a standardized protocol. Age-adjusted associations and then multivariate associations between systolic BP (SBP) and lifestyle behaviours were estimated. SBP was higher in participants with elevated body mass indices (BMIs). Salt intake was positively associated with SBP in men but not in women. The negative relationship between consumption of fruits and vegetables and SBP was significant in both sexes. Alcohol intake was positively associated with SBP in both sexes; physical activity was not. The 5 parameters representing the well-accepted modifiable factors for hypertension reduction plus age and education level, accounted for 19.7% of the SBP variance in women and 12.8% in men. Considering their squared partial correlation coefficient, age and BMI were the most important parameters relating to SBP level. Salt intake was not associated with SBP in either sex after multiple adjustments. The study concluded that BMI was the main contributory modifiable factor of BP level after multiple adjustments.

Halbert JA, Silagy CA, Finucane P (2012) conducted study to identify the effectiveness of exercise training in lowering blood pressure: a meta-analysis of randomised controlled trials of 4 weeks or longer. A total of 29 studies (1533 hypertensive and normotensive participants) were included, 26 used aerobic exercise training, two trials used resistance training and one study had both resistance and aerobic training groups. Aerobic exercise training reduced systolic BP by 4.7 mm Hg (95% CI: 4.4, 5.0) and diastolic BP by 3.1 mm Hg (95% CI: 3.0, 3.3) as compared to a non-exercising control group, however, significant heterogeneity was observed between trials in the analysis. The BP reduction seen with aerobic exercise training was independent of the intensity of exercise and the number of exercise sessions per

week. The evidence for the effect of resistance exercise training was in conclusive. Aerobic exercise training had a small but clinically significant effect in reducing systolic and diastolic BP. Increasing exercise intensity above 70% VO₂ max or increasing exercise frequency to more than three sessions per week did not have any additional impact on reducing BP.

Wexler R, Aukerman G (2012) narrated on the non-pharmacological strategies for managing hypertension. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure recommends lifestyle modification for all patients with hypertension or pre hypertension. Modifications include reducing dietary sodium to less than 2.4 g per day; increasing exercise to at least 30 minutes per day, four days per week; limiting alcohol consumption to two drinks or less per day for men and one drink or less per day for women; following the Dietary Approaches to Stop Hypertension eating plan (high in fruits, vegetables, potassium, calcium, and magnesium; low in fat and salt); and achieving a weight loss goal of 10 lb (4.5 kg) or more. Alternative treatments such as vitamin C, coenzyme Q10, magnesium, and omega-3 fatty acids have been suggested for managing hypertension, but evidence for their effectiveness is lacking.

Nagashima, Musha H, Takada H (2011) elicited the influence of physical fitness and smoking on coagulation system in hypertensive patients. The subjects were classified into groups on the basis of multiple medications, smoking, exercise, and drinking alcohol. The prothrombin fragment F1+2 levels were compared between each pair of groups and differences were analysed using the unpaired t-test. Correlations between each parameter and the systolic and diastolic blood pressure, as

well as with prothrombin fragment F1+2, were examined by multiple regression analysis. The subjects were 109 patients who had essential hypertension without a past history of thrombotic events. Age, lack of exercise, and smoking were significant predictors of a high concentration of prothrombin fragment F1+2. In patients with essential hypertension, age, smoking, and lack of regular exercise may increase the risk of thrombosis.

Lee SA, Cai H, Yang G (2010) evaluated the association of dietary patterns with blood pressure (BP) by using data from a large, population-based cohort study of middle-aged and elderly Chinese men. Three dietary patterns, 'vegetable', 'fruit and milk' and 'meat', were derived using factor analysis. The fruit and milk diet was inversely associated with both systolic and diastolic BP ($P < 0.001$). The adjusted mean systolic BP was 2.9 mmHg lower (95 % CI - 3.4, - 2.4), and diastolic BP was 1.7 mmHg lower (95 % CI - 2.0, - 1.4) for men in the highest quintile of the 'fruit and milk' pattern compared with men in the lowest quintile. This inverse association was more evident among heavy drinkers; the highest quintile of the 'fruit and milk' pattern was associated with a 4.1 mmHg reduction in systolic BP. a 2.0 mmHg reduction among non-drinkers ($P = 0.003$) compared to the lowest quintile. The corresponding reductions in diastolic BP were 2.0. 1.3 mmHg ($P = 0.011$). The 'fruit and milk' pattern was associated with a lower prevalence of both pre-hypertension and hypertension, and the associations appeared to be stronger among drinkers. Results of the study suggested there is an important role for diet in the prevention of hypertension.

Lawes, Hoorn, and Rodgers (2008) described that the cardiovascular diseases are accounted for the highest percentage of mortality in the United States at 33%. In a study to quantify the global burden of disease related to high blood pressure, about 7.6 million (13.5%) of all deaths worldwide were attributable to high blood pressure that is referred to a systolic blood pressure greater than 115 mm Hg. Hypertension is having a devastating impact on global health and greater emphasis should be directed towards risk reduction through the prevention and treatment of this modifiable cardiovascular risk factor.

Lenz TL, Monaghan MS (2008) described the life style modifications for hypertension patients. Review was done about the lifestyle modification components Prevention, Detection, Evaluation, and Treatment of High Blood Pressure discussed how the guidelines can be used by pharmacists in the treatment of patients with hypertension. The primary strategies discussed were proper nutrition through the Dietary Approaches to stop hypertension eating plan and sodium restriction, weight reduction, increased physical activity, and moderation of alcohol consumption. Patients with hypertension had been shown to decrease their resting blood pressure considerably by adopting one or more of these strategies. Pharmacists are in an ideal setting to care for patients with hypertension by managing their medications and lifestyle behaviours. Doing so provides patients a higher level of clinical care from their pharmacist.

Cuno SPM Uiterwaal, WM Monique Verschuren, H Bas Bueno-de-Mesquita, (2006) assessed whether coffee intake is associated with the incidence of hypertension. This study was conducted on a cohort of 2985 men and 3383 women

who had a baseline visit and follow-up visits after 6 and 11 y. Baseline coffee intake was ascertained with questionnaires and categorized into 0, >0–3, >3–6, and >6 cups/d. Hypertension was defined as a mean systolic blood pressure (SBP) \geq 140 mm Hg over both follow-up measurements, a mean diastolic blood pressure (DBP) \geq 90 mm Hg over both follow-up measurements, or the use of antihypertensive medication at any follow-up measurement. Coffee abstainers at baseline had a lower risk of hypertension than did those with a coffee intake of >0–3 cups/day. Women who drank >6 cups/d had a lower risk than did women who drank >0–3 cups/day. Subjects aged \geq 39 years at baseline had 0.35 mm Hg (95% CI: –0.59, –0.11 mm Hg) lower SBP per cup intake/day and 0.11 mm Hg lower DBP (95% CI: –0.26, 0.03 mm Hg) than did those aged <39 years at baseline, although the difference in DBP was not statistically significant. Coffee abstinence is associated with a lower hypertension risk than low coffee consumption.

Luck land DT (2005) explained the population strategies to treat hypertension. The strategies included lifestyle modification and antihypertensive medications. Although specific blood pressure levels determine antihypertensive medications, lifestyle modifications were advised for all segments of the population and for all blood pressure levels. In particular, lifestyle modification was the recommended intervention for the "prehypertension" category and was encouraged for individuals with normal blood pressure. Also, strategies for lifestyle modifications were part of the treatment strategies for stage 1 and stage 2 hypertension categories in conjunction with antihypertensive medications. The major lifestyle modifications to reduce and manage blood pressure include weight

management, incorporation of specific diet plans, dietary sodium reduction, physical activity, and moderation of alcoholic consumption. The implementation and commitment to these strategies can effectively and significantly reduce the blood pressure levels, and subsequent hypertension-related disease risks in the population.

2. Literature related to the effect of laughter therapy on blood pressure among patients with hypertension

Khadervali Nagoor, Raziya Dudekula (2015) evaluated the effect of laughter therapy on blood pressure and pulse rate in south Indian population. 100 healthy volunteers of both the sexes (Male - 65; Female - 35) with an age group of 18 – 69 years from Kurnool Laughter Club, Kurnool were taken for the study. The present study was conducted in 10 sessions with the all above volunteers during a period of 365 Days. In this study it was observed all the vital parameters values like Pulse Rate, Systolic Blood Pressure and Diastolic Blood Pressure were reduced after laughter therapy and were shown significant difference ($P < 0.01$). The mean diastolic blood pressure was reduced in all age groups, the reduction was more significant among younger age group (< 50 yrs) compared to the older age group (>50 yrs). Positive effects of laughter considered as one of the additional methods for enhancement of health and to prevent cardiovascular disease.

SF Jalali, F Kheirkhah, M Haji Ahmadi, B Seifi Zarei (2015) evaluated the effect of laughter therapy on blood pressure patients with essential hypertension. This semi experimental study was performed on 40 patients with essential hypertension. Patients participated in laughter clinic once a week for 2 months in

hospital. The time of these classes was 1-1.5 hours. In this clinic patients were made to watch famous comedy films and a few inspectors attended in the meetings for supervision of virtue in performance and active cooperation of patients. Systolic and diastolic blood pressure was evaluated by mercury manometer before and after every session and 24 hours blood pressure holter monitoring performed before and after study for patients that participated in all classes. Finally 35 patients participated in all the sessions. Patients have been recommended for repeat of humour during week days with family. The mean age of patients was 55.1 \pm 10.7 years. Mean (\pm SD) systolic (142.9 \pm 24.1 vs 131.1 \pm 19.8 mm/Hg) and diastolic (88.4 \pm 12 vs 81.6 \pm 10 mm/Hg) blood pressure decreased significantly after every session of laughter clinic (p <0.05). The results showed that laughter and sense of humour is effective in short and long term (more than 2 months) effect on decreasing the blood pressure and can be used as a concomitant treatment of essential hypertension.

Kripa Angeline A, Madhavi. R (2015) evaluated the effects of laugh therapy on selected haemodynamic variable and psychological well-being of hypertensive patients. Haemodynamic variables namely blood pressure pulse and mean arterial pressure were measured before each session of laugh therapy and after laugh therapy and recorded. Pretest score of psychological well-being using Modified Dupey's Psychological Well-being were obtained and at the end of laugh therapy post test scores were obtained. Laugh therapy techniques were practiced by the patients for 20-30 minutes by viewing the CD assisted laugh therapy prepared by investigator. It was given at one session per day for 5 days. Subjects who received laugh therapy reported significant reduction (p <0.05) in blood pressure of

125.15/82.25 mm of Hg than 140.50/91.50mm of Hg in control group, pulse 79.86 than 87.6 in control group, MAP of 97.79 than 108.33 in control group and psychological well being score of 61.75 than 27.2 of control group respectively. There was no association between hemodynamic variable and demographic variables of age, sex and BMI. The results supported that the incorporation of laugh therapy is one of the best alternative therapy to reduce hypertension and improve psychological well-being.

Dolhoff-Kaspar R, Baldwin A, Johnson MS, Edling N, Sethi GK(2012)

intended to evaluate the clinical utility of laughter yoga in improving psychological and physiological measures in outpatients awaiting organ transplantation. Six participants met for 10 sessions over 4 weeks. The research team measured each participant's heart rate, HRV, blood pressure (BP), and immediate mood before and after the laughter and control interventions. The team assessed participants' longer-term mood (anxiety and depression) at the study's initiation, after a no-treatment control week, and at the end of the study. The 20-minute laughter intervention involved breathing and stretching exercises, simulated laughter (ie, unconditional laughter that is not contingent on the environment), chanting, clapping, and a meditation. The 20-minute control intervention involved the study's personnel discussing health and study-related topics with the participants. The research team measured BP, heart rate, and HRV and administered the Profile of Mood States, Beck Anxiety Inventory, and Beck Depression Inventory-II to evaluate immediate and longer-term mood. Participants showed improved immediate mood (vigor-activity and friendliness) and increased HRV after the laughter intervention. Both the

laughter and control interventions appeared to improve longer-term anxiety. This pilot study suggests that laughter yoga may improve HRV and some aspects of mood.

Bill Hendrick , Laura J Martin (2011) determined whether music and laughter interventions would reduce blood pressure in one of two situations: immediately after listening to music or laughing and after three months of one-hour interventions that took place once every two weeks. The scientists signed up 79 people between 40 and 74, who were randomly assigned to one of three groups. Thirty-two listened to music, 30 were assigned to a laughter group, and 17 neither listened to music nor participated in laughter sessions. Those in the music group sang, listened, and stretched to music. The participants were urged to listen to music at home. Those in the laughter group were entertained by “laughter yogis” and participated in laughter yoga, which combines breathing exercises with laughter stimulated through playful eye contact. Blood pressure was taken before and after each music or laughter session. After three months, researchers say blood pressure significantly decreased, by nearly 6 mmHg, among those who listened to music. It decreased by 5 mmHg among those who took part in sessions designed to make them laugh. Blood pressure readings taken immediately after music sessions were lower by nearly 6 mmHg, and by 7 mmHg immediately after laughter sessions. People in the comparison group showed no change in blood pressure readings.

Gourie[Gita] Suraj-Narayan, Sheroma Surajnarayan, (2011) examined the biopsychosocial impact of laughter yoga and therapy on stroke patients. A quasi experimental research design was used involving 2 groups. The laughter group

participated in movement exercises using laughter yoga and therapy, whereas the control group participated in the same exercises without the laughter yoga and therapy. Physiologic tests were performed to measure the respondent's blood sugar levels as well as their blood pressure during the pre test and post test. The results of the study indicated that laughter yoga and therapy had positive bio-psychosocial impacts on the laughter group. Evidence of lowered blood pressure, lowered blood sugar levels, enhanced mobility, improvement in speech and increase in positive emotions, and enhanced social functioning was visible in the laughter group. There was no significant difference in the bio-psychosocial functioning of the control group. Because laughter yoga and therapy do not require any specific equipment or resources, it was found to be the most economical, non pharmacologic intervention for the stroke patients. In view of the therapeutic benefits, the researchers recommend that laughter yoga and therapy be used as complementary alternate medicine as well as be integrated into psychotherapy, psychiatry, and other bio-psychosocial interventions for the prevention as well as treatment of stroke.

Dr. Michael Miller, (2010) found that laughter appears to cause the tissue that forms the inner lining of blood vessels, the endothelium, to dilate or expand, in order to increase blood flow thereby decreasing blood pressure. Emotionally-wrenching movies that produced mental stress, on the other hand, caused vasoconstriction – tightening of the blood vessels, which reduces blood flow and increased blood pressure. The study looked at 20 volunteers who had normal blood pressure, cholesterol and blood glucose levels. Each volunteer was shown a 15-minute segment of a movie – either a comedy, or a drama. Forty-eight hours later,

they were shown the other movie. Brachial artery flow was reduced in 14 of the 20 volunteers following the movie clip that caused mental stress. In contrast, beneficial blood vessel relaxation, or vasodilation, was increased in 19 of the 20 volunteers after they watched the comedy. Overall, average blood flow increased 22 per cent during laughter, and decreased 35 per cent during mental stress. The blood vessel changes lasted for at least 30 to 45 minutes after the volunteers watched a movie. The researchers say the findings suggest that laughter may do the cardiovascular system some good while mental stress will slow down blood flow. Given the results of our study, it is conceivable that laughing may be important to maintain a healthy endothelium, and reduce the risk of cardiovascular disease.

Mora-Ripoll R, (2010) summarized the laughter literature across a number of fields related to medicine and health care to assess to what extent laughter health-related benefits are currently supported by empirical evidence. A comprehensive laughter literature search was performed. The conclusions showed that laughter has shown physiological, psychological, social, spiritual, and quality-of-life benefits. Adverse effects are very limited, and laughter is practically lacking in contraindications. Therapeutic efficacy of laughter is mainly derived from spontaneous laughter (triggered by external stimuli or positive emotions) and self-induced laughter (triggered by oneself at will), both occurring with or without humour. The brain is not able to distinguish between these types; therefore, it is assumed that similar benefits may be achieved with one or the other. Although there is not enough data to demonstrate that laughter is an all-around healing agent, this review concludes that there exists sufficient evidence to suggest that laughter has

some positive, quantifiable effects on certain aspects of health. In this era of evidence-based medicine, it would be appropriate for laughter to be used as a complementary/alternative medicine in the prevention and treatment of illnesses, although further well-designed research is warranted.

Chaya MS, Nagendra R, Madan Kataria, M.D (2008) studied 200 healthy normotensive IT call- center workers that 20-minute laugh-yoga sessions were associated with significant reductions in both systolic and diastolic blood pressure. In the study, half the volunteers participated in seven 20-minute "laugh groups" over three weeks, and the other half were randomized to a wait list and served as controls. Mean baseline systolic pressure was 128 mm Hg in the laugh-yoga group versus 126 mm Hg in the controls. Baseline diastolic pressures were 82 mm Hg in both groups. Stress was assessed at baseline and after the intervention by cortisol level, as well as by the Positive and Negative Stress Scale and the Perceived Stress Scale. After the treatment, mean systolic pressure decreased by about 7 mm Hg in the laugh group versus no change in the control group ($P<0.01$) and diastolic pressure decreased by 3 mm Hg versus no change in the control group. He noted that laughter was also associated with a significant reduction in cortisol levels ($P<0.001$). At the same time, participants in the laugh group had an 18% improvement in positive emotions and a 28% reduction in negative emotions ($P<0.001$ for both) and a significant reduction in perceived stress scale score ($P<0.01$).

Tan SA, Tan LG, Lukman ST, Berk LS, (2007) reported that humour, as an adjunct therapy in cardiac rehabilitation, attenuates catecholamines and myocardial infarction recurrence. Catecholamines, especially epinephrine, are

implicated in causing arrhythmias, hypertension, and recurrence of myocardial infarction (MI). Diminishing or blocking the effect of catecholamines is useful in cardiac rehabilitation. Forty-eight diabetic patients who had recently experienced an MI were divided into 2 matched groups and followed for 1 year in their cardiac rehabilitation programs. The experimental humour group was asked to view self-selected humour for 30 minutes daily as an adjunct to the standard cardiac therapy. Blood pressure, urinary and plasma epinephrine and norepinephrine levels, and 24-hour Holter recording were monitored monthly in both experimental humour and control groups. The patients in the humour group had fewer episodes of arrhythmias, lower blood pressure, lower urinary and plasma epinephrine and norepinephrine levels, less use of nitroglycerin for angina, and a markedly lower incidence of recurrent MI (2/24) than did the control group (10/24). Humour appears to attenuate catecholamines and MI recurrence and thus may be an effective adjunct in post-MI care.

Nasir UM, Iwanaga S, Nabi AH, Urayama O, (2005) studied how Laughter therapy modulates the parameters of renin-angiotensin system in patients with type 2 diabetes. The effect of laughter therapy on the plasma levels of renin, angiotensinogen, and prorenin was investigated in patients with type 2 diabetes. In the diabetic patients, the mean plasma renin concentrations were 24.6 \pm 12.1 ng/ml/h in the first observation (at the beginning of laughter therapy), 8.2 \pm 3.4 ng/ml/h in the second observation (three months after the beginning of laughter therapy) and 7.7 \pm 1.7 ng/ml/h in the third observation (six months after the beginning of laughter therapy). The mean plasma angiotensinogen concentrations in the 1st, 2nd and 3rd

observations were 0.19 ± 0.08 , 0.47 ± 0.12 , 0.42 ± 0.14 micro g/ml, respectively. The mean plasma prorenin concentrations in the 1st, 2nd and 3rd observations during the laughter therapy were 195.1 ± 66.2 , 193.4 ± 88.2 and 170.7 ± 52.5 pg/ml, respectively. Plasma renin concentrations were significantly decreased ($p<0.05$) by the therapy. Subnormal concentrations of plasma angiotensinogen were found in the 1st observation and increased significantly ($p<0.05$) to the normal range after the therapy. Plasma prorenin concentration only slightly changed during the laughter therapy. Other biochemical parameters remained unchanged during the laughter therapy. These results indicated that a long-term laughter therapy changed the plasma components of renin-angiotensin system in patients with diabetes. Thus, laughter therapy can be used as non-pharmacological treatment for the prevention of diabetic microvascular complications.

CONCEPTUAL FRAME WORK

A conceptual framework is a group of concepts and a set of propositions that spells out the relationship between them. The overall purpose is to make scientific findings meaningful and generalized.

The conceptual framework for a particular study is the abstract logical structure that enables the researcher to link the findings to nursing body of knowledge. It is developed from the existing theory of interest and proposing relationship among them. The model gives direction for planning research design, data collection and interpretation of findings.

The conceptual framework of the present study is based on Callista Roy's Adaptation Model (1970). In this model human beings are bio psycho-social beings, in constant interaction with a changing environment. To respond positively to the environmental changes the person must adapt. The person has four modes of adaptation: physiologic need, self concept, role function and interdependence. These subsystems constitute adaptive mode that provide mechanism for coping with environmental stimuli and change. The goal of nursing intervention according to this model is to promote adaptive behaviour in human being during health and illness.

The main concept of this model is input, throughput and output.

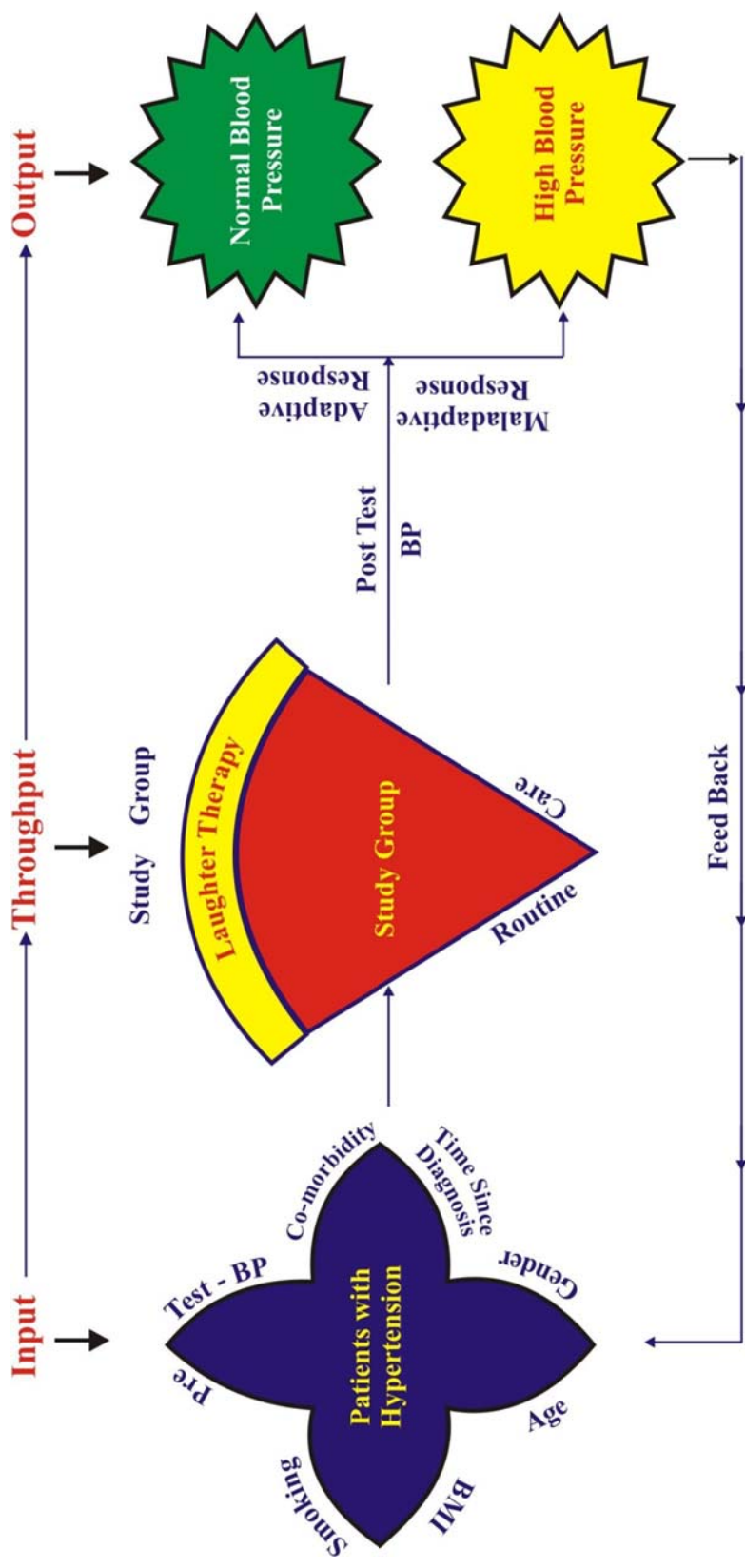


Fig No: 1 Conceptual frame work on modified Callista Roy's Adaptation Model (1970)

INPUT

Input is identified as stimuli, which can come from the environment or from within a person. Input also includes person's adaptation level. Each person's adaptation level is unique and constantly changing. In this study, demographic, health and clinical variables of study participants are the stimuli. These variables affect the level of blood pressure.

THROUGHPUT

Throughput is making use of a person's processes and effectors. Processes refer to the control mechanisms that a person uses an adaptive system. Effectors refer to the physiologic function, self concept and role function involved in adaptation. In this study its refers to the administration of laughter therapy to patients with hypertension, thereby to improve their adaptation and to maintain normal blood pressure.

OUTPUT

Output is the outcome of the system; when the system is a person. Output refers to the person's behaviour. Here it refers to the blood pressure that is recorded after the administration of laughter therapy. In Roy's system, output is categorized as adaptive responses (that promote a person's integrity) or ineffective responses (those that do not promote goal achievement). According to the response to laughter therapy, it can be adaptive if there is reduction in blood pressure or maladaptive if there is no change or increase in blood pressure. These responses or output provides feedback to the system.

CHAPTER - III

RESEARCH METHODOLOGY

This chapter explains the methodology adopted to identify the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital in Kancheepuram District. It deals with the detailed description of research approach, research design, setting of the study, population, sample size, sampling technique, development and description of tool, pilot study, data collection procedure and plan for data analysis.

RESEARCH APPROACH

A quantitative research approach was used for this study.

RESEARCH DESIGN

A pre experimental one group pre and post-test design was chosen for this study.

Table: 1

Group	Pre test	Intervention	Post test
Study group	O_1	X*	O_2

- O_1 - Pre test
- O_2 - Post test
- X - Laughter therapy
- * - Routine care

RESEARCH APPROACH

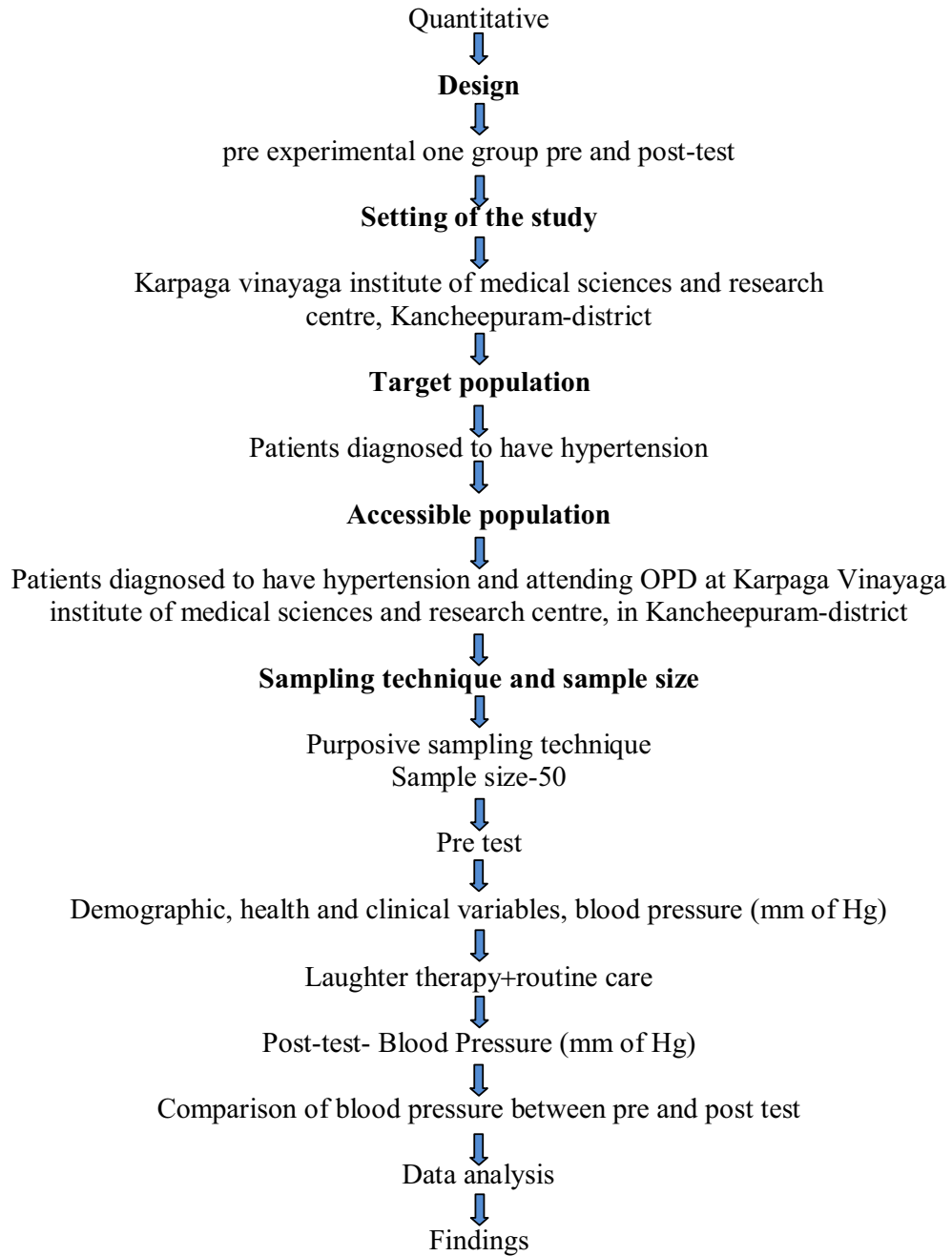


Fig no: 2 Schematic representation of research methodology

SETTING OF THE STUDY

The study was conducted at Karpaga Vinayaga Institute of Medical Science and Research Centre, Kancheepuram District, which is a 500-bedded Hospital and it has out-patient departments, in-patient departments, in-patient services 24-hour emergency and critical care services. The Medical OPD has an average of 400 patients per day and approximately 200 patients are on treatment regularly for hypertension. Excellent patient care is provided by the skilled physician, nurses, physiotherapist and occupational therapist round the clock with an aim of providing quality care to the patients. The samples of the study were selected from medical OPD of the hospital.

POPULATION

TARGET POPULATION

It refers to all the patients diagnosed to have hypertension.

ACCESSIBLE POPULATION

It refers to the patients diagnosed to have hypertension, attending OPD at Karpaga Vinayaga Institute of medical sciences and research centre, Madhurantakam taluk, Kancheepuram-district, from which samples were drawn.

SAMPLE

It refers to the patients attending medical OPD regularly at Karpaga Vinayaga Institute of Medical Sciences and Research Centre in Kancheepuram-District diagnosed to have hypertension and who fulfils the inclusive criteria.

SAMPLING TECHNIQUE

Purposive sampling technique was adopted to recruit the samples from the accessible population.

SAMPLE SIZE

A total of 50 samples were recruited for this study.

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

1. Patients of both male and female diagnosed to have primary hypertension with the blood pressure ranging from 140-180/ 90-110 mm of Hg.
2. Patients aged between 35 to 45 years.
3. Patients who were able to talk and understand Tamil or English.

Exclusion criteria

1. Patients with mental illness.
2. Patients with either visual or hearing impairment.
3. Patients with disorientation, unable to follow the instructions.
4. Patients diagnosed to have Ischemic heart disease, aneurysm, Cerebro-vascular accident and tuberculosis.
5. Patients with history of recent pelvic or abdominal surgery, who experience acute orthopaedic distress such as rib or shoulder fracture.
6. Patients not willing to participate in the study.

DEVELOPMENT AND DESCRIPTION OF THE TOOL.

The structured instrument was developed by the investigator to collect the data.

PART- I

DEMOGRAPHIC VARIABLES

It included age, sex, marital status, religion, educational status, occupational status and income.

PART-II

HEALTH VARIABLES

It encompassed height, body weight, BMI, sleeping pattern, dietary pattern, history of smoking, history of alcoholism and history of chewing tobacco.

PART- III

CLINICAL VARIABLES

It included co-morbidity, time since diagnosis, use of anti-hypertensive medication and duration of treatment.

PART- IV

ASSESSMENT OF BLOOD PRESSURE

1. Blood pressure _____ (mm of hg)

2. CLASSIFICATION OF BLOOD PRESSURE

Classification of Blood pressure	Systolic (mmHg)	Diastolic (mmHg)
Normal	<120	and <80
Pre hypertension	120-139	or 80-89
Stage1 hypertension	140-159	or 90-99
Stage2 hypertension	≥160	or ≥ 100

**National institute of health, Seventh report of the national committee (2008), American Heart Association (AHA).*

DESCRIPTION OF THE INTERVENTION

Laughter therapy was taught for the patients with hypertension to maintain the blood pressure within normal limit. Each bout of laughter lasted for 30-40 seconds, followed by relaxation. Two deep breaths were encouraged after every laughter exercise. It consisted of 10 steps as follows:

Total duration: 20 min

Initiation: Bend forward, swinging hands in front of the body, inhalation and exhalation fully. (2 min)

Step1: Deep breathing with inhalation through the nose and prolonged exhalation (3 times). (1 min 30 sec)

Step 2: Hearty laughter - Laughter by raising both the arms in the sky with the head tilted a little backwards and feeling as if laughter is coming right from the heart and while laughing chanting “Aaa” (1 min 30 sec).

Step 3: Hearty laughter - Laughter by raising both the arms in the sky with the head tilted a little backwards and feeling as if laughter is coming right from the heart and while laughing chanting “Eee” (1 min 30 sec).

Step 4: Hearty laughter - Laughter by raising both the arms in the sky with the head tilted a little backwards and feeling as if laughter is coming right from the heart and while laughing chanting “Uuu” (1 min 30 sec).

Step 5: Silent laughter (with mouth closed) - Laughter with closed mouth and a humming sound, while humming keep on moving in the group and shaking hands with different people. (1 min 30 sec)

Step 6: Greeting laughter- Joining both the hands and greeting in Indian style (namaste) or shaking hands in Western style with at least 4-5 people in the group. (1 min 30 sec)

Step 7: Appreciation laughter- Join the pointing finger with the thumb and to make a small circle while making gestures, as if they are appreciating their group members and laughing simultaneously. (1 min 30 sec).

Step 8: Swinging laughter- Standing in a circle and move towards the centre by chanting Aee...Eeee...Oooo....Uuuu.... (1 min 30 sec)

Step 9: Lion laughter: Extending the tongue fully with eyes wide open and hands stretched out like the claws of lion and laughing from tummy. (1 min 30 sec)

Step 10: Argument laughter- Laughing by pointing fingers at different group members as if arguing. (1 min 30 sec)

Relaxation: sitting calmly.(3 min)

CONTENT VALIDITY

The tool was given to nursing, medical experts, physiotherapist and yoga therapist for content validity. The suggestions given by the experts were incorporated and tool was finalised.

RELIABILITY OF THE TOOL

Reliability of the tool was tested by test retest method for which Karl Pearson's Correlation Coefficient was computed. The 'r' value was 0.96.

PILOT STUDY

The written permission was obtained from the respective authority of Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Kancheepuram District. It was conducted to find out the feasibility and practicability of the study. The study was conducted from 16.06.2015 to 25.06.2015. The patients with hypertension who fulfilled the sampling criteria were included and total of 5

subjects were included and pre test was done. The study participants were made to understand the steps of laughter therapy, practiced the same. Post test was done after the practice of 14 days of laughter therapy consecutively. The tool was found to be reliable. Laughter therapy was feasible for the study participants. There were no practical problems encountered during the course of study.

DATA COLLECTION PROCEDURE

The formal permission was obtained from the authority of Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Kancheepuram district. The data collection for the main study was done from 01-7-2015 to 30-08-2015. The participants those who had participated in the pilot study were excluded for the main study. The participants for the main study were selected by purposive sampling technique from the medical OPD at Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Kancheepuram district. The data was collected in the following pattern. List of patients who had primary hypertension were obtained and the patients were selected based on the selection criteria. The investigator established good rapport with the patients and the purpose of the study was explained to them to ensure their cooperation. Pre test was performed for all study participants. During the pre test, demographic, health and clinical variables were collected by interview method, except height and weight by anthropometric measurements and clinical variable “use of antihypertensive medication” were obtained from the clinical records. Laughter therapy was administered to study participants with routine care. It was taught to them by the researcher and return demonstration was done by the study group participants. Then laughter therapy was practiced by them daily for 20 minutes

at 7.20 am consecutively for 14 days in the playground close to the Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Kancheepuram district. The study participants were subjected to a total of 14 sessions of laughter therapy for 14 days. The blood pressure was measured 15 to 20 minutes before and after the laughter therapy daily. The blood pressure was measured using calibrated sphygmomanometer and stethoscope. The same sphygmomanometer and stethoscope was used for all the subjects throughout the study.

DATA COLLECTION PROCEDURE

Date	Time	Study group	Intervention
1.7.15	Day-1 7:00 am – 8:00am	Sample number 1-12	Pre test on day 1 (Assessment of demographic, health, clinical variables and blood pressure)
	8:05 am – 8:45 am		Teaching of laughter therapy by lecture cum demonstration with Routine care
	8.55 am – 9.15 am		Return demonstration of laughter therapy by the participants
2.7.15 to 15.7.15	Day 2-15 7:00 am	Sample number 1-12	Pre test blood pressure (mm of Hg)
	7:20am – 7.40am		Practice of laughter therapy by the participants with routine care
	8.00 am – 8:20 am		Post test(Blood pressure) on day 15
16.7.15	Day-1 7:00 am – 8:00am	Sample number 13- 25	Pre test on day 1 (Assessment of demographic, health, clinical variables and blood pressure)
	8:05 am – 8:45 am		Teaching of laughter therapy by lecture cum demonstration with routine care
	8.55 am – 9.15 am		Return demonstration of laughter therapy by the participants
17.7.15 to 30.7.15	Day 2-15 7:00 am	Sample number 13-25	Pre test blood pressure (mm of Hg)
	7:20am- 7.40am		Practice of laughter therapy by the participants with routine care
	8.00am – 8:20 am		Post test(Blood pressure) on day 15

Date	Time	Study group	Intervention
31.7.15	Day-1 7:00 am – 8:00am	Sample number 26- 37	Pre test on day 1(Assessment of demographic, health, clinical variables and blood pressure)
	8:05 am – 8:45 am		Teaching of laughter therapy by lecture cum demonstration with routine care
	8.55 am – 9.15 am		Return demonstration of laughter therapy by the participants
1.08.15to 14.8.15	Day 2-15 7.00am	Sample number 26-37	Pre test blood pressure(mm of Hg)
	7:20 am – 7:40 am		Practice of laughter therapy by the participants with routine care
	8:00 am – 8:20 am		Post test(Blood pressure) on day 15
16.8.15	Day-1 7:00 am – 8:00am	Sample number 38- 50	Pre test on day 1(Assessment of demographic, health, clinical variables and blood pressure)
	8:05 am – 8:45 am		Teaching of laughter therapy by lecture cum demonstration with routine care
	8.55 am – 9.15 am		Return demonstration of laughter therapy by the participants
17.8.15 to 30.8.15	Day 2-15 7.00am	Sample number 38-50	Pre test blood pressure(mm of Hg)
	7:20 am – 7:40 am		Practice of laughter therapy with routine care
	8.00 am – 8:20 am		Post test(Blood pressure) on day 15

TABLE: 2
PLAN FOR DATA ANALYSIS

S.no	Data Analysis	Statistical Test	Objectives
1.	Descriptive statistics	Frequency, percentage, mean, standard deviation	<ul style="list-style-type: none"> • Distribution of demographic, biological, clinical variables among study group. • Distribution of blood pressure among study group.
2.	Inferential statistics	Paired “t” test Chi-square test	<ul style="list-style-type: none"> • Comparison of pre and post-test blood pressure within study group. • Association of selected demographic, health and clinical variables with blood pressure in the post test.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

The chapter deals with the statistical analysis of the data obtained from the study and comparison group participants. Both descriptive and inferential statistics were used for the analysis. The findings are organized and tabulated under four sections.

ORGANISATION OF FINDINGS

SECTION – A

Distribution of demographic, health and clinical variables among study group.

SECTION – B

Distribution of level of blood pressure among study group.

SECTION – C

Comparison of pre and post test blood pressure within study group.

SECTION – D

Association of demographic, health and clinical variables with the level of blood pressure in post test among study group.

SECTION – A

Table:3

Distribution of demographic variables among study group.

N=50

S. No	Demographic variables	No	%
1.	Age (Years) 35 – 38 39 – 42 43 - 45	16 17 17	32 34 34
2.	Gender Male Female	25 25	50 50
3.	Marital status Unmarried Married Widow / Widower Separated	2 35 8 5	4 70 16 10
4.	Religion Hindu Muslim Christian	39 6 5	78 12 10
5.	Educational status Primary school High school Higher secondary school Graduate Post Graduate Vocational training	14 12 10 7 5 2	28 24 20 14 10 4
6.	Occupational status Labour Former Government Employee Private Employee Business	12 17 5 14 2	24 34 10 28 4
7.	Income per month (Rs.) < 5000/- 5001 – 7500/- > 7500/-	17 12 21	34 24 42

The above table infers that each 17 (34%) study participants were aged from 39-42 and 43-45 years respectively.

On the count of gender, male and female study participants were equal in numbers that is each 25 (50%).

With regard to marital status most of the 35 (70%) study group participants are married 8 (16%) were widow / widower, 5 (10%) were separated and only 2 (4%) were unmarried.

Majority of 39 (78%) study participant were Hindus, 6 (12%) were Muslims and only 5 (10%) were Christians.

On the account of educational status 14 (28%), 12 (24%), 10 (20%) and 7 (14%) study participants had primary school, high school, higher secondary school and graduate level of education respectively.

The distribution of occupational status revealed that 17 (34%), 14 (28%) and 12 (24%) study participants were formers, private employees and labours respectively.

Out of 50 study participants 21 (42%) had the income of Rs. > 7500/- month, whereas 17 (34%) and 12 (24%) had Rs < 5000 and Rs. 5001 – 7500 per month respectively.

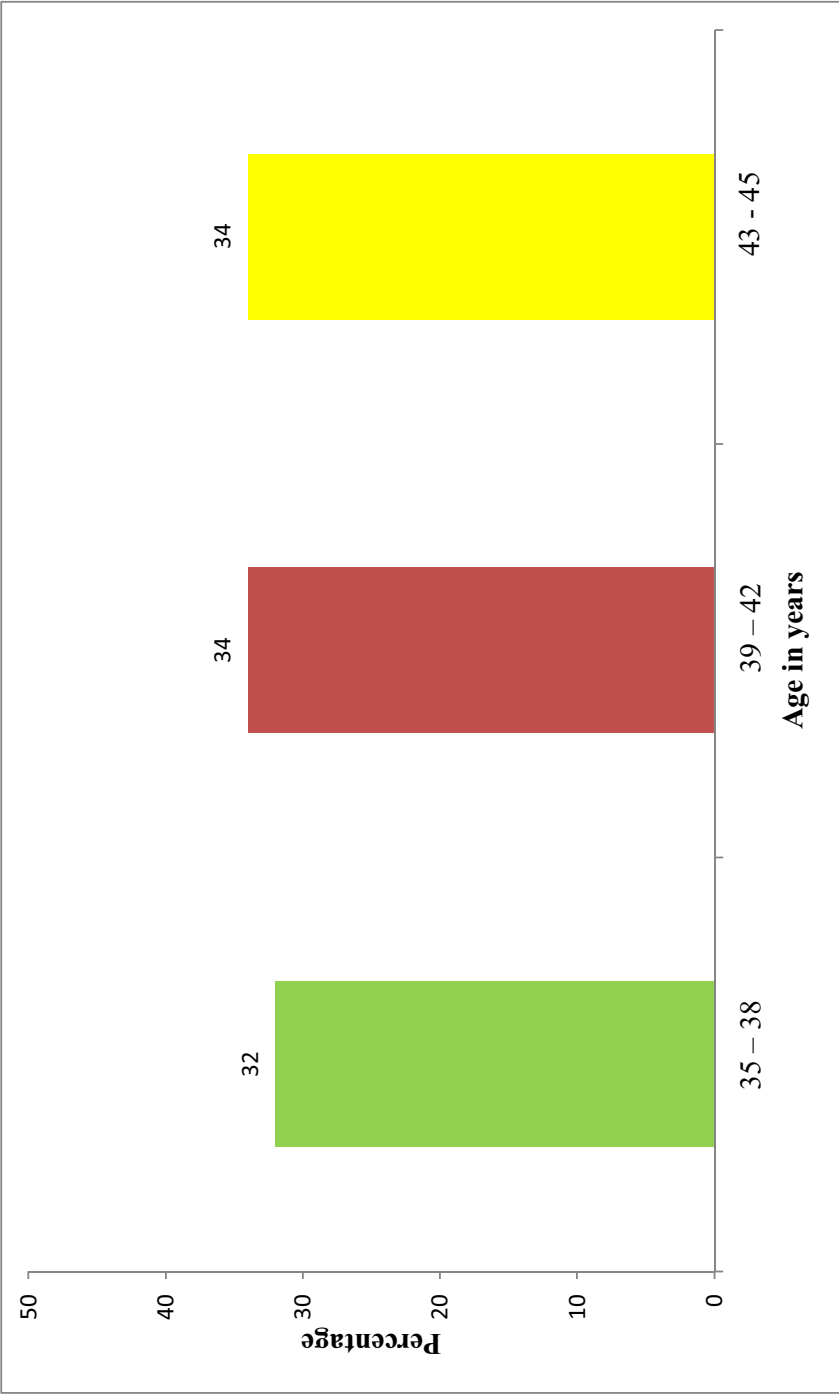


Fig No: 3 Percentage distribution of age among study group

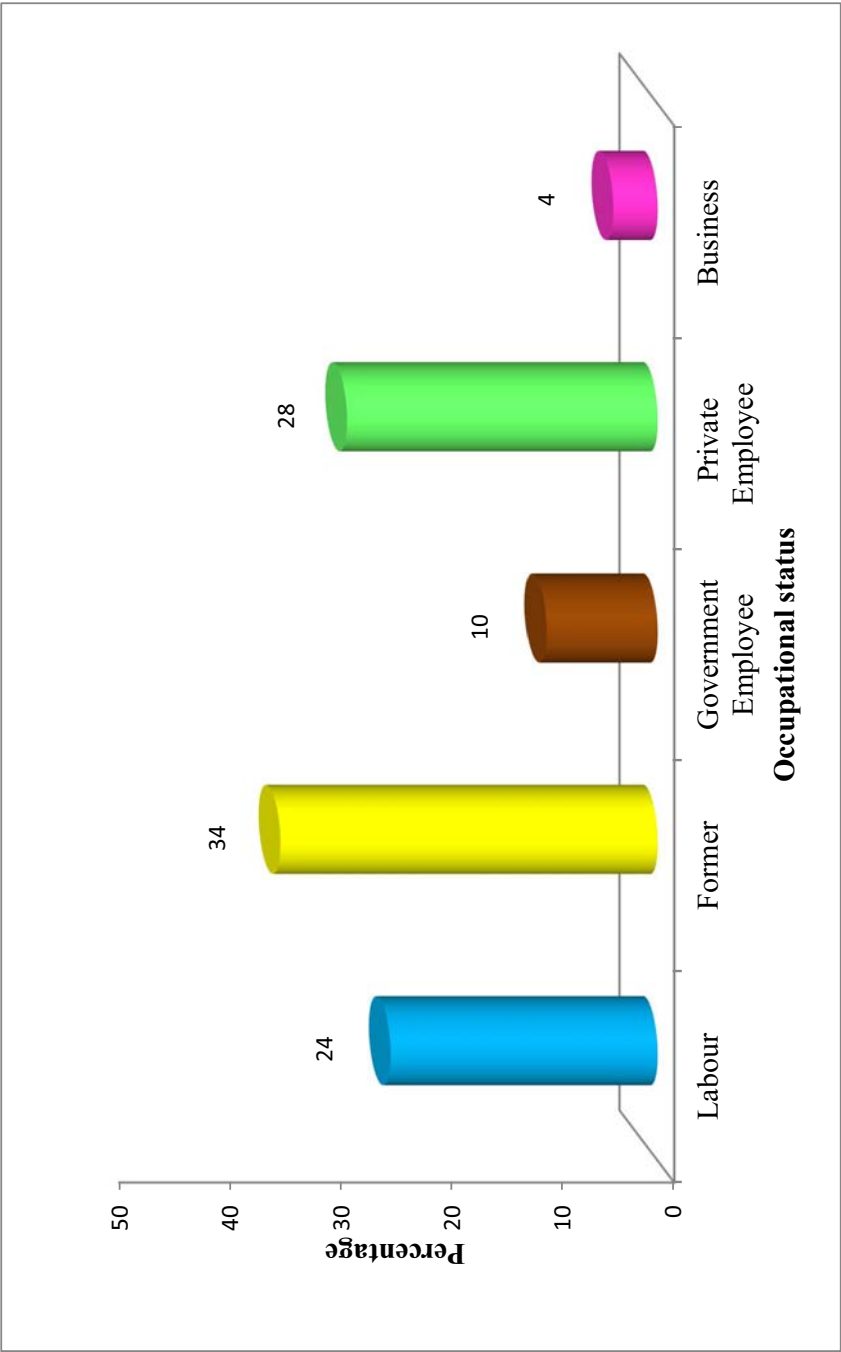


Fig No: 4 Percentage distribution of occupational status among study group

Table: 4**Distribution of health variables among study group****N=50**

S. No	Demographic variables	No	%
1.	Height (cm)		
	140 – 150	8	16
	151 – 160	17	34
	> 160	25	50
2.	Body Weight (Kg)		
	< 45	5	10
	45.1 – 55	15	30
	55.1 – 65	19	38
	> 65	11	22
3.	Body mass Index		
	18.5 – 24.9	18	36
	25 – 24.9	26	52
	30 – 34.9	4	8
	35 – 39.9	2	4
	> 40	-	-
4.	Sleeping pattern (hrs / day)		
	> 6	7	14
	6 – 8	22	44
	> 8	21	42
5.	Dietary pattern		
	Vegetarian	14	28
	Non Vegetarian	36	72
6.	History of smoking		
	Never	25	50
	Occasional	8	16
	Always	17	34
7.	History of Alcoholism		
	Never	25	50
	Occasional	13	26
	Always	12	24
8.	History of Chewing tobacco		
	Never	29	58
	Occasional	15	30
	Always	6	12

The distribution of health variables among study group participants disclosed that 8 (16%), 17 (34%) and 25 (50%) study participants had the height with the range of 140 – 150, 151-160 and more than 160cms respectively.

With regard to the body weight 19 (38%) study group participants were between 55.1-65kgs, whereas 15(30%) were between 45.1-55kgs. But 11(22%) study participants had the body weight of more than 65kgs and only 5(10%) had less than 45kgs.

On calculation of body mass index, 26(52%), 18(36%), 4(8%) and 2(4%) study group participants had between 25-29.9, 18.5-24.9, 30-34.9 and 35-39.9 respectively.

On the account of sleeping pattern (hours/day) 22(44%), 21(42%) and 7(14%) had 6-8 more than 8 and less than 6 hours per day respectively. Most of the 36(72%) study participants were non vegetarians and only 14(28%) were vegetarians.

With respect to the history of smoking 17(34%) were used to smoke “always” and 8(16%) used it “occasionally”. Most of the 25 (50%) study group participants “never” used to smoke and drink alcohol.

The distribution of history of alcoholism unveiled that 13(26%) and 12(24%) study participants used the alcohol “always” and “occasional” respectively.

Out of 50(100%) study group participants, 29(58%) did not have the history of chewing tobacco whereas 15(30%) and 6(12%) used it “occasionally” and “always”.

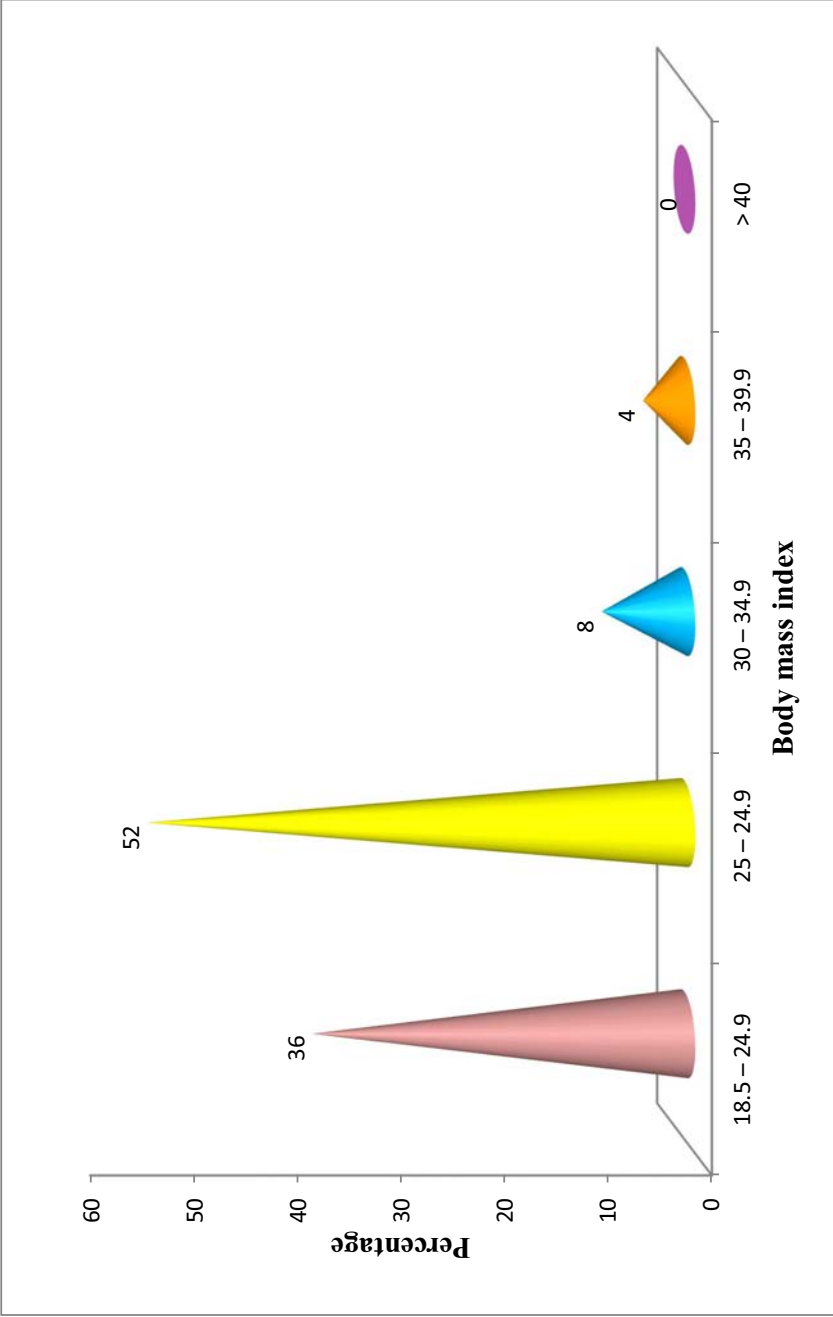


Fig No: 5 Percentage distribution of body mass index among study group

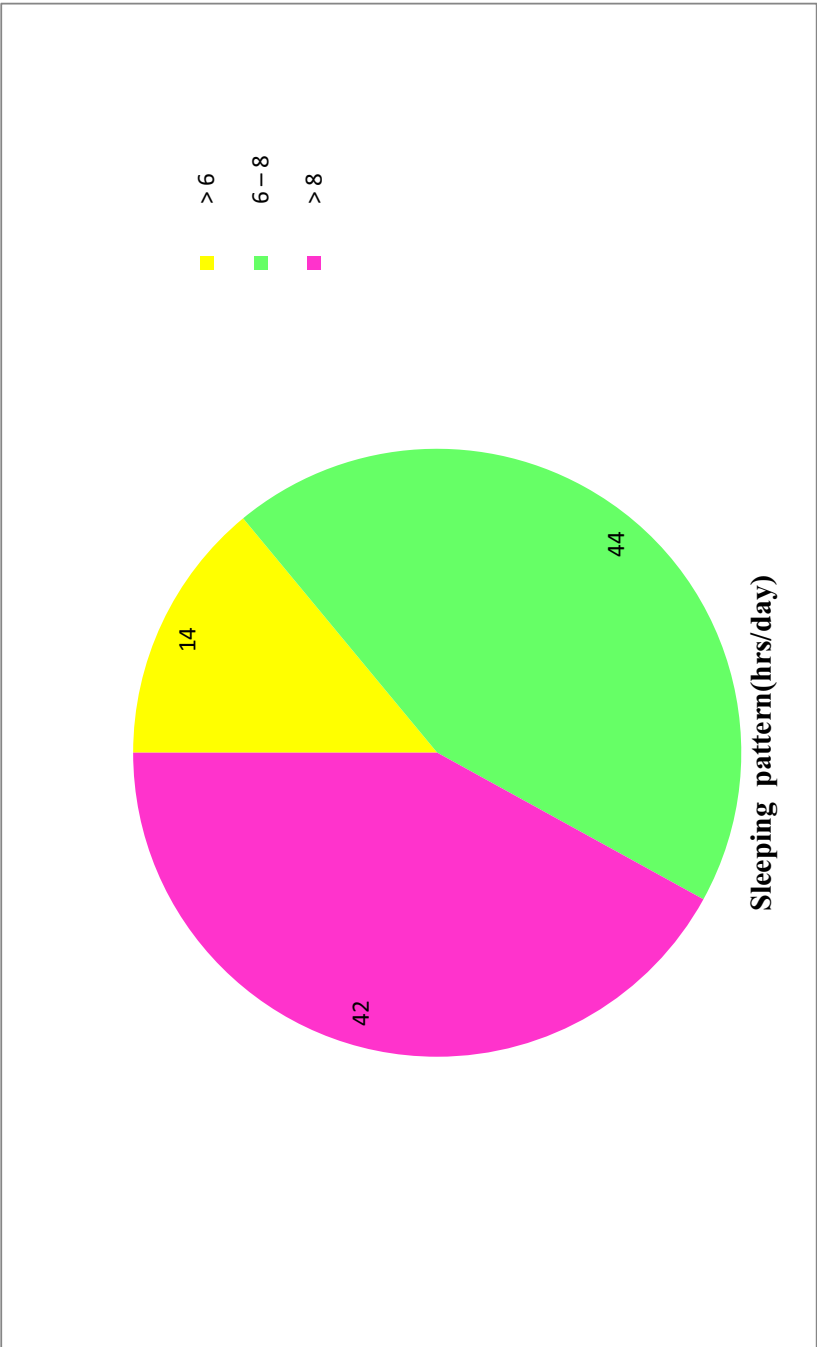


Fig No: 6 Percentage distribution of sleeping pattern (hrs/day) among study group

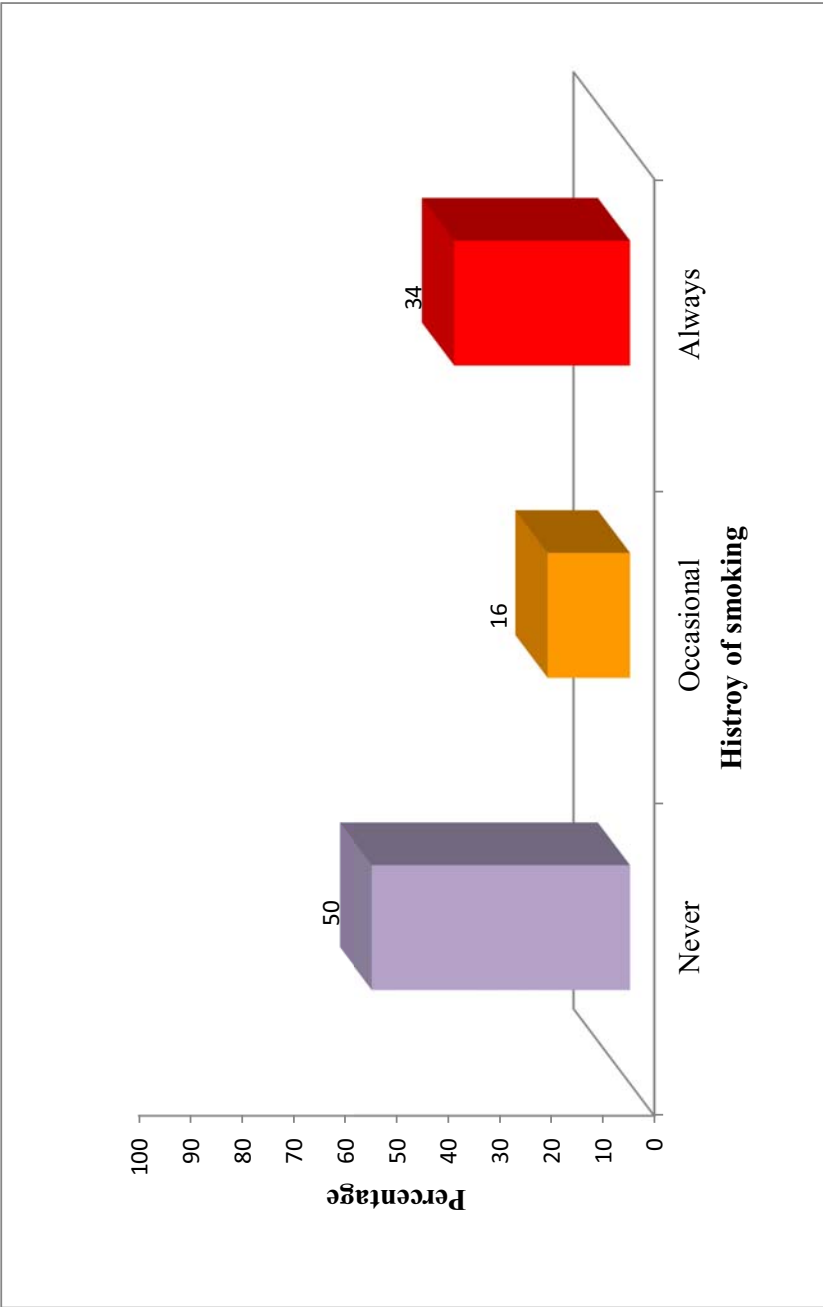


Fig No: 7 Percentage distribution of history of smoking among study group

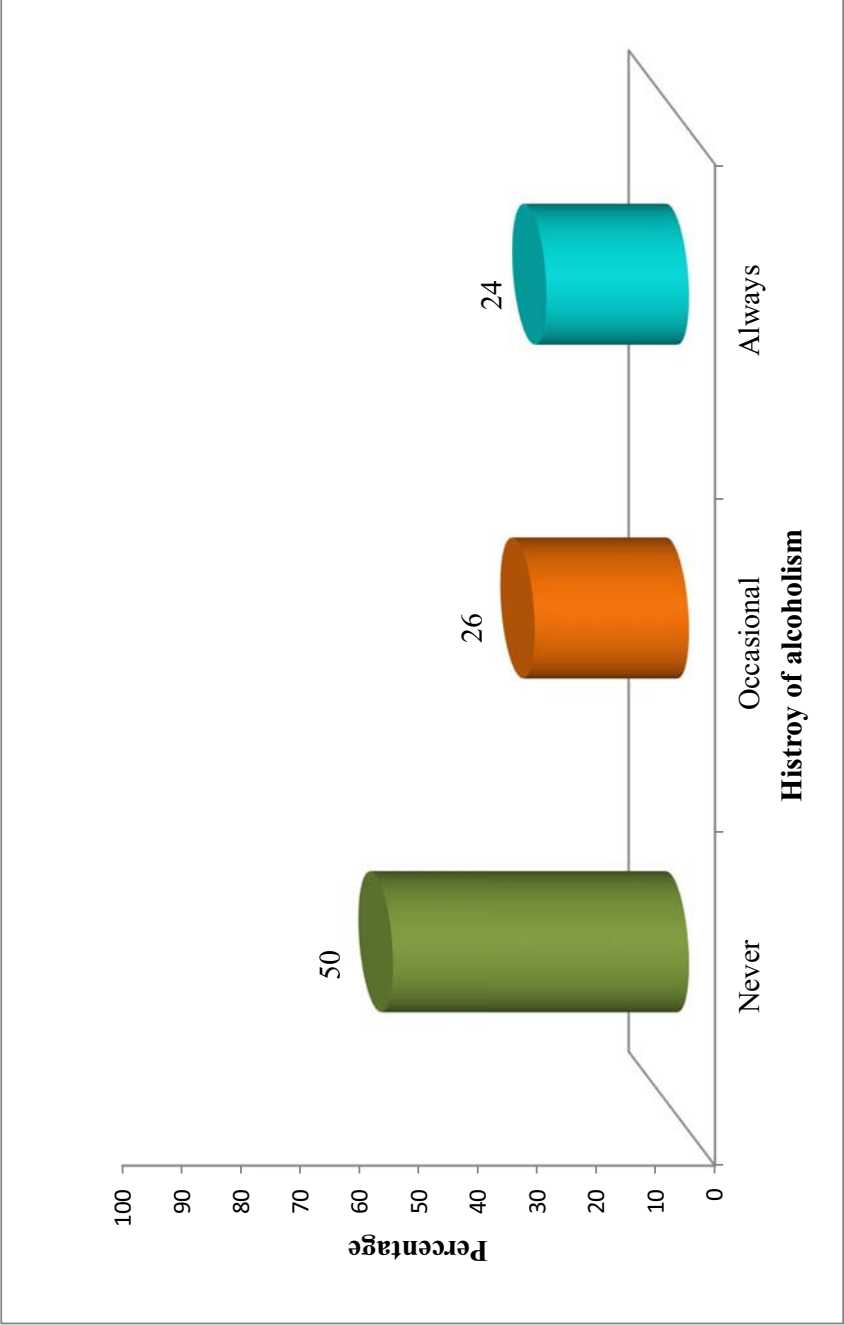


Fig No: 8 Percentage distribution of history of alcoholism among study group

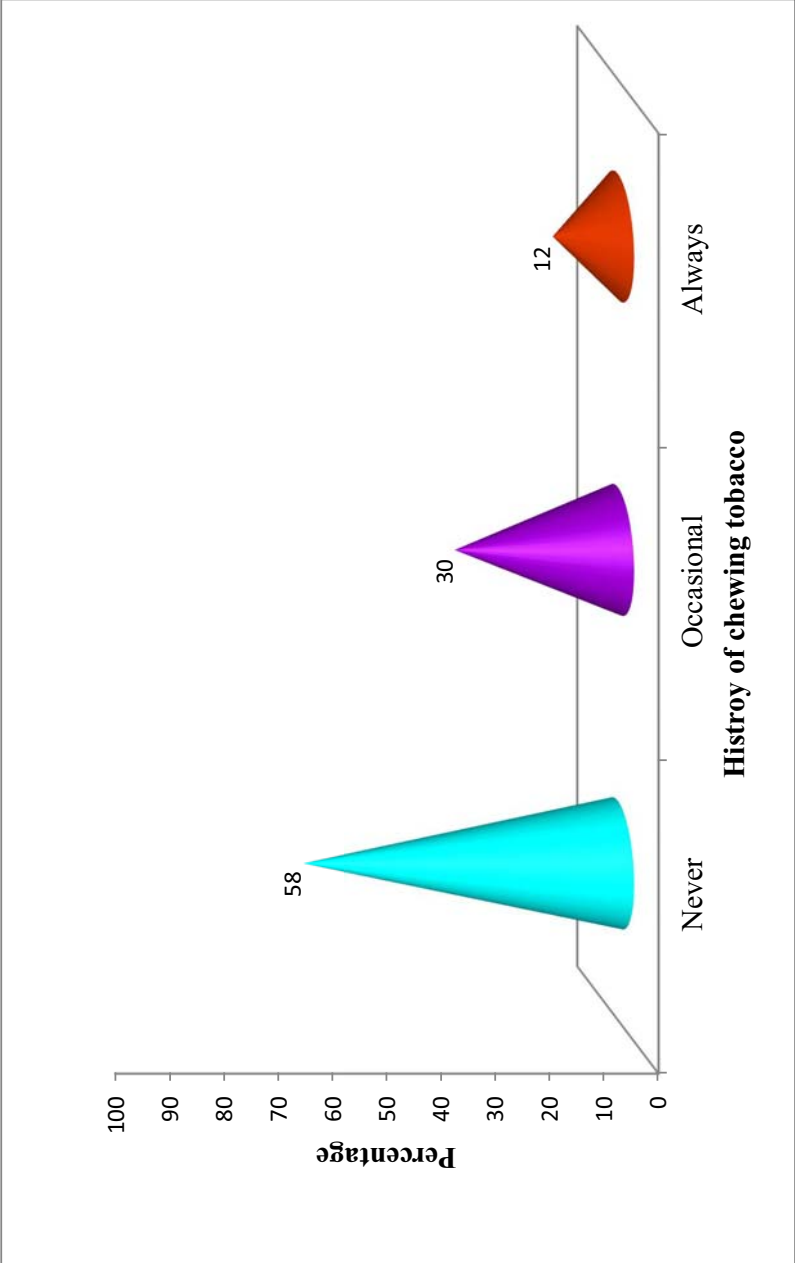


Fig No: 9 Percentage distribution of history of chewing tobacco among study group

Table: 5**Distribution of clinical variables among study group****N=50**

S. No	Demographic variables	No	%
1.	Co-morbidity		
	Yes	31	62
	No	19	38
2.	Co-morbid illness		
	No co-morbid illness	19	38
	Diabetes mellitus	12	24
	Hypothyroidism	6	12
	Bronchial asthma	6	12
	Diabetes mellitus with bronchial asthma	4	8
	Diabetes mellitus with hypothyroidism	3	6
3.	Time since diagnosis		
	< 1 year	14	28
	1 – 5 years	24	48
	> 5 years	12	24
4.	Use of Anti-hypertensive medication		
	Yes	50	100
	No	-	-
5.	Duration of Treatment		
	Since 1 year	14	28
	1 – 5 years	24	48
	> 5 years	12	24

The above table depicts that 31(62%) study group participants had co-morbid illness, among which 12(24%), 6(12%), 6(12%), 4(8%) and 3(6%) had diabetes mellitus, hypothyroidism bronchial asthma, diabetes mellitus with bronchial asthma and diabetes mellitus with hypothyroidism respectively.

Out of 50(100%) study group participants 24(48%), 14(28%) and 12(24%) were diagnosed to have hypertension since 1-5 years, less than 1 year and more than 5 years respectively. All the 50(100%) study group participants were on treatment, among these 24(48%), 14(28%) and 12(24%) were on treatment for 1-5 years, since 1 year and more than 5 years respectively.

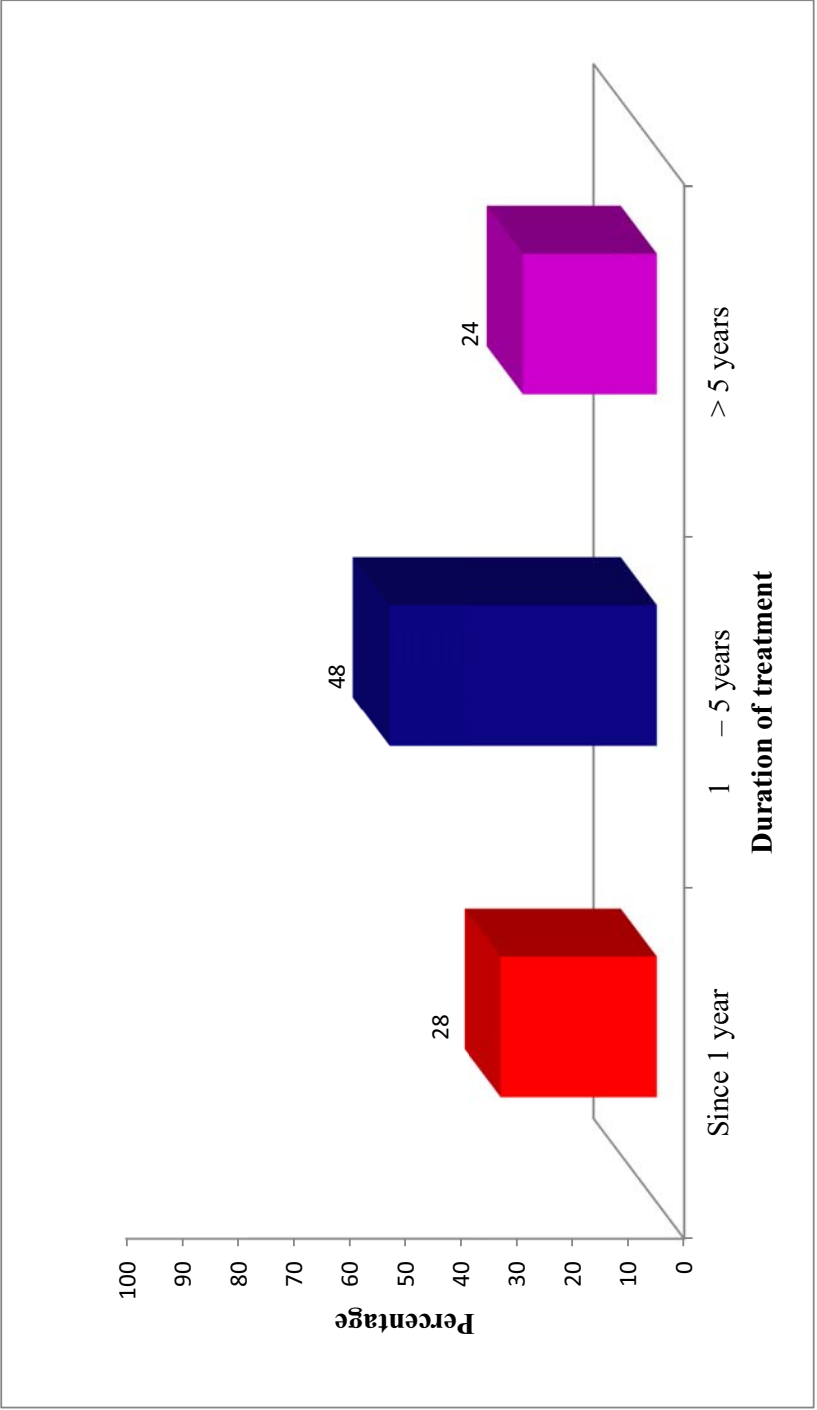


Fig No: 10 Percentage distribution of duration of treatment among study group

SECTION - B**Table: 6****Distribution of level of blood pressure in pre and post test among study group.****N=50**

S. NO	Level Of Blood Pressure (mm of Hg)	Study group							
		Pre Test				Post Test			
		Systolic		Diastolic		Systolic		Diastolic	
		No	%	No	%	No	%	No	%
1.	Normal	-	-	-	-	-	-	-	-
2.	Pre hypertension	-	-	-	-	45	90	45	90
3.	Stage – I Hypertension	50	100	50	100	5	10	5	10
4.	Stage – II Hypertension	-	-	-	-	-	-	-	-

The above table illustrates that all the 50(100%) study group participants had stage – I systolic and diastolic hypertension in the pre test whereas in post test 45(90%), had pre hypertension systolic and diastolic only 5(10%) had stage I hypertension systolic and diastolic in the post test.

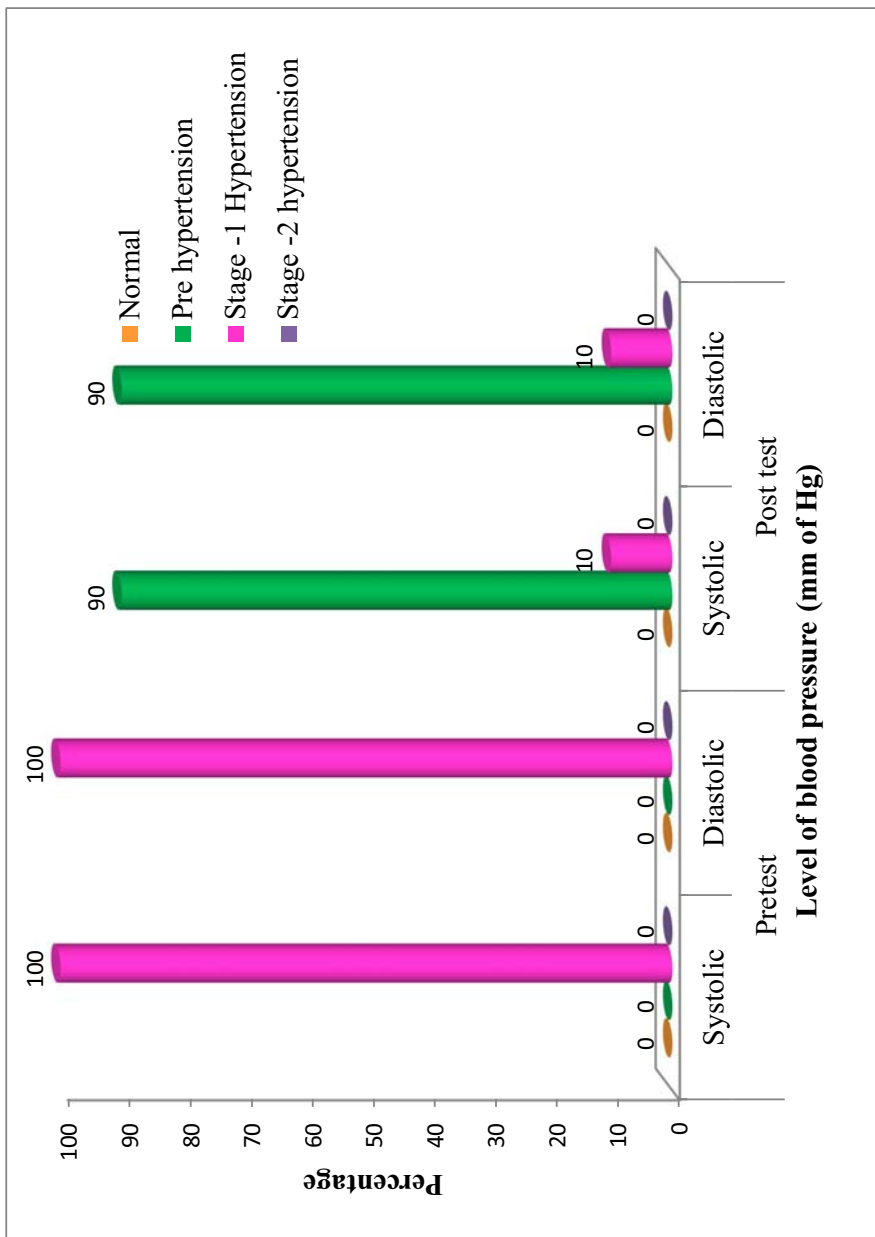


Fig No: 11 Percentage distribution of level of blood pressure among study group

SECTION - C

Table: 7

Comparison of pre and post test blood pressure within study group

N=50

S.No	Observation	Study Group		
		Mean	SD	Paired “t”value & P value
1.	Pre test – systolic (mm of Hg)	144.52	5.37	17.785*** P = 0.000 SS
2.	Post test – systolic (mm of Hg)	126.80	5.17	
3.	Pre test – diastolic (mm of Hg)	94.52	2.93	17.956*** P = 0.000 SS
4.	Post test – diastolic (mm of Hg)	82.88	3.13	

*** Significant of $p < 0.001$

SS – Statistically Significant

The above table discloses that there was a statistically significant difference between pre and post test systolic and diastolic blood pressure within study group participants at $p < 0.001$.

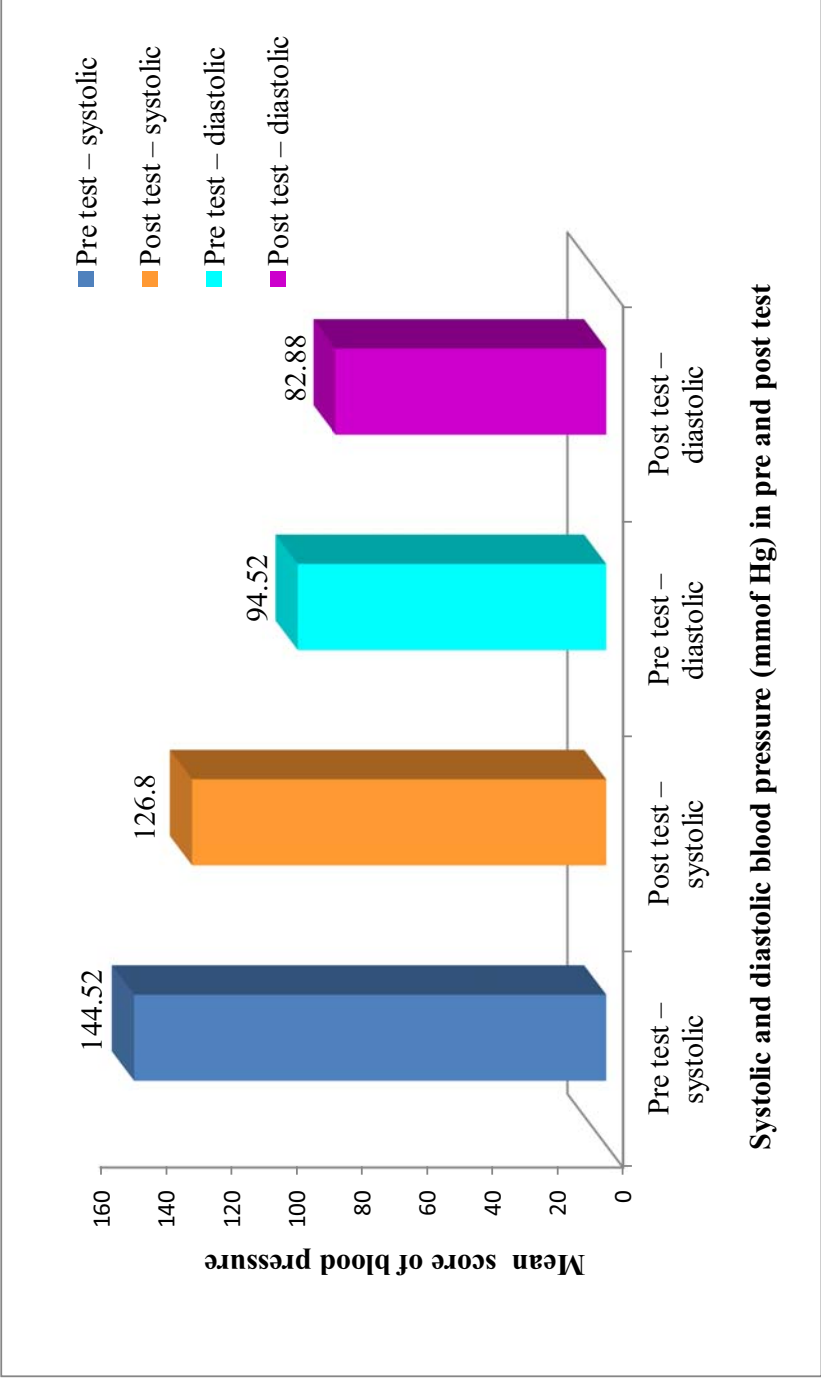


Fig No: 12 comparison of pre and post test mean blood pressure among study group

SECTION - D

Table: 8
Association of demographic variables with level of blood pressure in post test
among study group in post test

N=50

S. no	Demographic Variables	Study group								Chi square Value	P- Value
		Normal Blood Pressure		Pre hyper-tension		Stage- I Hyper-tension		Stage- II Hyper-tension			
		No	%	No	%	No	%	No	%		
1.	Age (Years)									2.089 df = 2	p=0.352 NS
	35 – 38	-	-	15	30	1	2	-	-		
	39 – 42			17	34	0	0	-	-		
	43 – 45	-	-	15	30	2	4	-	-		
2.	Gender									3.191 df = 1	p=0.074 NS
	Male	-	-	22	44	3	6	-	-		
	Female	-	-	25	50	0	0	-	-		
3.	Marital status									1.368 df = 3	p=0.713 NS
	Unmarried	-	-	2	4	0	0				
	Married	-	-	32	64	3	6	-	-		
	Widow/ Widower	-	-	8	16	0	0	-	-		
	Separated	-	-	5	10	0	0	-	-		
4.	Religion									1.582 df = 2	p=0.453 NS
	Hindu	-	-	37	74	2	4	-	-		
	Muslim	-	-	5	10	1	2	-	-		
	Christian	-	-	5	10	0	0	-	-		
5.	Educational status									10.993* df=5	p=0.05 SS
	Primary school	-	-	14	28	0	0	-	-		
	High school	-	-	12	24	0	0	-	-		
	Higher secondary School	-	-	9	18	1	2	-	-		
	Graduate	-	-	7	14	0	0	-	-		
	Post Graduate	-	-	4	8	1	2	-	-		
	Vocational training	-	-	1	2	1	2	-	-		
6.	Occupational status									3.099 df=4	p=0.545 NS
	Labour	-	-	11	22	1	2	-	-		
	Former	-	-	17	34	-	0	-	-		
	Government Employee	-	-	4	8	1	2	-	-		
	Private Employee	-	-	13	26	1	2	-	-		
	Business	-	-	2	4	0	0	-	-		
7.	Income per month (Rs.)									1.663 df=2	p=0.435 NS
	< 5000/-	-	-	17	34	0	0	-	-		
	5001 – 7500/-	-	-	11	22	1	2	-	-		
	> 7500/-	-	-	19	38	2	4	-	-		

* Statistically significant at p < 0.05

NS- Not significant

The above table unfolds that there was a statistically significant association of educational status with level of blood pressure in post test at level p < 0.05.

Table: 9

Association of health variables with level of blood pressure in post test

N=50

S. NO	Demographic Variables	Study group								Chi square value	P-Value
		Normal Blood Pressure		Pre hyper-tension		Stage – I Hyper-tension		Stage – II Hyper-tension			
		No	%	No	%	No	%	No	%		
1.	Height (cm)									0.688 df=2	P=0.709 NS
	140 – 150	-	-	8	16	0	0	-	-		
	151 – 160	-	-	16	32	1	2	-	-		
	> 160	-	-	23	46	2	4	-	-		
2.	Body Weight (Kg)									0.536 df=3	P=0.911 NS
	< 45	-	-	5	10	0	0	-	-		
	45.1 – 55	-	-	14	28	1	2	-	-		
	55.1 – 65	-	-	18	36	1	2	-	-		
	> 65	-	-	10	20	1	2	-	-		
3.	Body mass Index									2.908 df=3	P=0.406 NS
	18.5 – 24.9	-	-	17	34	1	2	-	-		
	25 – 24.9	-	-	25	50	1	2	-	-		
	30 – 34.9	-	-	3	6	1	2	-	-		
	35 – 39.9	-	-	2	4	-	-	-	-		
	> 40	-	-	-	-	-	-	-	-		
4.	Sleeping pattern(hrs/ day)									0.992 df=2	P=0.609 NS
	> 6	-	-	7	14	-	-	-	-		
	6 – 8	-	-	21	42	1	2	-	-		
	> 8	-	-	19	38	2	4	-	-		
5.	Dietary pattern									0.045 df=1	P=0.832 NS
	Vegetarian	-	-	13	26	1	2	-	-		
	Non Vegetarian	-	-	34	68	2	4	-	-		
6.	History of smoking									6.717* df=2	P=0.035 SS
	Never	-	-	25	50	-	-	-	-		
	Occasional	-	-	6	12	2	4	-	-		
	Always	-	-	16	32	1	2	-	-		
7.	History of Alcoholism									3.742 df=2	P=0.15 NS
	Never	-	-	25	50	-	-	-	-		
	Occasional	-	-	11	22	2	4	-	-		
	Always	-	-	11	22	1	2	-	-		
8.	History of Chewing Tobacco									2.311 df=2	P=0.315 NS
	Never	-	-	26	52	3	6	-	-		
	Occasional	-	-	15	30	-	-	-	-		
	Always	-	-	6	12	-	-	-	-		

* Statistically significant at $p < 0.05$ SS – Statistically Significant

NS – Not Significant

There was a statistically significant association of history of smoking with level of blood pressure in post test at level $p < 0.05$.

Table: 10

Association of clinical variables with level of blood pressure in post test N=50

S. NO	Demographic Variables	Study group								Chi square value	P-Value																																																																																																																											
		Normal Blood Pressure		Pre hyper-tension		Stage – I Hyper-tension		Stage – II Hyper-tension																																																																																																																														
		No	%	No	%	No	%	No	%																																																																																																																													
1.	Co-morbidity Yes	-	-	29	58	2	4	-	-	0.030 df=1	P=0.864 NS																																																																																																																											
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NS – Not Significant

The above table denotes that there was no statistically significant association of clinical variables with level of blood pressure in post test.

CHAPTER – V

DISCUSSION

There are tremendous changes in the life style pattern of human being which lead to numerous non communicable diseases like hypertension. It is the common disorder globally and increased the health care expenditure. Hence the study was aimed to identify the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital in Kancheepuram district. A total of 50 study participants were recruited from the medical OPD by using purposive sampling technique. Pre test was done for all 50 study participants and post test was done on 7th day following “laughter therapy” the objectives framed were as follows:

1. To identify the effectiveness of laughter therapy on blood pressure among patients with hypertension.
2. To associate the demographic, health and clinical variables with the level of blood pressure in the post test among patients with hypertension.

FIRST OBJECTIVE

- 1. To identify the effectiveness of laughter therapy on blood pressure among patient with hypertension.**

The distribution of level of blood pressure in pre and post test unveiled that all the 50 (100%) study group participants had stage – I systolic and diastolic hypertension, whereas in the post test 45(90%) had pre hypertension systolic and

diastolic blood pressure. The paired “t” value on comparison of pre and post test systolic and diastolic blood pressure within study group participants revealed the statistically significant difference at $p < 0.001$ among study participants. The mean score of pre and post test systolic blood pressure was 144.52 and 126.80mm Hg respectively. The mean score of pre and post test diastolic blood pressure was 94.52 and 82.88mm of Hg respectively. The above scores proved that there was a greater difference between pre and post test systolic and diastolic blood pressure. Further it disclosed that only 5(10%) study group participants had stage I hypertension of both systolic and diastolic in the post test against 50(100%) in pre test.

Because majority of them had reduction in their blood pressure due to laughter therapy and 45(90%) study group participants had pre hypertension systolic and diastolic blood pressure in the post test. It is evident from the above findings that laughter therapy is very effective among patients with hypertension and helped them to have reduction in their blood pressure.

These study findings are further supported by another study conducted by **kripa angenline. A et al (2015)**. The findings disclosed that the practice of laughter therapy for 20-30 minutes(one session per day for 5 days) by the patients with hypertension reduced the blood pressure to 125.15/82.25 mm of Hg, which was statistically significant at $p < 0.05$.

These findings are substantiated by the study conducted by **Khadervali Nagoor et al (2015)** which unveiled that laughter therapy reduced the systolic and diastolic blood pressure and there was a statistically significant difference between

pre and post test at $p < 0.01$. Another study carried out by **SF Jalali et al (2015)** to evaluate the effect of laughter therapy on blood pressure among patients with hypertension disclosed that there was a statistically significant difference between pre and post test on blood pressure at $p < 0.05$.

All the above evidences proved that laughter therapy was very effective to reduce the blood pressure among patients with hypertension.

Thus “H₁-There is a significant difference in the systolic and diastolic blood pressure between pre and post test among patients with hypertension who had been subjected to laughter therapy” is accepted.

SECOND OBJECTIVE

2. To associate the demographic health and clinical variables with the level of blood pressure in the post test among patients with hypertension.

The computation of chi-square value on association of demographic and health variables with level of blood pressure in post test revealed that there was a statistically significant association of educational status with the level of blood pressure among study group participants at $p < 0.05$. Because most of the 14(28%), 12(24%), 10(20%), 7(14%) and 5(10%) study participants had primary school, high school, higher secondary school, graduate and post-graduate level of education. These sort of educational background would have improved their level of understanding about hypertension and enhanced their practice of laughter therapy.

The chi square value on association of history of smoking with level of blood pressure was 6.717, $p = 0.035$ which was statistically significant at $p < 0.05$ in the post test. It shows that reduction of BP is associated with the habit of smoking. Because 25(50%) study participants “never” had the habit of smoking only 17(34%) and 8(16%) were used to smoke “always” and “occasionally”. These findings are supported by a study conducted by **Dhiraj Biswas et al (2015)** which revealed that hypertension was significantly associated with smoking ($p < 0.01$). Further these findings are supported by another study finding which revealed the statistically significant association of blood pressure with smoking according to **HeoSG et al (2014)**.

These study findings disclosed that laughter therapy is very effective to reduce the blood pressure which will prevent complications related to hypertension and promote their well being throughout their survivorship. Since hypertension is a chronic condition, which causes numerous complications and disability which reduces the quality of life. Thus laughter therapy is very important for the patients with hypertension to maintain their blood pressure within normal limit.

CHAPTER – VI
SUMMARY, IMPLICATIONS RECOMMENDATION
AND LIMITATIONS

SUMMARY OF THE STUDY

Hypertension is widely prevalent in India and it can no longer be considered as a single disease entity. It is the leading cause for cardiac, renal and cerebrovascular disorders. Hence the study was aimed to assess the effectiveness of laughter therapy on blood pressure among patients with hypertension.

A quantitative approach of pre experimental one group pre and post test design was chosen for this study. The purposive sampling technique was adopted to recruit the total of 50 study participants.

The structured instrument was devised to assess the effectiveness of laughter therapy on blood pressure among patient with hypertension at a selected hospital, in kancheepuram District. It encompassed 4 parts namely part-I: Demographic, part-II: Health, part-III: Clinical variables and part IV Assessment of blood pressure based on the American heart association recommendations. Pre test was done for study participants and laughter therapy was implemented for 14 days and post test was done.

The data collected were coded, analyzed, tabulated and interpreted. The descriptive and inferential statistics were used for the analysis of data. The result

disclosed that there was a statistically significant difference in the blood pressure between pre and post test at level $p < 0.001$. Thus it is proved that laughter therapy is effective to maintain the blood pressure within normal limit among patients with hypertension.

CONCLUSION

Laughter therapy is an effective intervention to reduce the blood pressure among patients with hypertension. Since hypertension is a chronic disease, the regular practice of laughter therapy helps the patients with hypertension to sustain the blood pressure within normal limit throughout their survivorship. This will reduce the complications related to hypertension and cost of health care.

NURSING IMPLICATIONS

It includes the implications of this study finding in nursing practice, nursing education, nursing administration and nursing research.

NURSING PRACTICE

“An ounce of prevention is worth a pound of cure”.

Benjamin Franklin.

Hypertension is an emerging disease which forces greatest challenges for the nurses. It demands continuous assessment of blood pressure of those patients and impart them knowledge about non pharmacological measures to sustain the blood pressure within the normal limit thereby to prevent complications.

In current scenario novel home remedial measures are inevitable to cater to the needs of the larger population with hypertension. It may include laughter therapy and life style modifications to promote their well being.

This study finding implied that significant emphasis should be given on maintenance of the blood pressure within normal limits throughout their survival. The core of nursing practice is to impart knowledge about hypertension and teach the measures to maintain blood pressure within normal limit among patients with hypertension which will prevent complications related to hypertension.

NURSING ADMINISTRATION

The nurse administrator should plan meticulously to provide quality nursing care to the patients with hypertension with the view of prevention of complications. This study finding implied that maintenance of blood pressure within the normal limit should be given greater emphasis to prevent the complications of hypertension among patients.

The nurse administrator should design evidenced based nursing strategies to provide cost effective approach towards of the maintenance of optimal level of blood pressure among patients with hypertension and to reduce the healthcare expenditure on its complication.

NURSING RESEARCH

The clinical research finding paves the basement for nursing practice. The innovative nursing strategies have to be devised and subjected to research at different care settings. Since patients with hypertension live longer, many new strategies has to be identified and tested, which will help them to promote their

standard of living. The non-pharmacological measures like laughter therapy, yoga, acupressure, meditation, different kinds of exercises can be tested among patients with hypertension according to their ability to practice. This will create the scientific based knowledge for the nursing profession.

RECOMMENDATIONS

1. A prospective longitudinal experimental study can be conducted similarly with large sample size for patients with hypertension.
2. A similar study can be conducted with a larger sample size among patients of different age group with hypertension.
3. A comparative study can be conducted with other types of non pharmacological methods among patients with hypertension.
4. A similar can be conducted with comparison group among patients with pre hypertension.
5. A similar study can be replicated with large sample size for patients with hypertension and different co-morbid illness.

LIMITATIONS

The Researcher experienced little difficulty in teaching the steps of laughter therapy to the study participants. But it was made possible with adequate explanations and live demonstration.

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APPENDIX- A

LETTER SEEKING PERMISSION FOR CONDUCTING THE STUDY



KARPAGA VINAYAGA COLLEGE OF NURSING

**(Recognised by the Indian Nursing Council and Affiliated to the
Tamil Nadu Dr. M.G.R. Medical University, Chennai)**

G.S.T. Road, Chinna Kolambakkam, Palayanoor (P.O.) Madhuranthagam (Tk.)
Kanchipuram Dt. - 603 308. Phone : 044 - 2756 5202 / 2759 8484

Ref: KVCN/2015

Date : 26.06.2015.....

To

The Medical Superintendent
Karpaga Vinayaga Institute of Medical Science
MaduranthagamTk,
Kancheepuram District - 603308.

Respected Sir,

Sub: To request permission for research study –Ms.J.Jemmipriya II year M.Sc(N) Reg.,

This is for your kind information that our II year M.Sc (N) student of this college has selected the following topic for her research work as required by the Tamilnadu Dr.M.G.R. Medical University, Chennai in partial fulfillment of her M.Sc (N) programme.

“A study to identify the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital in Kancheepuram District”.

She would like to conduct research study in Karpaga Vinayaga institute of medical sciences and research centre, Kancheepuram District. Hence I kindly request you to grant permission for her study and extended your guidance and cooperation in this regard.

Thanking you,

Your's faithfully

Dr.T.KOMALAVALLI., Ph.D.,L.L.B

PRINCIPAL

Karpaga Vinayaga College of Nursing
G.S.T. Road, Chinna Kolambakkam,
Maduranthagam.

APPENDIX – B

LETTER PERMITTING TO CONDUCT THE STUDY



KARPAGA VINAYAGA INSTITUTE OF MEDICAL SCIENCES & RESEARCH CENTRE

G.S.T. Road, Chinnakolambakkam, Palayanoor (P.O.), Madhuranthagam (Tk.) Kanchipuram - 603 308.
Phone Office : 044-27565195 Direct : 27566074, Fax : 044-27565170

Prof. Dr. D. PREMKUMAR, MS, PGDIR HM
Medical Superintendent

Date :**29.06.2015**

Ref: KVCN/2015

To

Ms.J.Jemmi Priya
II Year M.Sc (N)
Karpaga Vinayaga College of Nursing
Maduranthagam Tk,
Kancheepuram District- 603 308

Dear,

Sub : Permission to conduct study at KIMS reg,

Ref : Your letter dated 26.06.2015

With reference to your letter, you are permitted to conduct a study entitled “A study to identify the effectiveness of laughter therapy on blood pressure among patients with hypertension at Karpaga Vinayaga institute of medical sciences and research centre, Kancheepuram District” from 01.07.2015 to 30.08.2015 for the partial fulfillment of the requirements for M.Sc(Nursing) Programme.

Medical Superintendent
MEDICAL SUPERINTENDENT
KARPAGA VINAYAGA HOSPITAL
G.S.T Road, Chinnakolambakkam,
Palayanoor Post, Kanchipuram Dist

APPENDIX –C

LAUGHTER THERAPY TRAINING CERTIFICATE

உள்ளத் தெளிவு

உடல் வலிமை

என்றும் இளமை

YOGA KUDIL

MARUTHUVAM SAARNDDHA YOGASANAM (THERAPEUTIC YOGA)

Old 16/1, New 37, Rengarajapuram main road, Rengarajapuram,
Kodambakkam, Chennai - 600 024

☎: 044 - 248 00 564

cell : 98417 91583

MANAVAI.VA.ELENGO, B.Sc., M.A., M.Sc., PGDGC.,B.L., D.Y.T., Ph.d

COURSE DIRECTOR

15.6.2015

CERTIFICATE

This is to certify that Mrs. Jemmi Priya.J, a student of M.Sc Nursing from Karpaga Vinayaga College of Nursing, Kanchipuram, has done her training in Laughter therapy at above address from 11.05.15 to 30.05.15 .

The project work entitled “A study to assess the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital in Kancheepuram District”. She had been trained in that topic and during her training period she has acquitted herself well. She was prompt in her duty and her conduct has been good.



COURSE DIRECTOR

கற்க கற்க களிப்பு கூடும்!

ஆசனம் கற்க அழகு கூடும்!!

தியானம் செய்யத் திறமை கூடும்!!!

APPENDIX –C₁

LAUGHTER THERAPY SESSION

உள்ளத் தெளிவு

உடல் வலிமை

என்றும் இளமை

YOGA KUDIL

MARUTHUVAM SAARNDDHA YOGASANAM (THERAPEUTIC YOGA)

Old 16/1, New 37, Rengarajapuram main road, Rengarajapuram,
Kodambakkam, Chennai - 600 024

☎: 044 - 248 00 564

cell : 98417 91583

MANAVAI.VA.ELENGO, B.Sc., M.A., M.Sc., PGDGC.,B.L., D.Y.T., Ph.d
COURSE DIRECTOR

15.6.2015

TYPICAL LAUGHTER SESSION

Duration: 20-30 minutes (maximum)

Each bout of laughter should last for 30-40 seconds, followed by relaxation.

Two deep breaths are encouraged after every laughter exercise.

Initiation: Bend forward swing your hands in front of your body, inhale and exhale fully.

Step 1: Deep breathing with inhalation through the nose and prolonged exhalation (3 times).

Step 2: Hearty laughter - Laughter by raising both the arms in the sky with the head tilted a little backwards.
Feel as if laughter is coming right from your heart, while laughing chant "Aaa"

Step 3: Hearty laughter - Laughter by raising both the arms in the sky with the head tilted a little backwards.
Feel as if laughter is coming right from your heart, while laughing chant "Eee"

Step 4: Hearty laughter - Laughter by raising both the arms in the sky with the head tilted a little backwards.
Feel as if laughter is coming right from your heart, while laughing chant "Uuu"

Step 5: Silent laughter (with mouth closed) - Laughter with closed mouth and a humming sound, while humming keep on moving in the group and shaking hands with different people.

Step 6: Greeting laughter- Joining both the hands and greeting in Indian style (namaste) or shaking hands in Western style with at least 4-5 people in the group.

Some innovative steps may be added by the researcher.



Laughter Therapist

கற்க கற்க கனிப்பு கூடும்!

ஆசனம் கற்க அழகு கூடும்!!

தியானம் செய்யத் திறமை கூடும்!!!

APPENDIX D

LETTER REQUESTING OPINION AND SUGGESTION OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF TOOL

From

Mrs. Jemmi Priya. J,
MSc Nursing II year,
KarpagaVinayaga College of Nursing,
Maduranthagam Taluk,
Kancheepuram District.

To

Through the proper channel,

Respected Sir/Madam,

Sub: Requisition for opinion and suggestions of experts for establishing content validity of research tool.

Greetings! As a part of the curriculum requirement the following research title is selected for the study “A study to identify the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital in Kancheepuram District.”

I will be highly privileged to have your valuable suggestions with regard to the establishment of content validity of Research tool. So I request you to validate my Research tool and give suggestions about the tool.

Thanking you,

Place:

Yours Sincerely,

Date :

(Jemmi Priya. J)

APPENDIX – D₁

ACCEPTANCE FOR TOOL VALIDATION

I hereby certify that I have validated the Research tool of **Ms. Jemmi Priya.J, II year, M.Sc Nursing** student who is undertaking research study.

“A study to identify the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital in Kancheepuram District”.
The suggestions and advices are herewith enclosed.

Place:

Signature of the expert

Date:

Name and Designation

APPENDIX-E

RESEARCH PARTICIPANTS CONSENT FORM

Dear participants,

I Mrs. Jemmi Priya.J, studying M.Sc(N) II Year at Karpaga Vinayaga College of Nursing, Madhurantakam Taluk, Kancheepuram District. As a part of my study I have selected a topic entitled “A study to identify the effectiveness of Laughter Therapy on blood pressure among patients with hypertension at Karpaga Vinayaga institute of medical sciences and research centre, in Kancheepuram District. The findings of this study will be useful for the patients with hypertension to reduce the blood pressure.

I request you to give your consent and co-operation to carry out this study. All the details that are collected will be kept confidential.

Signature of the Researcher

The details of the study were explained to me clearly. I agree to participate in the above mentioned research study.

Date:

Signature of the respondents

APPENDIX-E₁

ஆராய்ச்சி பங்கேற்பாளர்களின் ஒப்புதல் படிவம்

அன்பான பங்கேற்பாளர்களே,

திருமதி.ஜெம்மிபிரியா ஆகிய நான் காஞ்சிபுரம் மாவட்டம், மதுராந்தகம் தாலுகாவில் அமைந்துள்ள கற்பக விநாயகா செவிலியர் கல்லூரியில் இரண்டாம் ஆண்டு முதுகலை பட்டப்படிப்பு படித்து வருகிறேன். என்னுடைய பாடத்திட்டத்தின் ஒரு பகுதியாக ஆராய்ச்சி படிப்பிற்கு நான் சிரிப்பு சிகிச்சையினால் உயர் இரத்த அழுத்தத்தில் எற்படும் விளைவு என்ற தலைப்பை எடுத்துள்ளேன். இந்த ஆராய்ச்சியின் கண்டுபிடிப்பு உயர் இரத்த அழுத்தம் உள்ளவர்களுக்கு இரத்த அழுத்தத்தினை குறைப்பதற்கு பயன் உள்ளதாக இருக்கும்.

இது தொடர்பான ஆராய்ச்சி படிப்பிற்கு உங்களுடைய சம்மதம் மற்றும் ஒத்துழைப்பை தருமாறு தாழ்மையுடன் கேட்டுக்கொள்கிறேன்.

உங்களுடைய பின்னணி விவரங்கள் ரகசியமாக வைத்து கொள்ளப்படும்.

ஆராய்ச்சியாளர் கையொப்பம்

மேற்கண்ட ஆராய்ச்சி படிப்பில் பங்கேற்பதற்கு முழு மனதுடன் சம்மதம் தெரிவிக்கிறேன். இந்த ஆராய்ச்சியை பற்றிய விவரங்கள் ஆராய்ச்சியாளரால் எனக்கு தெளிவாக விளக்கப்பட்டது.

தேதி:

பங்கேற்பாளர் கையொப்பம்

APPENDIX – F

CERTIFICATE FOR ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation entitled **“A study to identify the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital in Kancheepuram District”** by **Ms.Jemmi Priya. J**, II Year M.Sc Nursing student, Karpaga Vinayaga College of Nursing, was edited for English language appropriateness.

Signature and Designation

APPENDIX –F₁

CERTIFICATE FOR TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation entitled “**A study to identify the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected hospital in Kancheepuram District**” by **Ms.Jemmi Priya. J**, II Year M.Sc Nursing student, Karpaga Vinayaga College of Nursing, was edited for Tamil language appropriateness.

Signature and Designation

APPENDIX- G

LIST OF EXPERTS

1. Dr. Sreelekha M.Sc.(N), Ph.D,
Professor,
Sri Ramachandra College of Nursing, SRMC&RI(DU)
Porur,
Chennai-16.
2. Mrs. Vidhya M.Sc.(N),
Professor,
Meenakshi College of Nursing,
Mangadu,
Meenakshi University,
Chennai.
3. Ms. Kanumilli Visalakshi M.Sc.(N),
Professor and Principal,
Shree Digamber Degree College of Nursing,
Jaipur Road, Bharatpur,
Rajasthan.
4. Ms. Sudhadevi M.Sc.(N),
Professor and Vice Principal,
Vels College of Nursing,
Avadi, Chennai.
5. Dr. Sunil M.D
Karpaga Vinayaga Institute of Medical Sciences and Research Centre,
Maduranthagam taluk, Kancheepuram District.

APPENDIX- H
TOOL FOR THE STUDY

SECTION - A

DEMOGRAPHIC VARIABLES

1. Age in years

- a) 35-38 ()
- b) 39-42 ()
- c) 43-45 ()

2. Gender

- a) Male ()
- b) Female ()

3. Marital Status

- a) Unmarried ()
- b) Married ()
- c) Widow/Widower ()
- d) Separated ()

4. Religion

- a) Hindu ()
- b) Muslim ()
- c) Christian ()
- d) Others ()

5. Educational status

- a) Primary education ()
- b) High School ()
- c) Higher secondary ()
- d) Graduate ()
- e) Post graduate ()
- f) Vocational training ()

6. Occupational status

- a) Labour ()
- b) Former ()
- c) Government Employee ()
- d) Private Employee ()
- e) Business ()

7. Income(Rs per month)

- a) Below Rs.5000/- ()
- b) Rs.5001/- -7500/- ()
- c) Above Rs.7500/- ()

SECTION - B

HEALTH VARIABLES

8. Height(cms)

- a) 140-150 ()
- b) 151-160 ()
- c) Above 160 ()

9. Weight(kg)

- a) Below 45 ()
- b) 45.1-55 ()
- c) 55.1-65 ()
- d) Above 65 ()

10. Body Mass Index

- a) 18.5-24.9 ()
- b) 25-29.9 ()
- c) 30-34.9 ()
- d) 35-39.9 ()
- e) > 40 ()

11. Sleeping pattern(hrs/ day)

- a) < 6 hours ()
- b) 6-8 hours ()
- c) > 8 hours ()

12. Dietary Pattern

- a) Vegetarian ()
- b) Non vegetarian ()

13. Habit of smoking

- a) Never ()
- b) Occasionally ()
- c) Always ()

14. Habit of taking Alcohol

- a) Never ()
- b) Occasionally ()
- c) Always ()

15. Habit of tobacco chewing

- a) Never ()
- b) Occasionally ()
- c) Always ()

SECTION - C

CLINICAL VARIABLES

16. Co-morbidity

- a) Yes ()
- b) No ()

If yes, specify –co morbid illness

- a) Diabetes mellitus ()
- b) Hypothyroidism ()
- c) Bronchial Asthma ()
- d) Diabetes mellitus with Bronchial Asthma ()
- e) Diabetes mellitus with Hypothyroidism ()

17. Time since diagnosis

- a) < 1 year ()
- b) 1- 5 years ()
- c) >5 years ()

18. Use of Anti hypertensive medication

a) Yes ()

b) No ()

19. Duration of treatment

a) Since 1 year ()

b) 1 to 5 years ()

c) More than 5 years ()

d) None ()

SECTION D: ASSESMENT OF BLOOD PRESSURE

20. Blood pressure ----- (mm of Hg)

21. Classification of blood pressure

a) Normal- Category 1 ()

b) Pre hypertension- Category 2 ()

c) Stage1 hypertension- Category 3 ()

d) Stage2 hypertension - Category 4 ()

APPENDIX- G₁
வினாக்கள்

பிரிவு – அ

சமூகம் சார்ந்த பின்னணி விவரம்

குறிப்பு: சரியான விடையை கொடுக்கப்பட்ட கட்டத்தில் (✓)
பூர்த்தி செய்யவும்

1. வயது

அ. 35-38 ()

ஆ. 39-42 ()

இ. 43-45 ()

2. பால்

அ .ஆண் ()

ஆ .பெண் ()

3. திருமண நிலை

அ. திருமணமாகாதவர் ()

ஆ. திருமணமானவர் ()

இ. விதவை / மனைவியை இழந்தவர் ()

ஈ. பிரிந்தவர்கள் ()

4. மதம்

அ. இந்து மதம் ()

ஆ. முஸ்லீம் ()

இ. கிருத்துவர் ()

ஈ. மற்றவர்கள் ()

5. கல்வி தகுதி

அ. ஆரம்ப கல்வி ()

ஆ. நடுநிலை பள்ளி ()

இ. மேல்நிலை ()

ஈ. பட்டதாரி ()

உ. முதுகலை ()

ஊ. தொழிற் பயிற்சி ()

6. வேலை விவரம்

அ. தினகூலி ()

ஆ. விவசாயி ()

இ. அரசு பணியாளர் ()

ஈ. தனியார் பணியாளர் ()

உ. தொழில் முனைவோர் ()

7. வருமானம் (மாதம் ரூ)

அ. ரூ .5000/-குறைவாக ()

ஆ. ரூ 5001/- -7500/- வரை ()

இ. ரூ.7500/- மேலே ()

பிரிவு - ஆ

ஆரோக்கிய விவரம்

8. உயரம் (செ.மீ.)

அ. 140-150 ()

ஆ. 151-160 ()

இ. 160 மேலே ()

9. எடை (கிலோ)

அ. 45க்கு குறைவாக ()

ஆ. 45.1-55 ()

இ. 55.1-65 ()

ஈ. 65 மேலே ()

10. உடல் நிறை குறியீட்டெண்

அ. 18.5-24.9 ()

ஆ. 25-29.9 ()

இ. 30-34.9 ()

ஈ. 35-39.9 ()

உ. 40 மேலே ()

11. தூக்கத்தின் அளவு (நாள் / மணி)

அ. < 6 மணிநேரம் ()

ஆ. 6-8 மணிநேரம் ()

இ. > 8 மணிநேரம் ()

12. உணவுமுறை

அ. சைவம் ()

ஆ. அசைவம் ()

13. புகை பழக்கம்

அ. ஒருபோதும் இல்லை ()

ஆ. எப்போதாவது ()

இ. எப்பொழுதும் ()

14. மது அருந்தும் பழக்கம்

அ. ஒருபோதும் இல்லை ()

ஆ. எப்போதாவது ()

இ. எப்பொழுதும் ()

15. புகையிலை மெல்லும் பழக்கம்

அ. ஒருபோதும் இல்லை ()

ஆ. எப்போதாவது ()

இ. எப்பொழுதும் ()

பிரிவு - இ

பிணி சார்ந்த விவரம்

16. இணை நோய்பாதிப்பு

அ. ஆம் ()

ஆ. இல்லை ()

ஆம், இணை ஆரோக்கியமற்ற நோய் குறிப்பிடு

அ. நீரிழிவு நோய் ()

ஆ. ஹைப்போ தைராய்டு சுரப்பு ()

இ. ஆஸ்துமா ()

ஈ. நீரிழிவு நோய் மற்றும் ஆஸ்துமா ()

உ. நீரிழிவு நோய் மற்றும்
ஹைப்போ தைராய்டு சுரப்பு ()

17. வியாதி நிர்ணயித்து எத்தனை காலம்

அ. < 1 ஆண்டு ()

ஆ. 1- 5 ஆண்டுகள் ()

இ .>5 ஆண்டுகள் ()

18. உயர் இரத்த அழுத்ததை கட்டுப்படுத்தும் மருந்து பயன்பாடு

அ. ஆம் ()

ஆ. இல்லை ()

19. சிகிச்சை காலம்

அ. 1 ஆண்டு காலமாக ()

ஆ. 1 முதல் 5 ஆண்டுகள் ()

இ. 5 ஆண்டுகளுக்கு மேற்பட்டு ()

ஈ .பொருந்தாது ()

APPENDIX I

**LESSON PLAN
ON
LAUGHTER THERAPY**

LAUGHTER THERAPY

Course	:	M.sc (N) II year
Subject	:	Medical Surgical Nursing
Topic	:	Laughter therapy
Group	:	Hypertensive patients
Venue	:	Karpaga Vinayaga Institute of Medical Science and Research Center
Duration	:	45 minutes
Student teacher	:	Mrs. Jemmi Priya. J
Method of teaching	:	Lecture cum demonstration
A.V aids	:	Charts and Handout

GENERAL OBJECTIVE:

On completion of the class the patients will acquire knowledge on laughter therapy and integrate their understanding to demonstrate desirable skill and attitude to practice the same.

SPECIFIC OBJECTIVES:

At the end of the class the patient will be able to

- understand about hypertension.
- define laughter therapy.
- list the benefits of laughter therapy.
- enumerate the contraindications of laughter therapy.
- demonstrate the steps of laughter therapy.

SELF INTRODUCTION

I am Mrs. Jemmi Priya. J, studying II year, M.Sc (N) in Karpaga Vinayaga College of Nursing. I would like to teach you laughter therapy to reduce your blood pressure to normal limit. At the end of the class I would like record your blood pressure. I request you to listen carefully and clarify your doubts.

S.no	Specific Objectives	Time	Content	Teacher activity	Learners activity	Evaluation
1.	At the end of the class the patients will be able to		<p>INTRODUCTION:</p> <p>“Hypertension is a silent killer disease”</p> <p>Hypertension is an important medical and public health issue. It exists worldwide at epidemic rates affecting an estimated 1 billion people. The prevalence of hypertension in Indians is 25% in urban and 10% in rural population. According to estimates there are nearly 31.5 million hypertensive in rural and 34 million in urban populations. Hypertension is directly responsible for 57% of stroke deaths and 24% of coronary artery disease deaths in India. And work tension leads 70% of hypertension.</p>	Explaining	Listening	
	understand about hypertension	5 min	<p>DEFINITION</p> <p>Hypertension:</p> <p>High blood pressure is defined as a repeatedly elevated blood pressure exceeding 140 over 90 mmHg - a systolic pressure above 140 or a diastolic pressure above 90.</p>	Explaining	Listening	What do you mean by hypertension

CLASSIFICATION OF BLOOD PRESSURE

Classification of blood pressure	Systolic (mmHg)	Diastolic (mmHg)
Normal	<120	and <80
Pre hypertension	120-139	or 80-89
Stage1 hypertension	140-159	or 90-99
Stage2 hypertension	≥160	or ≥ 100

RISK FACTORS

- Stress
- Advanced age > 60 years
- Obesity
- Alcoholism
- High intake of salt rich food
- High cholesterol level
- Diabetes mellitus
- Smoking
- Lack of exercises

Listening

Explaining

Listening

Explaining

	2. define laughter therapy	2 min	<p>INVESTIGATION</p> <ul style="list-style-type: none"> • Electrocardiogram • Serum electrolytes level • Renin level in blood • Urine analysis • Lipid profile <p>LAUGHTER THERAPY Laughter therapy is a blend of deep breathing, stretching and stimulating laughter through unique exercises.</p> <p>BENEFITS OF LAUGHTER THERAPY</p> <ul style="list-style-type: none"> • Improves mental function • Exercises and relaxes muscle • Improves respiration • Stimulates circulation • Decreases stress hormones • Increases endomorphins • Strengthens immune system 	Explaining	Listening	What do you mean by laughter therapy
3.	list the benefits of laughter therapy	5 min		Explaining and discussing	Listening	Explain the benefits of laughter therapy

4.	enumerate the contraindications of laughter therapy	3 min	<ul style="list-style-type: none"> • Reduces tension, depression and burnout • Boosts morale and motivates group <p>CONTRAINDICATIONS OF LAUGHTER THERAPY</p> <ul style="list-style-type: none"> • Acute illness • Within 3 months of surgery • Internal bleeding • Severe heart disease • Severe back pain • Severe hernia • Psychiatric condition involving dissociation or paranoia • Seizure , Coughing problems, Urinary incontinence 	Explaining and discussing	Listening	State the contraindications of laughter therapy
5.	demonstrate the steps of laughter therapy	30 min	<p>STEPS OF LAUGHTER THERAPY</p> <p>Each bout of laughter should last for 30-40 seconds, followed by relaxation.</p>	Explaining and demonstrating	Listening and participating	Demonstrate laughter therapy

		<p>Take two deep breaths after every laughter exercise.</p> <p>Initiation: Bend forward swing your hands in front of your body, inhale and exhale fully. (2 min)</p> <p>Step1: Deep breathing with inhalation through the nose and prolonged exhalation (3 times). (1 min 30 sec)</p> <p>Step 2: Hearty laughter - Laughter by raising both the arms in the sky with the head tilted a little backwards. Feel as if laughter is coming right from your heart, while laughing chant “Aaa” (1 min 30 sec)</p> <p>Step 3: Hearty laughter - Laughter by raising both the arms in the sky with the head tilted a little backwards. Feel as if laughter is coming right from your heart, while laughing chant “Eee” (1 min 30 sec)</p> <p>Step 4: Hearty laughter - Laughter by raising both the arms in the sky with the head tilted a little backwards. Feel as if laughter is coming right from</p>	Explaining and demonstrating	Listening and participating	
--	--	--	------------------------------	-----------------------------	--

		<p>your heart, while laughing chant “Uuu” (1 min 30 sec)</p> <p>Step 5: Silent laughter (with mouth closed) - Laughter with closed mouth and a humming sound, while humming keep on moving in the group and shaking hands with different people. (1 min 30 sec)</p> <p>Step 6: Greeting laughter- Joining both the hands and greeting in Indian style (namaste) or shaking hands in Western style with at least 4-5 people in the group. (1 min 30 sec)</p> <p>Step 7: Appreciation laughter- Join your pointing finger with the thumb to make a small circle while making gestures as if you are appreciating your group members and laughing simultaneously. (1 min 30 sec)</p> <p>Step 8: Swinging laughter- Stand in a circle and move towards the centre by chanting Aee...Eeee...Oooo...Uuuu.... (1 min 30 sec)</p> <p>Step 9: Lion laughter: Extend the tongue fully with</p>	<p>Explaining and demonstrating</p>	<p>Listening and participating</p>
		<p>Step 8: Swinging laughter- Stand in a circle and move towards the centre by chanting Aee...Eeee...Oooo...Uuuu.... (1 min 30 sec)</p> <p>Step 9: Lion laughter: Extend the tongue fully with</p>	<p>Explaining and demonstrating</p>	<p>Listening and participating</p>

			eyes wide open and hands stretched out like the claws of lion and laugh from tummy. (1 min 30 sec)		
			Step 10: Argument laughter- Laugh by pointing fingers at different group members as if arguing. (1 min 30 sec)		
			Relaxation: Sit quietly and relax yourself(3 min)		

SUMMARY

So far in this class we have learnt about the meaning of hypertension, risk factors, meaning of laughter therapy, benefits, contraindications and steps to be followed during laughter therapy.

CONCLUSION

Laughter will always be a best medicine. You can maintain you blood pressure within normal limit by practicing laughter therapy.

APPENDIX I₁

சிரிப்பு சிகிச்சை பற்றிய
பாட வரைவுத்திட்டம்

பிரிவு ஆ

சிரிப்பு சிகிச்சை பற்றிய பாட வரைவுத்திட்டம்

தலைப்பு	:	சிரிப்பு சிகிச்சை
குழு	:	உயர் இரத்த அழுத்த நோயாளிகள்
இடம்	:	கற்பக விநாயகா மருத்துவமனை மற்றும் ஆராய்ச்சி வளாகம்
நேரம்	:	45 நிமிடங்கள்
மாணவியின் பெயர்	:	ஜெ.ஜெம்மிபிரியா
கற்பிக்கும் முறை	:	விரிவுரை மற்றும் செய்முறை
உபகரணங்கள்	:	விளக்கப்படம், கையேடு

பொது நோக்கம்:

இந்த வகுப்பின் முடிவில் உயர் இரத்த அழுத்தம் உள்ளவர்கள் சிரிப்பு சிகிச்சையை புரிந்து கொண்டு அதை செயல்படுத்தி வாழ்நாளில் கடைப்பிடிக்க வேண்டும் என்பதே இதன் பொதுவான நோக்கம் ஆகும்.

குறிப்பிட்ட நோக்கங்கள்:

இந்த வகுப்பின் முடிவில் உயர் இரத்த அழுத்தம் உள்ள நோயாளிகள் ஒவ்வொருவரும்

- உயர் இரத்த அழுத்தம் பற்றி புரிந்து கொள்ள வேண்டும்
- சிரிப்பு சிகிச்சை-வரையறுக்க வேண்டும்
- சிரிப்பு சிகிச்சை மற்றும் அதன் பயன்கள் விளக்க வேண்டும்
- சிரிப்பு சிகிச்சை பெற இயலாதோர் பற்றி தெரிந்து கொள்ள வேண்டும்
- சிரிப்பு சிகிச்சையின் நிலைகளை செயல்முறையில் காட்ட வேண்டும்

அறிமுகம்:

அனைவருக்கும் வணக்கம். எனது பெயர் ஜெஜெம்மிபிரியா. நான் கற்பக விநாயகா செவிலியர் கல்லூரியில் இரண்டாம் ஆண்டு முதுகலை பட்டப்படிப்பு படித்து வருகிறேன் .நான் இப்போது உயர் இரத்த அழுத்தத்தினை சிரிப்பு சிகிச்சையின் மூலம் எவ்வாறு கட்டுப்படுத்தலாம் என்பதை உங்களுக்கு கற்பிக்க விரும்புகிறேன். இந்த வகுப்பின் இறுதியில் இரத்த அழுத்தத்தை பரிசோதனை செய்ய விரும்புகிறேன். எனவே கவனமாக கேட்டு புரிந்து கொண்டு இதில் வரும் சந்தேகங்களை தெளிவுப்படுத்திக் கொள்ளுமாறு கேட்டுக் கொள்கிறேன்.

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு
1.	உயர் இரத்த அழுத்தம் பற்றி புரிந்து கொள்ள வேண்டும்	5 நிமிடம்	<p>முன்னுரை: உயர் இரத்த அழுத்தம் என்பது ஒரு அமைதியான உயிர் கொல்லி நோய். இந்நோய் உலகம் முழுவதும் ஒரு பில்லியன் மக்களை தாக்கியுள்ளது. நோய் தாக்கம் நகர்புறங்களில் 25% ஆகவும் கிராமப்புறங்களில் 10% ஆகவும் உள்ளது. புள்ளி விவரங்களின்படி நகர்புறங்களின் 34 மில்லியன் மற்றும் கிராமப்புறங்களில் 31.5 மில்லியன் மக்களில் இந்நோயின் தாக்கம் உள்ளது. இந்நோய் 57% பக்கவாத தாக்குதலுக்கும் 24% இதய நோய் தாக்குதலுக்கும் காரணமாக அமைந்துள்ளது.</p>	விளக்குதல்	கவனித்தல்	உயர் இரத்த அழுத்தம் என்றால் என்ன?

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு												
			<p>வரையறை:</p> <p>உயர் இரத்த அழுத்தம்: உயர் இரத்த அழுத்தம் என்பது இரத்த அழுத்தம் தொடர்ந்து அதிகரித்து 140/90 mmHg என்ற அளவில் இருப்பதாகும். அதாவது சிஸ்டோல் 140 க்கும் மேல் அல்லது டயஸ்டோல் 90 க்கும் மேல்.</p> <p>இரத்த அழுத்தத்தின் வகைப்பாடு:</p> <table border="1"> <thead> <tr> <th>வகைப்பாடு</th> <th>சிஸ்டாலிக் mmHg</th> <th>டயஸ்டோல் mmHg</th> </tr> </thead> <tbody> <tr> <td>சீரான அளவு</td> <td><120</td> <td><80</td> </tr> <tr> <td>அடிப்படை உயர் இரத்த அழுத்தம்</td> <td>120-139</td> <td>80-89</td> </tr> <tr> <td>முதல் நிலை உயர் இரத்த அழுத்தம்</td> <td>140-159</td> <td>90-99</td> </tr> </tbody> </table>	வகைப்பாடு	சிஸ்டாலிக் mmHg	டயஸ்டோல் mmHg	சீரான அளவு	<120	<80	அடிப்படை உயர் இரத்த அழுத்தம்	120-139	80-89	முதல் நிலை உயர் இரத்த அழுத்தம்	140-159	90-99	விளக்குதல்	கவனித்தல்	
வகைப்பாடு	சிஸ்டாலிக் mmHg	டயஸ்டோல் mmHg																
சீரான அளவு	<120	<80																
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முதல் நிலை உயர் இரத்த அழுத்தம்	140-159	90-99																
				விளக்குதல்	கவனித்தல்													

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு			
			<table border="1"> <tr> <td>இரண்டாம் நிலை உயர் இரத்த அழுத்தம்</td> <td>> 160</td> <td>> 100</td> </tr> </table> <p>ஆபத்து காரணிகள்</p> <ul style="list-style-type: none"> • மன அழுத்தம் • 60 வயதுக்கும் மேல் • உடல் பருமன் • மது அருந்துதல் • உப்பு அதிகம் சேர்த்துக் கொள்ளுதல் • இரத்த நாளத்தில் கொழுப்பு சேருதல் • நீரிழிவு நோய் • புகை பிடித்தல் • போதுமான உடற்பயிற்சி இன்மை 	இரண்டாம் நிலை உயர் இரத்த அழுத்தம்	> 160	> 100	விளக்குதல்	கவனித்தல்	
இரண்டாம் நிலை உயர் இரத்த அழுத்தம்	> 160	> 100							

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு
			<p>ஆய்வக பரிசோதனை முறைகள்</p> <ul style="list-style-type: none"> • சுருள்படம் • சீரம் எலக்ட்ரோலைட் • இரத்த ரெனின் நிலை • சிறுநீர் பரிசோதனை • கொழுப்பு பரிசோதனை <p>சிரிப்பு சிகிச்சை</p> <p>சிரிப்பு சிகிச்சை என்பது ஆழ்ந்த சுவாசம் மற்றும் சிரிப்பு வரவழைக்க கூடிய வழிமுறைகள் அடங்கியது.</p> <p>பயன்கள்</p> <ul style="list-style-type: none"> • மனநலத்தை சீராக்கும் • தசைகளை இயக்குகிறது • சுவாசத்தை சீராக்கும் 	விளக்குதல்	கவனித்தல்	
2.	சிரிப்பு சிகிச்சை- வரையறுக்க வேண்டும்	2 நிமிடம்		விளக்குதல்	கவனித்தல்	சிரிப்பு சிகிச்சை என்றல் என்ன?
3.	சிரிப்பு சிகிச்சை மற்றும் அதன் பயன்கள் விளக்க	5 நிமிடம்		விளக்குதல்	கவனித்தல்	சிரிப்பு சிகிச்சை பயன்கள்

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு
	வேண்டும்		<ul style="list-style-type: none"> • இரத்த சூழற்சியை ஒழுங்குபடுத்தும் • மனஅழுத்தத்தை குறைக்கும் • என்டோமார்பின்களை அதிகரிக்கும் • நோய் எதிர்ப்பு சக்தியை வலுப்படுத்தும் • நன்னெறிகளை ஊக்குவிக்கிறது 			யாவை?
4.	சிரிப்பு சிகிச்சை பெற இயலாதோர் பற்றி தெரிந்து கொள்ள வேண்டும்	3 நிமிடம்	<p>சிரிப்பு சிகிச்சை பெற இயலாதோர்</p> <ul style="list-style-type: none"> • உடல்நலக் குறைவு • அறுவை சிகிச்சை முடிந்து மூன்று மாதங்களுக்கு குறைவான கால அளவு • உள் இரத்தக்கசிவு • இதய நோய்கள் 	விளக்குதல்	கவனித்தல்	சிரிப்பு சிகிச்சை பெற இயலாதோர் யார்?

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு
5.	சிரிப்பு சிகிச்சையின் நிலைகள் செயல்முறையல் காட்டவேண்டும்	30 நிமிடம்	<ul style="list-style-type: none"> • கடுமையான முதுகு வலி • குடல் இறக்கம் • மனநலன் பாதிக்கப்பட்டோர் • தொடர் இருமல் • சிறுநீர் அடங்காமை <p>சிரிப்பு சிகிச்சை- நிலைகள்: ஒவ்வொரு சிரிப்பு சிகிச்சையும் 30-40 விநாடிகளுக்கு இருக்க வேண்டும். இதை தொடர்ந்து உடல் ஓய்வு நிலை. இரண்டு ஆழமான சுவாசங்கள் ஒவ்வொரு சிரிப்பு உடற்பயிற்சியை தொடர்ந்து செய்ய வேண்டும். மொத்த கால அளவு: 20 நிமிடம்</p> <p>தொடக்கநிலை: உடலை முன்புறம்</p>	செயல்முறையோடு விளக்குதல்	கவனித்தல்	சிரிப்பு சிகிச்சையின் நிலைகள் செய்து கட்டவும்

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு
			<p>வளைத்து. இரு கைகளையும் தளர்வாக உடலுக்கு முன்புறம் கொண்டு செல்ல வேண்டும். பிறகு மூச்சை உள்ளிழுத்து, வெளியேற்ற வேண்டும்.</p> <p>(2 நிமிடம்)</p> <p>நிலை 1:</p> <p>ஆழ்ந்த சுவாசத்துடன் மூக்கின் வழியாக மூச்சை உள்ளிழுக்க வேண்டும். அதை சிறிது நேரம் நிலை நிறுத்தி, பிறகு வெளியேற்றவும். (1 நிமிடம் 30 விநாடி)</p> <p>நிலை 2: மனதாரந்த சிரிப்பு</p> <p>தலையை சிறிது பின்புறமாக சாய்த்து, இரு கைகளையும் வானநோக்கி உயர்த்தி சிரிக்கவும், மனதிலிருந்து சிரிப்பு போல் உணரவும். அவ்வாறு சிரிக்கும் பொது “ஆ ஆ” என்று கூற</p>	செயல்முறையோடு விளக்குதல்	கவனித்தல்	

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு
			<p>வேண்டும். (1 நிமிடம் 30 விநாடி)</p> <p>நிலை 3 : மனதார்ந்த சிரிப்பு</p> <p>தலையை சிறிது பின்புறமாக சாய்த்து, இரு கைகளையும் வானநோக்கி உயர்த்தி சிரிக்கவும், மனதிலிருந்து சிரிப்பது போல் உணரவும். அவ்வாறு சிரிக்கும் பொது “ஈ ஈ” என்று கூற வேண்டும். (1 நிமிடம் 30 விநாடி)</p> <p>நிலை 4 : மனதார்ந்த சிரிப்பு</p> <p>தலையை சிறிது பின்புறமாக சாய்த்து, இரு கைகளையும் வானநோக்கி உயர்த்தி சிரிக்கவும், மனதிலிருந்து சிரிப்பது போல் உணரவும். அவ்வாறு சிரிக்கும் பொது “ஊ ஊ” என்று கூற வேண்டும். (1 நிமிடம் 30 விநாடி)</p>	<p>செயல்முறையோடு விளக்குதல்</p>	<p>கவனித்தல்</p>	

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு
			<p>நிலை 5 : அமைதியாக சிரித்தல் (வாய் மூடி சிரிக்கவும்)</p> <p>வாயை மூடி மெளனமாக பாடிக் கொண்டே குழுவில் இருக்கும் மற்ற நபர்களுடன் கையை குலுக்கவும். (1 நிமிடம் 30 விநாடி)</p> <p>நிலை 6: வணங்கி சிரித்தல்</p> <p>இரு கைகளையும் கூப்பி நமஸ்காரம் செய்து கொண்டு சிரிக்கவும் (இந்திய முறைப்படி) அல்லது மேல் நாட்டு கலாச்சாரப்படி 4-5 பேருடன் கைகளை குலுக்கி சிரிக்கவும். (1 நிமிடம் 30 விநாடி)</p> <p>நிலை 7: உற்சாக சிரிப்பு</p> <p>ஆள்காட்டி விரலை கட்டை விரலுடன் சேர்த்து மற்றவர்களை</p>	<p>செயல்முறை- யோடு விளக்குதல்</p>	<p>கவனித்தல்</p>	

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு
			<p>உற்சாகப்படுத்துவது போல் உடலை முன்புறமாக வளைத்து சிரிக்கவும். (1 நிமிடம் 30 விநாடி)</p> <p>நிலை 8: ஊஞ்சல் சிரிப்பு</p> <p>வட்டமாக நின்று கொண்டு வட்டத்தின் நடுபுறம் நோக்கி சென்று சிரிக்கவும். சிரிக்கும்போது “ஏ ஏ, ஈ ஈ, ஒ ஒ, ஊ ஊ ஊ” என்று கூறவும். (1 நிமிடம் 30 விநாடி)</p> <p>நிலை 9: சிங்க சிரிப்பு</p> <p>நாக்கை முழுவதும் வெளியே தள்ளி, கண்களை அகலமாக விரித்து சிங்கத்தின் உருவத்தை போல உடலை வளைத்து, வயிற்றுப் பகுதியில் இருந்து சிரிக்க வேண்டும். (1 நிமிடம் 30 விநாடி)</p>	<p>செயல்முறை- யோடு விளக்குதல்</p>	<p>கவனித்தல்</p>	

வ.எண்	குறிப்பிட்ட நோக்கங்கள்	காலம்	பொருளடக்கம்	ஆசிரியர் செயல்பாடு	கவனிப்போர் செயல்பாடு	மதிப்பீடு
			நிலை10: விவாத சிரிப்பு ஆள்காட்டி விரலை மற்றவர்களை நோக்கி நீட்டி விவாதம் செய்வது போல வைத்துக் கொண்டு சிரிக்கவும்.(1 நிமிடம் 30 விநாடி) ஓய்வெடுத்தல்: அமைதியாக உட்கார்ந்து ஓய்வெடுக்கவும். (3 நிமிடம்)	செயல்முறையோடு விளக்குதல்	கவனித்தல்	

பாட சுருக்கம்:

இந்த வகுப்பில் இதுவரை நாம் உயர் இரத்த அழுத்தம், ஆபத்து காரணிகள், சிரிப்பு சிகிச்சை மற்றும் அதன் பயன்கள், நிலைகள் பற்றி அறிந்து கொண்டோம்.

முடிவுரை:

சிரிப்பு என்பது எப்போதுமே மிகச்சிறந்த மருந்து “வாய் விட்டு சிரித்தால் நோய் விட்டு போகும்” என்ற பழமொழிக்கு இணங்க சிரிப்பு சிகிச்சையை பின்பற்றி நம் இரத்த அழுத்தத்தை கட்டுக்குள் வைப்போம்.

APPENDIX J

Age	Gender	Marital status	Religion	Education	Occupation	Income	Ht (cm)	Wt (kg)	Bmi	Sleeping	Dietary	Smoking	Alcoholism	Tobacco	Co-morbidity	Co-mor ill	Ts diag	Antihyperte nsive	Du treat	Pre bp sys	Pre bp dia	Pre clsi bp	Pt bp sys	Pt bp dia	Pt classi bp
1	1	2	1	2	2	1	3	4	3	3	2	3	3	1	1	1	2	1	2	142	94	3	124	86	2
2	1	2	1	1	2	1	2	2	1	2	2	2	2	1	2	0	3	1	3	140	96	3	124	82	2
3	1	3	1	6	4	3	3	3	2	2	2	3	3	2	1	2	1	1	1	148	90	3	120	80	2
2	1	2	1	5	4	3	3	3	2	2	1	3	2	1	1	1	2	1	2	156	94	3	128	84	2
1	1	2	1	1	1	2	2	2	1	1	2	2	2	1	1	2	2	1	2	142	98	3	130	80	2
2	1	2	1	4	4	3	3	3	2	2	2	3	3	1	2	0	3	1	3	140	92	3	124	86	2
2	1	4	1	2	2	1	2	2	1	2	1	3	2	2	1	3	2	1	2	146	96	3	124	84	2
1	1	2	1	4	4	3	3	3	2	3	2	3	3	1	1	1	1	1	1	140	90	3	122	82	2
3	1	2	2	3	1	2	2	2	1	2	2	2	2	1	1	5	3	1	3	142	98	3	124	84	2
2	1	2	1	5	4	3	3	4	4	3	2	3	3	1	2	0	2	1	2	140	96	3	122	82	2
1	1	3	1	1	2	1	1	1	1	2	2	2	2	2	1	2	1	1	1	150	98	3	126	84	2
3	1	2	1	3	1	2	3	3	2	3	2	3	2	1	1	1	1	1	1	142	94	3	128	84	2
2	1	4	1	2	2	1	2	2	2	2	1	3	3	1	2	0	2	1	2	142	90	3	124	84	2
3	1	2	3	5	5	3	3	3	2	3	2	3	3	1	1	3	2	1	2	158	98	3	128	82	2
2	1	2	1	4	3	3	2	2	1	1	2	2	2	2	1	1	3	1	3	142	98	3	126	82	2
1	1	2	1	6	4	3	3	4	3	3	1	3	3	1	2	0	2	1	2	150	92	3	126	82	2
3	1	2	2	3	5	3	3	3	2	2	2	3	2	1	1	4	2	1	2	156	96	3	128	82	2
3	1	1	1	1	2	1	1	1	1	2	2	2	2	1	1	2	1	1	1	140	94	3	128	80	2

Age	Gender	Marital status	Religion	Education	Occupation	Income	Ht (cm)	Wt (kg)	Bmi	Sleeping	Dietary	Smoking	Alcoholism	Tobacco	Co-morbidity	Co-mor ill	Ts diag	Antihyperte nsive	Du treat	Pre bp sys	Pre bp dia	Pre clsi bp	Pt bp sys	Pt bp dia	Pt classi bp
2	1	2	1	4	3	3	3	3	2	3	1	3	3	2	1	1	3	1	3	144	98	3	128	82	2
1	1	3	1	2	2	1	2	2	1	2	2	3	3	1	2	0	2	1	2	140	90	3	128	82	2
3	1	2	1	5	3	3	3	3	2	3	2	2	2	1	1	2	2	1	2	146	92	3	124	80	2
1	1	4	3	4	3	3	2	2	1	2	2	3	3	2	1	4	1	1	1	140	98	3	126	80	2
3	1	2	1	3	2	1	3	4	3	3	2	2	2	1	1	1	2	1	2	148	98	3	124	82	2
2	1	2	2	1	1	2	2	3	2	3	2	3	2	2	1	3	2	1	2	140	92	3	128	80	2
1	1	3	1	5	4	3	3	4	2	2	1	3	3	1	2	0	3	1	3	150	96	3	126	80	2
3	2	2	1	1	2	1	2	2	1	2	2	1	1	2	1	5	1	1	1	140	90	3	124	86	2
2	2	2	1	2	1	2	3	3	2	3	2	1	1	1	1	3	2	1	2	152	96	3	124	82	2
3	2	2	1	1	2	1	1	2	1	2	2	1	1	2	2	0	2	1	2	140	98	3	120	80	2
2	2	3	3	3	4	3	3	4	4	3	1	1	1	1	2	0	3	1	3	150	92	3	128	84	2
1	2	2	1	1	1	2	2	3	2	3	2	1	1	3	1	1	2	1	2	144	98	3	130	80	2
3	2	1	1	2	2	1	1	1	1	2	2	1	1	1	1	5	1	1	1	144	94	3	124	86	2
2	2	2	2	3	4	3	3	3	2	3	2	1	1	1	2	0	2	1	2	142	96	3	124	84	2
2	2	2	1	1	1	2	2	2	1	2	1	1	1	2	2	0	1	1	1	140	98	3	122	82	2
3	2	2	1	2	2	1	3	3	2	3	2	1	1	3	2	0	3	1	3	140	96	3	124	84	2
1	2	4	1	4	3	3	1	1	1	1	1	1	1	1	1	1	2	1	2	144	90	3	122	82	2
3	2	2	1	1	1	2	2	3	2	2	2	1	1	2	2	0	2	1	2	140	98	3	126	84	2
2	2	2	1	3	4	3	3	4	2	3	1	1	1	1	1	2	1	1	1	140	94	3	128	84	2
1	2	2	3	1	2	1	2	2	1	1	2	1	1	3	2	0	3	1	3	146	92	3	124	84	2
3	2	3	1	2	2	1	3	3	2	3	2	1	1	1	2	0	2	1	2	150	98	3	128	82	2

Age	Gender	Marital status	Religion	Education	Occupation	Income	Ht (cm)	Wt (kg)	Bmi	Sleeping	Dietary	Smoking	Alcoholism	Tobacco	Co-morbidity	Co-mor ill	Ts diag	Antihyperte nsive	Du treat	Pre bp sys	Pre bp dia	Pre clsi bp	Pt bp sys	Pt bp dia	Pt clasi bp	
1	2	2	1	1	1	2	1	2	1	1	1	1	1	2	1	1	1	1	1	1	142	96	3	126	82	2
1	2	2	1	3	4	3	3	3	2	3	2	1	1	1	2	0	3	1	3	3	140	92	3	126	82	2
2	2	3	2	2	2	1	2	3	2	2	2	1	1	3	1	3	2	1	2	2	142	98	3	128	82	2
3	2	2	1	2	1	2	1	2	2	2	2	1	1	2	2	0	2	1	2	2	140	94	3	128	80	2
2	2	2	1	1	2	1	3	4	3	3	1	1	1	1	1	4	1	1	1	1	142	92	3	128	82	2
1	2	3	3	2	1	2	2	4	2	3	2	1	1	3	1	1	3	1	3	3	140	90	3	128	82	2
3	2	2	1	4	4	3	3	4	2	2	1	1	1	1	2	0	1	1	1	1	152	96	3	124	80	2
3	2	2	1	2	1	2	1	1	1	1	2	1	1	2	1	4	2	1	2	2	142	92	3	126	80	2
2	2	4	2	3	4	3	3	3	2	3	2	1	1	1	1	1	3	1	3	3	158	96	3	124	82	2
1	2	2	1	1	2	1	2	2	1	1	2	1	1	3	2	0	1	1	1	1	140	90	3	128	80	2
1	2	2	1	3	4	3	3	4	2	2	1	1	1	2	1	3	2	1	2	2	152	92	3	126	80	2

APPENDIX K
PHOTOGRAPHS OF THE STUDY

Scholar taking blood pressure



Scholar checking weight



Scholar recording data



Scholar demonstrating steps of laughter therapy

a. Initiation



b. Step1: Deep breathing



c. Step 2: Hearty laughter - chant "Aaa"



d. Step 3: Hearty laughter - chant “Eee”



e. Step 4: Hearty laughter - chant “Uuu”



f. Step 5: Silent laughter - Laughter with closed mouth and shaking hands



g. Step 6: Greeting laughter



h. Step 7: Appreciation laughter



i. Step 8: Swinging laughter



j. Step 9: Lion laughter



k. Step 10: Argument laughter

