

**A STUDY TO ASSESS THE EFFECTIVENESS OF INFORMATION,  
EDUCATION AND COMMUNICATION PACKAGE ON  
KNOWLEDGE AND ATTITUDE TOWARDS  
CONTROLLING BLOOD PRESSURE  
AMONG CLIENTS WITH PRIMARY  
HYPERTENSION IN ASHWIN  
HOSPITAL, COIMBATORE**

**By**

**Reg. No: 301211103**

**A DISSERTATION SUBMITTED TO THE TAMIL NADU  
Dr. M. G. R. MEDICAL UNIVERSITY, CHENNAI IN  
PARTIAL FULFILLMENT OF REQUIREMENT  
FOR THE DEGREE OF MASTER OF  
SCIENCE IN NURSING**

**OCTOBER 2014**

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**EXTERNAL**

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**OCTOBER 2014**



*Dedicated to  
Almighty God,  
Loving Parents,  
Dear Husband,  
Brothers, Sisters,  
Friends & Well  
wishers*

## ACKNOWLEDGEMENT

Glory to **Almighty God** for giving me His grace, love, compassion and immense showers of blessings bestowed on me, which gave me the strength and courage to overcome all difficulties and enabled me to achieve this target peacefully.

I sincerely acknowledge my indebtedness to **My Husband Mr. Anoop. C. Cherian, My Parents, Brothers, Sisters** and **Friends** for their prayer, love, support, encouragement and help throughout my study.

I am grateful to **Dr. L.P. Thangavalu, MS, F.R.C.S**, Chairman and **Mrs. Shanthi Thangavelu, M.A.**, Correspondent of P.P.G group of institutions, Coimbatore for their encouragement and providing the source of success for the study.

It is my long felt desire to express my profound gratitude and exclusive thanks to **Dr. P. Muthulakshmi, M.Sc(N), M.Phil., Ph.D.**, Principal, P.P.G college of nursing. It is a matter of fact that without her esteemed suggestions, highly scholarly touch and piercing insight from the inception till the completion of the study, this work could not have been presented in the manner it has been made. Her timely encouragement supported me a lot throughout my study, which is truly immeasurable and also express my gratitude for her valuable guidance and help in the statistical analysis of the data which is the core of the study

It is a great privilege to express my sincere thanks and deep sense of indebtedness to my esteemed subject guide **Prof. B. Rajalakshmi, M.Sc(N), Ph.D.**, Department of Medical Surgical Nursing for her keen support, encouragement, guidance, valuable suggestions and constructive evaluations which have enabled me to shape this research as a worthy contribution.

I express my sincere thanks to **Dr. Padmaja. M.D.**, for her constant support, valuable suggestions and guidance.

I extend my sincere thanks to **Mrs. Kavitha, M.Sc(N), Mrs. Violet Anita M.Sc(N), Miss. Rusha, M.Sc(N), and Mr. Shikky Shimmy, M.Sc(N)**, Department of Medical Surgical Nursing for their esteemed suggestions, constant support, timely help and guidance till the completion of my study.

I express my respect and tribute to **Prof. L. Kalaivani, M.Sc(N), Ph.D.**, (Obstetrics and Gynecological Nursing), **Prof. Jeyabarathi, M.Sc(N), Ph.D.**, (Child Health Nursing), **Mrs. Mani Bharathi M.Sc(N), Ph.D.**, (Class Coordinator) and all other **Faculty Members** of P.P.G College of Nursing for their valuable suggestions, co-operation and timely support throughout the endeavour.

I express my sincere gratitude to **Prof. Venugopal**, for his scientific advice and help in research and biostatistics. Without his help, this work would have been meaningless.

I take this opportunity to thank the **Experts** who have done the content validity and gave valuable suggestions in the modifications of the tool.

I extend my thanks to the **Dissertation Committee Members** for their healthy criticism and supportive suggestions which moulded the research.

I thank the **Librarian** and **Assistant Librarian** for their kind co-operation in providing the necessary materials.

I would also express my sincere thanks to **Mr. N. Siva Kumar** of **Nawal Comtech Solutions**, Saravanampatti for his patience, dedication and timely co-operation in typing this manuscript.

I duly acknowledge all the **Participants** in the study for their esteemed presence and co-operation without which I could not have completed the work.

I thank **All My Friends especially in P.P.G College and Ashwin Hospital and Well Wishers** who helped me directly and indirectly throughout the study and my professional life.

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# CHAPTER - I

## Introduction

*“Sometimes what you don’t know can kill you,  
but putting knowledge into action can save your life”*

*- ASH*

Health is the level of functional or metabolic efficiency of a living being. In humans, it is the general condition of a person's mind and body, usually meaning to be free from illness, injury or pain. Health is defined as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (World Health Organisation, 1946).

The cardiovascular system is responsible for delivery of blood, which carries oxygen and other nutrients to the tissues of the body. Cardiovascular disease is the leading cause of deaths worldwide, though since the 1970s, cardiovascular mortality rates have declined in many high-income countries. At the same time, cardiovascular deaths and disease have increased at a fast rate in low and middle-income countries. It currently causes 17.3 million deaths every year (World Health Organisation, 2013).

The causes of cardiovascular diseases are diverse but atherosclerosis and/or hypertension are the most common. Additionally, with aging a number of physiological and morphological changes occur that alter cardiovascular function and lead to subsequently increased risk of cardiovascular disease, even in healthy asymptomatic individuals (American Heart Association, 2012).

Ajay Sunder (2013) stated that Hypertension (HTN) or high blood pressure, sometimes called arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated. This requires the heart to work harder than normal to circulate blood through the blood vessels. Blood pressure is summarised by two measurements, systolic and diastolic, which depend on whether the heart muscle is contracting (systole) or relaxing between beats (diastole).

Hypertension was previously defined as blood pressure greater than 140/90 mm Hg and treatment of High Blood Pressure was classified in stages, according the degree of severity (Joint National Committee on Detection, Evaluation, 1992).

High blood pressure is a silent killer. It usually shows no symptoms and many people do not realize they have it. High blood pressure, also known as raised blood pressure or hypertension increases the risk of heart attacks, strokes and kidney failure. Even moderate elevation of arterial blood pressure is associated with a shortened life expectancy. If left uncontrolled, high blood pressure can also cause blindness, irregularities of the heart beat and heart failure (Jasim. N, 2013).

Raghupathy (2014) reported that High blood pressure is a major public health problem in India and its prevalence is rapidly increasing among both urban and rural populations. In fact, hypertension is the most prevalent chronic disease in India. About 33% urban and 25% rural Indians are hypertensive. Of these, 25% rural and 42% urban Indians are aware of their hypertensive status. Only 25% rural and 38% of urban Indians are being treated for hypertension. One-tenth of rural and one-fifth of urban Indian hypertensive population have their BP under control.

Ajeet. S. B (2014) stated that overall prevalence of hypertension is 17%, with 21.4% in the urban population and 14.8% in the rural population. Increasing age, parental history of hypertension, tobacco smoking, tobacco chewing, physical inactivity, high estimated per capita salt consumption, and  $BMI \geq 27.5 \text{ kg/m}^2$  are the independent predictors for hypertension in the urban population, while in the rural population, increasing age, physical inactivity, central obesity, tobacco chewing and tobacco smoking are the predictors.

Plianbangchang. S (2013) stated that 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 blood pressure regularly.

American Heart Association (2012) stated eight main ways to control blood pressure. They are; eat a better diet, which may include reduction of salt, regular physical activity, maintain a healthy weight, manage stress, avoid tobacco smoke, comply with medication prescriptions, limit alcohol. Adopting a healthy lifestyle is critical for the prevention of high blood pressure and an indispensable part of managing it. Adopt these changes as lifestyle prescription and make every effort to comply with them. By adopting a heart-healthy lifestyle, we can reduce high blood pressure, prevent or delay the development of hypertension, enhance the effectiveness of blood pressure medications, lower the risk of heart diseases.

Reducing blood pressure can decrease cardiovascular risk and this can be achieved by lifestyle measures in mild cases and should be the initial approach to hypertension management in all cases. This includes dietary interventions, weight

reduction, tobacco cessation, and physical activity. Comprehensive hypertension management should focus not only on reducing the blood pressure, but reducing the cardiovascular risk by lifestyle measures, lipid management, smoking cessation, and regular exercise (Gupta, 2005).

### **Need for the Study**

WHO (2014) stated that hypertension or high blood pressure affects at least 1 billion people worldwide. It increases the risk of heart failure by two or three-fold and probably accounts for about 25% of all cases of heart failure. In addition, hypertension precedes heart failure in 90% of cases, and the majority of heart failure in the elderly may be attributable to hypertension. Hypertensive heart disease was estimated to be responsible for 1.0 million deaths worldwide in 2004 (or approximately 1.7% of all deaths globally), and was ranked 13<sup>th</sup> in the leading global causes of death for all ages.

One out of three adults in South-East Asia Region is affected by high blood pressure. It is the leading risk factor for mortality claiming nearly 1.5 million lives each year in the region. High blood pressure is increasing in the region due to rapid urbanization and globalization leading to adoption of unhealthy lifestyles (Prabhudeva, 2013).

American Society of Hypertension (2011) stated that having high blood pressure increases the risk for heart disease and stroke, leading causes of death in the United States. High blood pressure was a primary or contributing cause of death for 348,000 Americans in 2008, or nearly 1,000 deaths a day. 67 million American adults

(31%) have high blood pressure; that's 1 in every 3 American adults. 36 million American adults with high blood pressure don't have it under control.

In India, among adults one in three was found to have a raised blood pressure and about half of them remained undetected during WHO surveys. The number of hypertensives in India was expected to nearly double from 118 million in 2000 to 213 million by 2025. However, recently it is estimated that among those aged 25 years in 2013, there are already about 199 million hypertensives currently which include 103 million men and 96 million women (Samlee, 2013).

Individuals whose blood pressure is higher than 140/90 mm Hg often become patients treated for serious cardiovascular problems. 77% of Americans treated for a first stroke, 69% who have a first heart attack and 74% with congestive heart failure have blood pressure over 140/90. Although hypertension is a highly prevalent disease in older populations, risk factors for developing hypertension have been studied primarily in younger cohorts. Lifestyle modification would prevent number of hypertension cases in younger and older populations (Cohen, 2012).

Alexopoulos.E.C, et.al., (2013) stated that in Western societies, cardiovascular disease is the primary cause of mortality, and high blood pressure is the main reversible factor leading to cardiovascular disease. Dietary habits and psychosocial stress is the main factors contributing to the establishment of hypertension.

Smith. P. J, et.al., (2012) stated that although the Dietary Approaches to Stop Hypertension (DASH) diet is an accepted non-pharmacologic treatment for

hypertension, little is known about what patient characteristics affect dietary adherence and what level of adherence is needed to reduce blood pressure.

The investigator from her personal experience during her clinical posting identified that most of the patients with hypertension admitted in hospital were not aware of the various risk factors leading to hypertension and its complications which could have been easily prevented if they have adequate knowledge about and have a positive attitude towards blood pressure control. So the investigator decided to conduct a study to evaluate the effectiveness of Information, Education and Communication on knowledge and attitude towards controlling blood pressure among clients with hypertension.

### **Statement of the Problem**

A study to assess the effectiveness of Information, Education and Communication package on knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension in Ashwin Hospital, Coimbatore.

### **Objectives**

- To assess the knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension.
- To deliver Information, Education and Communication package among clients with Primary Hypertension.
- To evaluate the effectiveness of IEC package on knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension.
- To find out the correlation between the knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension.

- To find out the association between knowledge and selected demographic variables among clients with Primary Hypertension.
- To find out the association between attitude and selected demographic variables among clients with Primary Hypertension.

### **Hypothesis**

**H<sub>1</sub> :** The knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension will be significantly improved by IEC package.

**H<sub>2</sub> :** The knowledge and attitude will have significant association with demographic variables among patients with primary hypertension.

### **Operational Definitions**

#### **Effectiveness**

It refers to the improvement of knowledge and attitude towards controlling blood pressure which is explored by the scores of the knowledge questionnaire and attitude questionnaire.

#### **IEC package**

It refers to the sharing of information and ideas about primary hypertension by teaching with the help of power point presentation and distribution of booklet.

#### **Knowledge**

It refers to the amount of information the client with Primary Hypertension possess about controlling blood pressure, which is explored by the knowledge questionnaire.

**Attitude**

It refers to the feeling and belief of the client with Primary Hypertension towards controlling blood pressure, which is explored by the attitude questionnaire.

**Controlling of Blood Pressure**

The measures to be followed by an individual to control their blood pressure which includes weight reduction, dietary modification, sodium restriction, regular exercise, avoidance of alcohol and avoidance of tobacco along with regular intake of medication.

**Primary Hypertension**

It refers to individual who are diagnosed with to have hypertension with blood pressure of 140-180/90-110 mm of Hg.

**Assumptions**

- Patients with Primary Hypertension have inadequate knowledge in controlling blood pressure.
- The knowledge of patients in controlling blood pressure influences attitude.
- The IEC package improves the knowledge and attitude towards controlling blood pressure among patients with Primary Hypertension.

## **CHAPTER - II**

### **Review of Literature**

Review of literature is an important step in the development of a research project. It involves systematic identification of location scrutiny and survey of written material that contain information on research problem (Polit and Hungler, 2004).

A literature review is an evaluate report of information found in the literature related to selected area of study. An extensive review of literature was done to gain insight into the selected problem to have a logical sequence and easy understanding.

#### **Literature Review are Discussed under the Following Headings**

- Literature related to overall view of Hypertension.
- Literature related to lifestyle modification towards controlling hypertension.
- Literature related to effectiveness of information, education and communication programmes among patients with hypertension.

#### **Literature Related to Overall View of Hypertension**

Hypertension or high blood pressure sometimes called arterial hypertension is a chronic medical condition in which there is a repeatedly elevated blood pressure exceeding 140/ 90 mm of Hg. That is, a systolic blood pressure above 140 mm of Hg and a diastolic blood pressure above 90 mm of Hg. It is the single-most important risk factor for non-communicable diseases like heart attack and stroke (Centre for blood pressure, 2014).

According to seventh report of Joint National Committee (2003) hypertension is defined as physician office systolic blood pressure level of greater than or equal to 140 mm of Hg and diastolic blood pressure of greater than or equal to 90 mm of Hg. It can lead to serious cardiovascular diseases and cardiovascular disease is the largest cause of deaths in males (20.3%) as well as females (16.9%) and led to about 2 million deaths annually.

The Global Status on Non-Communicable Diseases Report (2011) has stated that there were more than 2.5 million deaths from cardiovascular disease in India, two-thirds due to coronary artery disease and one-third due to stroke. These estimates show that cardiovascular disease mortality is increasing rapidly in the country. Cardiovascular disease is the largest cause of mortality in all regions of the country.

Sathish. T (2011) conducted a prospective cohort study to investigate the incidence of hypertension and its risk factors in Kerala, India where the epidemiological transition is more advanced than elsewhere in India. A sample of 297 individuals (aged 15–64 years) in rural Kerala who were free of hypertension at study enrolment, was followed-up from 2003 to 2010. This rural sample showed a high incidence of hypertension over a mean follow-up period of 7 years.

In 2003, new guidelines were issued by the National Heart, Lung, and Blood Institute (NHLBI) that include a lower “normal blood pressure”, a “prehypertension” level, and a merging of staging categories. Normal blood pressure is defined as measurements less than 120/80 mm Hg and prehypertension as 120–139/80–89 mm Hg. Hypertension is defined as pressure greater than 140/90 mm Hg and is classified

according to the degree of severity. Stage I (mild) hypertension is 140/90–159/99 mm of Hg. Stage II (moderate) hypertension is 160/100 mm of Hg or greater. Stage III (severe) hypertension is present when systolic pressure is greater than 180 mm of Hg and diastolic pressure is greater than 110 mm of Hg. Stage IV (very severe) hypertension occurs when systolic pressure is 210 mm of Hg or greater with diastolic pressure greater than 120 mm of Hg.

Ram. B (2011) conducted a study about the prevalence and risk factors of prehypertension and hypertension in five Indian cities and he found out that prevalence of hypertension is significantly greater in South India and there is little awareness that prehypertension and hypertension are public health issues in India. Ageing population, central obesity, sedentary lifestyle, excessive salt and alcohol, lower fruit, vegetable and legumes intake etc. increases risk for blood pressure elevation.

Jayasree. T.M, et.al., (2012) studied on selected high risk factors for hypertension in a rural area in Tamilnadu. They found that hypertension was present in 26.9% of the subjects. Among the total hypertensive subjects 39% were unaware of their hypertensive status. Age, Body Mass Index and income were found to be strongly associated with hypertension.

WHO (2013) stated that behavior and lifestyle related factors can put people at a higher risk for developing high blood pressure. This includes eating too much salt, being overweight and not doing enough exercise, as well as drinking too much of alcohol and using tobacco. Blood pressure increases also with age due to stiffening of

blood vessels. Ageing of blood vessels can be slowed down by healthy eating and by reducing salt intake in the diet.

Cohen. L (2012) conducted a study regarding the influence of age on the association between lifestyle factors and risk of hypertension. Researcher sought to determine whether the strength of traditional hypertensive risk factors varied with age. She analyzed the prospective association between five modifiable risk factors and hypertension incidence among 78,590 initially non hypertensive women of different ages in the cohort over 26 years and found that the fraction of incident hypertension attributable to modifiable lifestyle factors decreases with age. Because the incidence of hypertension is higher in older persons, lifestyle modification would hypothetically prevent similar numbers of hypertension cases in younger and older populations.

Irene. G. M (2012) conducted a study to investigate the role of body composition like body weight, fat distribution and weight change over time in the incidence of hypertension. The researcher included 361 participants without hypertension at baseline aged 35–60 years, in whom anthropometric measurements and blood pressures were measured. The study concluded that body weight, fat distribution and weight gain were positively associated with the risk of developing hypertension.

Brandon. A. K (2012) conducted a study about the effect of chronic high fat diet in increasing sodium re-absorption and epithelial sodium ion channel expression prior to the onset of hypertension to determine the role of epithelial sodium ion channel. The results suggested that increased cortical collecting duct alpha epithelial

sodium channel protein expression may contribute to the reduction in sodium ion excretion that initiates the hypertensive cascade in high fat diet-induced hypertension.

Asvini. K (2014) conducted a meta-analysis to examine whether there is a clear relationship between high salt intake and hypertension in disadvantaged rural settings. The findings show that high salt intake is a significant risk factor for hypertension in rural areas of low to middle income countries and recommended that salt reduction strategies should be implemented on a community level in these populations in order to drive a change in dietary behaviour.

Rosenthal. T (2011) conducted a study about the relationship between occupational stress and hypertension. The possible relation between job strain and blood pressure levels has been extensively studied and found that occupational stress or job strain, resulting from a lack of balance between job demands and job control, is one of the frequent factors in the etiology of hypertension in modern society. Further analysis of this relationship, including the many facets of job strain lead to operative proposals at the individual and public health levels designed to reduce the effects on health and well-being.

Bradley. E (2007) stated that hypertension is frequently asymptomatic until it becomes severe and target organ disease has occurred. A patient with severe hypertension may experience symptoms which include fatigue, reduced activity tolerance, dizziness, palpitations, angina and dyspnea. Headache, nosebleeds and dizziness occurs when the blood pressure is very high.

Wong (2012) stated that angiotensin, arginine, vasopressin and endothelin were significantly higher. While adrenomedullar and calcitonin gene related peptide were lower in essential hypertension. Oral potassium supplements reduce both systolic and diastolic blood pressure. Diet which increase magnesium intake can lower the blood pressure.

Dhakam, et.al., (2013) explained that beta blockers are less effective in reducing central blood pressure than antihypertensive drugs. He found that 97% of the patients on antihypertensive medication had suffered from significant side effects at some time. Hence the people think other life style approaches for controlling blood pressure.

### **Literature Related to Lifestyle Modification Towards Controlling Hypertension**

Ogedegbe. G (2010) conducted a study on counselling patents to control hypertension aimed at evaluating the effectiveness of a multilevel, multicomponent, evidence-based intervention compared with usual care in improving blood pressure control among hypertensive blacks. The primary outcomes were blood pressure control rate at 12 months and maintenance of intervention 1 year after trial and the secondary outcomes were within patient change in blood pressure from baseline to 12 months and cost effectiveness of intervention.

Lawrence. J. A (2011) stated that well-established risk factors for elevated blood pressure include excess salt intake, low potassium intake, excess weight, high alcohol consumption, and suboptimal dietary pattern. African Americans are especially sensitive to the blood pressure-raising effects of excess salt intake,

insufficient potassium intake, and suboptimal diet. In this setting, dietary changes have the potential to substantially reduce racial disparities in blood pressure and its consequences. In nonhypertensives, dietary changes can lower blood pressure and delay hypertension. In uncomplicated stage I hypertension, dietary changes serve as initial treatment before drug therapy. In hypertensive individuals already on drug therapy, lifestyle modifications can further lower blood pressure.

Epstein. D. E (2012) conducted a study to determine the factors that predict the adherence to the Dietary Approaches to Stop Hypertension diet in African-American and white adults with hypertension. 144 participants were randomized into three groups: Dietary Approaches to Stop Hypertension diet alone, Dietary Approaches to Stop Hypertension diet plus weight management, and Usual Diet Controls. The study concluded that greater adherence to the Dietary Approaches to Stop Hypertension diet was associated with larger blood pressure reductions independent of weight loss.

Blumenthal. J.A (2010) conducted a study about the effects of the Dietary approaches to Stop Hypertension (DASH) diet alone and in combination with exercise and weight loss on blood pressure and cardiovascular biomarkers in patients with high blood pressure. 100 overweight or obese, unmedicated outpatients with high blood pressure were divided into three groups and the interventions, usual diet controls, DASH diet alone, and DASH diet plus weight management were given respectively. After 4 months blood pressure was reduced by 16.1/9.9 mm Hg (DASH plus weight management); 11.2/7.5 mm (DASH alone); and 3.4/3.8 mm (usual diet controls). Thus for overweight or obese hypertensive persons, the addition of exercise and

weight loss to the Dietary Approaches to Stop Hypertension diet resulted in larger blood pressure reductions.

Scott. L. H (2012) conducted a study to assess the effectiveness of sodium restricted dietary approaches to stop hypertension in reducing blood pressure. Thirteen patients with treated hypertension consumed the sodium restricted diet for 21 days (all food/most beverages provided) and the sodium restricted diet reduced clinic systolic and diastolic blood pressure and 24-hours ambulatory systolic and diastolic blood pressure significantly.

Sebely. P (2013) conducted a study about the potential benefits of exercise on blood pressure and vascular function. Researcher summarized that aerobic exercise appears to significantly improve blood pressure and reduce augmentation index. Resistance training appears to significantly improve blood pressure, whereas combination exercise training of 15 minutes of aerobic and 15 minutes of resistance, 5 days a week is beneficial to vascular function, but at a lower scale. The study concluded that aerobic exercise better benefit blood pressure and vascular function.

Robert. D. B (2013) conducted a study about the alternative approaches to lower blood pressure. The study aimed to summarize the blood pressure-lowering efficacy of several alternative approaches which include device guided breathing, behavioural therapies like meditation, yoga, biofeedback, relaxation techniques, acupuncture, exercise based regimens etc. The study concluded that device guided breathing, relaxation technique and exercise based regimens has stronger evidence in lowering blood pressure than other methods.

Mahtani. K.R, et.al., (2012) conducted a study about device-guided breathing exercises in the control of human blood pressure. Researchers included eight trials of the Resperate device, consisting of 494 adult patients. Use of this device resulted in significantly reduced systolic blood pressure by 3.67 mmHg and diastolic blood pressure by 2.51 mmHg. The study concluded that short term use of device-guided breathing reduces both systolic and diastolic blood pressure.

Adhana. R (2013) performed a study regarding the influence of 2:1 yogic breathing technique on patients of essential hypertension. Subjects were guided to do 2:1 breathing maintaining respiratory rate of around 6 breaths/min and instructed to do twice a day for 5-7 minutes for next 3 months. The study showed that 2:1 breathing technique caused a comprehensive change in body physiology by altering various parameters and there was statistically significant reduction in systolic and diastolic blood pressure.

Suprawita (2013) conducted a study to examine the effectiveness of a modified relaxation technique in reducing blood pressure levels in postmenopausal women with hypertension, compared with a control group who received health education. The intervention group received a 60 minute session of modified relaxation training and was encouraged to practice 15–20 minutes a day, at least 5 days a week when the control group received lifestyle education, including diet and exercise. The result indicated that the modified relaxation technique was more effective in reducing blood pressure.

Posadzki. P (2014) conducted a study to critically evaluate the effectiveness of yoga as a treatment of hypertension. The randomized control trials suggested that

yoga leads to a significantly greater reduction in systolic and diastolic blood pressure compared to various forms of pharmacotherapy, breath awareness or reading, health education, no treatment, or usual care and concluded that the evidence for the effectiveness of yoga as a treatment of hypertension is encouraging but inconclusive.

Patil. S. G (2013) conducted a comparative study between the effects of yoga and lifestyle modification on grade-I hypertension in elderly males. The study found a significant decrease in systolic blood pressure, pulse pressure and mean arterial pressure in elderly hypertensives following yoga therapy for 6 weeks, whereas no statistically significant change was noticed in the lifestyle modification group practicing stretching exercise and brisk walk for the same duration. The researcher concluded that yoga intervention for 6 weeks could be an effective non-pharmacological means for better management of grade-I hypertension.

### **Literature Related to Effectiveness of Information, Education and Communication (IEC) among Patients with Hypertension**

Acharya. R (2011) conducted a study to evaluate the effect of an IEC programme on the lifestyle of patients with hypertension. 100 hypertensive patients above 30 years of age were selected from the medical outpatient department. Information about hypertension was provided by using booklets and brochures and a structured educational session was conducted. The results of the study revealed that the IEC programme was effective in improving the lifestyle of the patients.

Manuela De Allegri, et.al., (2013) conducted a study to analyze the effectiveness of Information, Education and Communication (IEC) campaign activities on the understanding of hypertension management in a community in

Nouna, Burkina Faso. Data was collected using survey followed by in-depth interviews and field observations. The result showed that the IEC campaign had a positive effect on the knowledge about hypertension management.

Ann. C (2013) conducted a telephone survey to evaluate the benefits of different workshops "my treatment", "my blood pressure" and "my nutrition", for 1 month after the end of the program in 73 hypertensive patients. The number of hypertensive controlled patients increased from 55.4% to 75.4% and the practice of physical activity increased from 47.9% to 79.5%. The follow-up period of 6 months or more was associated with a tendency to weight gain and with a decline in physical activity from 89.7% to 67.5%. She concluded that an educational support contributes to a better long-term blood pressure control and the motivation for lifestyle rules decreases with time.

Sujatha. T (2013) conducted a study to assess the effectiveness of need based educational intervention on blood pressure. The study group was 100 hypertensives of mild and moderate hypertension, divided into control and experimental group of 50 each and need based education was given to experimental group. The study showed that the need based educational intervention was effective in significantly reducing the mean systolic blood pressure in experimental group.

Katsarou. A. L (2012) conducted a randomized controlled study to evaluate the effect of combined education on stress management techniques and healthy dietary habits for a period of 8 weeks. After eight weeks, blood pressure and perceived stress were analyzed and found to be significantly reduced, and the adherence to healthy diet principle was significantly increased in the intervention

group. The study concluded that a combined intervention of stress management techniques and healthy-diet education seems to be beneficial for blood pressure reduction.

Consoli. S. M (2010) conducted a study on the benefits of computer assisted education program for hypertensive patients to test the impact of ISIS (Initiation Sanitaire Informatisée et Scénarisée), a French computer-assisted hypertension and cardiovascular disease management education program on patient health information retention. 158 hypertensives were randomized into control and ISIS groups. Both groups received cardiovascular disease management education through standard means: physicians, nurses, dietitians and pamphlets. In addition, ISIS patients underwent a 30 to 60 minutes session on the computer with the ISIS program. Knowledge about cardiovascular disease management was tested by the investigator administering a standardized 28-item questionnaire before and 1 week after education. Overall mean cardiovascular disease management knowledge score improved significantly after education and improvement was greater in the ISIS group than the control group which confirms the potential of computer-assisted education in hypertensives.

Park. Y. H (2011) conducted a study to examine the effectiveness of integrated health information, education and exercise program for community-dwelling older adults with hypertension. Older adults with hypertension from one senior center were randomly allocated to experimental or control group and the experimental group received health education, individual counseling and tailored exercise program. The

study concluded that the program was effective in control of systolic blood pressure and improving self-efficacy for exercise and health-related quality of life.

George (2012) conducted an evaluative study to determine the knowledge and perceived barriers of hypertensive persons on life style modification practices and to find the effectiveness of a structured teaching programme on the knowledge level among the 40 hypertensive adults selected using purposive sampling technique. The study revealed that the perceived barriers were lack of knowledge and lack of social support. Also, a significant improvement in the knowledge was found after the administration of the structured teaching programme.

Girija. M (2014) conducted a study to find out the effectiveness of an IEC programme on knowledge, attitude and practice among patients with hypertension. 100 newly diagnosed patients with hypertension between the age group of 40 and 70 years were selected by convenient sampling method and IEC programme was executed by using structured teaching and educative booklets. The study result revealed that the mean knowledge, attitude and practice were significantly improved after the programme and concluded that the IEC programme was very effective.

Perl (2011) conducted a study to evaluate the effects of a multi-faceted educational programme on blood pressure and cardiovascular risk in hypertensive patients. 2041 patients with uncontrolled hypertension above 140/ 90 mm of Hg were selected. Blood pressure and lipid panels were measured at entry in the program. Patients attended four educational units held by nurses and physicians. The results of the study revealed significant improvement in blood pressure control as well as individual cardiovascular risk reduction.

Rabia. H (2011) conducted a study on the effect of patient education and home monitoring of medication compliance and hypertension management among 120 hypertensive patients. The subjects were divided into three groups of 40. Group A and B received education sessions on medication adherence and group B alone received education about healthy lifestyle. The study found out that healthy lifestyle behaviour and self-efficacy regarding medication adherence improved in groups A and B. Blood pressure of subjects in group A and B showed a significant decrease compared with those of the control group and the blood pressure decrease was greater in group B. The study concluded that patient education on medication adherence and healthy lifestyle behavior were effective tools for blood pressure reduction.

Liu. J (2013) conducted a study about the effectiveness of standardized health education on hypertension. Standardized health education was conducted among 142 patients with hypertension with self-designed health education questionnaire. Changes in patients' awareness before and after the education were analyzed. The results showed that the patients undergone standardized health education had more diversified access to health knowledge and participated in more types of sports. The study concluded that standardized health education was effective and necessary to improve the awareness and knowledge of hypertension and help patients to get rid of unhealthy behaviors.

Thomas. R (2011) studied on the benefits of the implementation of an IEC program on hypertension management. The program was performed among 89 patients with primary hypertension. The patients' knowledge level was determined using the questionnaire and the regularity of blood pressure self-control and drug

treatment was assessed before and after the programme. The study results showed that after the programme, the patients' knowledge, proportion of patients on regular medication and regular blood pressure self control was improved significantly. Researcher concluded that the IEC programme was effective in increasing the knowledge, improving the drug compliance and self-monitoring of blood pressure among the patients.

Yao. W. X (2013) conducted a study to explore the effects of Information, Education and Communication programmes about hypertension among the elderly in western Chinese villages. A questionnaire was delivered to 438 randomly selected elderly people from seven villages to obtain basic information, then IEC programme including health lectures, personal consultation, peer education and distribution of cartoon pamphlets were given to the elderly for twelve months, and the resultant information concerning the IEC programme was obtained. The result showed that the IEC programme greatly improved the elder's knowledge of hypertension, which may help to reduce the risk of hypertension in elderly and thereby enhancing their quality of life.

Leeberk (2013) conducted a study to analyse the effectiveness of Information, Education and Communication program on controlling blood pressure. Information about controlling hypertension was provided by using booklets and Power Point explanation. The result of the study revealed that the IEC program was effective in improving the knowledge and their attitude also changed related to hypertension.

## **Conceptual Framework**

The conceptual frame work of the study was decided from modified Roy's adaptation model (1979). Roy point out adaption was a dynamic state of equilibrium involving both high and low response brought by person triggered stimuli. It involves an open system in which stimuli enters from the environment and changes the behaviour of a person to adopt condition.

### **Input**

Input consists of stimuli which can come from environment or within a person. In this study input consists of demographic variables including age, sex, religion, education, occupation, marital status, monthly income, place of residence, type of family, dietary pattern and the knowledge level and attitude towards controlling blood pressure.

### **Throughput**

Throughput makes person processors and effectors. Processors refer control mechanism that a person uses an adaptive system. IEC package served as a control mechanism to adapt according to stimuli. Effector refers to adaptive model. Physiological function, self concept, role function and interdependence are involved in adaptation.

### **Physiologic Function**

It involves the body's basic needs for patient. Here it refers to dietary modifications, regular exercise, relaxation technique and there by controlling blood pressure.

**Self Concept**

Self concepts are about belief and feeling of their body function. It involves controlling blood pressure and preventing complication.

**Interdependence**

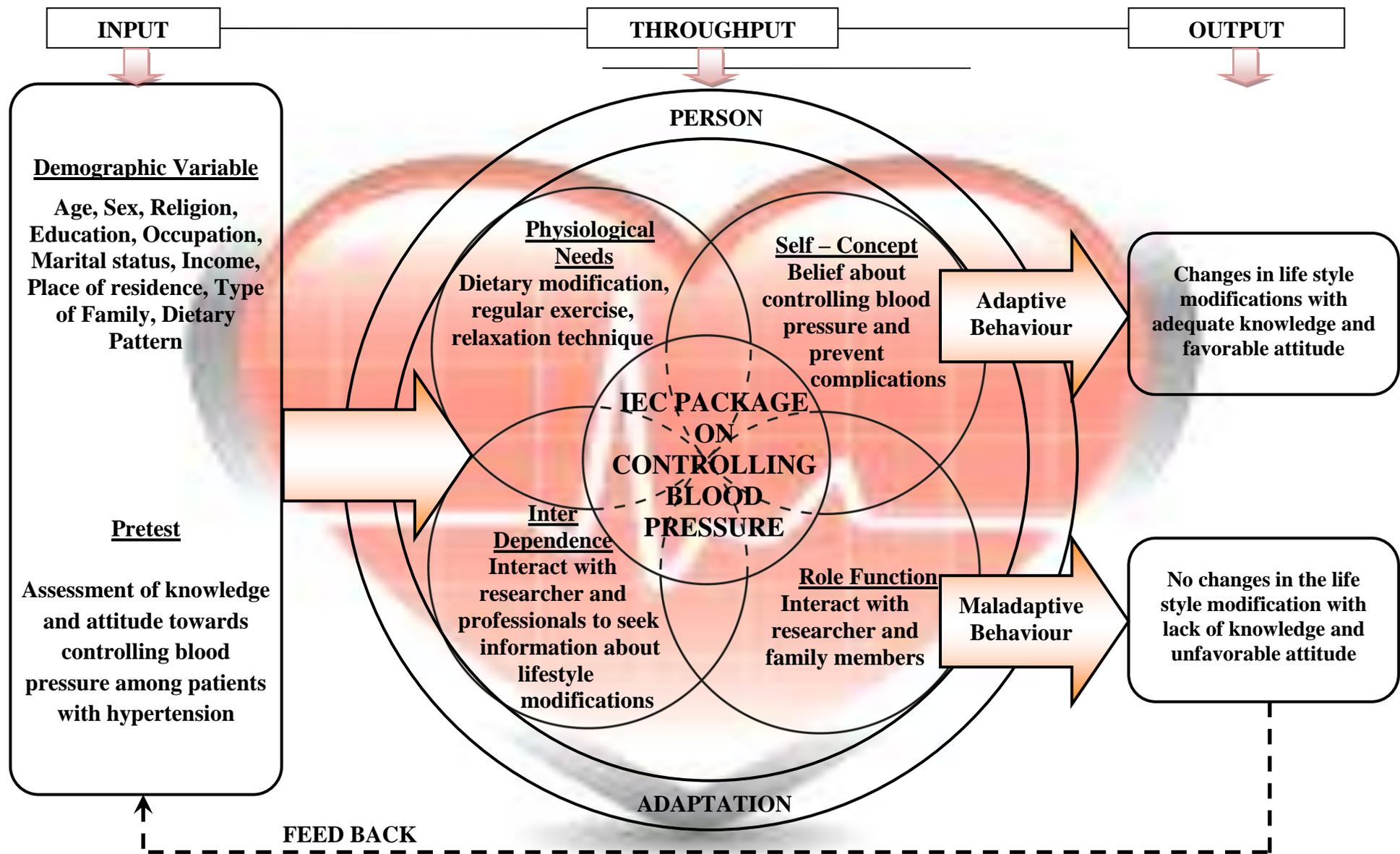
Interdependence refers to the interaction with researcher and professionals to seek information about blood pressure control.

**Role Function**

This involves behaviour of a person which depends on how a person interacts with researcher and family members in a given situation. Here the patients interact with researcher and family members.

**Output**

Output is the outcome of the system. In this study output refers to changes in knowledge and attitude towards controlling blood pressure. If he or she adapts the system he or she gains adequate knowledge and favourable attitude. If he or she maladapted the system he or she have inadequate knowledge and unfavourable attitude. If the patients have lack of knowledge and attitude after the IEC package the process is again reassessed and redirected process is continued.



**Figure. 1** Modified Conceptual Frame Work Based on Roy's Adaptation Model (1992)

## **CHAPTER - III**

### **Methodology**

This chapter includes research approach, research design, setting of the study, population, sample size and sampling technique, criteria for the selection of the sample, description of the tool, testing of tool, pilot study, data collection procedure and plan for data analysis.

#### **Research Approach**

Quantitative approach was adopted in this study. This study was aimed at assessing the knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension.

#### **Research Design**

The research design adopted for the present study was one group pre-test post test, pre-experimental design.

O<sub>1</sub>    X    O<sub>2</sub>

O<sub>1</sub>    Pre-test assessment

X        Intervention (IEC package about controlling blood pressure)

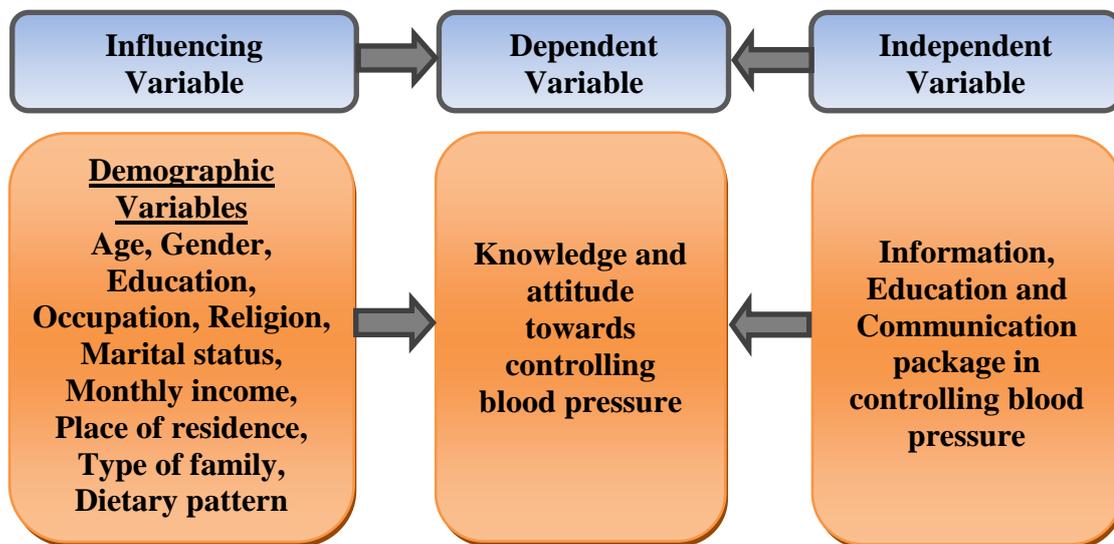
O<sub>2</sub>    Post test assessment

#### **Setting of the Study**

The study was conducted in Ashwin Hospital, Coimbatore which is a 350 bedded Multispecialty Hospital, situated 7 Km away from PPG College of Nursing, Coimbatore.

## Variables

The independent variable was Information, Education and Communication package about controlling blood pressure. The dependent variables were the knowledge and attitude towards controlling blood pressure. The influencing variables were demographic variables which include age, sex, education, occupation, religion, marital status, monthly income, place of residence, type of family and dietary pattern of the client.



**Figure. 2** The Schematic Representation of Variables

## Population

The population of the study includes clients with Primary Hypertension who have a blood pressure ranging from 140-180/90-110 mm of Hg, admitted in Ashwin Hospital during the period of data collection.

## Sample Size

The sample size of the study was 50.

## Sampling Technique

Non-probability, convenient sampling technique was adopted for selecting the samples in the present study.

## **Criteria for the Selection of Samples**

### **Inclusive Criteria**

- Clients within the age group of 35 to 65 years.
- Both male and female clients with Primary Hypertension
- Clients with blood pressure ranging from 140-180/90-110 mm of Hg

### **Exclusive Criteria**

- Clients who are critically ill
- Clients with altered sensory perception
- Clients who are having the complications of hypertension
- Clients who are not willing to participate

## **Description of Tool**

The researcher had developed questionnaire after Review of Literature to assess the knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension. It has 3 sections.

### **Section – A Demographic Variables**

Demographic variables which include age, sex, education, occupation, religion, marital status, monthly income, place of residence, type of family and dietary pattern of the client.

### **Section – B Knowledge Questionnaire**

It contains 25 multiple choice questions to assess the knowledge in controlling blood pressure among the patients in the areas of causes, symptoms, medication, dietary changes, physical exercise, follow-up and alternative

therapies. Correct answer carries one mark and wrong answer carries zero mark.

The possible maximum score is 25 and minimum score is 0.

### **Level of Knowledge**

<b>Knowledge Level</b>	<b>Score</b>
Poor	0-10
Adequate	11-20
Good	21-25

### **Section – C Attitude Questionnaire**

It contains 14 statements to assess the attitude towards controlling blood pressure among patients in the areas of causes of hypertension, medications, diet, physical exercise, follow-up and alternative therapy. Both positive and negative statements were formed and score was assigned based on modified Likert attitude scale. The possible maximum score is 70 and minimum score is 14.

#### **Score for Positive Statements**

Strongly agree	-	5
Agree	-	4
Undecided	-	3
Disagree	-	2
Strongly disagree	-	1

#### **Score for Negative Statements**

Strongly agree	-	1
Agree	-	2
Undecided	-	3

Disagree	-	4
Strongly disagree	-	5

### **Level of Attitude**

<b>Attitude Level</b>	<b>Score</b>
Unfavourable attitude	14-35
Moderately favourable attitude	36-55
Most favourable attitude	56-70

### **Testing of the Tool**

#### **Content Validity**

The tool was given to five experts in the field of nursing and medicine for content validity. All the comments and suggestions given by the experts were duly considered and corrections were made.

#### **Reliability**

Split half method was adopted to make sure the reliability of the tool. The  $r$  value was +0.92 for knowledge questionnaire and +0.95 for attitude questionnaire.

### **Pilot Study**

It was conducted among 5 patients for a period of one week at Ashwin Hospital, Coimbatore. After getting permission from the Medical Director, pretest and post test was conducted by using the knowledge questionnaire and attitude questionnaire. The pilot study report showed that there was an increase in the knowledge and attitude towards controlling blood pressure among the patients. It was found to be appropriate and feasible to conduct the main study.

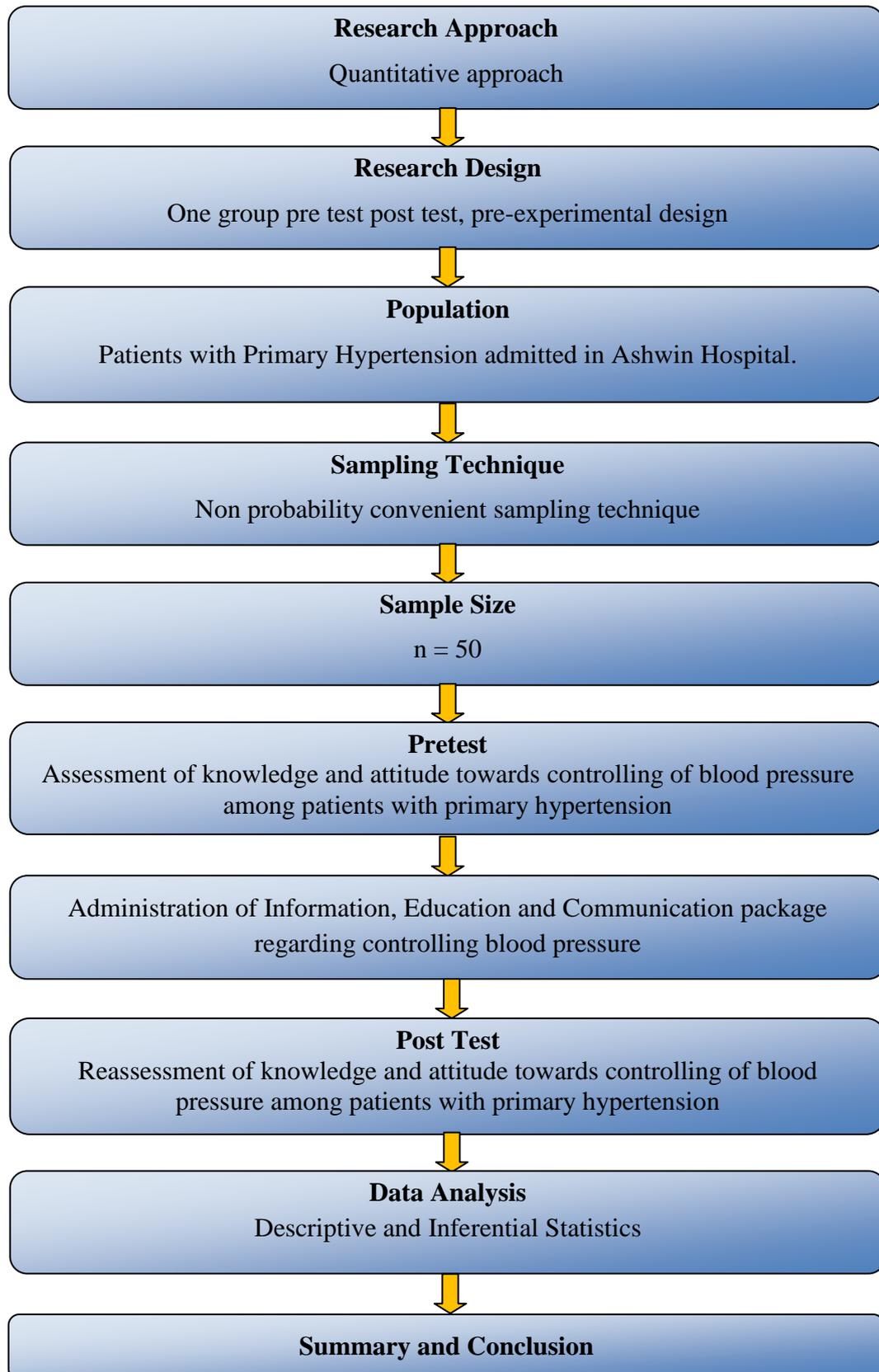
### **Data Collection Procedure**

Formal permission was obtained from the Chairman of Ashwin Hospital to conduct study. The study was conducted for a period of one month from 01-01-2014 to 31-01-2014. The subjects who met the inclusion criteria were selected by using convenient sampling technique. The researcher explained about the purpose and benefits of the study to the samples. The researcher assured of confidentiality and anonymity.

The demographic variables were collected by using the questionnaire. The questionnaire to assess the pretest knowledge and attitude towards controlling blood pressure were distributed to fill in by the subjects. After collecting back the questionnaire, teaching session by lecturing regarding controlling blood pressure was conducted using power point presentation and booklets about blood pressure control were distributed among the clients. After 7 days, the post test was conducted to assess the knowledge and attitude towards controlling blood pressure by using the same questionnaire.

### **Plan for Data Analysis**

The investigator adopted descriptive and inferential statistics to analyze the data. The demographic variables were analysed by using frequency distribution and percentage. Comparison of pretest and post test scores were computed on the basis of paired 't' test. Karl Pearson's co-efficient was used to assess the correlation between knowledge and attitude towards controlling blood pressure. Association of knowledge and attitude scores with selected demographic variables were computed based on chi-square test.



**Figure. 3 The Overall View of Research Methodology**

## CHAPTER - IV

### Data Analysis and Interpretation

This chapter deals with analysis and interpretation of data collected from patients with primary hypertension at Ashwin Hospital, Coimbatore.

The findings based on descriptive and inferential statistical analysis are presented as follows.

**Section I :** Description of demographic variables of patients with primary hypertension

**Section II :** Description of pretest and post test level of knowledge and attitude towards controlling of blood pressure among clients with primary hypertension

**Section III :** Comparison of pretest and post test knowledge score and attitude score in controlling blood pressure among patients with primary hypertension

**Section IV :** Correlation between pretest and post test knowledge score and attitude score

**Section V :** Association of demographic variables with pretest knowledge and attitude score regarding controlling of blood pressure

## SECTION – I

**Table. 1** Description of Demographic Variables of Patients with Primary Hypertension

(n = 50)

<b>S. No.</b>	<b>Demographic Variables</b>	<b>Frequency (f)</b>	<b>Percentage (%)</b>
1.	<b>Age</b>		
	a) 35 – 45 years	14	28
	b) 46 – 55 years	21	42
	c) 56 – 65 years	15	30
2.	<b>Sex</b>		
	a) Male	20	40
	b) Female	30	60
3.	<b>Religion</b>		
	a) Hindu	43	86
	b) Muslim	7	14
	c) Christian	0	0
	d) Others	0	0
4.	<b>Education</b>		
	a) Illiterate	2	4
	b) Primary	26	52
	c) Secondary	15	30
	d) Higher secondary	5	10
	e) Graduate	2	4

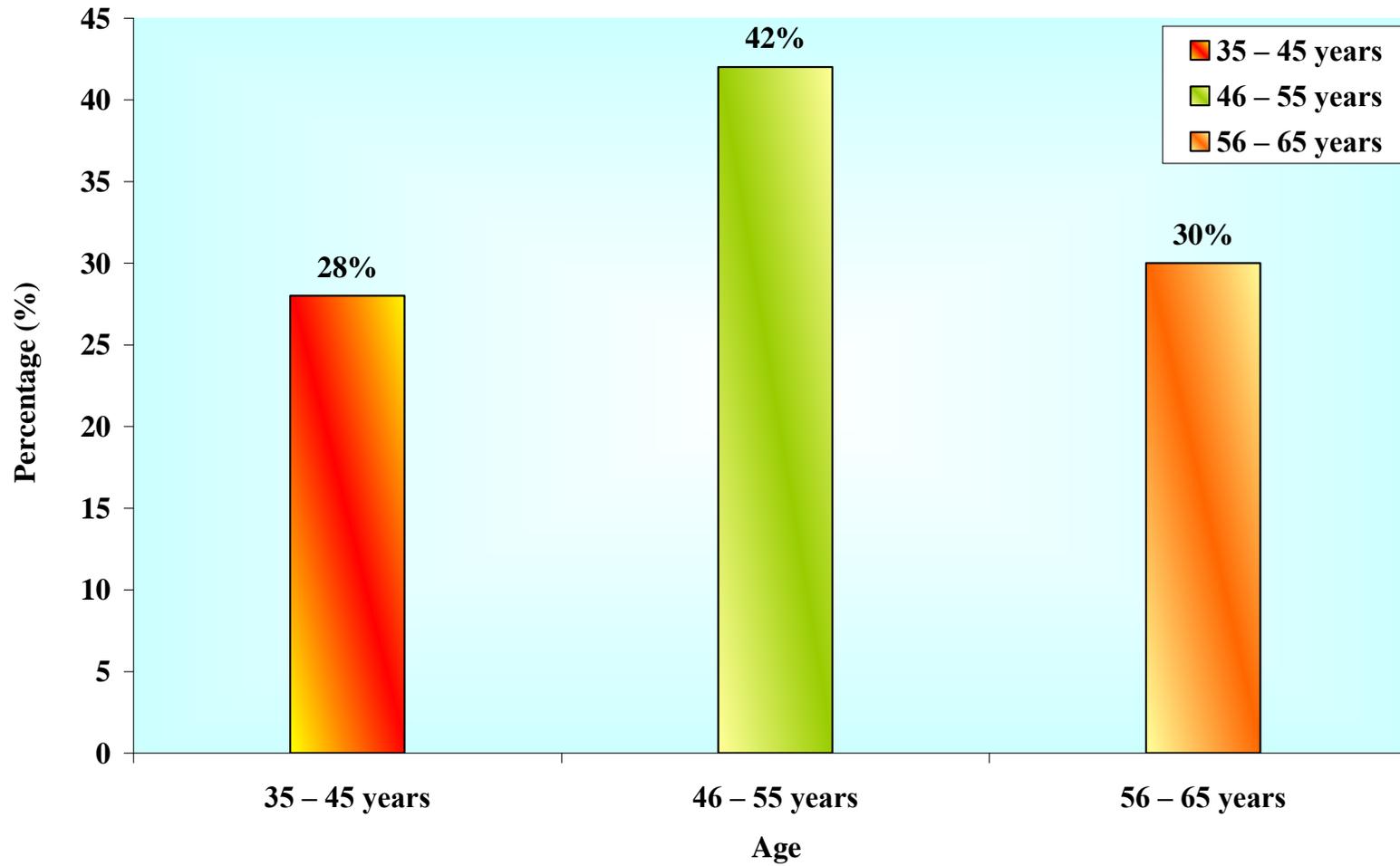
(Table 1 continues)

(Table 1 continued)

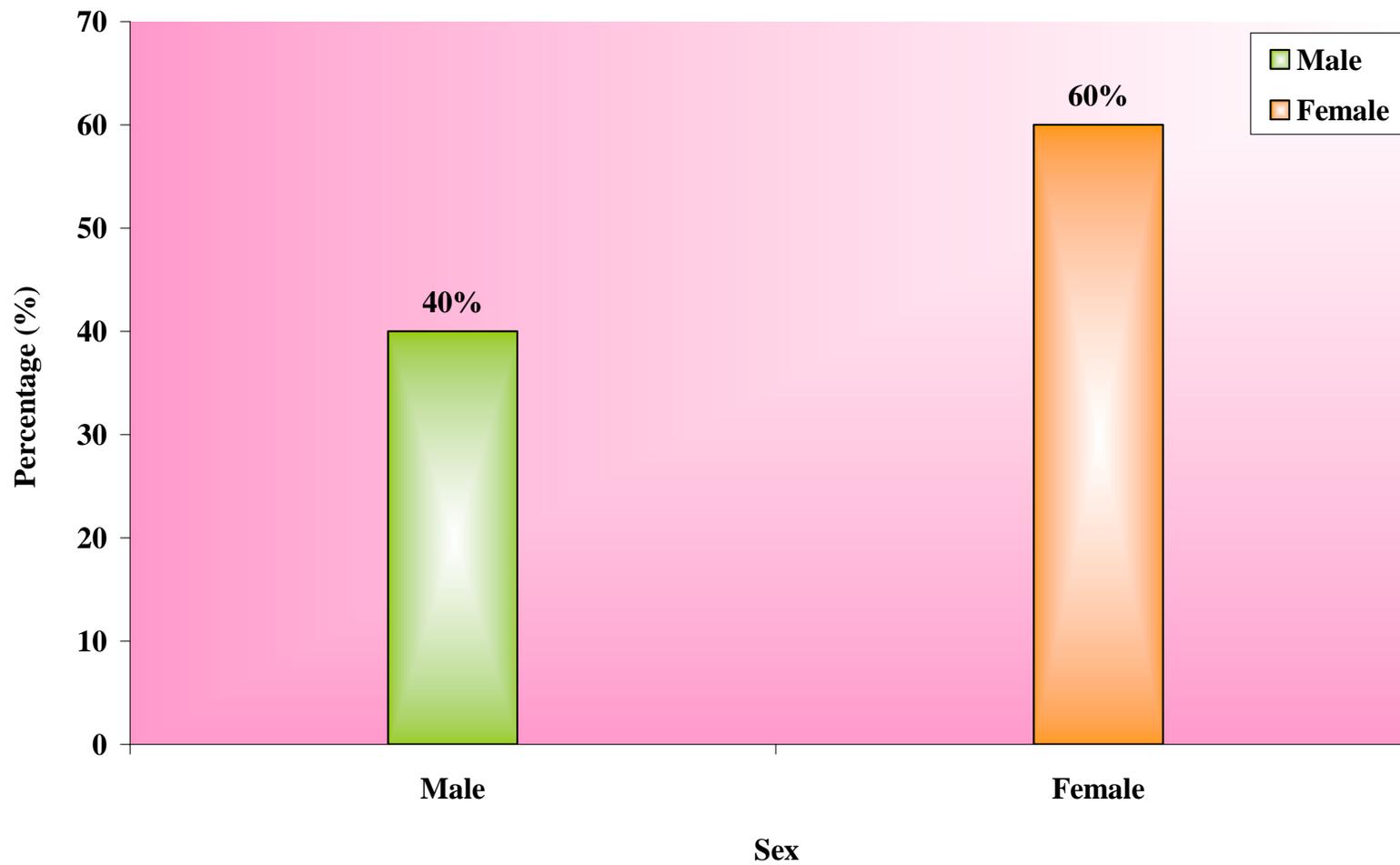
<b>S. No.</b>	<b>Demographic Variables</b>	<b>Frequency (f)</b>	<b>Percentage (%)</b>
5.	<b>Occupation</b> a) Unemployed b) Business c) Technical work d) Professional	25 19 4 2	50 38 8 4
6.	<b>Marital status</b> a) Married b) Single c) Divorcee d) Widow/ widower	41 1 0 8	82 2 0 16
7.	<b>Monthly income</b> a) Below ₹. 5000/- b) ₹. 5001- 15,000/- c) ₹.15,001- 25,000/- d) Above ₹. 25,000/-	6 21 20 3	12 42 40 6
8.	<b>Place of residence</b> a) Rural b) Urban c) Semi urban	17 24 9	34 48 18
9.	<b>Type of family</b> a) Nuclear b) Joint	28 22	56 44
10.	<b>Dietary pattern</b> a) Vegetarian b) Non-vegetarian	2 48	4 96

Table 1 shows the distribution of demographic variables of patients with Primary Hypertension.

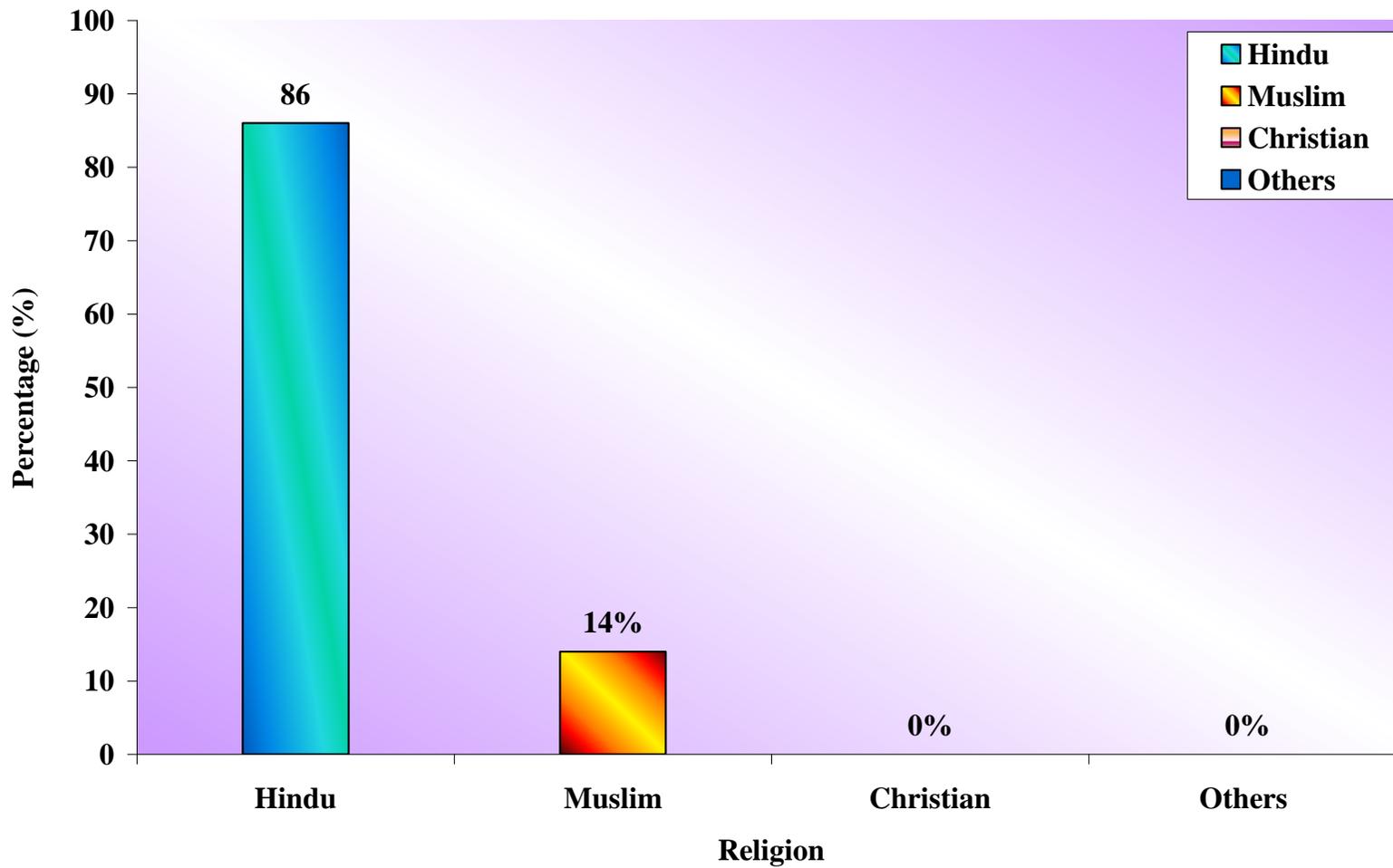
- With regard to the distribution of age group of hypertensive patients, 35- 45 years were 14 (28%), 46- 55 years were 21 (42%) and 56- 65 years were 15 (30%).
- Regarding sex of patients, males were 20 (40%) and females were 30 (60%).
- On considering the religion, 43 (86%) belongs to Hindu, 7 (14%) belongs to Muslim.
- Considering the education of patients, 2 (4%) were illiterate, 26 (52%) had primary education, 15 (30%) had secondary education, 5 (10%) had higher secondary and 2 (4%) were graduate.
- Regarding the occupation, 25 (50%) were unemployed, 19 (38%) were doing business, 4 (8%) were technical workers and 2 (4%) were professionals.
- Looking on to the marital status of the patients, married were 41 (82%), single was 1 (2%), none was divorcee and widow/ widower were 8 (16%).
- Considering the monthly income of patients, 6 (12%) had below ₹. 5000/-, 21(42%) had between ₹. 5001- Rs.15,000/-, 20(40%) had ₹. 15,001- 25,000/- and 3 (6%) had above ₹. 25,000/-.
- The place of residence of patients with hypertension was 17 (34%) rural, 24 (48%) urban and 9 (18%) semi urban.
- Regarding type of family, 28 (56%) belongs to nuclear family and 22 (44%) belongs to joint family.
- With regard to the dietary pattern of hypertensive patients 2 (4%) were vegetarian and 48 (96%) were non-vegetarian.



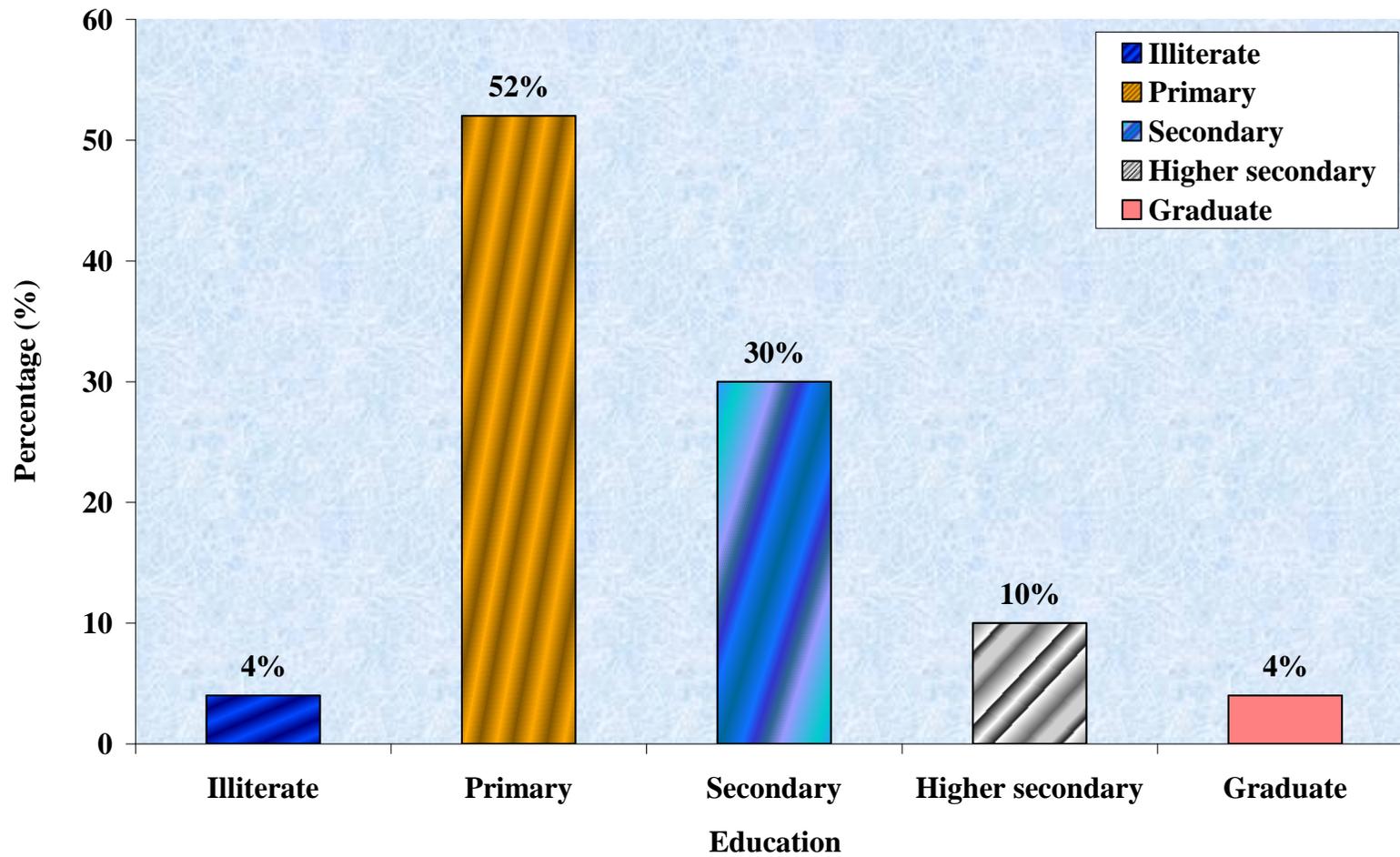
**Figure. 4 Percentage Distribution of Patients with Primary Hypertension According to the Age Group**



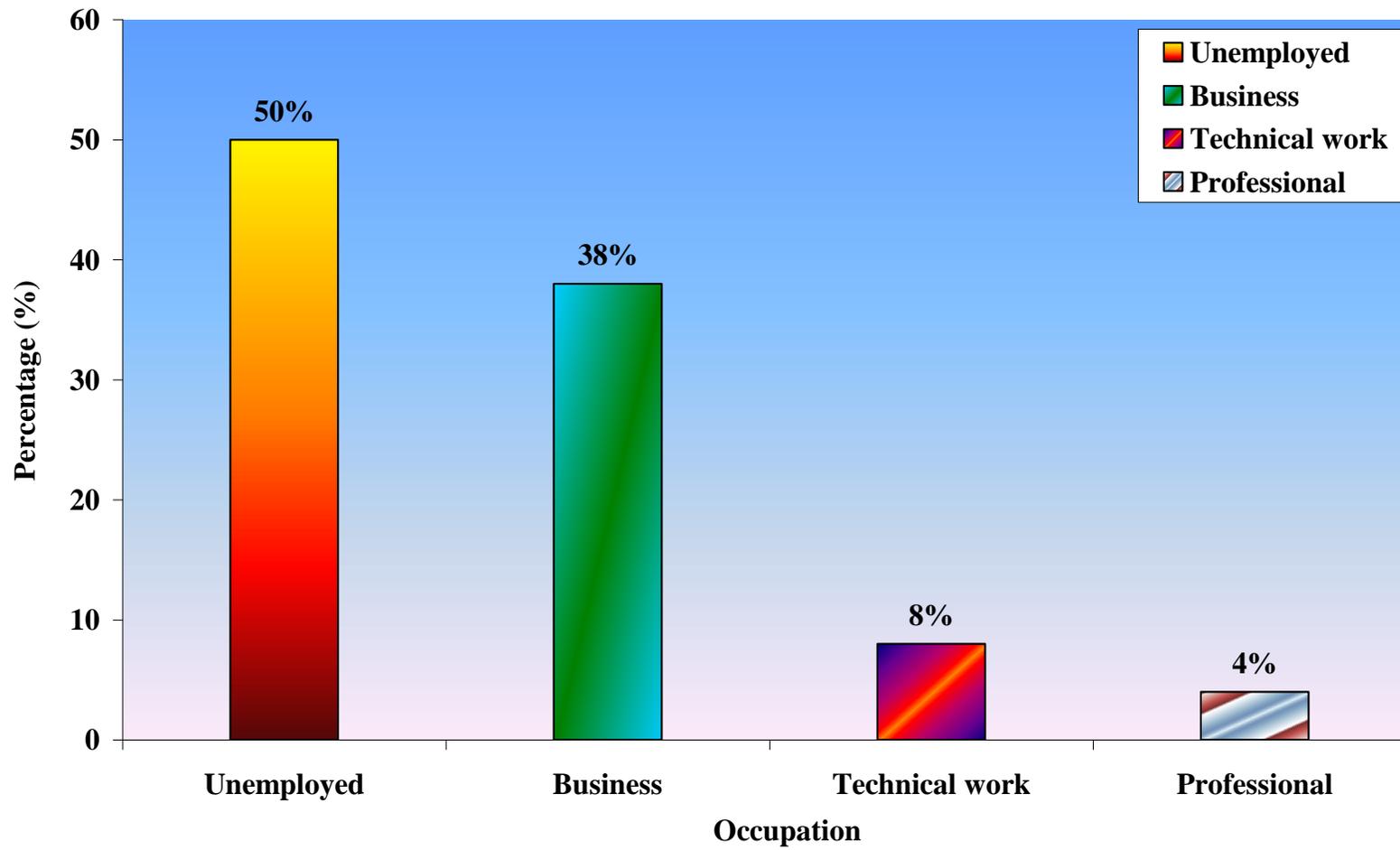
**Figure. 5 Percentage Distribution of Samples According to Sex**



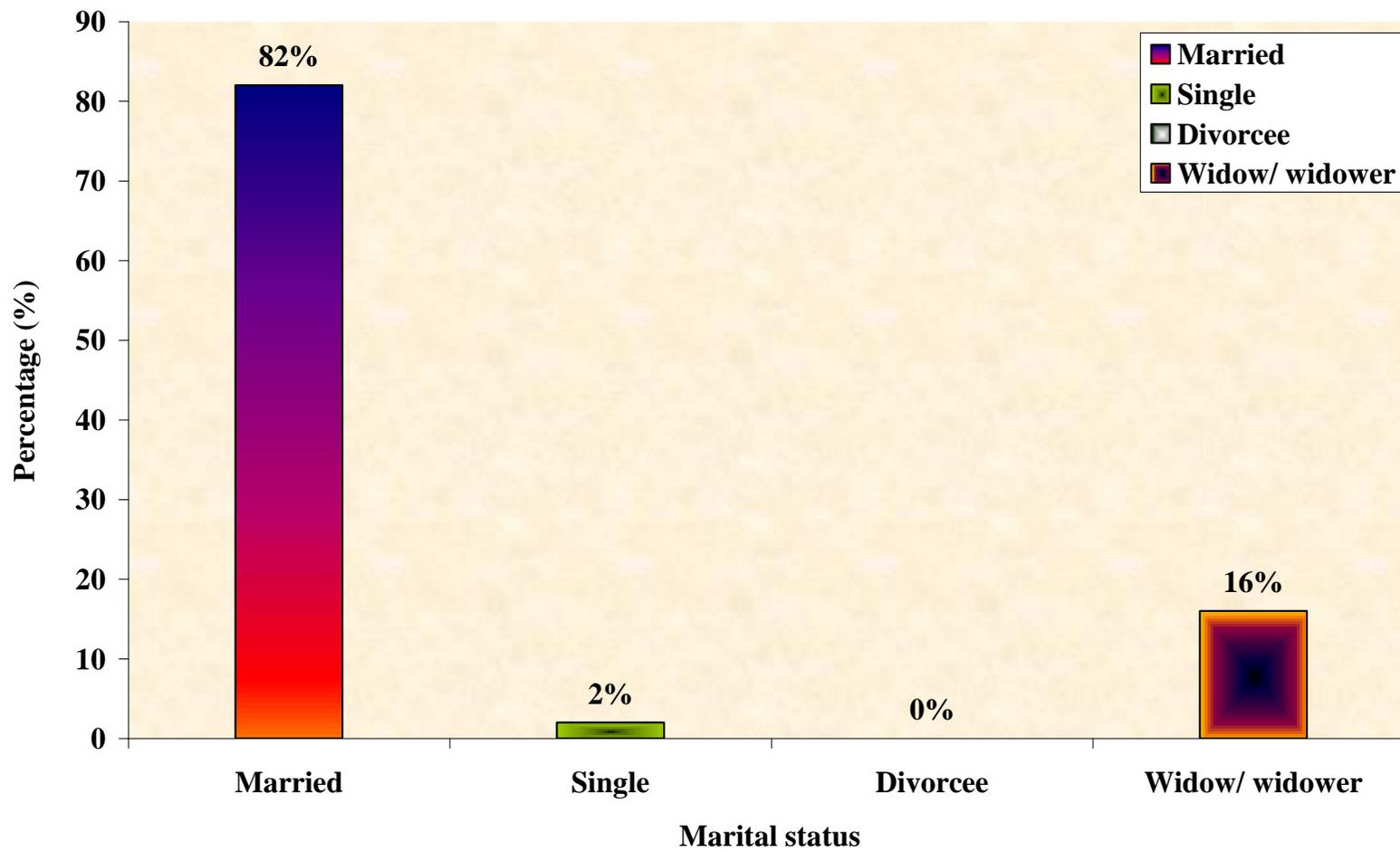
**Figure. 6 Percentage Distribution of Samples According to Religion**



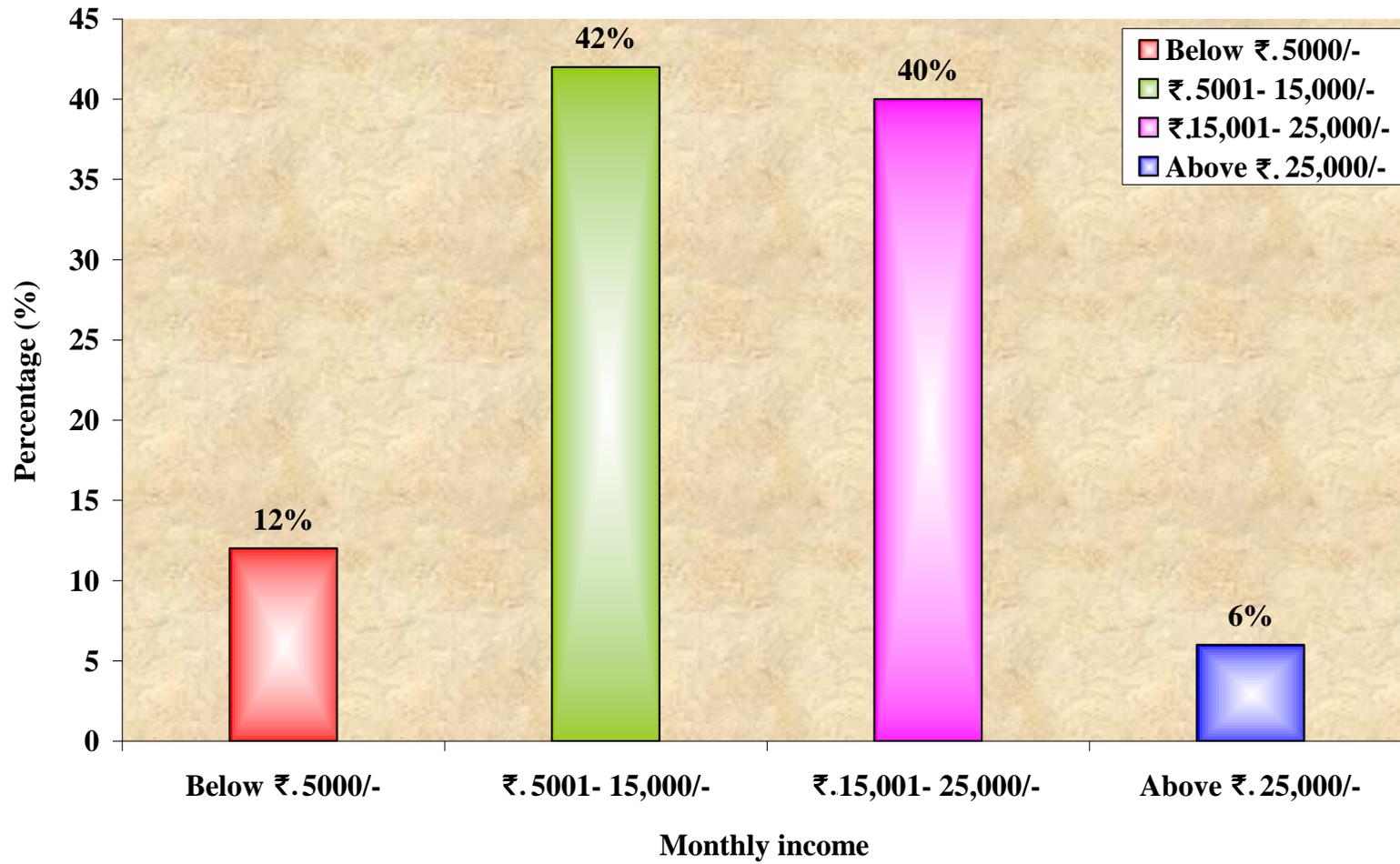
**Figure. 7** Percentage Distribution of Samples According to Education



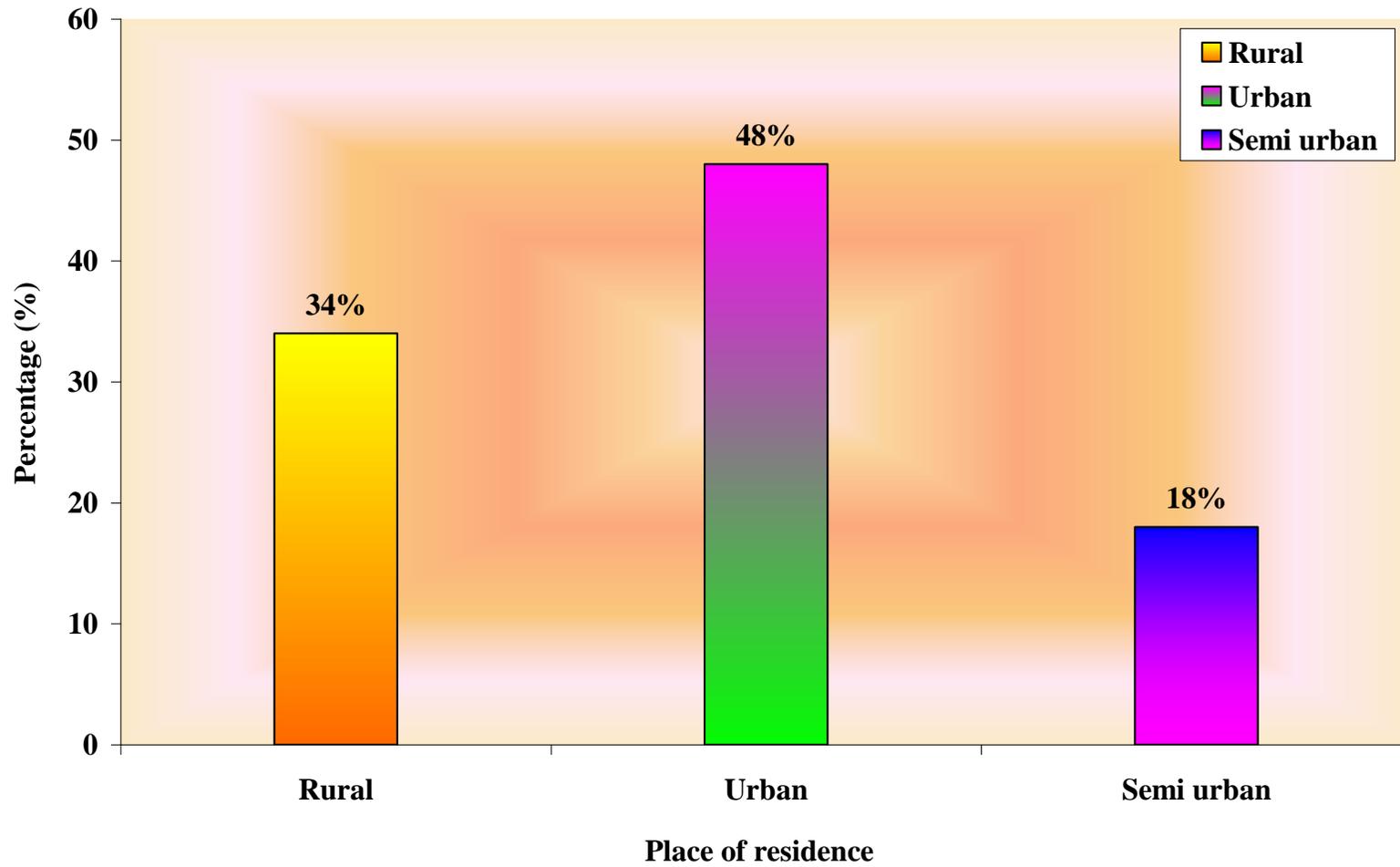
**Figure. 8 Percentage Distribution of Samples According to Occupation**



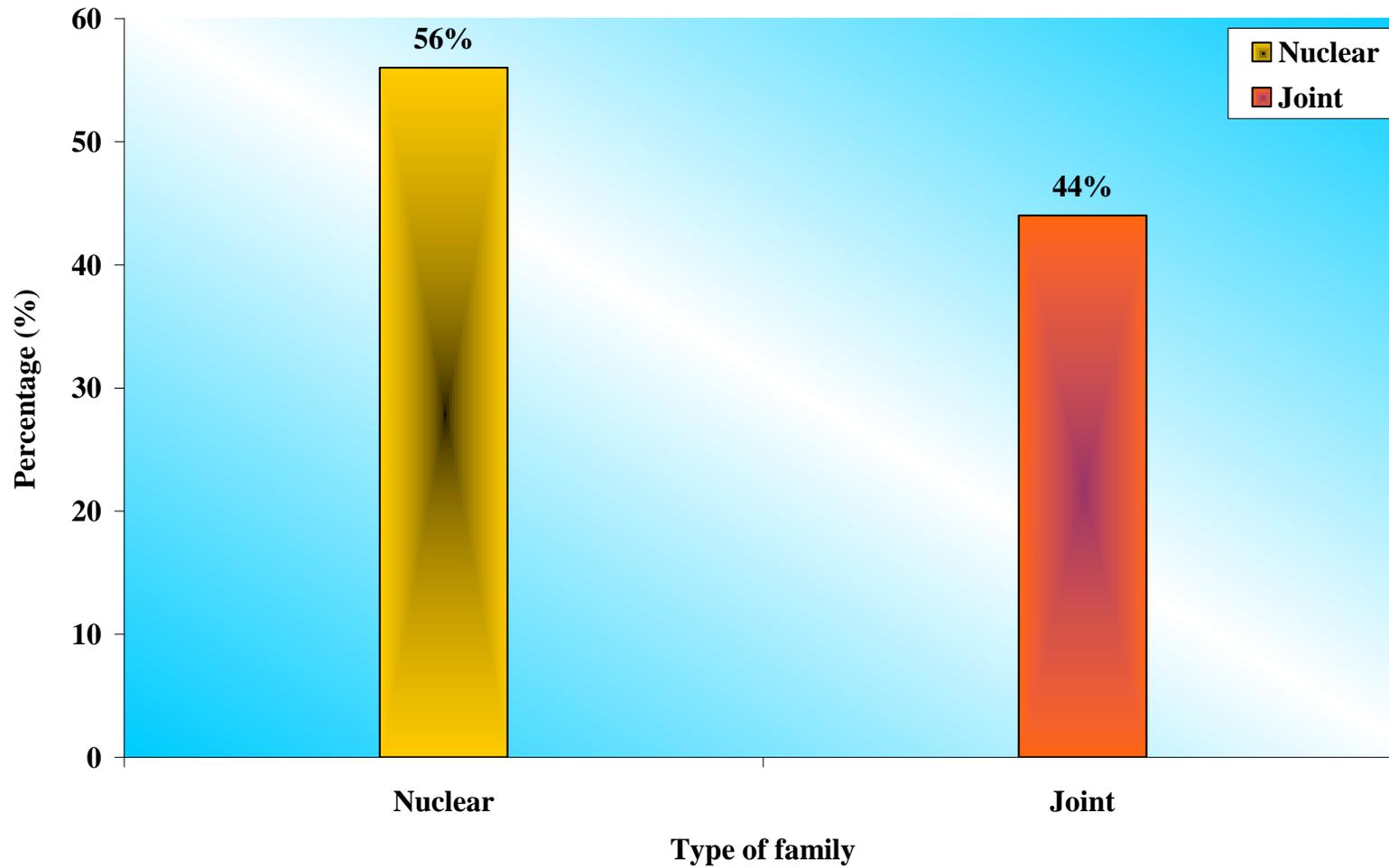
**Figure. 9 Percentage Distribution of Samples According to Marital Status**



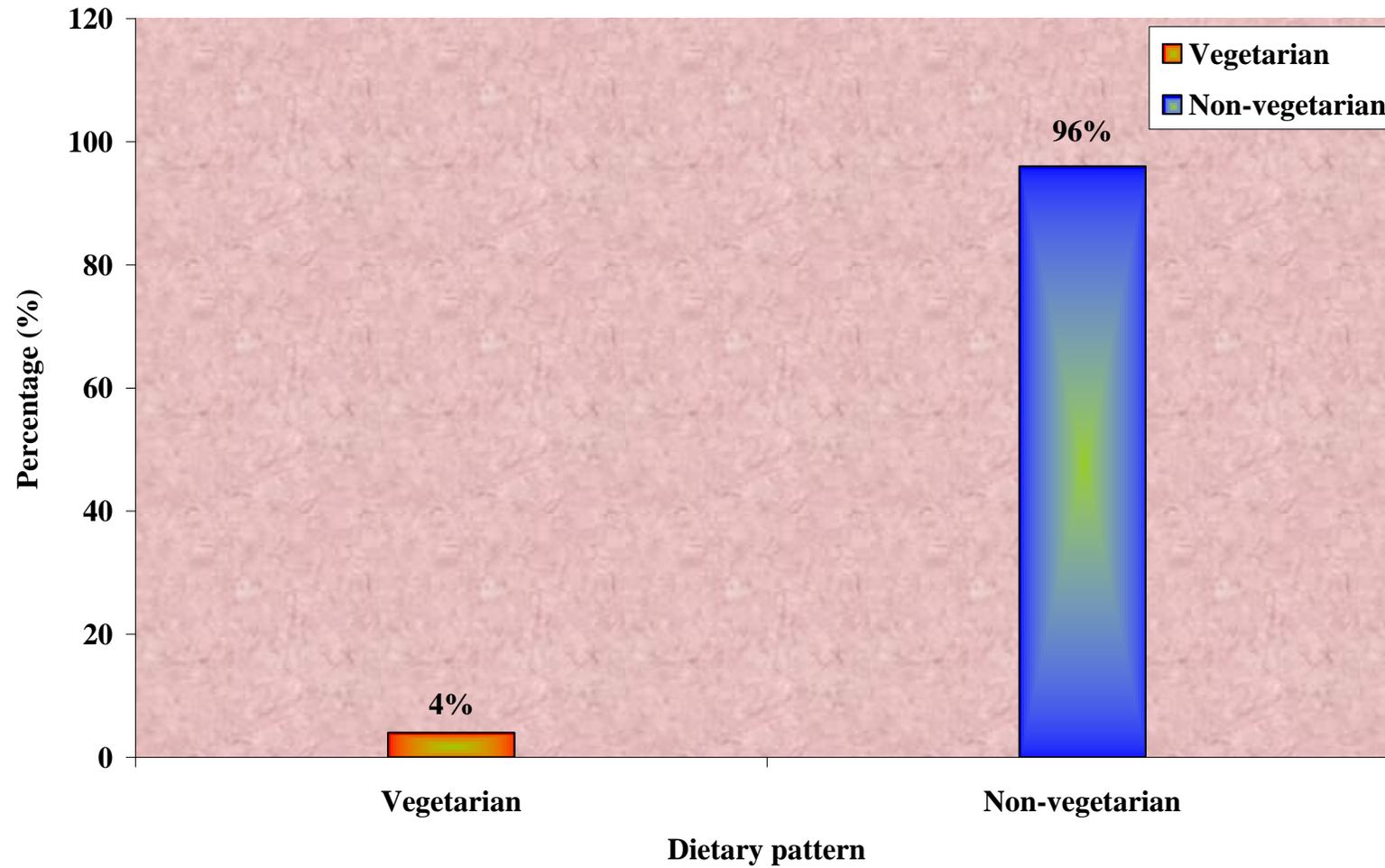
**Figure. 10** Percentage Distribution of Samples According to Monthly Income



**Figure. 11 Percentage Distribution of Samples According to the Place of Residence**



**Figure. 12 Percentage Distribution of Patients with Primary Hypertension According to Type of Family**



**Figure. 13 Percentage Distribution of Samples According to Dietary Pattern**

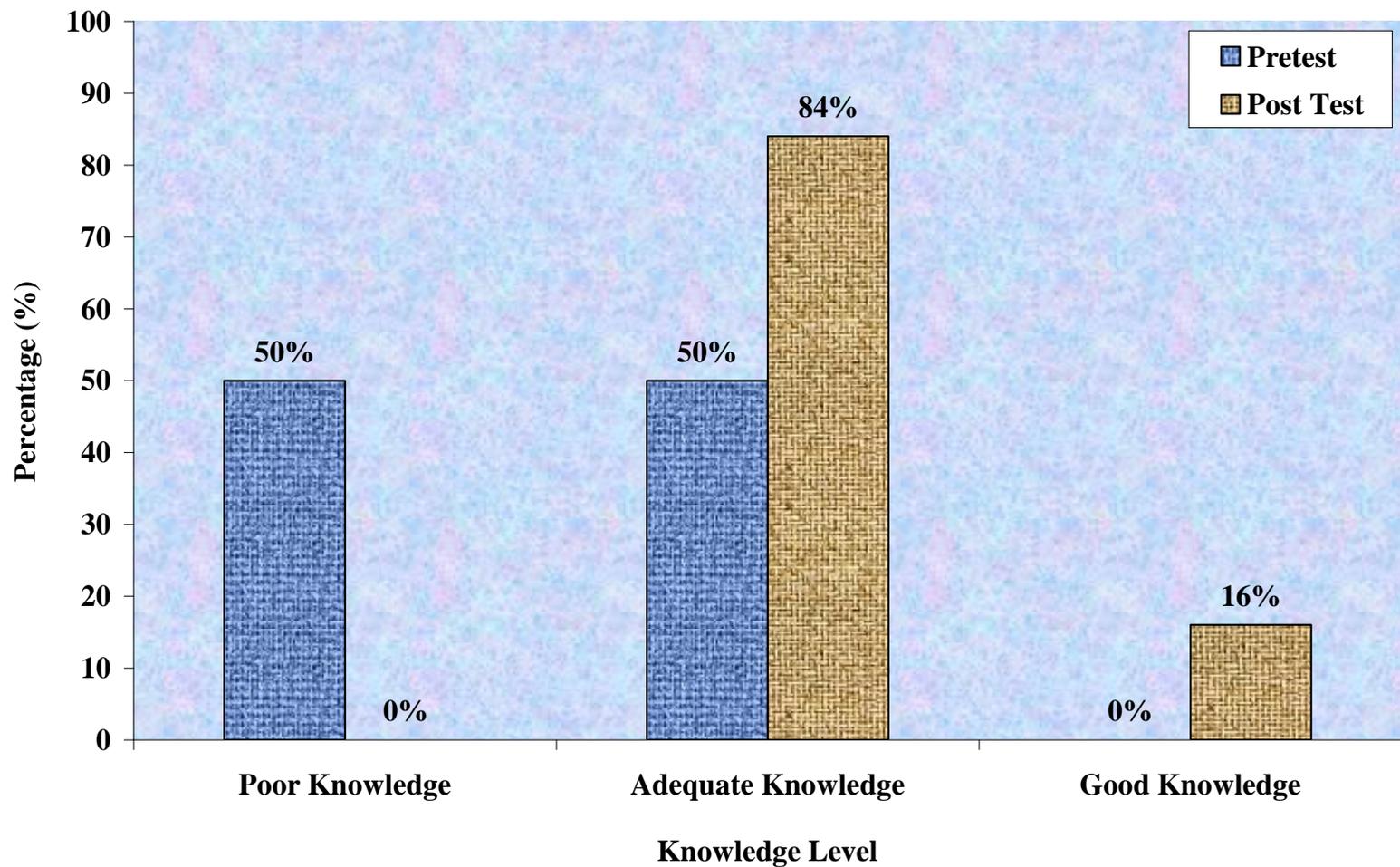
## SECTION - II

**Table. 2** Description of Pretest and Post test Level of Knowledge in Controlling Blood Pressure among the Clients with Primary Hypertension

(n = 50)

S.No.	Knowledge Level	Pretest		Post Test	
		f	%	f	%
1.	Poor Knowledge	25	50	0	0
2.	Adequate Knowledge	25	50	42	84
3.	Good Knowledge	0	0	8	16

Table 2 shows that among 50 patients with primary Hypertension, 25 (50%) had poor knowledge and 25 (50%) had adequate level of knowledge in pretest. In post test, 42 (84%) gained adequate level of knowledge and 8 (16%) had good level of knowledge.



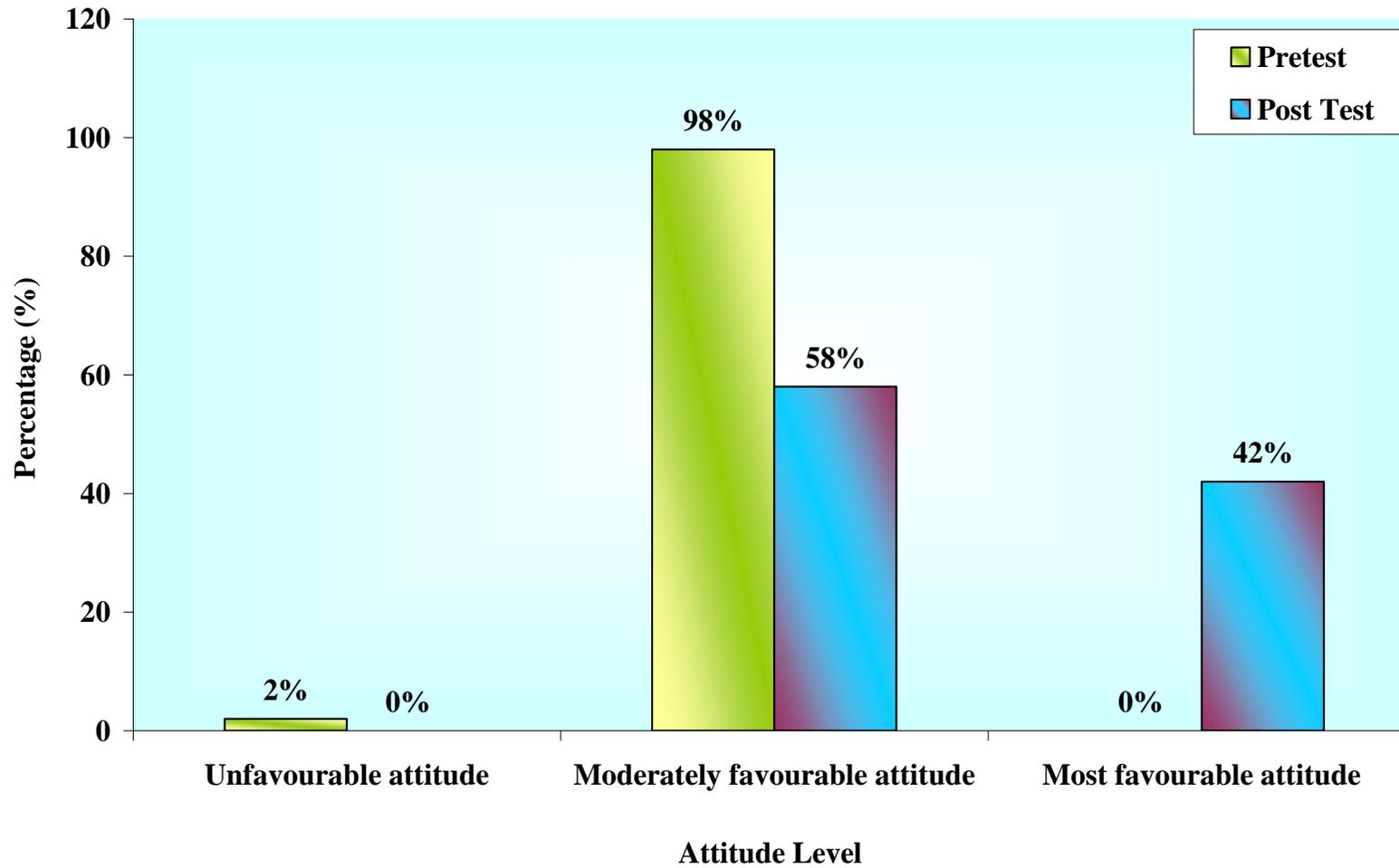
**Figure. 14** Percentage Distribution of Level of Knowledge in Pretest and Post Test Among Patients with Primary Hypertension

**Table. 3** Description of Pretest and Post Test Attitude Level in Controlling Blood Pressure Among the Clients with Primary Hypertension

(n = 50)

S.No.	Attitude Level	Pretest		Post Test	
		f	%	f	%
1.	Unfavourable attitude	1	2	0	0
2.	Moderately favourable attitude	49	98	29	58
3.	Most favourable attitude	0	0	21	42

Table 3 shows that 1 (2%) patient had unfavourable attitude and 49 (98%) patients had moderately favourable attitude in pretest. In post test, 29 (58%) patients had moderately favourable attitude and 21 (42%) of them had most favourable attitude.



**Figure. 15** Percentage Distribution of Pretest and Post Test Attitude Level Among Patients with Primary Hypertension

### SECTION – III

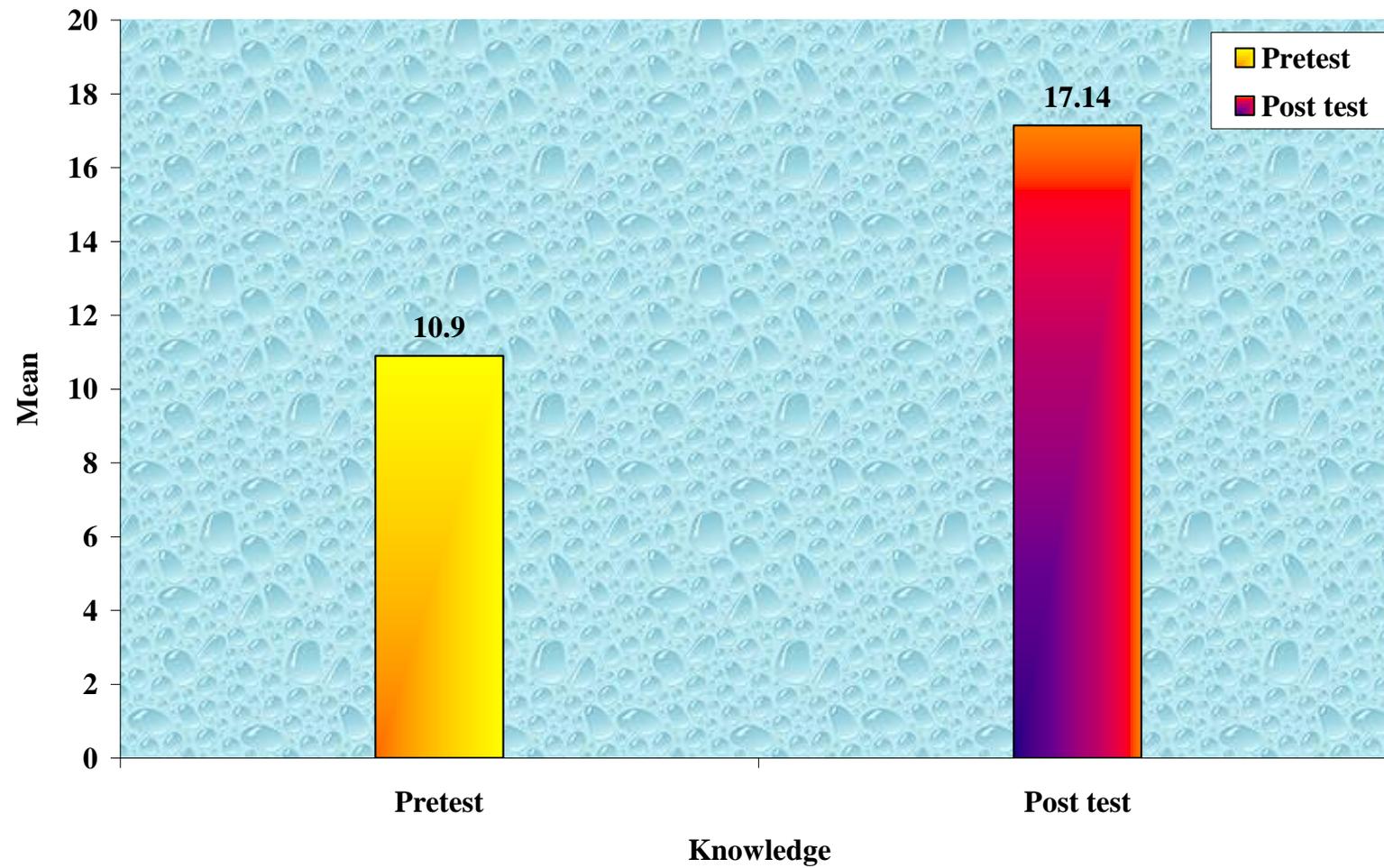
**Table. 4** Distribution of Statistical Value of Pretest and Post Test Knowledge Score in Controlling Blood Pressure

(n = 50)

S. No.	Knowledge	Mean	S.D	't' Value	Level of Significance
1.	Pretest	10.9	3.26	22.62*	0.05
2.	Post test	17.14	2.93		

\*Significant

Table 4 shows that the calculated value of 't' is 22.62 at 49 (df) which is greater than the table value (t=2) is significant at 0.05 level of significance. Therefore there is significant difference between pretest and post test mean score. It implies that the knowledge score of patients with primary hypertension in controlling their blood pressure was improved significantly after intervening IEC package.



**Figure. 16** Distribution of Pretest and Post test Knowledge Mean Scores Regarding Controlling Blood Pressure Among Patients with Primary Hypertension

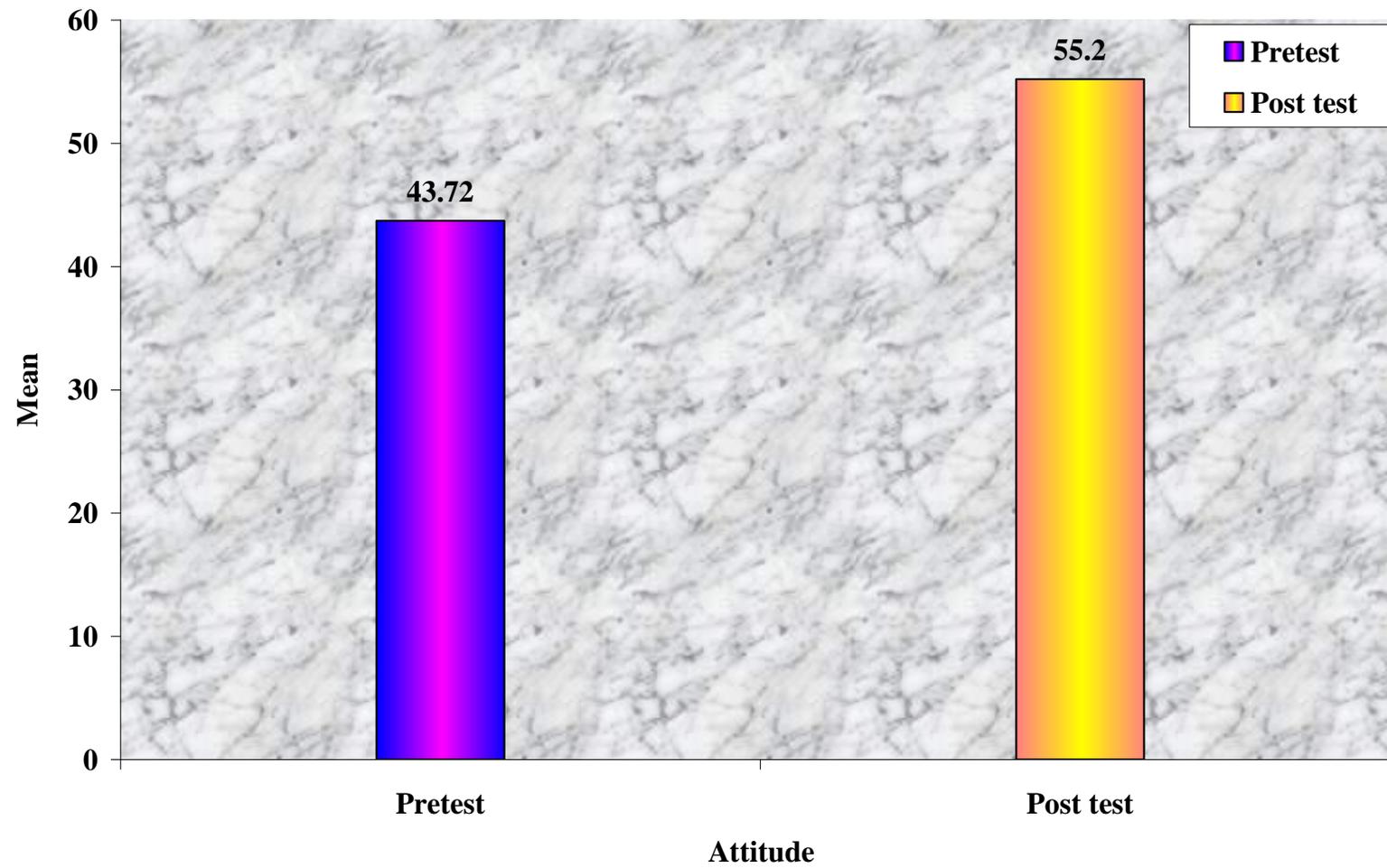
**Table. 5** Distribution of Statistical Value of Pretest and Post Test Attitude Score in Controlling Blood Pressure

(n = 50)

S. No.	Attitude	Mean	S.D	't' Value	Level of Significance
1.	Pretest	43.72	3.55	18.97*	0.05
2.	Post test	55.2	2.19		

\*Significant

Table 5 shows that the calculated value of 't' is 18.97 at 49 (df) which is greater than the table value ( $t= 2$ ), is significant at 0.05 level of significance. Therefore there is a significant difference between the pretest and post test mean score. It implies that the attitude towards controlling blood pressure was improved significantly after the IEC package.



**Figure. 17 Distribution of Pretest and Post Test Attitude Mean Scores towards Controlling Blood Pressure  
Among Patients with Primary Hypertension**

## SECTION – IV

**Table. 6** Correlation Between Pretest Knowledge Score and Attitude Score Regarding Controlling Blood Pressure

(n = 50)

S. No.	Pretest	Mean	S.D	r
1.	Knowledge	10.9	3.26	+0.36
2.	Attitude	43.72	3.55	

Table 6 shows that there is a positive correlation between the knowledge score and attitude score in pretest.

**Table. 7** Correlation Between Post Test Knowledge Score and Attitude Score Regarding Controlling Blood Pressure

(n = 50)

S. No.	Post Test	Mean	S.D	r
1.	Knowledge	17.14	2.93	+0.13
2.	Attitude	55.2	2.19	

Table 7 shows that there is positive correlation between the knowledge score and attitude score towards controlling blood pressure in post test.

## SECTION – V

**Table. 8** Association of Demographic Variables with Pretest Knowledge Score in Controlling Blood Pressure

(n = 50)

S.No.	Demographic Variables	Above Mean	Below Mean	Degree of freedom	$\chi^2$
1.	<b>Age</b> a) 35 – 45 years b) 46 – 55 years c) 56 – 65 years	12 10 3	2 11 12	2	12.58*
2.	<b>Sex</b> a) Male b) Female	12 13	8 17	1	1.32
3.	<b>Religion</b> a) Hindu b) Muslim c) Christian d) Others	22 3 0 0	21 4 0 0	3	0.03
4.	<b>Education</b> a) Illiterate b) Primary c) Secondary d) Higher secondary e) Graduate	0 7 12 5 2	2 19 3 0 0	4	21.94*
5.	<b>Occupation</b> a) Unemployed b) Business c) Technical work d) Professional	8 11 3 2	17 8 1 0	3	5.42

(Table 8 continues)

(Table 8 continued)

S.No.	Demographic Variables	Above Mean	Below Mean	Degree of freedom	$\chi^2$
6.	<b>Marital status</b> a) Married b) Single c) Divorcee d) Widow/ widower	24 0 0 1	17 1 0 7	3	6.68
7.	<b>Monthly income</b> a) Below ₹. 5000/- b) ₹. 5001-15,000/- c) ₹. 15,001-25,000/- d) Above ₹. 25,000/-	0 8 14 3	6 13 6 0	3	13.38*
8.	<b>Place of residence</b> a) Rural b) Urban c) Semi urban	3 17 5	14 7 4	2	11.38*
9.	<b>Type of family</b> a) Nuclear b) Joint	15 10	13 12	1	0.32
10.	<b>Dietary pattern</b> a) Vegetarian b) Non-vegetarian	1 24	1 24	1	0

\*Significant

Table 8 shows the association of knowledge score with selected demographic variables by  $\chi^2$  test. The obtained  $\chi^2$  value of age was 12.58 at 2 (df), education was 21.94 at 4 (df), monthly income was 13.38 at 3 (df), and place of residence was 11.38 at 2 (df) were significant at 0.05 level. The other variables like sex, religion, occupation, marital status, type of family and dietary pattern were not associated with the knowledge score in pretest.

**Table. 9** Association of Demographic Variables with Pretest Attitude Score in Controlling Blood Pressure

(n = 50)

S.No.	Demographic Variables	Above Mean	Below Mean	Degree of Freedom	$\chi^2$
1.	<b>Age</b> a) 35 – 45 years b) 46 – 55 years c) 56 – 65 years	10 15 7	4 6 8	2	3.29
2.	<b>Sex</b> a) Male b) Female	13 19	7 11	1	0.01
3.	<b>Religion</b> a) Hindu b) Muslim c) Christian d) Others	28 4 0 0	15 3 0 0	3	0.16
4.	<b>Education</b> a) Illiterate b) Primary c) Secondary d) Higher secondary e) Graduate	0 15 13 2 2	2 11 2 3 0	4	12.67*
5.	<b>Occupation</b> a) Unemployed b) Business c) Technical work d) Professional	16 11 3 2	9 8 1 0	3	1.63

(Table 9 continues)

(Table 9 continued)

S.No.	Demographic Variables	Above Mean	Below Mean	Degree of Freedom	$\chi^2$
6.	<b>Marital status</b> a) Married b) Single c) Divorcee d) Widow/ widower	28 1 0 3	13 0 0 5	3	3.32
7.	<b>Monthly income</b> a) Below ₹. 5000/- b) ₹. 5001-15,000/- c) ₹. 15,001-25,000/- d) Above ₹. 25,000/-	4 13 13 2	2 8 7 1	3	0.07
8.	<b>Place of residence</b> a) Rural b) Urban c) Semi urban	9 18 5	8 6 4	2	2.42
9.	<b>Type of family</b> a) Nuclear b) Joint	19 13	9 9	1	0.41
10.	<b>Dietary pattern</b> a) Vegetarian b) Non-vegetarian	1 31	1 17	1	0.17

\* Significant

Table 9 shows the association of attitude score with selected demographic variables by  $\chi^2$  test. The obtained  $\chi^2$  value of education was 12.67 at 4 (df) was significant at 0.05 level of significance. The other variables like age, sex, religion, occupation, marital status, monthly income, place of residence, type of family and dietary pattern were not associated with attitude pretest score.

## **CHAPTER – V**

### **Result and Discussion**

The aim of the study was to assess the effectiveness of Information, Education and Communication package on knowledge and attitude towards controlling blood pressure among patients with Primary Hypertension. In this study one group pre-test post test pre-experimental study design was adopted. The data were analyzed by using descriptive and inferential statistics. The result of the study was discussed according to the objective.

#### **The First Objective of the Study was to Assess the Knowledge and Attitude Towards Controlling Blood Pressure Among Patients with Primary Hypertension**

The pretest knowledge and attitude towards controlling blood pressure among the samples were assessed by using the knowledge and attitude questionnaire. The mean pretest score of knowledge was 10.9 and post test was 17.14. The mean pretest score of attitude was 43.72 and post test score was 55.2. The mean difference implies that the subjects had inadequate knowledge and poor attitude towards controlling blood pressure.

A study was conducted by Yang Chao (2013) to understand the hypertension related-knowledge, attitudes and behavior status and provide the basis for integrated management of hypertension. Data was collected using questionnaires and physical examination. The results showed that the awareness of hypertension among patients was low and some patients had incorrect attitude towards hypertension control.

### **The Second Objective of the Study was to Deliver Information, Education and Communication Package Among Clients with Primary Hypertension**

The Information, Education and Communication package in controlling blood pressure was delivered to the subjects with the help of power point presentation and booklet distribution regarding blood pressure control. The package consisted of the areas of causes of hypertension, medications, diet, physical exercise, follow-up and alternative therapy. The subjects communicated their ideas actively and clarified their doubts.

Elizabeth (2011) conducted a study to assess the effectiveness of a multifaceted IEC programme on blood pressure among hypertensive patients. Patients attended four educational units held by hypertension nurses and physicians. The result of the study showed the program's ability to improve intermediate outcomes in hypertensive patients as their knowledge level was improved significantly. Better blood pressure control and significant reduction of the individual cardiovascular risk profile were achieved.

### **The Third Objective was to Evaluate the Effectiveness of IEC Package on Knowledge and Attitude Towards Controlling Blood Pressure Among Clients with Primary Hypertension**

The mean pretest score of knowledge was 10.9 and post test was 17.14. The mean pretest score of attitude was 43.72 and post test score was 55.2. Paired 't' test was performed to assess the effectiveness of the intervention. The calculated 't' value of knowledge score was 22.62 and that of attitude score was 18.97.

Both the 't' value obtained for knowledge score and attitude score were higher than the table value at 0.05 level of significance. This reveals that there was a significant improvement in knowledge and attitude towards controlling blood pressure among patients with Primary hypertension. This in turn reveals that the IEC package was effective.

Sheikh. S (2014) conducted a similar study to assess the impact of IEC intervention on hypertension management. The subjects were provided with repeated health education sessions and information about hypertension. After the intervention, it was found that the knowledge, attitude and practice of the patients on hypertension management was improved significantly.

#### **The Fourth Objective of the Study was to Find Out the Correlation Between Knowledge and Attitude Towards Controlling Blood Pressure Among Clients with Primary Hypertension**

The Karl Pearson's Correlation Coefficient was used to find out the relationship between knowledge and attitude towards controlling blood pressure. The 'r' value of pre test is +0.36 and post test is +0.13. It shows that there is a positive correlation between knowledge and attitude score. This implies that the attitude of patients with Primary Hypertension towards controlling blood pressure improves when the knowledge about hypertension management increases.

A study conducted by Manju (2012) to assess the knowledge and attitude on lifestyle modifications among hypertensive patients revealed that the knowledge level is correlated to the attitude on lifestyle modifications positively and moderately. The

study showed that when knowledge score increased, the attitude score was also increased moderately.

**The Fifth Objective of the Study was to Find Out the Association Between Knowledge and Selected Demographic Variables Among Clients with Primary Hypertension**

In the demographic variables, age, education, monthly income and place of residence were found to be significantly associated with the pretest knowledge in controlling blood pressure. The other variables like sex, religion, occupation, marital status, type of family and dietary pattern were not associated with the pretest knowledge score.

Sultan Balik Erkoz (2012) conducted a study to develop a scale to measure knowledge about hypertension. The Hypertension Knowledge-level scale was generated based on content, face, and construct validity, internal consistency, test re-test reliability, and discriminative validity procedures. Significant relationships were found between knowledge on hypertension and age, gender, educational status and family income. No significant correlation was found between working at an income generating job.

**The Sixth Objective of the Study was to Find Out the Association Between Attitude and Selected Demographic Variables Among Clients with Primary Hypertension**

Among the demographic variables, education had significant association with the attitude of the clients towards controlling blood pressure. Other variables like age,

sex, religion, occupation, marital status, monthly income, place of residence, type of family and dietary pattern were not associated with the attitude of the clients towards controlling blood pressure.

Line Aubert (2011) conducted a study on the knowledge, attitude and practice on hypertension management among hypertensive patients in developing countries. The study showed that the attitude of patients towards hypertension management had significant relationship with age and educational status of the patients.

## **CHAPTER – VI**

### **Summary, Conclusion, Nursing Implications, Limitations and Recommendations**

#### **Summary**

Hypertension is easily diagnosable and treatable with lifestyle modifications and effective medicines. Thus, hypertension control provides an entry point to deal with other non-communicable diseases as any intervention will help concomitantly address other non-communicable diseases also. Awareness about the disease condition contributes greatly towards its control and management. Thus, to increase the awareness about hypertension, information about prevention and control of hypertension can be incorporated in the information education and communication (IEC) components of all National Programmes.

The purpose of the study was to assess the effectiveness of information education and communication package on the knowledge and attitude towards controlling blood pressure among patients with primary hypertension.

#### **The Following Objectives were Set for the Study**

- To assess the knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension.
- To deliver Information, Education and Communication package among Clients with Primary Hypertension.
- To evaluate the effectiveness of IEC package on knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension.

- To find out the correlation between knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension.
- To find out the association between knowledge and selected demographic variables among clients with Primary Hypertension.
- To find out the association between attitude and selected demographic variables among clients with Primary Hypertension.

### **Hypothesis Set for the Study**

**H<sub>1</sub>:** The knowledge and attitude towards controlling blood pressure will be significantly improved by IEC package.

**H<sub>2</sub>:** The knowledge and attitude will have significant association with demographic variables among patients with primary hypertension.

### **Major Findings of the Study were as Follows**

- The pretest mean value of knowledge was 10.9
- The post test mean value of knowledge was 17.14
- The obtained 't' value for comparison of knowledge score at  $p < 0.05$  level was 22.62
- The pretest mean value of attitude was 43.72
- The post test mean value of attitude was 55.2
- The obtained 't' value for comparison of attitude score at  $p < 0.05$  level was 18.97
- The correlation between knowledge score and attitude score in pretest was +0.36
- The correlation between knowledge score and attitude score in post test was +0.13

- The demographic variables age, education, monthly income and place of residence had significant association with pretest knowledge score. The other demographic variables like sex, religion, occupation, marital status, type of family and dietary pattern shows no significant association with the pretest knowledge score about controlling blood pressure.
- The demographic variable, education shows significant association with the pretest attitude score towards controlling blood pressure. The other variables like age, sex, religion, occupation, marital status, monthly income, place of residence, type of family and dietary pattern were not associated with the attitude pretest score.

### **Conclusion**

Information, Education and Communication package regarding controlling blood pressure was given to assess its effectiveness among the patients with primary hypertension. The post test score of knowledge and attitude were highly significant when compared to pretest score using the paired 't' test. Thus the present study shows that the IEC package was effective in improving the knowledge and attitude towards blood pressure control significantly among the patients with Primary Hypertension.

A positive correlation was found between the knowledge and attitude score both in pretest and post test when tested using the Karl Pearson Correlation Coefficient. This shows that the improvement in knowledge about blood pressure control helps in developing favourable attitude towards controlling blood pressure among the patients. Hence the formulated hypothesis was accepted.

The association between the demographic variables and the pretest knowledge and attitude was also found out using the  $\chi^2$  test. The variables age, education, monthly income and place of residence were found to be significantly associated with the knowledge. The demographic variable, education had significant association with the attitude score.

### **Nursing Implications**

The findings of the study have implications in various areas of nursing like nursing education, nursing practice, administration and research.

#### **Nursing Education**

- Nursing curriculum is a means through which future nurses are prepared. Preventive and promotive health practices should be emphasized while planning the curriculum for nurses.
- Importance of Information, Education and Communication regarding hypertension in the practice field must be emphasized in the curriculum.
- Curriculum should include the preparation and conduction of IEC programmes regarding various health issues.
- Nursing students have to update their knowledge regarding Information, Education and Communication programmes at National level.

#### **Nursing Practice**

- The study emphasized on improving the knowledge and attitude of the patients towards controlling blood pressure to attain a positive outcome from hypertension management.

- Education about the measures to control blood pressure helps in the patient compliance to treatment and thereby reducing the cardiac risks.
- Nurses should provide information and individualized education to the patients regarding hypertension and promote communication among nurses and the patients.
- Nurses should conduct IEC programmes in hospitals and in community with focus on reducing risk of hypertension.

### **Nursing Administration**

- Nurse administrators should have interest in formulating guidelines and various modalities of treatment of hypertension.
- Inservice education programmes should be conducted for nurses to update their knowledge regarding hypertension management.
- The nurse administrator should organize various IEC programmes in hospitals and communities.
- Nurse administrator should motivate the subordinates to prepare and conduct patient education programmes.
- Nurse administrator should motivate and guide nursing students to participate in IEC programmes.

### **Nursing Research**

- The main aim of nursing research is to contribute to the knowledge of nurses to expand and broaden the scope of nursing. Nurses should take initiative to conduct further research.
- This study can act as a baseline for further studies which can be built upon the management of hypertension.

- There is a scope for conducting research study in depth by using other tools to assess the knowledge and attitude towards controlling blood pressure.
- It can be used for evidence based practice as a trend in treatment modality of hypertension.
- Researches can be done on IEC programmes in various other health issues.

### **Limitations**

- The limited sample size places limitation on the generalization of the study findings.
- The researcher could not use randomized sampling technique in this study.
- Knowledge and attitude towards controlling blood pressure was assessed through the responses to the questionnaire prepared by the researcher which may be subjective to various factors like inhibition of self expression.
- This study assessed only the patient knowledge and attitude, daily practice of the patient was not assessed.

### **Recommendations**

- Similar study can be conducted to assess the effectiveness of the IEC package on blood pressure level.
- Similar type of study can be conducted for a large group.
- Similar study can be conducted as a comparative study between various teaching methods.

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## ABSTRACT

**Statement of the Problem :** The effectiveness of Information, Education and Communication package on knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension in Ashwin Hospital, Coimbatore.

**Study Objective:** (a) To assess the knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension. (b) To deliver Information, Education and Communication package among Hypertensive clients. (c) To evaluate the effectiveness of IEC package on knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension. (d) To find out the correlation between the knowledge and attitude towards controlling blood pressure among clients with Primary Hypertension. (e) To find out the association between knowledge and selected demographic variables among clients with Primary Hypertension. (f) To find out the association between attitude and selected demographic variables among clients with Primary Hypertension. **Methodology :** One group pretest post test pre-experimental research design. 50 sample were selected by using non probability convenient sampling. A structured questionnaire was used to assess the knowledge and modified Likert Scale to assess the attitude. **Results :** Descriptive and inferential statistics were used to analyze the data. The obtained 't' value for comparison of knowledge score at  $p < 0.05$  was 22.62 and the obtained 't' value for comparison of attitude score at  $p < 0.05$  level was 18.97. **Conclusion :** The study findings revealed that the IEC package improved the knowledge and attitude regarding controlling blood pressure among the patients with primary hypertension.



# **P.P.G COLLEGE OF NURSING**

(A Unit of P. Perichi Gounder Memorial Charitable Trust)

(Affiliated to the Tamilnadu Dr. MGR Medical University)

(Approved by Government of Tamilnadu)

(Recognised by Indian Nursing Council)

**Cr. No. : 18-1183 / 2000 - INC. Resl. No. : 108/02/Oct/2005**

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**Regd. Off. :** Ashwin Hospital, Sathy Road, Coimbatore - 641 012 \* Phone: 0422 2525252 Fax: 0422 4387111

E-mail: [aswinhospital@touchtelindia.net](mailto:aswinhospital@touchtelindia.net) \* Website: [www.ppgcollege.org](http://www.ppgcollege.org)

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**To**

**Through**

The Principal,  
PPG College of Nursing,  
Coimbatore -35.

Respected Sir,

**Sub: Seeking permission for conducting research study**

I am a student of M Sc (N) II year, PPG College of Nursing affiliated to Dr. M.G.R Medical University, Chennai, Tamil Nadu. I have taken the specialization in Medical Surgical Nursing.

**Topic : A STUDY TO ASSESS THE EFFECTIVENESS OF INFORMATION, EDUCATION AND COMMUNICATION PACKAGE ON KNOWLEDGE AND ATTITUDE TOWARDS CONTROLLING BLOOD PRESSURE AMONG CLIENTS WITH PRIMARY HYPERTENSION IN ASHWIN HOSPITAL, COIMBATORE**

I request you to kindly permit me to conduct my study in your esteemed hospital, hope you will consider my requisition and do the needful.

Thanking you

Yours sincerely,

Place : Coimbatore

Date :

## Requisition Letter for Content Validity

**From**

M Sc (N) II year  
PPG College of Nursing  
Coimbatore- 35

**To**

**Through : Principal, PPG College of Nursing**

Respected Sir/ Madam,

**Sub: Requisition for expert opinion and suggestion for content validity of tool**

I am a student of M Sc (N) I year, PPG College of Nursing affiliated to the Tamilnadu Dr. M.G.R Medical University, Chennai. As a partial fulfillment of the M. Sc (N) programme, I am conducting,

**A STUDY TO ASSESS THE EFFECTIVENESS OF INFORMATION, EDUCATION AND COMMUNICATION PACKAGE ON KNOWLEDGE AND ATTITUDE TOWARDS CONTROLLING BLOOD PRESSURE AMONG CLIENTS WITH PRIMARY HYPERTENSION IN ASHWIN HOSPITAL, COIMBATORE**

Here with I have enclosed the developed tool for content validity and for the expert opinion and possible solution. It would be very kind of you to return the same as early as possible.

Thanking you,

Yours faithfully,

Place : Coimbatore

Date :

**PPG College of Nursing**  
**Format for the Content Validity**

Name of the expert :

Address :

Total content for the tool :

Kindly validate each tool and tick wherever applicable

<b>S.No</b>	<b>No. of Tool/Section</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>O.K</b>	<b>Not Applicable</b>	<b>Need Modification</b>	<b>Remarks</b>

Remarks

Signature of the Expert with Date

## **LIST OF EXPERTS**

**1. Dr. L. P. THANGAVELU**

Medical Director

Ashwin Hospital

Coimbatore.

**2. Prof. MEENAKSHI SUNDARAM**

RVS College of Nursing

Coimbatore.

**3. Prof. K. SASIKALA**

Sri Ramakrishna College of Nursing

Coimbatore.

**4. Prof. K. RAJI**

Vice Principal,

K. G College of Nursing

Coimbatore.

**5. Prof. KAVITHA**

Vice Principal,

Ganga College of Nursing

Coimbatore.

## SECTION - A

### Demographic Variables

#### Instructions

Read the following questions carefully and give tick (✓) in the given box for correct answer.

Sample No . \_\_\_\_\_

#### 1) Age

- a. 35- 45 years
- b. 46- 55 years
- c. 56- 65 years

#### 2) Sex

- a) Male
- b) Female

#### 3) Religion

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

4) Education

- a) Illiterate
- b) Primary
- c) Secondary
- d) Higher secondary
- e) Graduate

5) Occupation

- a) Unemployed
- b) Business
- c) Technical workers
- d) Professional

6) Marital status

- a) Married
- b) Single
- c) Divorcee
- d) Widow/ Widower

7) Monthly income

- a) Below ₹.5000/-
- b) ₹. 5001- 15,000/-
- c) ₹. 15,001- 25,000/-
- d) Above ₹. 25,000/-

8) Place of residence

- a) Rural
- b) Urban
- c) Semi urban

9) Type of family

- a) Nuclear
- b) Joint

10) Dietary pattern

- a) Vegetarian
- b) Non-vegetarian

## SECTION- B

### Questionnaire to Assess the Knowledge

#### Instructions

Read the following questions carefully and give tick (✓) mark in the given box for correct answer.

1. Hypertension is the blood pressure level of

- a) Below 100/ 60 mm of Hg
- b) 100/ 60 mm of Hg
- c) 120/ 80 mm of Hg
- d) Above 120/ 80 mm of Hg

2. Hypertension is more likely to occur in people taking

- a) Low fat diet
- b) High protein diet
- c) Vegetarian diet
- d) High fat diet

3. One of the causes of Hypertension is

- a) Increased stress
- b) Regular exercise
- c) Ideal body weight
- d) Less sodium intake

4. Hypertensive patients may have

- a) Fever
- b) Cough
- c) Dizziness
- d) Nausea

5. In severe Hypertension, there may be

- a) Headache
- b) Abdominal pain
- c) Burning micturition
- d) Joint pain

6. To prevent complication, a hypertensive patient should maintain the blood pressure level of

- a) 100/ 60 mm of Hg
- b) 130/ 90 mm of Hg
- c) 180/ 100 mm of Hg
- d) 200/ 100 mm of Hg

7. Antihypertensive drugs will

- a) Reduce blood pressure level
- b) Reduce blood glucose level
- c) Increase blood pressure level
- d) Reduce pain

8. Among these, an antihypertensive drug is

- a) Paracetamol
- b) Gelusil
- c) Cetrizine
- d) Atenolol

9. The first step in managing Hypertension is

- a) Lifestyle modification
- b) Drug therapy
- c) Surgery
- d) Bed rest

10. Foods that are high in fat are

- a) Fruits
- b) Leafy vegetables
- c) Animal products
- d) Cereals

11. DASH diet is recommended to

- a) Lose weight
- b) Control hypertension
- c) Control blood glucose level
- d) Increase body weight

12. Foods that can be included plenty in daily diet are

- a) Animal products
- b) Dairy products
- c) Simple carbohydrates
- d) Fruits and vegetables

13. The sodium intake of hypertensive patients should be

- a) Stopped
- b) Limited
- c) Increased
- d) Sodium intake is not related with Hypertension

14. The amount of salt is high in

- a) Distilled water
- b) Pickles
- c) Vegetables
- d) Fish

15. Hypertensive patients should exercise for

- a) 2 hours per day once in a week
- b) 1 hour per day twice in a week
- c) 30 minutes per day 3- 5 times a week
- d) 5 minutes daily

16. The best exercise for hypertensive patients is

- a) Rowing
- b) Skating
- c) Jumping rope
- d) Walking

17. Hypertensive patients should avoid exercises like

- a) Swimming
- b) Bicycling
- c) Walking
- d) Weight lifting

18. The toxin present in cigarette smoke that increases blood pressure is

- a) Caffeine
- b) Nicotine
- c) Thioflavin
- d) Cocaine

19. Patients with stage. 2 and 3 hypertension should check blood pressure

- a) Every week
- b) Every month
- c) Once in a year
- d) Once in 2 years

20. Hypertensive patients should consult doctor for follow-up care

- a) Every week
- b) Every month
- c) Once in a year
- d) Once in 2 years

21. Relaxation technique helps in

- a) Reducing cholesterol level
- b) Reducing blood glucose level
- c) Reducing blood pressure level
- d) Reducing fever

22. Stress reduction can be attained by

- a) Laughter therapy
- b) Breathing exercise
- c) Music therapy
- d) Above all

23. Progressive muscle relaxation technique needs

- a) Hospital setting
- b) Class room setting
- c) Noisy environment
- d) Quiet room

24. Yoga helps to

- a) Improve the muscle tone of the body
- b) Reduce the stress
- c) Improve breathing
- d) Above all

25. Calm and relaxed mind can be attained by listening relaxing music for

- a) 12 hours
- b) 30 minutes
- c) 2 minutes
- d) 2 hours

## SECTION - C

### Questionnaire to Assess the Attitude Towards Controlling Blood Pressure

#### Instruction

Read the following statements carefully and indicate your response by placing a tick (✓) mark in the box given.

S.No.	Statements	Response					Score
		SA	A	UC	DA	SD	
1.*	Hypertension occurs in every individual in old age.						
2.	People who are exposed to repeated stress may develop hypertension.						
3.*	Hypertension can be controlled with drugs alone.						
4.	Blood pressure can be controlled with lifestyle modifications in initial stage without taking drugs.						
5.*	We can double the dose of drug if previous dose is missed.						
6.*	We can take the medication of other person with hypertension.						
7.	Avoiding high fat and salt in diet helps to control blood pressure.						
8.	Fruits and vegetables should be included enormously in daily diet.						

9.*	Vigorous exercises like weight lifting helps to control blood pressure faster.						
10.	Smoking will increase the complications from hypertension.						
11.*	Alcoholism does not affect blood pressure maintenance.						
12.	Proper sleep and rest is needed to control blood pressure.						
13.	Practice of a relaxation technique helps to regulate blood pressure.						
14.	Blood pressure should be checked every week.						

\* Negative statement.

### Notes

- SA - Strongly Agree
- A - Agree
- UN - Uncertain
- DA - Disagree
- SDA - Strongly Disagree

## SECTION – B

### Scoring Key

Question No.	Correct Answer	Score
1.	d	1
2.	d	1
3.	a	1
4.	c	1
5.	a	1
6.	b	1
7.	a	1
8.	d	1
9.	a	1
10.	c	1
11.	b	1
12.	d	1
13.	b	1
14.	b	1
15.	c	1
16.	d	1
17.	d	1
18.	b	1
19.	a	1
20.	b	1
21.	c	1
22.	d	1
23.	d	1
24.	d	1
25	b	1

## SECTION – C

### Scoring Key

#### Positive Statements

(2, 4, 7, 8, 10, 12, 13, 14)

Strongly Agree	-	5
Agree	-	4
Uncertain	-	3
Disagree	-	2
Strongly disagree	-	1

#### Negative Statements

(1, 3, 5, 6, 9, 11)

Strongly Agree	-	1
Agree	-	2
Uncertain	-	3
Disagree	-	4
Strongly disagree	-	5

## பகுதி - அ

முறையான மாதிரிகளின் நேர்காணல் படிவம்

கீழே கொடுக்கப்பட்டுள்ள வினாக்களை கவனமாக படித்து சரியான விடையை (✓) செய்யவும்.

மாதிரி எண் .....

### 1. வயது

- அ. 35 - 45
- ஆ. 46 - 55
- இ. 56 - 65

### 2. பாலினம்

- அ. ஆண்
- ஆ. பெண்

### 3. மதம்

- அ. இந்து
- ஆ. இஸ்லாமியர்
- இ. கிறிஸ்தவம்
- ஈ. மற்றவை

### 4. கல்வித்தகுதி

- அ. படிப்பறிவில்லாதவர்
- ஆ. ஆரம்ப நிலைக்கல்வி
- இ. இடைநிலைக்கல்வி
- ஈ. மேல்நிலைக்கல்வி
- உ. பட்டப்படிப்பு மற்றும் அதற்கு மேல்

5. தொழில்

- அ. வேலையின்மை
- ஆ. சுயதொழில்
- இ. தொழில்நுட்பம் சம்பந்தமான வேலை
- ஈ. தொழிற்கல்வி

6. திருமண நிலை

- அ. திருமணமானவர்
- ஆ. திருமணமாகாதவர்
- இ. விவாகரத்து ஆனவர்
- ஈ. விதவை

7. மாதவருமானம்

- அ. ₹. 5000 க்கு கீழ்
- ஆ. ₹. 5001- 15000 வரை
- இ. ₹. 15001 - 25000 வரை
- ஈ. ₹. 25,000 க்கு மேல்

8. தங்கும் இடம்

- அ. கிராமம்
- ஆ. நகரம்
- இ. சேரி

9. குடும்ப வகை

- அ. தனிக்குடும்பம்
- ஆ. கூட்டுக் குடும்பம்

10. உணவு பழக்கம்

அ. சைவம்

ஆ. அசைவம்

## பகுதி - ஆ

அறிவுத்திறனை மதிப்பிடுவதற்கான வினாக்கள்

கீழே கொடுக்கப்பட்டுள்ள வினாக்களை கவனமாக படித்து சரியான விடையை (✓) செய்யவும்.

1. உயர் இரத்த அழுத்தம் என்பது

- அ. 100/ 60 mmHg க்கு கீழ்
- ஆ. 100 / 60 mmHg
- இ. 120 / 80 mmHg
- ஈ. 120 / 80 mmHg க்கு மேல்

2. உயர் இரத்த அழுத்தம் பொதுவான எந்த வகையான உணவு உட்கொள்கோள்ளும் மக்களுக்கு ஏற்படலாம்

- அ. குறைந்த கொழுப்பு உணவு
- ஆ. அதிக புரத உணவு
- இ. சைவ உணவு வகைகள்
- ஈ. அதிக கொழுப்பு உணவு

3. உயர் இரத்த அழுத்தம் ஏற்பட இதுவும் ஒரு காரணம்

- அ. அதிகமான மன அழுத்தம்
- ஆ. தினசரி உடற்பயிற்சி
- இ. குறிப்பிட்ட உடல் எடை
- ஈ. குறைந்த உப்பு உட்கொள்வதால்

4. உயர் இரத்த அழுத்தம் உள்ள நோயாளிக்கு

- அ. காய்ச்சல்
- ஆ. இருமல்
- இ. மயக்க உணர்வு
- ஈ. குமட்டல்

5. கடுமையான உயர் இரத்த அழுத்தம் உள்ள நோயாளிக்கு

- அ. தலைவலி
- ஆ. வயிற்றுவலி
- இ. சிறுநீர் கழிக்கும் போது எரிச்சல் ஏற்படும்
- ஈ. மூட்டுவலி

6. உயர் இரத்த அழுத்தத்தினால் ஏற்படும் பாதிப்பை தவிர்க்க நோயாளி

சீராக வைக்க வேண்டிய இரத்த அழுத்தத்தின் அளவு

- அ. 100/ 60 mmHg
- ஆ. 130 /90 mmHg
- இ. 180 / 100 mmHg
- ஈ. 200 /100 mmHg க்கு மேல்

7. எதிர் உயர் இரத்த அழுத்த மருந்துகளை உட்கொள்வதால்

- அ. இரத்த அழுத்தை குறைக்கும்
- ஆ. இரத்த சர்க்கரையின் அளவை குறைக்கும்
- இ. இரத்த அழுத்தத்தை அதிகரிக்கும்
- ஈ. வலியை குறையும்

8. கீழே கொடுக்கப்பட்டுள்ள எதிர் உயர் இரத்த அழுத்த மருந்தினை கண்டுபிடிக்கவும்.

- அ. பாரசெட்டமால்
- ஆ. ஜெலுசல்
- இ. செட்ரிலின்
- ஈ. அட்டினால்

9. உயர் இரத்த அழுத்தம் குறைப்பதற்கான முதல்படி

- அ. வாழ்க்கையின் தரத்தை மாற்றுதல்
- ஆ. மருந்துகள் உட்கொள்ளுதல்
- இ. அறுவை சிகிச்சை
- ஈ. முழுமையான ஓய்வு

10. கொழுப்பு சத்து அதிகமாக உள்ள உணவு

- அ. பழவகைகள்
- ஆ. காய்கறிகள்
- இ. விலங்குகளிடம் இருந்து தயாரிக்கும் உணவு
- ஈ. தானிய வகைகள்

11. DASH உணவு வகைகள் எதற்காக பரிந்துரைக்கப்படுகிறது.

- அ. உடல் எடை குறைப்பதற்காக
- ஆ. இரத்த அழுத்தம் குறைப்பதற்காக
- இ. இரத்த சர்க்கரையின் அளவை குறைப்பதற்காக
- ஈ. உடல் எடை அதிகரிப்பதற்காக

12. தினசரி வாழ்க்கையில் அதிகமாக உட்கொள்ள வேண்டிய உணவு வகைகள்

- அ. விலங்கிலிருந்து தயாரிக்கப்படும் உணவு வகைகள்
- ஆ. பால் சம்பந்தமான உணவு பொருட்கள்
- இ. எளிய கார்போஹைட்ரேட்டுகள்
- ஈ. பழவகைகள் மற்றும் காய்கறிகள்

13. உயர் இரத்த அழுத்த நோயாளிகள் உப்பு உட்கொள்வதை

- அ. நிறுத்த வேண்டும்
- ஆ. கட்டுப்படுத்த வேண்டும்
- இ. அதிகமாக எடுக்க வேண்டும்
- ஈ. உப்பு உட்கொள்வதற்கும் இரத்த அழுத்தத்திற்கும் எந்த சம்பந்தமும் இல்லை

14. அதிகமாக உப்பு உணவு

- அ. வடிநீர்
- ஆ. ஊறுகாய்
- இ. காய்கறிகள்
- ஈ. மீன்

15. உயர் இரத்த அழுத்த நோயாளிகள் உடற்பயிற்சி செய்யும் காலம்

- அ. வாரத்தில் 2 மணி நேரம்
- ஆ. வாரத்தில் இரண்டு முறை 1 மணி நேரம்
- இ. வாரத்திற்கு 3 - 5 தடவை 30 நிமிடம் வரை
- ஈ. தினசரி 5 நிமிடம்

16. உயர் இரத்த அழுத்தம் குறைப்பதற்கான மிகச் சிறந்த உடற்பயிற்சி

- அ. சறுக்கு விளையாட்டு
- ஆ. துள்ளுதல்
- இ. கயிறு சாடுதல்
- ஈ. நடப்பது

17. உயர் இரத்த அழுத்த நோயாளிகள் தவிர்க்க வேண்டிய உடற்பயிற்சி

- அ. நீச்சல்
- ஆ. மிதிவண்டி ஓட்டுதல்
- இ. நடத்தல்
- ஈ. எடை தூக்குதல்

18. புகை பிடிக்கும் போது சிகரெட்டில் உள்ள எந்த மூலக்கூறு உயர் இரத்த அழுத்தம் உயர வழிவகை செய்கிறது.

- அ. கஃபைன்
- ஆ. நிக்கோடின்
- இ. தயோபிளேவின்
- ஈ. கோகைன்

19. முதல்நிலை, இரண்டாம் நிலை உயர் இரத்த அழுத்தம் உள்ள நோயாளிகள் எப்பொழுதெல்லாம் இரத்த அழுத்தம் பரிசோதனை செய்ய வேண்டும்.

- அ. வாரத்திற்கு ஒரு முறை
- ஆ. மாதத்திற்கு ஒரு முறை
- இ. வருடத்திற்கு ஒரு முறை
- ஈ. இரண்டு வருடத்திற்கு ஒரு முறை

20. உயர் இரத்த அழுத்தம் உள்ள நோயாளிகள் மருத்துவரை எப்போது பார்க்க வேண்டும்.

- அ. வாரத்திற்கு ஒரு முறை
- ஆ. மாதத்திற்கு ஒரு முறை
- இ. வருடத்திற்கு ஒரு முறை
- ஈ. இரண்டு வருடத்திற்கு ஒரு முறை

21. தளர்வு பயிற்சிகள் எதற்காக செய்ய வேண்டும்.

- அ. கொழுப்பின் அளவை குறைக்க
- ஆ. இரத்த சர்க்கரை அளவை குறைக்க
- இ. இரத்த அழுத்தம் குறைக்க
- ஈ. காய்ச்சலை குறைக்க

22. மன அழுத்தத்தை குறைக்க

- அ. சிரிப்பு பயிற்சி
- ஆ. சுவாசப் பயிற்சி
- இ. இசை பயிற்சி
- ஈ. மேலே குறிப்பிட்ட எல்லாம்

23. தசை தளர்வு பயிற்சிக்காக தேவையானது

- அ. மருத்துவமனை
- ஆ. வகுப்பறை
- இ. சத்தமான சுற்றுப்புறம்
- ஈ. அமைதியான அறை

24. யோகா எதற்கு உதவுகிறது

- அ. உடல் தசையின் பலத்தை அதிகரிக்கிறது
- ஆ. மன அழுத்தத்தை குறைக்கிறது.
- இ. சுவாசத்தை அதிகரிக்கிறது.
- ஈ. மேலே கொடுக்கப்பட்ட அனைத்தும்

25. அமைதியான மனது எவ்வளவு நேரம் இசையில் கவனம் செலுத்துகிறது.

- அ. 12 மணி நேரம்
- ஆ. 30 நிமிடம்
- இ. 2 நிமிடம்
- ஈ. 2 மணி நேரம்

## பகுதி - இ

இரத்த அழுத்தத்தை கட்டுப்படுத்துவதை பற்றிய மனப்பான்மையை மதிப்பீடு

கேள்வித்தாள்

கீழ்க்காணும் வாக்கியங்களுக்கு உரிய கருத்தை தேர்வு செய்து (✓) என்ற குறியீட்டை விடையின் காலத்தில் குறிக்கவும்

வரிசை எண்	கூற்று	பதில்					மதிப்பெண்
		ஆ. வ.	ஆ.	இ. கீ.	உ. ஆ.ம	ஒ. ம	
1.*	இரத்த அழுத்தம் வயதானவர்களை அதிகம் தாக்குகிறது.						
2.	மன அழுத்தம் அடிக்கடி ஏற்படுவதால் இரத்த அழுத்தம் ஏற்படுகிறது.						
3.*	இரத்த அழுத்தத்தை மருந்துகள் வழியாக மட்டும் கட்டுப்படுத்தலாம்.						
4.	இரத்த அழுத்தத்தின் ஆரம்ப காலத்தில் மருந்துகளை உபயோகிக்காமல் வாழ்க்கை முறை மாற்றத்தின் மூலம் கட்டுப்படுத்தலாம்.						
5.*	தொடர்ந்து உட்கொள்ளும் மருந்துகளை ஏதேனும் ஒரு சமயம் தவறிவிட்டால் அடுத்த முறை இரட்டிப்பாக எடுக்கலாம்.						
6.*	இரத்த அழுத்தத்தினால் பாதிக்கப்பட்டவர்களின் மருந்துகளை உட்கொள்ளலாம்.						
7.	அதிகம் கொழுப்பு மற்றும் உப்பு நிறைந்த உணவுகளையும் தவிர்ப்பதன் மூலம் இரத்த அழுத்தத்தை கட்டுப்படுத்தலாம்.						

8.	அன்றாடம் எடுக்கும் உணவுகளில் பழம் மற்றும் காய்கறிகள் சேர்த்துக் கொள்ள வேண்டும்.						
9.*	எடைதூக்கல் மற்றும் பலமான உடற்பயிற்சிகளை செய்துவருவதன் மூலம் இரத்த அழுத்தத்தை அதிகமாக கட்டுப்படுத்தலாம்.						
10.	இரத்த அழுத்தம் உள்ளவர்கள் புகைப்பிடிப்பதால் அதிக பின்விளைவுகள் வரும்.						
11.*	இரத்த அழுத்தத்தில் மது அறுந்துதல் மூலம் எந்த மாற்றமும் ஏற்படுத்தாது.						
12.	சரியான ஓய்வு மற்றும் நல்ல உறக்கம் எடுத்துக் கொள்வதின் மூலம் இரத்த அழுத்தத்தை கட்டுப்படுத்தலாம்.						
13.	மனதை அமைதிப்படுத்தும் செயல்களில் ஈடுபடுவதின் மூலம் இரத்த அழுத்தத்தை கட்டுப்படுத்தலாம்.						
14.	வாரம் ஒருமுறை இரத்த அழுத்தத்தை பரிசோதிக்க வேண்டும்.						

\* எதிர்மறை கூற்று

### குறிப்பு

உ.ஒ : உறுதியாக ஒப்புக்கொள்கிறேன்

ஒ : ஒப்புக்கொள்கிறேன்

தீ.இ : தீர்மானமில்லை

உ.ஒ.ம : ஒப்புக்கொள்ளமாட்டேன்

ஒ.ம : உறுதியாக ஒப்புக்கொள்ளமாட்டேன்

பகுதி - ஆ

மதிப்பெண்

வரிசை எண்	பதில்	மதிப்பெண்
1.	ஈ	1
2.	ஈ	1
3.	அ	1
4.	இ	1
5.	அ	1
6.	ஆ	1
7.	அ	1
8.	ஈ	1
9.	அ	1
10.	இ	1
11.	ஆ	1
12.	ஈ	1
13.	ஆ	1
14.	ஆ	1
15.	இ	1
16.	ஈ	1
17.	ஈ	1
18.	ஆ	1
19.	அ	1
20.	ஆ	1
21.	இ	1
22.	ஈ	1
23.	ஈ	1
24.	ஈ	1
25.	ஆ	1

## பகுதி - இ

### பதில்கள்

#### நேர்மறை கேள்விகளுக்கான மதிப்பீடுகள்

(2, 4, 7, 8, 10, 12, 13, 14)

உறுதியாக ஒப்புக்கொள்கிறேன்	-	5
ஒப்புக்கொள்கிறேன்	-	4
தீர்மானமில்லை	-	3
ஒப்புக்கொள்ளமாட்டேன்	-	2
உறுதியாக ஒப்புக்கொள்ளமாட்டேன்	-	1

#### எதிர்மறை கேள்விகளுக்கான மதிப்பீடுகள்

(1, 3, 5, 6, 9, 11)

உறுதியாக ஒப்புக்கொள்கிறேன்	-	1
ஒப்புக்கொள்கிறேன்	-	2
தீர்மானமில்லை	-	3
ஒப்புக்கொள்ளமாட்டேன்	-	4
உறுதியாக ஒப்புக்கொள்ளமாட்டேன்	-	5

**A STUDY TO ASSESS THE EFFECTIVENESS OF INFORMATION,  
EDUCATION AND COMMUNICATION PACKAGE ON  
KNOWLEDGE AND ATTITUDE TOWARDS  
CONTROLLING BLOOD PRESSURE AMONG  
CLIENTS WITH PRIMARY HYPERTENSION  
IN ASHWIN HOSPITAL, COIMBATORE**



**LESSON PLAN**

**ON**

**CONTROLLING BLOOD PRESSURE IN PRIMARY**

**HYPERTENSIVE PATIENTS**

**HEALTH EDUCATION**  
**ON**  
**CONTROLLING BLOOD PRESSURE IN PRIMARY HYPERTENSIVE PATIENTS**

Topic : Controlling Blood Pressure In Primary Hypertensive Patients

Group : Primary Hypertensive Patients Attending O.P.D

Venue : Ashwin Hospital, Coimbatore

Duration : 45 Minutes

A.V AIDS : Power Point and Booklet

Method of Teaching : Lecture Cum Discussion

## **General Objective**

At the end of the session, the patients with primary hypertension will acquire adequate knowledge regarding controlling blood pressure, improve the attitude and will apply gained knowledge on practice in future.

## **Specific Objectives**

At the end of the session, the patients will be able to;

- explain about Hypertension
- enumerate the classification of Hypertension
- enlist the etiological factors of Hypertension
- describe the clinical manifestations of Hypertension
- explain the management of Hypertension
- describe the lifestyle modifications in controlling hypertension
- enlist the complications of Hypertension

Specific Objective	Content	Teacher's Activity
<p>explain about Hypertension</p>	<p><b>Introduction</b></p> <p>Hypertension is one of the common lifestyle disorders which cause a high risk for cardiovascular disorders. Hypertension is sometimes called the “silent killer” because people who have it are often symptom free. Screening is essential for healthy people to identify if they have Hypertension. Once identified, elevated blood pressure should be monitored at regular intervals because Hypertension is a life-long condition. Any elevation from the normal blood pressure ie., 120/ 80 mm of Hg should be considered and measures should be taken to prevent complications.</p> <p><b>What is Hypertension</b></p> <p>Hypertension or high blood pressure is the persistent systolic blood pressure greater than or equal to 140 mm of Hg and diastolic blood pressure greater than or equal to 90 mm of Hg or the constant elevation of the systolic or diastolic pressure above 140/ 90 mm of Hg. It is sustained deviation of blood pressure.</p>	<p>L E C T U R I N G</p>

<p>enumerate the classification of Hypertension</p>	<p><b>Classification</b></p> <p>According to the level of blood pressure, the WHO/ ISH classifies Hypertension into 3 grades.</p> <table border="1" data-bbox="472 440 1883 810"> <thead> <tr> <th data-bbox="472 440 954 515"><b>Blood Pressure</b></th> <th data-bbox="954 440 1240 515"><b>Grade I</b></th> <th data-bbox="1240 440 1547 515"><b>Grade II</b></th> <th data-bbox="1547 440 1883 515"><b>Grade III</b></th> </tr> </thead> <tbody> <tr> <td data-bbox="472 515 954 663">           SYSTOLIC BP (mm of Hg)         </td> <td data-bbox="954 515 1240 663">140- 159</td> <td data-bbox="1240 515 1547 663">160- 179</td> <td data-bbox="1547 515 1883 663">≥180</td> </tr> <tr> <td data-bbox="472 663 954 810">           DIASTOLIC BP (mm of Hg)         </td> <td data-bbox="954 663 1240 810">90- 99</td> <td data-bbox="1240 663 1547 810">100- 109</td> <td data-bbox="1547 663 1883 810">≥110</td> </tr> </tbody> </table>	<b>Blood Pressure</b>	<b>Grade I</b>	<b>Grade II</b>	<b>Grade III</b>	SYSTOLIC BP (mm of Hg)	140- 159	160- 179	≥180	DIASTOLIC BP (mm of Hg)	90- 99	100- 109	≥110	<p>L E C T U R I N G</p>
<b>Blood Pressure</b>	<b>Grade I</b>	<b>Grade II</b>	<b>Grade III</b>											
SYSTOLIC BP (mm of Hg)	140- 159	160- 179	≥180											
DIASTOLIC BP (mm of Hg)	90- 99	100- 109	≥110											
<p>enlist the risk factors</p>	<p><b>Risk Factors</b></p> <ul style="list-style-type: none"> <li>➤ Increasing age</li> <li>➤ Excessive alcohol intake</li> <li>➤ Cigarette smoking</li> <li>➤ Diabetes mellitus</li> <li>➤ Elevated serum lipids</li> <li>➤ Excess dietary sodium</li> </ul>													

<p>describe the clinical manifestations</p>	<ul style="list-style-type: none"> <li>➤ Gender: Men in young adulthood and Women after 55 years</li> <li>➤ Family history of Hypertension in close blood relatives</li> <li>➤ Obesity</li> <li>➤ Sedentary lifestyle</li> <li>➤ Ethnicity: African Americans</li> <li>➤ Socioeconomic status: low socioeconomic, less educated people</li> <li>➤ Stress</li> </ul> <p><b>Clinical Manifestations</b></p> <p>Hypertension is primarily asymptomatic. Later, secondary symptoms will develop due to effects on blood vessels. These include;</p> <ul style="list-style-type: none"> <li>➤ Fatigue</li> <li>➤ Decreased activity tolerance</li> <li>➤ Dizziness</li> <li>➤ Palpitations</li> </ul>	<p>L E C T U R I N G</p>
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- Angina
- Dyspnoea

Occasionally there will be retinal changes such as;

- Retinal haemorrhage
- Exudates
- Arteriolar narrowing
- Cotton wool spots (small infarctions)

In severe hypertension;

- Papilledema
- Headache
- Nose bleeds
- Dizziness

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<p>explain the management of Hypertension</p>	<p><b>Management</b></p> <p>The goal of hypertension treatment is to prevent death and complications by achieving and maintaining arterial blood pressure at 140/ 90 mm Hg or lower. The guidelines for the management exists in the following areas:</p> <ul style="list-style-type: none"> <li>➤ B.P elevation should usually be assessed carefully over several months before initiating treatment.</li> <li>➤ The decision to treat hypertension is made in the context of overall cardiovascular risk.</li> <li>➤ Lifestyle modifications should provide the foundation for treatment</li> </ul> <p><b>Risk Stratification</b></p> <p>The risk of cardiovascular disease in people with hypertension is determined by the level of B.P, the presence of target organ disease and other risk factors. Patients are assigned to risk groups based on these factors to determine the treatment modality.</p> <p><b><u>Risk Group A:</u></b> Patients with high normal B.P or stage 1, 2 or 3 hypertension who do not have cardiovascular disease, target organ disease or other risk factors.</p> <p><b><u>Risk Group B :</u></b> Patients with hypertension who do not have cardiovascular disease or target organ disease,</p>	<p>L E C T U R I N G</p>
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have one or more cardiovascular risk factors but do not have diabetes.

**Risk Group C** : Patients with hypertension who have cardiovascular disease, target organ damage or diabetes.

<b>B.P STAGES (mm of Hg)</b>	<b>Risk Group A</b>	<b>Risk Group B</b>	<b>Risk Group C</b>
High normal (130- 135/ 85-89)	Lifestyle modifications	Lifestyle modifications	Drug therapy Lifestyle modifications
Stage. 1 (140-159/ 90-99)	Lifestyle modifications upto 12 months	Lifestyle modifications upto 6 months	Drug therapy Lifestyle modifications
Stages. 2 & 3 (≥160/ ≥100)	Drug therapy Lifestyle modifications	Drug therapy Lifestyle modifications	Drug therapy Lifestyle modifications

**Drug Therapy**

- Once detected that the person have high blood pressure, treatment with Antihypertensives are started.  
The general goals of drug therapy are to achieve B.P less than 130/ 80 mm of Hg in young adults and

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	<p>140/ 90 mm of Hg in older adults.</p> <ul style="list-style-type: none"> <li>➤ The purpose of drug therapy is to maintain blood pressure within normal ranges by the simplest and safest means possible with the fewest side-effects for each individual patient. The drugs should be selected depending on various factors including case of use, side-effects and co-existing medical conditions. The commonly used drugs are; <ul style="list-style-type: none"> <li>• Atenolol</li> <li>• Minipress</li> <li>• Captopril etc.</li> </ul> </li> <li>➤ Take medications regularly as prescribed to control the blood pressure and to prevent complication.</li> <li>➤ Take drugs in correct dose in correct time.</li> <li>➤ Do not skip any dose.</li> <li>➤ Notify the physician if you are taking medicines for any other diseases or over the counter medicines.</li> <li>➤ Most blood pressure-lowering drugs do not cause significant side-effects. If you develop a reaction to a medication or you are unable to afford it, talk to your doctor.</li> </ul>	<p>L E C T U R I N G</p>
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<p>describe the lifestyle modifications in controlling Hypertension</p>	<p>➤ Do not stop taking medication without consulting your doctor.</p> <p><b>Lifestyle Modifications</b></p> <p>Life-style modification is the first step in managing hypertension. These modifications are directed towards reducing B.P and overall cardiovascular risk factors. These include;</p> <ul style="list-style-type: none"> <li>➤ Dietary changes</li> <li>➤ Regular physical activity</li> <li>➤ Limitation of alcohol intake</li> <li>➤ Avoidance of tobacco use</li> </ul> <p><b>Dietary Changes</b></p> <p>The patient should make a change in his dietary pattern to control or reduce his weight and to manage the Blood pressure level. Diet should include appropriate portion of low- fat foods. He should also avoid high fat snacks and reduce his total daily calorie intake.</p>	<p>L E C T U R I N G</p>
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	<p><b><u>Foods to be Avoided</u></b></p> <ul style="list-style-type: none"> <li>➤ Animal products:- large portions of meat (beef, lamb, pork or veal), liver or organ meals, bacon, sausage, luncheon meats, egg yolks.</li> <li>➤ Dairy products:- whole milk, ice-cream, cheese and butter</li> <li>➤ Oil products:- beef lard, salad dressings, cream sauces and gravies.</li> <li>➤ Simple carbohydrates:- sweets, candy, sugar cake, cookies and jellies.</li> </ul> <p><b><u>Daily Allowance</u></b></p> <ul style="list-style-type: none"> <li>➤ Protein:- 4 to 6 ounces of fish, skinless poultry or lean red meat with all visible fat removed.</li> <li>➤ Grains and Starches:- a minimum of four servings of whole grain, high fibre cereals, breads, potatoes, rice or starchy vegetables.</li> <li>➤ Vegetables:- a minimum of two servings of deep green or orange vegetables.</li> <li>➤ Fruit and juice:- a minimum of two servings, one of which is citrus</li> <li>➤ Dairy:- a minimum of two servings of skim or low-fat milk, skim cheese, non-fat yogurt or ice milk.</li> </ul>	<p>L E C T U R I N G</p>
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### **DASH Diet**

‘Dietary Approach to Stop Hypertension’ is a dietary plan recommended by the American Heart Association. It significantly lowers B.P.

#### **It includes;**

- Eating more fruits, vegetables and low-fat dietary foods.
- Cutting back of foods that are high in saturated fat, cholesterol and total fat.
  
- Eating more whole grain products
- Increase the fibre containing food
- Eating more fish, poultry and nuts
- Eat less red meat and sweets
  
- Eating foods rich in magnesium, potassium etc. and reducing calcium and sodium
- Sodium intake should not be more than 1500 mg/ day (ie., 2/ 3 teaspoon)



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**Sodium Restriction**

Most of the patients with Hypertension are sodium sensitive, meaning their blood pressure increases after they consume excessive amounts of sodium and decreases after they reduce their sodium intake. These patients should limit sodium consumption to 2 gm/day or 5 gram of salt per day.

- Common sources of sodium are table salt, processed foods, drugs and softened water.
- Reduce the amount of added sodium in food in the form of salt.
- Avoid preserved or processed foods like pickles, canned vegetables, ketchups, salted nuts, soups, salted breads and crackers or biscuits, other baked foods, packaged mixes etc.
- Read the labels of food for sodium content.
- Check labels for the sodium content of OTC drugs such as antacids, cough syrups and laxatives.
- Natural and softened water can be high in sodium. Investigate the sodium content of drinking water. If the sodium content is high, use distilled water for drinking and cooking.

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**SAMPLE DIET FOR HYPERTENSION**

<b>S.No.</b>	<b>Early Morning</b>	<b>Breakfast</b>	<b>Lunch</b>	<b>Evening</b>	<b>Supper</b>
1	Water melon juice	Corn oats upma, Grapes	Brown rice, morkuzhambu, kattrika rasam, lobia and corn salad	Tea	Whole wheat phulkas, chana dal, aloo capsicum sabzi, cucumber raita, Banana
2	100% orange juice	High energy poha, Banana	Vad ni dal pulav, cabbage and peas sabzi, mixed veg raita, Pineapple	Soy milk	Rotis, moong dal panki, tawa vegetables, sprouts salad, yogurt
3	Green tea	Soy dosa, sambar, Pear	Rice flour bhakris, spicy mint chutney, stuffed brinjals, fruit	Green tea	Cold cucumber soup, wheat pasta with vegetables,

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			kebab		fruity channa salad, Yogurt
4	100% apple juice	All Bran cereal, milk, strawberries	Soy chappathies, dhingri matar, grilled chicken, yogurt, fruit and lettuce salad	Banana berry fruit smoothie	Brown rice, baked fish, Italian zucchini, cucumber salad

**Daily Nutrition Intake**

**Calorie Intake**

Gender	Sedentary	Moderately Active	Active
Male	2,200 calories	2,400 to 2,600 calories	2,800 to 3,000 calories
Female	1,800 calories	2,000 calories	2,200 calories

**Protein Intake**

- Male : 56 grams
- Female : 52 grams

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**Fat Intake**

- Average fat intake for hypertensive adults is 70 grams daily

**Physical Exercise**

- It is recommended that all adults have regular aerobic physical activity atleast 30 minutes per day most days of the week.
- Cardiovascular or Aerobic exercise is recommended for patients with Hypertension.
- Aerobic exercises are steady physical activity using large muscle groups. This types of exercise strengthens the heart and lungs and improves body's ability to use Oxygen.
  - Aerobic exercises help decrease heart rate and blood pressure and improve breathing.
  - Regular isotonic exercise such as walking, jogging and swimming can help control blood pressure.
  - Hypertensive patients should participate in a moderate amount of exercise at regular intervals rather than vigorous exercise at irregular intervals.
  - Isometric exercises such as weight lifting significantly raise blood pressure. It increases the risk of sustaining an acute MI or CVA.

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- Patients need a thorough examination including stress testing ECG before beginning an exercise plan.
- Walking is the ideal exercise for the hypertensive patient. The amount of walking should be increased gradually to establish exercise tolerance and to reduce the effect of over exercise.

**Developing A Walking Exercise Plan**

The patient should exercise three or four times a week.

Week 1	Walk for 15 minutes at a pace of 3 miles/ hour
Week 2	Walk for 20 minutes at a pace of 3 miles/ hour
Week 3 &4	Walk for 20 minutes at a pace of 4 miles/ hour
Week 5 & beyond	Walk for 30 minutes at a pace of 4 miles/ hour

- Other aerobic exercise include jogging, jumping rope, bicycling, cross country skiing, skating, rowing, high or low-impact aerobics, swimming and water aerobics.

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**Alcohol Restriction and Smoking Cessation**

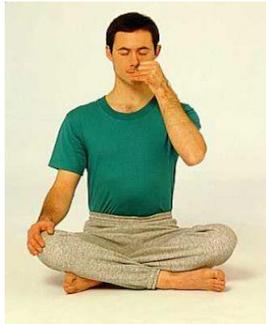
- Alcohol consumption increase blood cortisol levels, which can aggravate hypertension. It also provides empty calories.
- Alcohol intake should be reduced to less than 1 ounce per day.
- Quit smoking as the nicotine in the smoke increases blood pressure and produce cardiovascular disorders.
- Plan ahead to quit smoking, set realistic goals and seek support from family, friends or a smoking cessation group.

**Follow- Up**

Follow- up care and regular consultation is very important in treating Hypertension as it is a life- long disease. Monitor blood pressure regularly at nearby clinics or at home. Consult the doctor at stipulated time to monitor for the blood pressure and for the development of complications.

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Initial blood pressure	Follow- up recommended	
<p>Normal</p> <p>High normal</p> <p>Stage. 1 Hypertension</p> <p>Stage. 2 and 3</p>	<p>Recheck in 2 years</p> <p>Recheck in 1 year</p> <p>Confirm within 2 months</p> <p>Take regular treatment, evaluate every month and check B.P at least once in a week</p>	
<p><b>Alternative/ Complementary Therapies</b></p> <p>There are many different types of complementary and alternative treatments believed to be effective for treating high blood pressure. Most of these contribute to the stress management.</p> <p><b>Stress Reduction</b></p> <p>Stress reduction and management help reduce blood pressure. Relaxation techniques are exercises or techniques that reduce stress by decreasing sympathetic nervous system activity and can reduce blood pressure. These techniques are used in combination with drug therapy for patients with severe hypertension.</p>		<p>L</p> <p>E</p> <p>C</p> <p>T</p> <p>U</p> <p>R</p> <p>I</p> <p>N</p> <p>G</p>



**Breathing Exercise**



**Muscle Relaxation**



**Benson's Relaxation**



**Yoga**



**Guided Imagery**



**Music Therapy**



**Laughter Therapy**

### **1. Breathing Exercise**

- Breathe in gently as the head drops back and exhale as the head falls forward.
- Breathe deeply with the diaphragm pushing down, while chest remains almost still. Practice this type of breathing as it helps in relaxation and it can be used whenever you get into a stressful situation.

## 2. Progressive Muscle Relaxation

It includes progressively relaxing and tensing the muscles in different muscle groups.

- Lie on a soft cushion on a floor or sit comfortably on a chair in a quiet room.
- Someone reads the instruction in a low tone and slow and relaxed manner or a tape of the instructions may be played.
- The person tenses the muscles in the whole body, holds, senses the tension and then relaxes.
- As each muscle group is tensed, the person keeps the rest of the body relaxed.
- At the end, the whole body should be relaxed.

## 3. Benson's Relaxation Technique

- Pick a brief phrase/ word that reflect your basic belief system.
- Choose a comfortable position
- Close your eyes
- Relax your muscles
- Become aware of your breathing and start using your selected focus word.
- Maintain a positive attitude

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- Continue for a set period of time
- Practice the technique twice daily

**4. Relaxation With Guided Imagery**

It is the purposeful use of imagination to achieve relaxation. Lead the person to select a pleasant scene or experience such as watching the ocean or dabbling the feet in a cool stream. By this, the person attention is directed away from the stressful situation or stressful mind which helps in relaxation.

**5. Music Therapy**

Daily listening to a certain type of music can help hypertensive patients lower their blood pressure. Music can calm the heart beat and soothe the soul. In stressful situations, take a musical stress detour by aligning your heartbeat with the slow tempo of a relaxing song. Listening to 30 minutes of classical music may produce a calming effect.

**6. Yoga**

Yoga is originated in India aimed at training the consciousness for a state of perfect spiritual insight

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and tranquillity. It is a system of exercises practiced as a part of this discipline to promote control of the body and mind.

**Benefits**

- Yoga brings down the levels of stress hormones vasopressin and aldosterone.
- Yoga turns off the body's response to stress, thereby decreasing adrenaline levels and blood pressure.
- It reduces stress and anxiety
- It improves the flexibility of the body
- Helps to improve the muscle tone
- Improves the lung capacity and breathing
- The movements of yoga will carve out a long, lean, strong and confident body.
- Reset your mind back to its natural state: calm, focussed and sharp
- Improves the intuition, creativity and memory power.

**7. Laughter Therapy**

Laughing is found to lower blood pressure, reduce stress hormones, increases muscle flexion and

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<p>enlist the complications of Hypertension</p>	<p>boosts immune function by raising levels of infection fighting T-cells, Gamma interferon and beta cells.</p> <p>Laughter also triggers the release of endorphins, the body's natural pain killers and produces a general sense of well being. It's actions are;</p> <ul style="list-style-type: none"> <li>➤ Reduces stress hormones</li> <li>➤ Reduces dopamine levels and reduces B.P</li> <li>➤ Provides work-out for the diaphragm</li> <li>➤ Enhance positive emotions</li> <li>➤ Reduce pain and aid healing process</li> </ul> <p><b>Complications</b></p> <p>The most common complications of Hypertension are target organ diseases.</p> <ul style="list-style-type: none"> <li>➤ Hypertensive Heart disease</li> <li>➤ Cerebrovascular disease</li> <li>➤ Peripheral vascular disease</li> <li>➤ Nephro sclerosis</li> </ul>	<p>L E C T U R I N G</p>
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➤ Retinal damage

**Conclusion**

With adequate treatment and lifestyle modifications, hypertension can be well controlled and the patient can lead a normal life. By maintaining the normal blood pressure level, the individual can live without any risk of complications.

முதல் நிலை இரத்த கொதிப்பு நோயாளிகளின் இரத்த அழுத்தத்தை

கட்டுப்படுத்துதல் பற்றிய நலக்கல்வி

## முதல் நிலை இரத்த கொதிப்பு நோயாளிகளின் இரத்த அழுத்தத்தை கட்டுப்படுத்துதல் பற்றிய நலக்கல்வி

தலைப்பு : முதல் நிலை இரத்த கொதிப்பு நோயாளிகளின் இரத்த அழுத்தத்தை கட்டுப்படுத்துதல்

குழு : புற நோயாளிகள் பிரிவை சேர்ந்த முதல் நிலை இரத்தகொதிப்பு நோயாளிகள்

இடம் : அஸ்வின் மருத்துவமனை, கோயம்புதூர்

நேரம் : 45 நிமிடங்கள்

கல்வி உபகரணங்கள் : மடிகணிணி உதவியுடன் கற்ப்பித்தல் மற்றும் கையோலை

கற்பிக்கும் முறை : விரிவுரை மற்றும் கல்ந்துரையாடல்

## குறிப்பிட்ட நோக்கம்

இந்த பாடத்தின் முடிவில், முதல் நிலை இரத்த கொதிப்பு நோயாளிகள் இரத்த அழுத்தத்தை கட்டுப்படுத்துவது பற்றி போதுமான அறிவை அடையவேண்டும் மற்றும் அறிந்து கொண்டதை எதிர்கால பயிற்சியில் செயல் படுத்த வேண்டும்.

## சிறப்பு நோக்கம்

- இரத்த கொதிப்பை விவரிக்க வேண்டும்
- இரத்த கொதிப்பை வகைப்படுத்த வேண்டும்
- இரத்த கொதிப்பின் காரணங்களை வரிசைபடுத்த வேண்டும்
- இரத்த கொதிப்பின் அறிகுறிகளை விவரிக்க வேண்டும்
- இரத்த கொதிப்பின் மேலாண்மை முறைகளை விவரிக்க வேண்டும்
- இரத்த கொதிப்பை கட்டுப்படுத்தும் வாழ்க்கைமுறை மாற்றங்களை விவரிக்க வேண்டும்
- இரத்த கொதிப்பின் பின்விளைவுகளை வரிசைபடுத்த வேண்டும்

சிறப்பு நோக்கங்கள்	பொருளடக்கம்	ஆசிரியரின் செயல்திறன்
<p>இரத்த கொதிப்பை விவரிக்க வேண்டும்</p>	<p><b>முன்னுரை</b></p> <p>இரத்த கொதிப்பு என்பது நமக்கு இருதய மற்றும் இரத்தக்குழாய் நோய்களை ஏற்படுத்தக்கூடிய ஒரு பொதுவான வாழ்க்கை முறை வியாதியாகும். இரத்த கொதிப்பு சில சமயங்களில் "அமைதி கொள்ளி" என்று அழைக்கப்படுகிறது. ஏனெனில் இதை உடையவர்கள் பெரும்பாலும் அறிகுறி இன்றி இருப்பர். ஆரோக்கியமான மக்களும் ஆரம்ப நிலையிலேயே ஸ்கிரீனிங் முறைகளை பயன்படுத்தி நோயை கண்டறிகல் அவசியம். அப்படி கண்டுபிடிக்கப்பட்டால், உயர் இரத்த அழுத்தம், சரியான இடைவெளியில் பரிசோதிக்கப்பட வேண்டும். ஏனெனில் இது ஒரு நீண்ட நாள் வியாதி. சராசரி இரத்த அழுத்தமான 120/80 mm Hg விட அதிகமான நிலை கண்டறியப்பட்டு பின்விளைவுகளை தவிர்க்கும் முயற்ச்சிகள் எடுக்கப்பட வேண்டும்.</p>	<p>க ற் ப் பி த் த ல்</p>
<p>இரத்த கொதிப்பை வகைப்படுத்த வேண்டும்</p>	<p><b>இரத்த கொதிப்பு என்றால் என்ன:</b></p> <p>இரத்த கொதிப்பு அல்லது உயர் இரத்த அழுத்தம் என்பது 'சிஸ்டோளிக்' இரத்த அழுத்தம் 140 mm Hg அல்லது அதைவிட அதிகம் மற்றும் 'டயஸ்டோளிக்' இரத்த அழுத்தம் 90 mm Hg அல்லது அதைவிட</p>	

<p>இரத்த கொதிப்பின் காரணங்களை வரிசைபடுத்த வேண்டும்</p> <p>இரத்த கொதிப்பின் அறிகுறிகளை விவரிக்க வேண்டும்</p>	<p>அதிகம், அல்லது இரத்த அழுத்தம் 140/90 mm Hg விட அதிகமாக இருப்பதாகும். இது இரத்த அழுத்தத்தில் முக்கிய வேறுபாடாகும்.</p> <p><b>வகைகள்</b></p> <p>இரத்த அழுத்தத்தின் அளவை பொறுத்து, WHO/ ISH இரத்த கொதிப்பை முறை ரகமாக பிரித்துள்ளது.</p> <table border="1" data-bbox="488 730 1839 1082"> <thead> <tr> <th>குருதி அழுத்தம்</th> <th>தரம். I</th> <th>தரம். II</th> <th>தரம். III</th> </tr> </thead> <tbody> <tr> <td>சிஸ்டோலிக் இரத்த அழுத்தம் (mm of Hg)</td> <td>140- 159</td> <td>160- 179</td> <td>≥180</td> </tr> <tr> <td>இதய இரத்த அழுத்தம் (mm of Hg)</td> <td>90- 99</td> <td>100- 109</td> <td>≥110</td> </tr> </tbody> </table> <p><b>அபாய காரணிகள்</b></p> <ul style="list-style-type: none"> <li>➤ அதிகரிக்கும் வயது</li> <li>➤ அதிகமாக மதுபானம் அருந்துதல்</li> </ul>	குருதி அழுத்தம்	தரம். I	தரம். II	தரம். III	சிஸ்டோலிக் இரத்த அழுத்தம் (mm of Hg)	140- 159	160- 179	≥180	இதய இரத்த அழுத்தம் (mm of Hg)	90- 99	100- 109	≥110	<p>க ற் ப் பி த் த ல்</p>
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சிஸ்டோலிக் இரத்த அழுத்தம் (mm of Hg)	140- 159	160- 179	≥180											
இதய இரத்த அழுத்தம் (mm of Hg)	90- 99	100- 109	≥110											

<p>இரத்த கொதிப்பின் மேலாண்மை முறைகளை விவரிக்க வேண்டும்</p>	<ul style="list-style-type: none"> <li>➤ புகைபிடித்தல்</li> <li>➤ சர்க்கரை நோய்</li> <li>➤ உயர் இரத்த கொழுப்பு</li> <li>➤ உணவில் அதிகம் உப்பை பயன்படுத்துதல்</li> <li>➤ பாலினம்: நடுத்தர வயது ஆண்கள் மற்றும் 55 வயதிற்கு மேற்பட்ட பெண்கள்</li> <li>➤ ருங்கிய இரத்த உறவினர்கள் உயர் இரத்த அழுத்தத்தின் குடும்ப வரலாறு</li> <li>➤ உடல் பருமன்</li> <li>➤ உட்கார்ந்தே பணியாற்றுகின்ற வேலை</li> <li>➤ சமூக பொருளாதார நிலை: குறைந்த சமூக பொருளாதார, குறைவாக படித்த மக்கள்</li> <li>➤ மன அழுத்தம்</li> </ul> <p><b>மேலாண்மை முறைகள்</b></p> <p>தமனியின் இரத்த அழுத்தத்தை 140/90 mm Hg சீராக பராமரிப்பதன் மூலம் உயர் இரத்த அழுத்தத்தினால் ஏற்படும் பின்விளைவுகள் வராமல் தடுக்கலாம். அதற்கான மேலாண்மை வழிமுறைகள் பின்வருமாறு:</p>	<p>க ற ப் பி த் த ல்</p>
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- 1) இரத்த அழுத்தம் பொதுவாக சிகிச்சை தொடக்கநிலை முன் பல மாதங்களாக கவனமாக ஆராய வேண்டும்.
- 2) கார்டியோவாஸ்குலர் அபாய சூழலை கருத்தில்கொண்டு உயர் இரத்த அழுத்தத்திற்கான சிகிச்சை முறைகளை மேற்கொள்ள வேண்டும்.
- 3) வாழ்க்கைமுறை மாற்றங்கள் சிகிச்சைமுறைக்கு அடித்தளம் ஆகும்.

#### ஆபத்து அடுக்கமைவுகள்

இருதய நோயாளிகளின் இலக்கினை உயர் இரத்த அழுத்த அடிப்படையில் நிர்ணயிக்கப்படுகிறது. இந்த காரணிகளின் அடிப்படையில் ஆபத்து குழு நோயாளிகள் நியமிக்கப்படுவது. உயர் இரத்த அழுத்த மேலாண்மை JNC-VI வழிகாட்டுதல்கள், அடிப்படையில்;

- **ஆபத்து குழு A:** உயர் சாதாரண இரத்த அழுத்தம் அல்லது நிலை 1, 2 அல்லது 3 உயர் இரத்த அழுத்தம் உள்ள நோயாளிகள், மற்றும் இருதய நோய் அல்லது இலக்கு உறுப்பு நோய் இல்லாதவர்கள் அல்லது மற்ற அபாய காரணிகள்.
- **ஆபத்து குழு B:** இருதய நோய் அல்லது இலக்கு உறுப்பு நோய் இல்லாத உயர் இரத்த அழுத்தம் உள்ள நோயாளிகள், ஒன்று அல்லது அதற்கு மேற்பட்ட கார்டியோவாஸ்குலர் அபாய காரணிகள்.

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➤ ஆபத்து குழு C: இருதய நோய், இலக்கு உறுப்பு சேதம் அல்லது நீரிழிவு நோய் கொண்டிருக்கும் உயர் இரத்த அழுத்தம் உள்ள நோயாளிகள்.

இரத்த அழுத்தம் நிலைகள்	ஆபத்து குழு. A	ஆபத்து குழு. B	ஆபத்து குழு. C
உயர்நிலை இயல்பான (130- 135/ 85- 89)	வாழ்க்கைமுறை மாற்றங்கள்	வாழ்க்கைமுறை மாற்றங்கள்	மருந்து சிகிச்சை வாழ்க்கைமுறை மாற்றங்கள்
நிலை. 1 (140-159/ 90- 99)	12 மாதங்கள் வரை வாழ்க்கைமுறை மாற்றங்கள்	6 மாதங்கள் வரை வாழ்க்கைமுறை மாற்றங்கள்	மருந்து சிகிச்சை வாழ்க்கைமுறை மாற்றங்கள்
நிலை. 2 & 3 (≥160/ ≥100)	மருந்து சிகிச்சை வாழ்க்கைமுறை மாற்றங்கள்	மருந்து சிகிச்சை வாழ்க்கைமுறை மாற்றங்கள்	மருந்து சிகிச்சை வாழ்க்கைமுறை மாற்றங்கள்

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	<p><b>மருந்து சிகிச்சை</b></p> <p>ஆண்டிஹைபர்டென்சிவ் மருந்துகள் உயர் இரத்த அழுத்த நிலைக்கு கொடுக்கப்படும் சிகிச்சை முறையாகும். இந்த மருந்து சிகிச்சையின் நோக்கம் இரத்த அழுத்தம் குறைவாக 140/90 mm Hg கொண்டு இருக்கிறது. மருந்து சிகிச்சை நோக்கம் எளிய மற்றும் பாதுகாப்பான வழி சாதாரண இரத்த அழுத்தம் பராமரிக்க வேண்டும். மருந்துகள் அதன் பக்க விளைவுகள் மற்றும் இணை இருக்கும் மருத்துவ நிலைமைகள் பொறுத்து தேர்ந்தெடுக்க வேண்டும். பொதுவாக பயன்படுத்தப்படும் மருந்துகள் ஆவன;</p> <ul style="list-style-type: none"> <li>• அடினொலோள்</li> <li>• மினிப்பிரஸ்</li> <li>• காப்டோபற்றில் etc.</li> </ul> <p>➤ அன்றாட எடுக்க வேண்டிய மருந்துகளை தினமும் தவறால் எடுத்துக்கொண்டால் இரத்த அழுத்தத்தை சீராக வைக்கலாம்.</p> <p>➤ மருந்தை சரியான அளவில் சரியான நேரத்தில் எடுத்து கொள்ள வேண்டும்</p> <p>➤ மருந்தை தவறாமல் எடுத்துக்கொள்ள வேண்டும்</p> <p>➤ நீங்கள் எதாவது மற்ற நோய்க்கு மருந்துகளை எடுத்துக்கொண்டிருந்தால் மருத்துவரிடம்</p>	<p>க ற ப் பி த் த ல்</p>
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<p>இரத்த கொதிப்பை கட்டுப்படுத்தும் வாழ்க்கைமுறை மாற்றங்களை விவரிக்க வேண்டும்</p>	<p>அதைப்பற்றி தெரிவிக்கவும்.</p> <ul style="list-style-type: none"> <li>➤ இரத்த அழுத்த மருந்தை எடுத்துக்கொண்டால் எந்த வித பக்க விளைவுகள் ஏற்படாது.</li> <li>➤ மருத்துவரின் ஆலோசனை இல்லாமல் மருந்துகளை நிறுத்தக்கூடாது.</li> </ul> <p><b>வாழ்க்கை முறையில் மாற்றக்கூடியவைகள்</b></p> <p>வாழ்க்கை பாணி மாற்றம் உயர் இரத்த அழுத்தம் நிர்வகிப்பதில் முதல் படியாகும். இந்த மாற்றங்கள் இரத்த அழுத்தம் மற்றும் ஒட்டுமொத்த இருதய அபாய காரணிகளை குறைப்பதில் உள்ள முக்கிய நோக்கங்கள் இதில் அடங்கும்.</p> <ul style="list-style-type: none"> <li>➤ உணவு மாற்றங்கள்</li> <li>➤ வழக்கமான உடல் செயல்பாடு</li> <li>➤ மது எடுத்துக்கொள்வதை</li> <li>➤ எல்லை புகையிலை பயன்பாடு தவிர்ப்பு</li> </ul> <p><b>உணவுப்பழக்க மாற்றங்கள்</b></p> <p>நம் வாழ்க்கை முறையில் உணவு மற்றும் பழக்கவழக்கங்கள் மாற்றுவதன் மூலம் நாம் இரத்த அழுத்தத்தை கட்டுப்படுத்தலாம். உணவு உட்கொள்வதில் எல்லா வாரங்களிலும் மீன், அதிகமாக</p>	<p>க ற ப் பி த் த ல்</p>
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	<p>பழங்கள், காய்கறிகள், நார்சத்து அடங்கிய பொருள்கள் மற்றும் அதிகமாக நீர் குடிக்க வேண்டும். ஒரு சராசரி மனிதனுக்கு தேவையான உப்பின் அளவு 15 கி/ தினம். உப்பானது கீழ்க்காணும் உணவு பொருள்களில் சோடியத்தின் அளவு அதிகமாக காணப்படுகிறது. (எ.கா) பதப்படுத்தப்பட்ட சூப் வகைகள், பதப்படுத்தப்பட்ட உணவு வகைகள்.</p> <p><b>தவிர்க்க வேண்டிய உணவுகள்</b></p> <ul style="list-style-type: none"> <li>➤ விலங்கிலிருந்து தயாரிக்கப்படும் உணவு பொருள்கள்:- மாட்டு இறைச்சி, பன்றி இறைச்சி, ஆட்டுஇறைச்சி</li> <li>➤ பால் சம்பந்தமான உணவுப்பொருள்கள்:- பால், நெய், வெண்ணைய், ஐஸ்கிரீம்</li> <li>➤ முட்டையின் மஞ்சள் கரு</li> <li>➤ எண்ணைய் பொருள்கள்:- பன்றி கொழுப்பு, கிரீம் சுவையூட்டிகள்</li> <li>➤ இனிப்பு வகைகள்</li> </ul> <p><b>சேர்க்கவேண்டிய உணவுவகைகள்</b></p> <ul style="list-style-type: none"> <li>➤ புரதவகை உணவு பொருட்கள். எ.கா: மீன், தோலில்லாத கோழி இறைச்சி</li> </ul>	<p>க ற ப் பி த் த ல்</p>
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	<ul style="list-style-type: none"> <li>➤ தானியவகைகள். எ.கா: முழுதானியங்கள், பருப்புவகைகள், ரொட்டி, அரிசி வகைகள்</li> <li>➤ காய்கறிகள். எ.கா: பச்சை காய்கறிகள் மற்றும், ஆரஞ்சு நிற காய்கறிகள்</li> <li>➤ பழவகைகள் மற்றும் பழச்சாறுகள். எ.கா: சிற்றஸ் நிறைந்த பழவகைகள், ஆரஞ்சு, எலுமிச்சைசாறு, முஸாம்பி</li> <li>➤ பால் சம்பந்தமான உணவுபொருள்கள்:- கொழுப்பு அகற்றப்பட்ட பால், கொழுப்பு அகற்றப்பட்ட வெண்ணை, கொழுப்பு அகற்றப்பட்ட தயிர்</li> </ul> <p><b>DASH உணவு (இரத்த அழுத்தத்தை கட்டுப்படுத்த உதவும் உணவு முறைகள்)</b></p> <p>ரத்த அழுத்தத்தை கட்டுப்படுத்த உணவு முறைகளும் உதவுகிறது. வாரம் ஒருமுறை மீன் உட்கொள்ளுதல், அதிகமான பழங்கள், காய்கறிகள், நார்ச்சத்து அதிகமுள்ள உணவுகள் மற்றும் அதிக அளவு நீர் எடுத்துக்கொள்வதால் இரத்த அழுத்தம் கட்டுப்படுத்த உதவுகிறது.</p> <ul style="list-style-type: none"> <li>➤ அதிகமான நீர், காய்கறிகள், குறைந்த கொழுப்புச்சத்து உள்ள உணவுகள்</li> <li>➤ அதிக கொழுப்புச்சத்துகள் மற்றும் கொழுப்பு நிறைவாக உள்ள உணவுகளை தவிர்த்தல்</li> <li>➤ தானியவகைகள், பயிர்வகைகள், மீன், கோழி முதலானவைகள் உணவில் அதிக அளவில்</li> </ul>	<p>க ற ப் பி த் த ல்</p>
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	<p>சேரர்த்துக்கொள்ளுதல்</p> <ul style="list-style-type: none"> <li>➤ குறைவான இனிப்புகள் மற்றும் இறைச்சிகளை தவிர்த்தல்</li> <li>➤ மெக்னீஷியம், பொட்டாசியம், கால்சியம் அதிகமாக இருக்கும் உணவுகளை உட்கொள்ளுதல்</li> <li>➤ சோடியம் செல்கள் சோடியத்தினை அளவை குறைக்கிறது. எப்படியெனில் 1500 மிகி/ நாள் எடுத்துக்கொள்வதால்</li> </ul> <p><b>உப்புக்கட்டுப்பாடு</b></p> <p>உயர் இரத்த அழுத்தம் உள்ள நோயாளிகளுக்கு மிகவும் அவர்கள் சோடியம் அதிகமாக நுகர்கின்றனர், அவர்கள் தங்கள் சோடியம் உட்கொள்ளல் குறைக்க பிறகு குறைகிறது பிறகு அவர்களின் ரத்த அழுத்தம் அதிகரிக்கும் பொருள், சோடியம் உணர்திறன். இந்த நோயாளிகளுக்கு சோடியம் நுகர்வு 2 கிராம் / நாள் அல்லது ஒரு நாளைக்கு உப்பு 5 கிராம் வரை குறைக்க வேண்டும்.</p> <p>சோடியம் பொதுவான ஆதாரங்கள் அட்டவணை உப்பு, பதப்படுத்தப்பட்ட உணவுகள், மருந்துகள் மற்றும் தனிந்துள்ளது நீர்.</p> <ul style="list-style-type: none"> <li>➤ உப்பு வடிவில் உணவு சேர்க்கப்படும் சோடியம் அளவு குறைத்தல்.</li> </ul>	<p>க ற ப் பி த் த ல்</p>
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- சோடா மாவு மற்றும் சோடா, உணவுகளில் சேர்பதை தவிர்த்தல் வேண்டும்
- ஊறுகாய், பதப்படுத்தப்பட்ட உணவுபொருள்கள், உப்பு நிறைந்த ரொட்டி, இவற்றை தவிர்க்க வேண்டும்.
- இனிப்புகள், வறுத்தெடுத்த உணவுகள், கேக் முதலியவற்றை தவிர்த்தல்
- சோடியம் உள்ளடக்கத்தை உணவு முத்திரைகளில் படிக்க.
- இயற்கை மற்றும் தணிந்துள்ளது நீர் சோடியம் அதிகமாக இருக்கலாம். குடிநீர் சோடியம் உள்ளடக்கத்தை விசாரணை செய்ய வேண்டும். சோடியம் உள்ளடக்கத்தை அதிகமாக இருந்தால், குடிப்பதற்கும் சமைப்பதற்கும் காய்ச்சி வடிகட்டிய நீர் பயன்படுத்த.

**உயர் இரத்த அழுத்தம் ஒரு உதாரணத்திற்கு உணவு**

S.No	அதிகாலை	காலையுணவு	மதிய உணவு	சாயங்காலம்	இரா போஜனம்
1.	தர்பூசணி ஜூஸ்	சோளம் ஓட்ஸ், உப்பா,திராட்சை	பழுப்பு அரிசி, மோர் குழம்பு, கத்திரி ரஸம், மற்றும் சோளம் சாலட்	தேனீர்	முழு கோதுமை புல்கா, சனா பருப்பு, ஆலு மிளகாய் குழம்பு,

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						வெள்ளரி சாலட், வாழைப்பழம்	
2.	100% ஆரஞ்சு சாறு	உயர் எரிசக்தி பொஹ, வாழைப்பழம்	வாட் நி பருப்பு புலாவ், முட்டைக்கோஸ் மற்றும் பட்டாணி குழம்பு, கலப்பு வெஜிடேரியன்ஸ் சாலட், அன்னாசிப்பழம்	சோயா பால்	ரொட்டி, பாசி பருப்பு பங்கி, காய்கறிகள், முளைகள் சாலட், தயிர்		க ந் ப் பி த் த ல்
3.	கிரீன் தேநீர்	சோயா தோசை, சாம்பார், பியர்	அரிசி மாவு ப்ஹக்ரி, காரமான புதினா சட்னி, கத்தரிக்காய் அடைக்கப்படுகிறது, பழம் கெபாப்	கிரீன் தேநீர்	குளிர் வெள்ளரி சூப், காய்கறிகள் கோதுமை பாஸ்தா, பழகடலை சாலட், தயிர்		
4.	100% ஆப்பிள் பழச்சாறு	அனைத்து பிரான் தானியம், பால், ஸ்ட்ராபெர்ரி	சோயா சப்பாத்தி, பச்சை பட்டாணி, வாட்டு சிக்கன், தயிர், பழங்கள் மற்றும்	வாழைப்பழம் மற்றும் பெர்ரி	பழுப்பு அரிசி, சுட்ட மீன், இத்தாலிய சீமை		

			கீரை சாலட்	பழச்சாறு	சுரைக்காய், வெள்ளரி சாலட்	
<p><b>உடற்பயிற்சி</b></p> <ul style="list-style-type: none"> <li>➤ வயதானவர்கள் சுவாச உடற்பயிற்சி ஒரு நாளைக்கு 30 நிமிடமாவது செய்தல் நல்லது.</li> <li>➤ குதித்தல், ஓடுதல், நீந்துதல் முதலானவைகள் இரத்த அழுத்தத்தை குறைப்பதுமற்றி உடற்பருமனையும், ஓய்வு ஆற்றல்கள் சீர்மைக்கிறது.</li> <li>➤ தொடர்ந்து உடற்பயிற்சி ஷிநிறி யை இரத்த அழுத்த நோயாளிகளிலிருந்து குறைக்கிறது.</li> <li>➤ இருதய நோய் உள்ள மனிதர்கள் உடற்பயிற்சிக்கு முன் தங்களுக்கு அழுத்த சோதனையை செய்து பரிசோதித்தல் நல்லது.</li> <li>➤ முழு உடற்பயிற்சியின் நேரம் 30- 60 நிமிடம் வரை இருக்கலாம்.</li> <li>➤ ஒரு முறை உடற்பயிற்சி செய்வதன் மூலமே இரத்த அழுத்தத்தின் அளவை குறைக்க முற்படும்.</li> <li>➤ தொடர்ச்சியான உடற்பயிற்சி மேலும் இரத்த அழுத்தத்தை குறைக்கும்.</li> <li>➤ கடினமாக மிதிவண்டி மிதிப்பதால் 75% இருதய துடிப்பு 40 நிமிடம் வரை குறைக்கிறது.</li> <li>➤ மிதமான நீந்தும் பயிற்சி 30- 45 நிமிடம் ஒருவாரத்துக்கு மூன்று முறை செய்தால் இரத்த அழுத்தம்</li> </ul>						

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- இரத்த அழுத்தமுள்ள, உடற்பருமன் மிகுந்தவர்கள் மற்றும் ஆஸ்துமா எலும்பு முறிவு அறுவை சிகிச்சையடைந்தவர்களுக்கு நீந்துதல் மிக நல்ல உடற்பயிற்சி.
- 10 வார தொடர் உடற்பயிற்சி இரத்த அழுத்தத்தை வெகுவாக குறைக்கிறது
- கடுமையான வேலைகளை தவிர்ப்பது நல்லது
- தொடர்ந்து 'ஈ', பிளாக்கர் மருந்துகளை உட்கொள்ளும் மனிதர்களுக்கு இருதய பாதிப்புகள் உடற்பயிற்சியின் போது நேரிடலாம்.
- உடற்பயிற்சியினால் இரத்த அழுத்தமுள்ள மற்றும் உடற்பருமன் மிக்கவர்களுக்கு எடைகுறைவும், இரத்த அழுத்த குறைவும் ஏற்படும்.

**நடைபயிற்சி உடற்பயிற்சியில் முன்னேறும் திட்டம்**

ஒரு நோயாளி வாரம் மூன்று அல்லது நான்கு முறை உடற்பயிற்சி சையான வேண்டும்.

வாரம் 1	15 நிமிடங்களில் நடக்கும் வேகம் 3 மைல்/ மணி
வாரம் 2	20 நிமிடங்களில் நடக்கும் வேகம் 3 மைல்/ மணி

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வாரம் 3 & 4	20 நிமிடங்களில் நடக்கும் வேகம் 4 மைல்/ மணி
வாரம் 5 மற்றும் மேல்	30 நிமிடங்களில் நடக்கும் வேகம் 4 மைல்/ மணி

**மது கட்டுப்பாடு மற்றும் புகைத்தலை நிறுத்துதல்**

அதிகமாக மது அருந்துவதும் இரத்த அழுத்தத்திற்கு காரணமாகும். புகைப்பிடித்தல் இருதயத்திற்கு அதிக பாதிப்புகளை உண்டாக்குகிறது. புகையிலைகளையும் தவிர்க்க வேண்டும்.

- மது அருந்துதல், இரத்த கார்டிசோல் அளவை அதிகரித்து உயர் இரத்த அழுத்தம் மோசமாக்க முடியும்.
- ஆல்கஹால் உட்கொள்ளுதல் நாள் ஒன்றுக்கு குறைவாக 1 அவுன்ஸ் குறைக்கப்பட்டது.
- புகையில் உள்ள நிகோடின் இரத்த அழுத்தம் அதிகரிக்கிறது என புகைத்தல் விலகினார்.
- புகை பிடித்தலை நிறுத்த மற்றவர்களிடம் உதவி கேட்கலாம்.

**பின்பற்றுதல்**

தொடர்ந்து இரத்த அழுத்த பரிசோதனை செய்ய வேண்டும். வாரம் தோறும் இரத்த அழுத்தத்தை பரிசோதனை செய்யவதும் மற்றும் மருத்துவரை அனுகுவதும் அவசியம். மருந்துகளை சரியான முறையில்

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வரிசைபடுத்தி உட்கொள்ளுதல் அவசியம்.

ஆரம்ப இரத்த அழுத்தம்	பரிந்துரைக்கப்பட்டவற்றை பின்பற்றுதல்
இயல்பான	2 ஆண்டுகளில் மறுபரிசோதனை செய்யுங்கள்
உயர் சாதாரணம்	1 ஆண்டில் மறுபரிசோதனை செய்யுங்கள்
நிலை 1	2 மாதங்களுக்குள் உறுதிப்படுத்துள்
நிலை 2 & 3	வழக்கமான சிகிச்சை எடுத்து ஒவ்வொரு மாதமும் மதிப்பீடு மற்றும் வாரம் ஒரு முறை இரத்த அழுத்தத்தை பரிசோதிப்பர்

**மாற்று சிகிச்சை முறைகள்**

உயர் இரத்த அழுத்தத்திற்கு சிகிச்சையளிப்பதற்கான பல வேறுபட்ட மாற்று சிகிச்சைகள் உள்ளது.

இவற்றில் மிகவும் மன அழுத்தம் மேலாண்மை செய்ய உதவும்.

**மன அழுத்தம் குறைப்பு**

➤ மன அழுத்த குறைப்பு இரத்த அழுத்தம் குறைக்க உதவுகிறது.

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த  
ல்

	<p>➤ தளர்வு பயிற்சிகள்: சிம்பதடிக் நரம்பு அமைப்பு நடவடிக்கை குறைப்பதன் மூலம் மன அழுத்தத்தை குறைக்க என்று பயிற்சிகள் அல்லது நுட்பங்கள்</p> <p><b>1. சுவாச பயிற்சி</b></p> <p>சுவாச பயிற்சிகளை மேற்கொள்ளுதல் வேண்டும். மெதுவாக மூச்சு விடுவதால் தளர்வு பயிற்சி செய்யலாம்.</p> <p><b>2. தசையின் செயல்</b></p> <p>இது ஒரு சிறந்த பயிற்சிமுறையாகும். இதில் நோயாளிகள் மெத்தையின் மீது படுத்துக்கொண்டு அமைதியான சூழ்நிலையில் இருப்பதால் சுவாச மண்டலங்களில் ஏற்படும் பிரச்சனைகள் குறைய வாய்ப்புள்ளது. இதில் முழு உடலும் ஈடுபாட்டில் உள்ளதால் தசை மற்றும் முழு உடல் ஓய்வும் ஏற்படுகிறது.</p> <p><b>3. பென்சன்ஸ் ஓய்வு பயிற்சி</b></p> <p>பென்சன் 1993 ல் கீழ்க்கண்ட வழிமுறைகளை விவரிக்கிறார். ஓய்வு பயிற்சி என்பது கவலைகளை மறக்க சிந்தனையை மாற்ற உதவுவதாகும். இவை தூக்கமாகவும் இருக்கலாம்.</p> <p>➤ சரியான நிலையை தேர்ந்தெடுத்தல்</p>	<p>க ற் ப் பி த் த ல்</p>
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	<ul style="list-style-type: none"> <li>➤ கண்களை மூடிக்கொள்ளுதல்</li> <li>➤ தசைகளை ஓய்வுபெறச்செய்தல்</li> <li>➤ மூச்சு எடுப்பதை கவனித்தல்</li> <li>➤ நேர்மறையான எண்ணத்தை வளர்த்துக் கொள்ளுதல்</li> <li>➤ குறைந்த காலங்களுக்கு நடைமுறையை பின்பற்றுதல்</li> </ul> <p><b>4. இசை பயிற்சி</b></p> <p>இசையை கேட்பதின் மூலம் மூளையில் உள்ள செயல்கள் சீராகவும் மற்றும் டொபமைன் செயல் இழத்தல் மூலம் ஏற்படும் அறிகுறிகளையும் தவிர்கின்றது. தினமும் 30 நிமிடங்கல் அமைதியான இசை கேட்பது நல்லது.</p> <p><b>5. கற்பனை பிரதியை நினைத்துக் கொண்டு இளைப்பாறுதல்</b></p> <p>கற்பனையாக சந்தோசத்தை தரக்கூடிய நிகழ்ச்சி அல்லது அனுபவத்தை நினைத்துக் கொள்ளுதல்.</p> <p><b>6. யோகா</b></p> <p>யோகா என்பது பழங்காலத்தில் மனிதனின் உடல், பொருள், ஆத்மா முதலியவற்றை சீராக வைத்து கொள்ள உதவும் இந்திய வழிமுறை.</p>	<p>க ற ப் பி த் த ல்</p>
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### நன்மைகள்

- இப்பயிற்சியின் மூலம் மன அழுத்தம் குறைகிறது.
- உடல் உறுதி ஏற்படுகிறது.
- தன்னடக்கம் மேற்கொள்ள உதவுகிறது.
- நோய் எதிர்ப்பாற்றலை இயக்க செய்கிறது.
- இரத்த ஓட்டத்தை சீரமைக்கிறது.
- நலமான வாழ்வும், பொலிவான சருமம் கிடைக்கிறது.
- உடலின் எல்லா உறுப்புகளின் சீராய் இயக்க உதவுகிறது.
- தெளிவான எண்ணமும், சமாதானமும் உண்டாக்குகிறது.

### 7. சிரிப்பு பயிற்சி

சிரிப்பதன் மூலம் இரத்த அழுத்தத்தின் அளவு, மன அழுத்தம் எதிர்பாற்றல் முதலியவை சீராய் அமைகிறது. சிரிப்பு பயிற்சி என்பது மன அழுத்தத்தை குறைக்கவும், மன அலைச்சலைகுறைக்கவும் மிகச்சிறந்த முறையாகும். இப்படி செய்வதன் மூலம் தசைகளுக்கு போதுமான ஓய்வும், பிராண வாய்வும் கிடைக்கிறது. இவை இரத்த அழுத்தத்தை குறைக்க உதவுகிறது. அதன் நடவடிக்கைகள் உள்ளன;

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பி  
த்  
த  
ல்

<p>இரத்த கொதிப்பின் பின்விளைவுகளை வரிசைபடுத்த வேண்டும்</p>	<ul style="list-style-type: none"> <li>➤ மன அழுத்தம் ஹார்மோன்கள் குறைக்கிறது</li> <li>➤ டோபமைன் நிலை குறைக்கிறது மற்றும் இரத்த அழுத்தத்தை குறைக்கிறது</li> <li>➤ உதரவிதானம் பயிற்சி வழங்குகிறது</li> <li>➤ நேர்மறையான உணர்ச்சிகளை மேம்படுத்தும்</li> <li>➤ வலி குறைக்க மற்றும் ஆற உதவுகிறது</li> </ul> <p><b>பாதிப்புகள்</b></p> <ul style="list-style-type: none"> <li>➤ இருதய நோய்</li> <li>➤ பக்கவாதம்</li> <li>➤ புற நாளாவட்ட நோய்கள்</li> <li>➤ சிறுநீரக நோய்கள்</li> <li>➤ விழித்திரை பாதிப்பு</li> </ul> <p><b>முடிவுரை</b></p>	<p>க ற் ப் பி த் த ல்</p>
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	<p>இரத்த அழுத்தம் என்பது இருதயத்தில் ஏற்படும் நோய்களில் ஒன்று. இது வயதானவர்களுக்கும் மன அழுத்தம் நிறைந்தவர்களுக்கும் அதிகமாக வர வாய்ப்புள்ளது.</p>	
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# ACKNOWLEDGEMENT

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# CHAPTER - I

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# REFERENCES

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# ABSTRACT

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# APPENDICES

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**Healthy Heart**



**Healthy You**

**நன்றி...**



**தயாரித்தவர்**

ஐறின் மிறியம் ஜோண்

இரண்டாம் ஆண்டு எம். எஸ்ஸி செவிலியர் பயிற்சி

பி. பி. ஜி செவிலியர் கல்லூரி  
கோயம்புத்தூர்

**வாழ்க்கை முறை  
மாற்றங்கள்**

உயர் இரத்த அழுத்தத்தை  
குறைப்பதற்கான வழிமுறைகள்



# உயர் இரத்த அழுத்தம்

இரத்த அழுத்தம்  
140/90 mm of Hg க்கு  
மேலாக

கடுமையான இருதய நோய்களை உண்டாக்கும் ஒரு பொதுவான வாழ்க்கை முறை நோய்

## அபாய காரணிகள்

- + அதிகரிக்கும் வயது
- + அதிகமான மது அருந்துதல்
- + உயர்ந்த இரத்த கொழுப்பு
- + உணவில் அதிகமாக உப்பு சேர்த்தல்
- + பரம்பரை வியாதி
- + உடல் பருமன்
- + அங்க அசைவில்லா வாழ்க்கை



+ மன அழுத்தம்

+ சிகரெட் புகைத்தல்

+ சர்க்கரை நோய்

## மன அழுத்தத்தினை குறைத்தல்

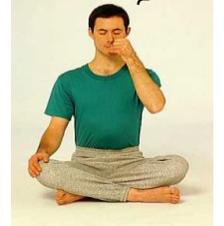
மன அழுத்தத்தினை குறைப்பது இரத்த அழுத்தத்தினை குறைக்க உதவும்

### தளர்வு பயிற்சிகள்

படிப்படியான தசை தளர்வு பயிற்சி



சுவசப்பயிற்சி



இசைப் பயிற்சி



யோகா



சிரிப்பு பயிற்சி



## பின்பற்றுதல்

வாரம் தோறும் இரத்த அழுத்தத்தை பரிசோதனை



செய்யவதும் மற்றும் மருத்துவரை அணுகுவதும் அவசியம்.

## உடற்பயிற்சி



சீரான உடற்பயிற்சி (எ.கா) நடைப்பயிற்சி, ஓடுதல், நீச்சல் போன்றவை இரத்த அழுத்ததினை குறைக்கும்



### நடைப்பயிற்சி- சிறந்த உடற்பயிற்சி

ஒரு வாரத்தில் குறைந்தது 5 நாட்கள் தினமும் 30 நிமிடங்கள் நடக்க வேண்டும்

எடைதூக்கல் மற்றும் பலமான உடற்பயிற்சியினை தவிர்க்க வேண்டும்



## அறிகுறிகள்



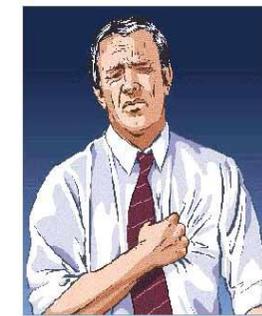
சோர்வு



தூக்கம்



மயக்கம்





**கண்பார்வை குறைபாடு**

**தலவலி**

உயர் இரத்த அழுத்தம், சில வாழ்க்கை மாற்றம் மற்றும் முறையான மருத்துவ சிகிச்சை மூலம் குணப்படுத்தலாம்



**உணவுபழக்க வழக்க மாற்றங்கள்**

**தவிர்க்கவேண்டிய உணவுபொருட்கள்;**

- ◆ விலங்கிலிருந்து உணவு பொருள்கள். எ.கா: மாட்டு இறைச்சி, பன்றி இறைச்சி, ஆட்டுஇறைச்சி தயாரிக்கப்படும்
- ◆ பால் சம்பந்தமான உணவுப்பொருள்கள் (எ.கா) பால், நெய், வெண்ணெய், ஐஸ்கிரீம்
- ◆ முட்டையின் மஞ்சள் கரு
- ◆ எண்ணெய் பொருள்கள்- பன்றி கொழுப்பு, கிரீம் சுவையூட்டிகள்



இனிப்பு வகைகள்



**உப்புக் கட்டுப்பாடு**

தினசரி 2 கிராமுக்கு குறைவான உப்பு உட்கொள்ளுதல்.

குறைந்த அளவு உப்பை உணவுபொருள்களில் உபயோகித்தல் ஊறுகாய், பதப்படுத்தப்பட்ட உணவுபொருள்கள், உப்பு நிறைந்த ரொட்டி, இவற்றை தவிர்க்க வேண்டும்.



**சேர்க்கவேண்டிய உணவுவகைகள்**

- புரதவகை உணவு பொருட்கள். எ.கா: மீன், தோலில்லாத கோழி இறைச்சி
- தானியவகைகள். எ.கா: முழுதானியங்கள், பருப்புவகைகள், ரொட்டி, அரிசி வகைகள்



- காய்கறிகள். எ.கா: பச்சை காய்கறிகள் மற்றும், ஆரஞ்சு நிற காய்கறிகள்.

- பழவகைகள் மற்றும் பழச்சாறுகள். எ.கா: சிட்ரஸ் நிறைந்த பழவகைகள், ஆரஞ்சு, எலுமிச்சைசாறு, முஸாம்பி.



- பால் சம்பந்தமான உணவுபொருள்கள்- கொழுப்பு அகற்றப்பட்ட பால், கொழுப்பு அகற்றப்பட்ட வெண்ணெய், கொழுப்பு அகற்றப்பட்ட தயிர்

