

**A CROSS SECTIONAL STUDY TO ASSESS THE INCIDENCE AND
RISK FACTORS ASSOCIATED WITH HYPERTENSION
AMONG ADULT POPULATION RESIDING
AT PALLAVARAM**

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
APRIL 2016

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LIST OF ABBREVIATION

N	-	Number of samples
NS	-	Not significant
S	-	Significant
%	-	Percentage
WHO's	-	World Health Organization
BMI	-	Body Mass Index
WT	-	Weight
HT	-	Height
BP	-	Blood Pressure
HT	-	Hypertension
NCD	-	Non Communicable Diseases
CHN	-	Community Health Nursing

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ABSTRACT

A CROSS SECTIONAL STUDY TO ASSESS THE INCIDENCE AND RISK FACTORS ASSOCIATED WITH HYPERTENSION AMONG ADULT POPULATION RESIDING AT PALLAVARAM.

Aim and Objectives: To assess the incidence and risk factors associated with hypertension among adult Population. **Methodology:** A non – experimental cross sectional study design was chosen to assess the incidence and risk factors associated with hypertension by bring WHO modifiable risk Assessment tool among 100 adult populations at Pallavaram. The samples were selected based on convenient sampling technique. **Result:** The finding of the study showed that the majority 26(26.5%) modifiable risk factors and 15(15.3%) non modifiable risk factors had been contributing to hypertension and there was significant association with the modifiable risk factors at the level of $p < 0.05$ and about 2.56 times risk factors contribute to hypertension (OR = 2.56). The risk for developing hypertension due to modifiable risk factors is 1.73 times than that of the non-modifiable risk factors among adult population. **Conclusion:** This study interference that incidence and risk factors associated with hypertension is high in male gender among adult population and modifiable factors are the high risk factors.

Key words: Incidence, Hypertension, Adult population.

INTRODUCTION

Hypertension is high blood pressure; also known as “Silent Killer” is a very common and conditions that can be lead to or complicate many health problems. About 31% people who had pressure exceeding 140/90 mmHg were unaware of their elevated blood pressure. Once identified elevated blood pressure it should be monitored at regular intervals, because hypertension is a lifelong condition. There are number of reasons why people have hypertension, some of them are inherited such as being male or having a family history of early heart attacks or stroke. Other risks may be partly inherited such as predisposition to hypertension or obesity. (Hajjar and Kotchen, 2013).

Adult is a human being or organism that has reached sexual maturity. In human context, the term adult additionally has meaning associated with social and legal concepts. In contrast to “minor ”, a legal adult is a person who has attained the age of maturity and is therefore regarded as independent self sufficient and responsible .

The adults with blood pressure above 140/90 mmHg should be evaluated for hypertension. Studies have shown that some clients demonstrate higher recorded blood pressure in the physicians than in the home setting is referred as “white coat effect”. Some have only occasional elevation in blood pressure and normal reading at blood pressure elevation of 160mmHg are more frequently occur in the adults. **(Spring House, 2013)**

OBJECTIVES

- To assess the incidence of hypertension among adult population residing at Pallavaram
- To assess the risk factors of hypertension among adult population residing at Pallavaram
- To associate between the incidence and risk factors for hypertension among adult population residing at Pallavaram
- To associate the findings with the selected demographic variables
- To develop a self – instructional module on prevention of hypertension

METHODOLOGY

Research Design: non -experimental cross sectional study design

Variables: demographic variables and associated risk factors of hypertension.

Setting: selected urban field, Pallavaram.

Population: The population of the study included the adults in the age group of 31-45 years.

Sampling: The sample size of the study consists of 100 adult populations (who fulfill the inclusion criteria).

Instruments used in the study:

WHO Modified Risk Assessment Tool was used.

RESULTS

The comparison of the study reveals that the majority 26(26.5%) modifiable risk factors and 15(15.3%) non modifiable risk factors had been contributing to hypertension and there was significant association with the modifiable risk factors at the level of $p < 0.05$ and about 2.56 times risk factors contribute to hypertension (OR = 2.56). The risk for developing hypertension due to modifiable risk factors is 1.73 times than that of the non-modifiable risk factors among adult population.

The study findings were analyzed by means of odds Ratio (two by two matrix) and chi square for comparison of modifiable and non modifiable risk factors. There is no significant association between the risk factors and selected demographic variables.

CONCLUSION

This study reveals that incidence and risk factors associated with hypertension is high in male gender among adult population and modifiable factors are the high risk factors.

IMPLICATIONS

The community health nurse practitioner is the key person to integrate the community health care with basic health care system. It is also essential for the nurse to render community health service to individual, family and community. The community nurse can identify the incidence and risk factors of hypertension along with non communicable disease project.

The community health nurse can integrate the main study findings in the nursing curriculum to develop the knowledge about identify the risk factors and prevention of hypertension for adults group. Nurse researcher can encourage for further researcher in the area to identify the life style problem in community.

CHAPTER – 1

INTRODUCTION

*“As the arteries grown hard,
The heart grows soft”*

- *William Benkinson...*

“Health is a gift of god to mankind”, we often take it for granted and realize only when we are ill. We watch with considerable consternation, the emerging problem of huge burden of life style related disease all over the world. Non communicable diseases are expected to cause more than three- fourths of all death. **(ALOK MUKHOPADHAY, 2014)**

Blood flows throughout the circulatory system because of pressure changes which helps the blood to move from an area of high to an area of low pressure. The blood pressure is a good indicator of cardiovascular health. Blood pressure is not constant many factors continually influence blood pressure. Even under the best conditions, blood pressure changes from beat to beat. **(Potter. P, 2013)**

Hypertension is high blood pressure; also known as “Silent Killer” is a very common and conditions that can be lead to or complicate many health problems. About 31% people who had pressure exceeding 140/90 mmHg were unaware of their elevated blood pressure once identified elevated blood pressure. It should be monitored at regular intervals, because hypertension is a lifelong condition. There are number of reasons why people have hypertension, some of them are inherited such as being male or having a family history of early heart attacks or stroke. Other risks may be partly inherited such as predisposition to hypertension or obesity. **(Hajjar and Kotchen, 2013).**

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BACKGROUND OF THE STUDY

In an analysis of worldwide data for the global burden of HTN, 20.6% of Indian men and 20.9% of Indian women were suffering from HTN in 2005. The rates for HTN in percentage are projected to go up to 22.9 and 23.6 for Indian men and women, respectively by 2025. Recent studies from India have shown the prevalence of HTN to be 25% in urban and 10% in rural people in India. According to the WHO 2008 estimates, the prevalence of raised BP in Indians was 32.5% (33.2% in men and 31.7% in women. However, only about 25.6% of treated patients had their BP under control, in a multicenter study from India on awareness, treatment, and adequacy of control of HTN.

High blood pressure (BP) is ranked as the third most important risk factor for attribute burden of disease in south Asia (2010). Hypertension (HTN) exerts a substantial public health burden on cardiovascular health status and healthcare systems in India. HTN is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India. The WHO rates HTN as one of the most important causes of premature death worldwide. The Global and Regional Survey on Burden of Disease and Risk Factors in (2001), revealed a systematic analysis of population health data for attributable deaths and attributable disease burden, has ranked Hypertension in South Asia as second only to child underweight for age.

India has a population of 366.58 million. Adults aged above 30 years will have the risk of developing Hypertension and screen all individuals more than 30 years of age are screened for early detection of Hypertension in Government Health Care. Hypertension (HTN or HT), also known as high blood pressure or arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated. Blood pressure is expressed by two measurements, the systolic and diastolic pressures, which are the maximum and minimum pressures, respectively, in the arterial system. The

systolic pressure occurs when the left ventricle is most contracted; the diastolic pressure occurs when the left ventricle is most relaxed prior to the next contraction. Normal blood pressure at rest is within the range of 100–140 mmHg systolic and 60–90 mmHg diastolic. Hypertension is present if the blood pressure is persistently at or above 140/90 millimeters mercury (mmHg) for most adults; different criteria apply to children.

A survey of 26,000 adults in South India showed a hypertension prevalence of 20% (men 23% and women 17%) but 67% of those with hypertension was unaware of their diagnosis. Majority of hypertensive subjects still remain undetected and the control of hypertension is also inadequate. This calls for urgent prevention and control measures for hypertension.

Hypertension is classified as either primary essential hypertension or secondary hypertension. About 90–95% of cases are categorized as primary hypertension, defined as high blood pressure with no obvious underlying cause. The remaining 5–10% of cases is categorized as secondary hypertension, defined as hypertension due to an identifiable cause, such as chronic kidney disease, narrowing of the aorta or kidney arteries or an endocrine disorder such as excess aldosterone, cortisol, or catecholamine's.

Dietary and lifestyle changes can improve blood pressure control and decrease the risk of health complications, although treatment with medication is still often necessary in people for whom lifestyle changes are not enough or not effective. The treatment of moderately high arterial blood pressure (defined as >160/100 mmHg) with medications is associated with an improved life expectancy. The benefits of treatment of blood pressure that is between 140/90 mmHg and 160/100 mmHg are less clear, with some reviews finding no benefit and other reviews finding benefit.

In Tamil Nadu the prevalence of hypertension ranges from 20-40% in urban adults and 12-17% among adults. The number of people with hypertension is projected to increase from 118 million in 2000 to 214 million in 2025, with nearly equal numbers of men and women.

The Tamil Nadu government started to function screening programmers in the Health centre to reduce mortality rate and incidental rate of hypertension and improve

the health status. The screening methods include basic anthropometric measurement such as Height, weight, BMI, Waist circumference, nutritional status, and Blood pressure

Recently Tamil Nadu Government is functioning the screening programmers in the Health centers, and sub centers. When compared to other screening methods shown better results and it is easy to use, cheap, easily available and noninvasive method. which is done with checking blood pressure and refers to mean systolic and diastolic blood pressure equal or more than 140/90 mmHg recorded three times 3rd Hourly on the day.

NEED FOR THE STUDY

High blood pressure (BP) 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.

Managing hypertension is a real challenge in the new millennium. The modifiable risk factor for the development of essential hypertension is emotional stress high sodium and fat intake, obesity, cigarette smoking and alcoholism. American heart association experts recommend the panel on behavior changes recommends smoking cessation, moderation of alcohol intake, regular physical activity, reduced salt intake and weight control as major goals of hypertension prevention and control.

Hypertension is defined as persistent elevation of systolic blood pressure (SBP) at a level of 140 mmHg or higher & diastolic blood pressure (DBP) at a level of 90 mmHg or higher. The higher the blood pressure greater the risk for heart attack, heart failure, stroke, & kidney disease.

Hypertension usually does not cause symptoms initially, but sustained hypertension over time is a major risk factor for hypertensive heart disease, coronary heart disease, coronary artery disease, stroke, aortic aneurysm, peripheral artery disease, and chronic kidney disease.

High blood pressure is a major risk factor for mortality; the high mortality is due to complications of high blood pressure that is stroke, congestive cardiac failure, heart

attack, & kidney failure. The higher the pressure greater the risk & lower the expectancy of life in India death from hypertension is mainly from stroke.

Hypertension, silently, produces hemodynamic changes, macro-and micro vascular, in turn caused by malfunction of the endothelium and vascular wall remodeling of resistance arterioles, responsible for maintaining peripheral vascular tone. These changes, which precede in time the pressure elevation, produce specific organic lesions, some of them are clinically defined. In 90% of cases the cause is unknown which has been called "essential hypertension", with a strong hereditary influence. This very high percentage cannot be an excuse to try to find the etiology for 5 to 10% of cases there is a cause directly responsible for the elevation of arterial tension. The epidemiology of demographic transition states that a long-term shift occurs in mortality and disease patterns, whereby infectious diseases are gradually displaced by degenerative and man-made diseases as the chief form of morbidity and death furthermore, evidence shows that developing country in transition where people have adopted western living patterns are risk factors such as sedentary lifestyle obesity, stress, unhealthy diets and smoking] have all been demonstrated in young adults. The country also has an increased prevalence of hypertension 19–25%.

The heart requires adequate blood supply for its optimal functioning. Heart disease has become a major killer of mankind. With vast changes in the lifestyles of people, cardiac problems are increasing day by day in our country. Cardiovascular diseases are becoming a leading cause of morbidity and mortality in industrialized countries and they are emerging as prominent national health problems in developing countries.

“Prevention is better than cure”. The process of disease prevention must be aimed at not only understanding the disease mechanism, but also identifying the risk factors and establishing intervention strategies that definitively reduces the risk.

Hypertension is an enormous health problem and is one of the biggest health challenges in the 21st century. Although the condition is common, readily detectable, and easily treatable, it is usually asymptomatic and often leads to lethal complications if left untreated. The Global Burden of Disease study has reported Hypertension as the 4th contributor to premature death in developed countries and the 7th in the developing

countries. Analysis of worldwide data on global burden of Hypertension showed an overall prevalence of 26.4% among the adult population in 2000. In India, the prevalence of Hypertension ranges between 20%–40% in urban areas and 12%–17% among rural adults.

STATEMENT OF THE PROBLEM

“A cross sectional study to assess the incidence and risk factors associated with hypertension among adult population residing at Pallavaram”

OBJECTIVES OF THE STUDY

1. To assess the incidence of hypertension among adult population residing at Pallavaram
2. To assess the risk factors of hypertension among adult population residing at Pallavaram
3. To associated between the incidence and risk factors for hypertension among adult population residing at Pallavaram
4. To associate the findings with the selected demographic variables
5. To develop a self – instructional module on prevention of hypertension

OPERATIONAL DEFINITION

Incidence

Persons who are newly diagnosed to have blood pressure more than 140/90 mm of Hg

Hypertension

It refers to mean systolic/diastolic blood pressure equal or more than 140/90 mm of Hg recorded three different times on the day (WHO)

Risk Factors

It refers to any attribute, characteristic, or exposure of an individual, which increases the likelihood of developing a hypertension.

Adults

In this study, adults refer to the men and women who are in the age group of 31-45 year.

ASSUMPTIONS

1. Adults who have associated risk factors may develop hypertension
2. Screening of adults for hypertension may give detail report the incidence.

RESEARCH HYPOTHESES

H₁: There is no significant relationship between risk factors and the incidence of hypertension

H₂: There is no significant association between the risk factors and selected demographic variables at $p < 0.005$ level

DELIMITATION

1. The studies were delimited to a period of 4 weeks.
2. The study was delimited to the setting at Pallavaram.
3. The study was delimited to adults between the age of 31-45 years

CONCEPTUAL FRAMEWORK OF THE STUDY

The conceptual framework deals with the inter related concepts that are assembled together in some rationale schemes by virtue of their relevance to a common theme. The purpose of a conceptual framework is to make scientific findings meaningful and generalize. It helps to stimulate research and extension of knowledge by providing both direction and impetus. A framework may serve as a spring board for scientific advancement (Polit and Beck)

The conceptual framework of the study was based on Pender Health Promotion Model (1987) was designed to be a complementary counterpart to models of health promotion is directed towards increasing the level of well being and self actualization in a given individual and group

Determinants of Health promoting behavior are organized into cognitive conceptual factors, modifying factors and participation of health Promoting behavior.

The cognitive Perceptual factors:

The cognitive Perceptual factors includes the perception of the regarding the importance of aspects of assessment of risk factors of hypertension non modifiable like family history and modifiable risk assessment are cigarette/tobacco, alcohol, Physical activity, Intake of high fiber fat and salt foods, dietary fiber intake, diabetes mellitus, stress.

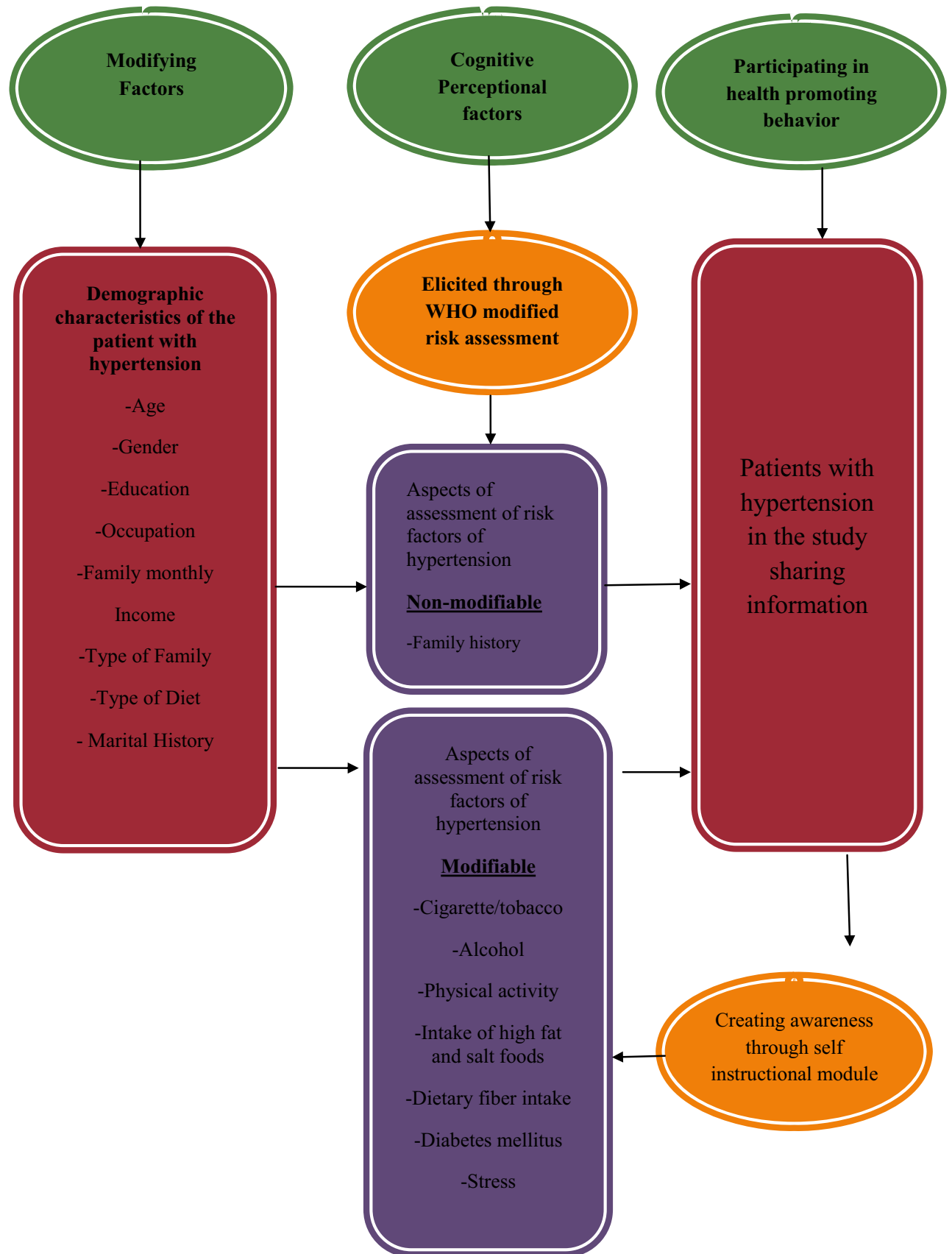
Health promoting behavior:

The investigator considered the sample's participation in the study as sharing the information as the health promoting behavior patient with hypertension

Nursing action

According to the Pender's Health Promotion model the nursing on actions that improves the health promoting behavior such creating awareness on prevention on hypertension and conducting the NCD screening programmers.

Conceptual framework: Modified Pender Health Promotion model (1987)



1.10 OUT LINE OF THE REPORT

Chapter 1: Dealt with back ground of the study, need for the study, statement of the problem, Objectives, operational definition, research hypothesis, assumptions, conceptual framework and delimitations of the study.

Chapter 2: Deals with review of literature

Chapter 3: Presents the methodology of the study and plan for data analysis

Chapter 4: Focuses on data analysis and data interpretation

Chapter 5: Enumerate the discussion of the study

Chapter 6: Gives the summary, conclusion, implications, limitations, and recommendations for the study

The study report ends with selected bibliography and appendices

CHAPTER - 2

REVIEW OF LITERATURE

A review of literature involves the systematic identification, location, and summary of written materials that contain information on the research problems (**Polit and Beck 2013**)

The task of reviewing literature the identification, selection, critical analysis and reporting of exciting information on the topic of interest. A review acquaints the researcher with what has been done in the field and it minimizes possibilities if unintentional duplication. It justifies the need of replications, provides the basic of future investigation and help to relate the findings of one study to another. The chapter deals with the review of published and unpublished research studies and from related materials for present study. The review helped the researcher in building the foundation for the study and presented under the following headings.

Section 2.1: Literature related to study on risk factors associated with hypertension among adult population

Section 2.2: Literature related to study on incidence and prevalence of adult hypertension

2.1. Literature related to study on risk factors associated with hypertension among adult population

Strasser, et.al, (2015) conducted a descriptive cross sectional study. A combination of household and community-based surveys was employed and two methods of surveillance (questionnaire and physical measurement) were undertaken. A total of 3000 subjects were included; 1100 (36.7%) had hypertension. Hypertension was associated with adult age, lower educational levels and being overweight or obese. Only 407 (37%) subjects with hypertension were aware of their condition. Multiple logistic regressions showed significant correlations between hypertension awareness and age, obesity and central obesity. Antihypertensive treatment was received by 31.2% of participants with hypertension. Obesity, smoking and older age were associated with treatment. Blood pressure was controlled in 18.1% of participants receiving antihypertensive treatment and in 5.6% of subjects with hypertension overall. The study

concluded a prevalence of hypertension, awareness and treatment of hypertension remain low and blood pressure is poorly controlled.

Mandale, et al. (2015) conducted a long-term longitudinal study to assess whether coffee intake is associated with the incidence of hypertension. This study was conducted on a cohort of 2985 men and 3383 women who had a baseline visit and follow-up visits after 6 and 11 y. Baseline coffee intake was ascertained with questionnaires and categorized into 0, >0–3, >3–6, and >6 cups/d. Hypertension was defined as a mean systolic blood pressure (SBP) ≥ 140 mm Hg over both follow-up measurements, a mean diastolic blood pressure (DBP) ≥ 90 mm Hg over both follow-up measurements, or the use of antihypertensive medication at any follow-up measurement. Coffee abstainers at baseline had a lower risk of hypertension than did those with a coffee intake of >0–3 cups/d [odds ratio (OR): 0.54; 95% CI: 0.31, 0.92]. The difference in DBP was not statistically significant. The study concluded that Coffee abstinence is associated with a lower hypertension risk than is low coffee consumption. An inverse U-shaped relation between coffee intake and risk of hypertension was observed in the women.

William, et.al, (2013) conducted a study to assess the hypertension in noise exposed sawmill workers. The sample consisted of 10872 sawmill workers. The study result showed that a monotonic increase in hypertension incidence with cumulative exposure of population was 32% .The highest relative risk was one to five in workers exposed for more than thirty years at 82dBA. The study was concluded that the risk of hypertension was positively associated with noise exposure above 85dBA.

Jessy Simons, et.al, (2013) conducted a cross sectional study to assess the prevalence and influence factors of hypertension among mechanic factory workers. The sample size consisted of 1205 workers. The study was carried out by using questionnaire and measuring the blood pressure of the workers and the noise exposure level in the workplace. The result showed that hypertension prevalence was 12.1%. The study concluded that reducing alcohol consumption, decreasing the sound pressure level in workshops and advocating healthy diet may reduce the prevalence rate of hypertension among mechanic factory workers.

Wallapa, et.al, (2012) conducted a study on Trends in hypertension epidemiology in India. Hypertension prevalence is lower in the rural Indian population, although there has been a steady increase over time here as well. Recent studies using revised criteria (BP \geq 140 and/or 90 mmHg) have shown a high prevalence of hypertension among urban adults: 14% in Chennai (2001). There is a strong correlation between changing lifestyle factors and increase in hypertension in India. Pooling of epidemiological studies shows that hypertension is present in 25% urban and 10% rural subjects in India. At an underestimate, there are 31.5 million hypertensive in rural and 34 million in urban populations. A total of 70% of these would be Stage I hypertension (systolic BP 140–159 and/or diastolic BP 90–99 mmHg).

Anderson, et.al, (2010) conducted a long term study on borderline hypertension among male industrial workers. The sample of the study consists of 1236 men aged 40-59 years working in the same industrial plant. The study showed that 253 (20.5%) had borderline arterial hypertension and 237 were normotensives.

Mohan, et. al (2010) Conducted a study on the prevalence, awareness and control of hypertension in Chennai representing Urban South India 26,001 individuals aged \geq 20 years were screened using systematic random sampling method. Every tenth subject recruited in Phase 1 of CURES was requested to participate in Phase 3 of CURES and the response rate was 2,350/26,001 or 90.4%. An oral glucose tolerance test was performed in all individuals except self-reported diabetic subjects. The study concluded that Hypertension was present in 20% [men: 23.2% vs. women:17.1%, $p < 0.001$] of the study population. Isolated systolic hypertension (Systolic BP \geq 140 and Diastolic BP $<$ 90 mmHg) was present in 6.6% while isolated diastolic hypertension (DBP \geq 90 and SBP $<$ 140 mmHg) in 4.2% of the population. The study showed that Hypertension was present in one-fifth of this urban south Indian population and isolated systolic hypertension was more common among elderly population.

Banya, et.al (2010) conducted a study on the prevalence of hypertension in rural and urban Tamil Nadu. The prevalence of hypertension, according to the World Health Organization definition (systolic blood pressure [SBP] \geq 160, diastolic [DBP] \geq 95 mmHg), was estimated by a population-based survey in 1798 Cameroonian subjects aged

25–74 years. There were 746 individuals from a rural area (308 men, 438 women) and 1052 (461 men, 591 women) from urban area. The response rate was 95% and 91% for the rural and urban populations respectively. The age-standardized prevalence of hypertension was significantly higher in the urban than in the rural area. These results indicate that hypertension is still uncommon in rural Cameroon but occurs frequently in the urban community, reaching a proportion comparable with industrialized urban communities.

A cross-sectional survey study was conducted to evaluate the changes in the major coronary risk factors in the urban population of Jaipur. The target study sample was 1800. The sample was randomly selected adults of 20 or more than 20 years of age. Risk factors prevalence showed that smoking/tobacco use was present in 36.5% of males and 11.7% of females. Physical inactivity was seen in 28.5% males and 22.7% females. Hypertension was present in 36.4% males and 37.5% females. Diabetes diagnosed in 13.1% males and 11.3% females. Obesity was found in 24.5% males and 30.2% females, truncal obesity was found in 57.4% males and in females it was 68.4%. Low HDL [high density lipoprotein] level in males was 54.9% and females 54.2%. The result showed that hypertension, obesity, truncal obesity, diabetes and dyslipidemia increased significantly with age in both males as females ($P < 0.05$). It also showed that there is high prevalence of standard coronary risk factors-smoking, physical inactivity, hypertension, hypercholesterolemia, diabetes and obesity.

A comparative study was conducted among the high income group ($n=400$) to find out the risk factors responsible for causation of coronary artery diseases in Patiala district by stratified random sampling technique. Two hundred professionals were selected from urban population and two hundred farmers were selected from rural community of Punjab. The study revealed that 22 percent and 11 percent were hypertensive in urban and rural population, respectively. Diabetes was more (10.5percent) in urban as compared to 3.5 percent in rural population. With regard to obesity 14.5 percent obese were found in urban setting and 0.3 percent was in rural community. Rural people smoked more (18 percent) as compared to urban (2.5 percent). The study concluded that the risk factors, viz., diabetes mellitus, hypertension, and obesity were detected more prevalent in urban while smoking was more common in rural community.

Wenyu. Wang (2012) conducted a longitudinal study regarding risk factors of hypertension and their relation to cardiovascular disease. Data was collected from 4549 American Indian Participants. Generalized linear models were used to identify the risk factors for hypertension and to correlate the blood pressure. American between the age group of 45 years has the risk of developing hypertension. Pre hypertension participants had 3.2/1.74 times higher risk factors developing hypertension or cardio vascular disease than normotensives participants Age and micro or macro albuminuria were independently significant risk factors of hypertension and cardio vascular disease.

Frank M. Sacks (2011) a substantial body of evidence strongly supports the concept that multiple dietary factors affect blood pressure (BP). Well-established dietary modifications that lower BP are reduced salt intake, weight loss, and moderation of alcohol consumption (among those who drink). Over the past decade, increased potassium intake and consumption of dietary patterns based on the “DASH diet” have emerged as effective strategies that also lower BP. The risk of cardiovascular disease increases progressively throughout the range of BP, beginning at 115/75 mm Hg. In uncomplicated stage I hypertension (systolic BP of 140 to 159 mm Hg or diastolic BP of 90 to 99 mm Hg), dietary changes serve as initial treatment before drug therapy. In those hypertensive patients already on drug therapy, lifestyle modifications, particularly a reduced salt intake, can further lower BP. The current challenge to healthcare providers, researchers, government officials, and the general public is developing and implementing effective clinical and public health strategies that lead to sustained dietary changes among individuals and more broadly among whole populations.

The study reveal shows that with regard to non modifiable risk factors, majority (69.39%) had low level of risk factors of hypertension, (26.53%) had moderate level of risk factors of hypertension and only (4.08%) had high level of risk factors of hypertension and with respect to modifiable risk factors, majority (46.94%) had low level of risk factors of hypertension (42.86%) had moderate level of risk factors of hypertension and only (10.20%) had high level of risk factors of hypertension. Risk factors of hypertension revealed that, majority (71.43%) had low level of of risk factors of hypertension (24.49%) had moderate level of risk factors of hypertension and only (4.08%) had high level of risk factors of hypertension.

2.2 LITERATURE RELATED TO STUDY ON INCIDENCE AND PREVALENCE OF ADULT HYPERTENSION.

Helen et.al., (2014) conducted a cross-sectional study to survey the civilian, non institutionalized population of the United States, including an in-home interview and a clinical examination which included measurement of blood pressure and anthropometric measurement. Data from 9901 participants 18 years of age and older from phase 1 of the third National Health and Nutrition Examination Survey, collected from 1988 through 1991, were used. Overall, two thirds of the populations with hypertension were aware of their diagnosis (69%), and majorities were taking prescribed medication (53%). Almost 13 million adults classified as being normotensives reported being told on one or more occasions that they had hypertension; a study concluded 51% of this group reported current adherence to lifestyle changes to control their hypertension.

In 2014 the cross-sectional study was conducted by Zelalem Alarmed Anteneh to assess blood pressure among adult population. A representative sample among 681 adult residents of Bahir Dar city using multistage sampling techniques. An interview-administrated questionnaire and physical measurements such as blood pressure (BP), weight, height, and waist and hip circumferences were employed to collect the data. A total of 678 responses were included in the analysis resulting in a response rate of 99.6%. The findings declared that 17.6%, 19.8%, and 2.2% of respondents were pre hypertension, hypertension stage I, and hypertension stage II, respectively, on screening test. One out of every four respondents of the study had hypertension, and more than one out of three cases of hypertension (38.8%) did not know that they had the hypertension; 17.6% of the respondents were in pre hypertension stage. The study was concluded a overall future risk of hypertension and mass screening for hypertension, health education to prevent substance use, regular exercise, reducing salt consumption, and life style modifications are recommended.

Sung Sug Yooh, et.al., (2014) conducted a study on Cluster sampling. It included 774 adult residents of Al-Waily District (Western Zone of Cairo) in late 2011 and early 2012. The mean age of the study participants was 46.5 (SD 17.9) years. Female subjects constituted 67.1% of the studied sample. The prevalence rate of hypertension in our study was 16.5% (95% confidence interval (CI): 13.9–19.3). The rate of hypertension was higher among females and three times higher among obese compared

with normal or overweight adults. The prevalence of undiagnosed hypertension was 11% (95% CI: 8.4–13.9), and uncontrolled hypertension was 30% (95% CI: 24.2–37). A study concluded that Community outreach campaigns should be conducted regularly in the future for early detection of hypertension cases and proper health education about hypertension and its dangerous consequences.

Jacqueline Wright, et al., (2014) conducted a cross sectional study on high blood pressure and identify factors associated to this condition within this population. It was analyzed community-dwelling adults 45 years and with hypertension. We were estimated the prevalence and used logistic regression models to identify factors associated to hypertension. Overall prevalence for hypertension was 56.9%. Adult age (odds ratio [OR] = 1.46, 95% confidence interval [CI] = [1.07, 1.97]), having health insurance (OR = 4.15, CI = [1.95, 8.85]), cardiovascular diseases (ORs between 1.70 and 3.65), and poor self-rated health (OR = 1.57, CI = [1.20, 2.06]) significantly increased the odds of hypertension. Most individuals received pharmacologic treatment (93.5%); however, 28.4% of individuals had uncontrolled hypertension. A study concluded a high prevalence of hypertension in our cohort and found that co morbidities and poor self-rated health increase the odds of hypertension.

Dewebbar., et al., (2014) conducted study in National Health and Nutrition Examination Survey 2014 (NHANES).The overall prevalence of hypertension among U.S. adults aged ≥ 18 years in 2003–2010 was 30.4% or an estimated 66.9 million. Among those with hypertension, an estimated 35.8 million (53.5%) did not have their hypertension controlled. Among these, an estimated 14.1 million (39.4%) were not aware of their hypertension, an estimated 5.7 million (15.8%) were aware of their hypertension but were not receiving pharmacologic treatment, and an estimated 16.0 million (44.8%) were aware of their hypertension and were being treated with medication

Asha Klamath, et al.(2013) conducted a cross-sectional study was based on community survey among 1,239 respondents aged ≥ 30 years was designed to estimate the prevalence and the socio demographic correlates of hypertension among adults aged ≥ 30 years. Data was collected by personal interviews, followed by anthropometric and blood pressure measurements. The prevalence of hypertension was 43.3%, being more among males (51.6%) as compared to females (38.9%).The total prevalence 23.1% (287)

were known cases, and 20.2% (250) were newly detected cases. The finding showed that Pre hypertension was noted among 38.7%. Advancing age, male gender, current diabetic status, central obesity, overweight and obesity as defined by body mass index, and family history of hypertension were identified as significant correlates for hypertension .

Kazuya Kozuma, et al, (2013) conducted a cross sectional study on awareness, treatment and control of hypertension. By Using data from the National Health and Nutrition Examination Survey 2003-2014, a total of 9,255 adult participants aged 18 and older were identified as having hypertension, which is defined as measured blood pressure $\geq 140/90$ mm Hg or taking prescription medication for hypertension. Awareness and treatment among hypertensive adults were ascertained via an interviewer administered questionnaire. Controlled hypertension among hypertensive adults was defined as systolic blood pressure <140 mm Hg and diastolic blood pressure < 90 mm Hg. Blood pressure was categorized as optimal blood pressure, pre hypertension, stage I hypertension and stage II hypertension. Between 2003 and 2014 (p -trend <0.01).A study concluded Overall, mean systolic blood pressure decreased as did the prevalence of uncontrolled hypertension among the treated hypertensive population.

Patrick Smith, et al., (2013) conducted a comparative study to find the effectiveness on effect of dietary approaches to stop hypertension (DASH DIET) exercises, Calorie restriction in improving the mental function and heart health in overweight, among 124 hypertension adults between the average age 52. The participants were divided into the three groups; (DASH DIET) combined with a behavioral weight and calorie restriction; the (DASH DIET) alone in one group; and into diet or exercises in control group. None were receiving medication for hypertension researcher found that the diet and weight management group had improved cognitive reduced blood pressure by systolic pressure 16 mmHg and diastolic pressure 10 mm Hg over the 4 month study period, improved cardio vascular and lower weight as well as reduced blood pressure compared with other groups.

Steffen, et al., (2011) conducted a study on effect of exercises and weight and high blood pressure. Over 100 people with high blood pressure who were taking medication for it, agreed to have their blood pressure measured through the course of the 6 month study divided in to 3 groups. One group used a combine exercises and weight

management Programme, another group and exercises and a last group did not use exercises or the weight management program me. It concluded that an exercise especially when combined with the weight loss, Reduces blood pressure but intense physical activity and emotional distress increases the blood pressure.

Gupta, et al., (2011) conducted a study to determine trends in age specific blood pressure distribution and hypertension prevalence in an urban Indian population. In the first study 2212 subjects (1412) men (792) women and in the second 1123 subjects (550 men, 573 women) were randomly selected. The mean values of systolic and diastolic blood pressure were not significantly difference in various age groups in the first and second studies. In conclusion the increasing variance in blood pressure distribution in this urban Indian population has resulted in a significant increase in severe forms of hypertension. In this population hypertension appears to increased due to obesity and high levels of physical activity.

Frost & Sullivan, et al., (2011) stated that approximately 1 billion people worldwide have high blood pressure and this number is expected to increase to 1.56 billion people by the year 2025. The translate to about 1 out of every 4 adults being affiliated with hypertension. Thus it was summarized that with steadily aging population across the globe and fast paced lifestyle leading to unhealthy diet and lack of exercises the increasing treated for the past 5 years is expected to continue.

A cross sectional study was conducted in Tirupati town to study the prevalence of hypertension and its risk factors as well as it extent of diagnosis and management among adults aged 40-60 years. This review summarizes that over all hypertension prevalence rate was 8.6% among 1000 adult population 83.7% were hypertension all of these aware were under treatment among those treated only 41.7% had satisfactory control of their hypertension

Brenesto, et al., (2010) conducted a cross-sectional study with a random sampling of involving district residents, aged 20 years or adult were enrolled to participate in this study. Trained research assistants administered a standardized questionnaire and performed the physical measurements. Hypertension was defined as systolic blood pressure (BP) equal or greater than 140mmHg and/or diastolic BP equal or greater than

90mmHg, and/or being on regular anti-hypertensive therapy. The age-standardized prevalence of hypertension was 30.5%, in which age with a 95% Confidence Interval (CI) of 26.6 – 34.3%. The study concluded prevalence of hypertension is high and confirm the growing concern about hypertension as a public health problem in Uganda. More studies are however required to determine the distribution and determinants of hypertension in other parts of the country.

Del Grudice, et al., (2010) in his research found that the prevalence of hypertension currently 60-80% but it is estimated that it will increase worth the projected population growth of older people aged more than 65 years. In the elderly, systolic blood pressure increases because of arterial stiffness produced by structural alteration of arterial with ageing. On the other hand, among the people aged 60 years systolic blood pressure remains unchanged or decreases. Thus he found out that isolation of hypertension and high pulse pressure are most prevalent, and are important risk factors for stroke, coronary heart disease and thus all cause mortality in the elderly.

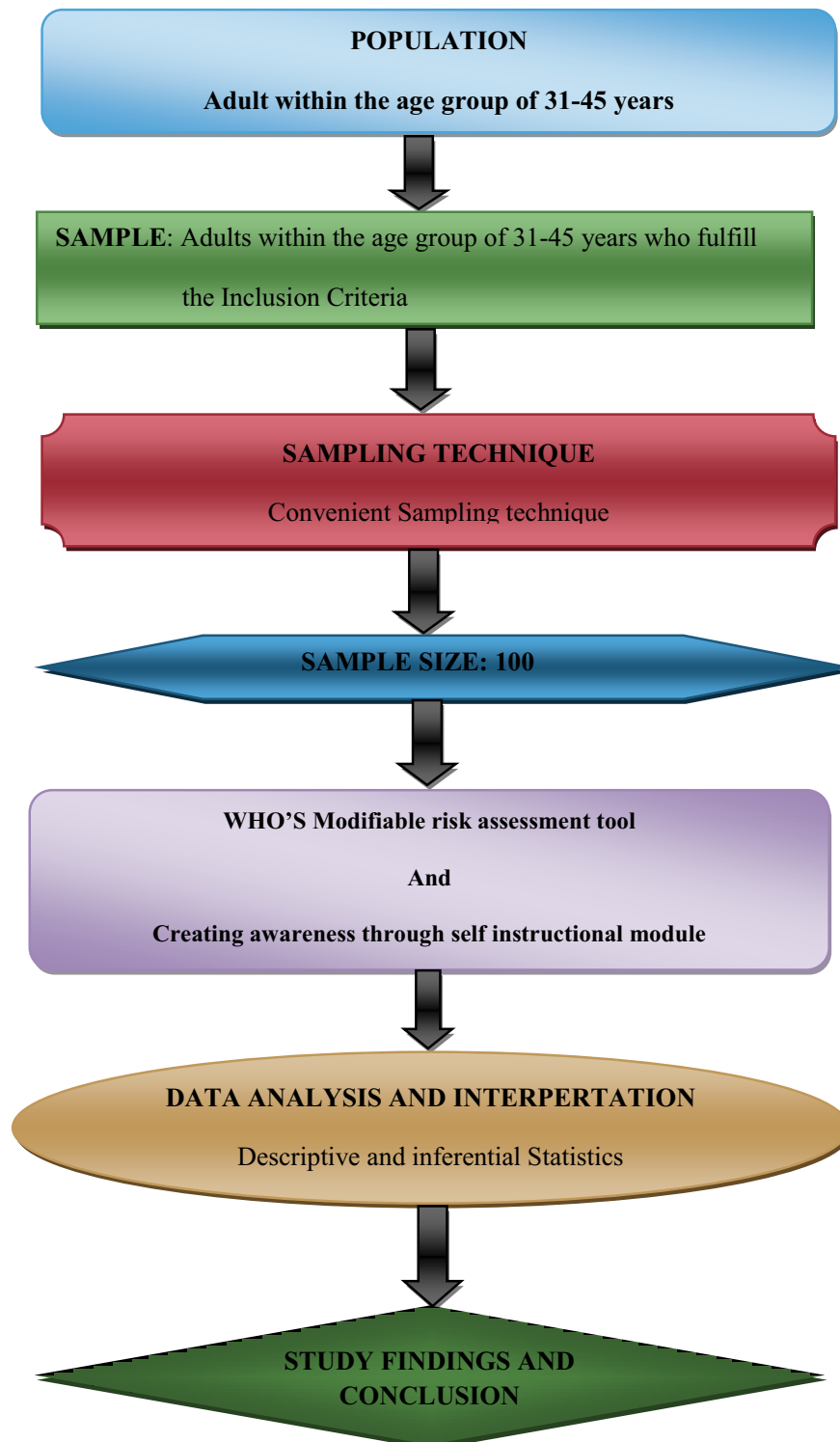
The prevalence, awareness, treatment and control of hypertension in the elderly populations of Singapore was studied by Rahul Malhorta et.al, in the year 2010 and found out the nearly three fourths (73.9%) of participants were found to have hypertension. Of this 30.8% were unaware that they had hypertension, 32.0 % were not being treated for the cases .thus he included that there is a improve awareness, treatment and especially control of hypertension among elderly Singaporeans.

CHAPTER - 3

RESEARCH METHODOLOGY

Methodology of research includes the steps, procedure and strategies for gathering and analyzing data in research investigation, it includes aspects like research approach, research design, variables technique, sampling criteria, development and description of tool, ethical consideration, pilot study, data collection procedure, and plan for statistical data and analysis.

The methodology of the research study is a cross sectional study to analysis the incidence and risk factors associated with hypertension.

SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

3.1 RESEARCH APPROACH

The research approach in this study was quantitative approach in view of nature of the problem selected and to accomplish the objectives of the study.

3.2 RESEARCH DESIGN

The researcher selected a non -experimental cross sectional study design to achieve the objectives of the study.

3.3 VARIABLES

The variables of the study are demographic variables and associated risk factors of hypertension.

3.4 SETTING OF THE STUDY

The study was conducted at urban field, Pallavaram. It is 18 kms away from Venkateswara Nursing College. The total Population of the Pallavaram is 52,117. The Population under the age group of 31-45 years is 10,351. The selection of these areas was done on the basis of feasibility, low cost of conducting study and availability of samples.

3.5 POPULATION

3.5.1 Target Population

The target Population of the study included all the adults in the age group of 31-45 years.

3.5.2 Accessible Population

The accessible population of the study included the adults in the age group of 31-45 years and available at the time of data collection.

3.6 SAMPLE

The sample consists of adult within age group of 31-45 years who fulfilled the inclusion criteria were selected for the study.

3.7 SAMPLE SIZE

The sample size was 100 adults.

3.8 CRITERIA FOR SAMPLE SELECTION

3.8.1 Inclusion Criteria

The study included the adult based on below criteria

1. Adults who were able to understand Tamil or English
2. Adults within the age group of 31-45 years
3. Adults who are residing at Pallavaram

3.8.2 Exclusion Criteria

The Study Excluded the adult based on below criteria

1. Adults who are diagnosed with any medical conditions
2. Adults who are not willing to participate
3. Pregnant women

3.9 Sampling Technique

The Subject of the present study was selected by convenient sampling technique.

3.10 DEVELOPMENT AND DESCRIPTION OF TOOLS

The tools were consisted of two parts

3.10.1 DATA COLLECTION

Part-I: Demographic Variables.

Part-II: BP monitoring procedure.

Part-III: WHO's Modified Risk Assessment Tool

Part-I -Demographic Variables

This section deals with the demographic Variables. It includes details of adult like age, gender, education, occupation, Income, type of family, type of diet and marital history.

Part-II Blood Pressure monitoring

Procedure for Checking Blood Pressure:

Blood pressure:

Blood pressure is the force exerted on the walls of an artery by the pulsing blood under pressure from the heart.

Equipment:

Article	Purpose
Sphygmanometer	To check the blood pressure
Stethoscope	To auscultation the sound

Procedure:

Procedure	Rationale
<ul style="list-style-type: none"> • Explain the procedure to the patient 	<ul style="list-style-type: none"> • To get co-operation to gain confidence
<ul style="list-style-type: none"> • Place patient in sitting position, and instruct patient to keep feet flat on floor without legs crossed 	<ul style="list-style-type: none"> • Leg crossing falsely increasing systolic and diastolic blood pressure.
<ul style="list-style-type: none"> • Expose extremity (arm) fully by removing constricting clothing. 	<ul style="list-style-type: none"> • Ensures proper cuff application.
<ul style="list-style-type: none"> • Palpate brachial artery. Apply bladder of cuff above the artery. Position cuff 2.5 cm above site of pulsation wrap cuff evenly and snugly around extremity. 	<ul style="list-style-type: none"> • Inflating bladder directly over artery ensures proper blood pressures applied during inflation, loose fitting cuff causes false high readings,
<ul style="list-style-type: none"> • Palpate arteries distal to the cuff with fingertips of non-dominant hand. While inflating cuff note point at which pulse disappears and continue to inflate cuff to a pressure 30mmHg above the 	<ul style="list-style-type: none"> • Palpation determines maximal inflation point for accurate reading completed deflated cuff prevents venous congestion and false high reading.

Procedure	Rationale
<p>point. Note the pressure reading. Slowly deflate the cuff, and note the point when pulse reappears. Deflate cuff fully and wait for 30 seconds.</p> <ul style="list-style-type: none"> • Place the stethoscope earpieces in ears, and be sure sounds are clear, not muffled. • Relocate brachial artery, and place bell or diaphragm of stethoscope over it. Do not allow chest piece to touch the cuff or clothing. • Close valve of pressure bulb clockwise until tight. • Quickly inflate cuff to 30mmHg above patients estimated systolic pressure. • Slowly release pressure bulb valve, and there are no extraneous sounds. • Note point on manometer when the first clear sound heard. The sound will slowly increase in intensity. • Continue to deflate cuff gradually, noting point at which sound disappears in adults. 	<ul style="list-style-type: none"> • Ensures each ear piece follows angle of ear canal to facilitate hearing. • Proper placement ensures the best sound reception. • Prevents air leak during inflation. • Rapid inflation ensures accuracy measurement of systolic pressure. • Too rapid or slow a decline pressure release causes inaccuracy readings. Noise interferes. • First Korotkoff system reflection systolic blood pressure. • Indication of diastolic pressure.

Procedure	Rationale
<ul style="list-style-type: none"> Record the blood pressure measurements for sitting, standing and lying in down position. 	

Part-III - WHO's MODIFIED RISK ASSESSMENT TOOL

This section includes mainly basic anthropometric measurement like height, weight, BMI, waist circumference, nutritional status and blood pressure.

Non-Modifiable Risk Factors

Family History

Modifiable Risk Factors

Cigarette, Tobacco, Smoking, Alcohol, Physical Activity, High fat and Salty Foods, Dietary intake, Diabetes Mellitus, Stress.

3.11 VALIDITY

There was ascertained from the following field of expertise CHN specialist, medical officer-1 WHO modified risk assessment tool and open permission was given by author to use the tool. The modifications and suggestions of experts were incorporated in the final preparation of the tool.

3.12 ETHICAL CONSIDERATION

The study was approved by the ethical committee of Venkateswara nursing College on 27/3/015 Permission was obtained from the commissioner of Pallavarm, Chennai and Residing at Pallavaram, assurance was given to the participants that confidentiality of each participant will be maintained and written consent was obtained. The Participants were informed that they are free to withdraw from the study at any time, if they wish.

1. Beneficence

The investigator followed the fundamental ethical principles of beneficence by adhering to

a. The right to freedom from harm and discomfort

The study was beneficial for the participants as it enhanced their physiological well being.

b. The right to protection from exploitation

The investigator explained the procedure and the nature of the study to the participants and ensured that none of the participants in study

2. Respect for Human Dignity

The investigator followed the second ethical principle of respect for dignity. It includes the right to self determination and the right to self disclosure.

a. The right to self determination

The investigator gave full freedom to the participants to decide voluntarily whether to participate in the study or to withdraw from the study and the right to ask questions.

b. The right to full disclosure

The researcher has fully described the nature of the study, the person's right to refuse participation and the researcher's responsibilities based on which both oral and written informed consent was obtained from the participants.

3. Justice

The researcher adhered to the third ethical principle of justice; it includes participant's right to fair treatment and right to privacy

a. Right to fair treatment

The researcher selected the study participants based on the researcher requirements. The investigator identified new cases of hypertension and risk factors.

b. Right to privacy

The researcher maintained the study participant's privacy throughout the study.

4. Confidentiality

The researcher maintained confidentiality of the data provided by the study Participants.

3.13 Reliability

The reliability of the questionnaire to assess the incidence and risk factor was assessed by using inter rater method. The reliability score obtained was 0.83. This showed that the tool was reliable and feasible for the main study.

3.14 PILOT STUDY

Pilot study is a preliminary research conducted to test the element of design before the commencement of an actual full scale study. It is a small version or trial run of the major study. (Polit and Hungler 2012)

Prior permission was obtained to conduct the study from the Commissioner of Pallavaram Municipality – Chennai. The Pilot study was conducted from 25/5/2015 to 30/5/015. Adult who fulfill the inclusion criteria was selected by non probability convenient sampling technique. The purpose of the study was explained to participants and written consent was obtained from the samples. The procedure was conducted in Pallavaram. Everyday -3 samples were participated in the procedure. Totally 10 samples were participated during the pilot study. The procedure was started daily at 9.00 am. At the end of the day results were counted. Data analysis was done by using descriptive and inferential statistics. The tool was found feasible to proceed for the main study.

3.15 PROCEDURE FOR DATA COLLECTION

Data collection is the gathering of information needed to address a research problem. -**Polit and Hungler, 2012**

Written permission was obtained to conduct the study from the ethical committee of Venkateswara Nursing College, Thalambur, Chennai-600 130 and the formal permission was obtained from the Commissioner of Pallavaram. Data collection was done within the given period of 4 weeks from the date 1.06.15 to 30.06.15. The

researcher selected 100 samples from residing at Pallavaram by using non probability convenient sampling technique.

Everyday 10-15 samples were participated in the procedure. Totally 100 samples participated during the major study period. The procedure was started daily at 9.00 am, before that the written consent was obtained from each sample. At the end of the day results were counted. Data analysis was done by using descriptive and inferential statistics. The collection of data was performed within the stipulated time of 4 weeks.

3.16 PLANS FOR DATA ANALYSIS

The data collected will be analyzed using descriptive and inferential statistics

3.16.1 Descriptive Statistics

Frequency and percentage distribution were used to analyze the demographic variables.

3.16.2 Inferential Statistics

Chi-Square test was used to find out the association of demographic variables of adults.

CHAPTER – 4

DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of the data to assess the incidence and risk factors of hypertension among adults residing at Pallavaram. The data findings have been, tabulated and analyzed according to the objectives. The results were data collected from 100 adults were grouped analyzed using descriptive and inferential statistics presented under the following sections.

ORGANIZATION OF DATA

Section 4.1: Assessment of incidence of hypertension among adult population.

Section 4.2: Description of demographic variables of adult population.

Section 4.3: Assessment of level of hypertension and its risk factors among adult population.

Section 4.4: Comparison of risk factors contributing to hypertension among adult population.

Section 4.5: Association of level of hypertension and risk factors of hypertension among adult population with their selected demographic variables.

SECTION 4.1: ASSESSMENT OF INCIDENCE OF HYPERTENSION AMONG ADULT POPULATION.

Table 4.1.1: Frequency and percentage distribution of incidence of hypertension among adult population.

N = 100

Variable	Normal (systolic) (<120)		Pre hypertension (120 – 139)		Stage - I (140 – 159)		Stage - II (>=160)	
	No.	%	No.	%	No.	%	No.	%
Hypertension	23	23.0	28	28.0	47	47.0	2	2.0

The table 4.1.1 shows the incidence of hypertension. Among 100 adults Population, 28(28%) had Pre hypertension, 47(47%) had stage-I hypertension, 2(2%) had stage II hypertension and 23(23%) of them were normal

SECTION 4.2: DESCRIPTION OF DEMOGRAPHIC VARIABLES OF ADULT POPULATION.

Table 4.2.1: Frequency and percentage distribution of demographic variables of adult population.

N = 49

Demographic Variables	No.	%
Age in years		
31 - 35 years	4	8.2
36 - 40 years	16	32.6
41 - 45 years	29	59.2
Gender		
Male	28	57.1
Female	21	42.9
Education		
Profession/Honours	3	6.1
Graduate/Post graduate	6	12.2
Intermediate/Post high school diploma	4	8.2
High school certificate	3	6.1
Middle school certificate	2	4.1
Primary school certificate	15	30.6
Non literate	16	32.7
Occupation		
Profession	3	6.1
Semi profession	5	10.2
Clerical/Shop owner/Farmer	4	8.2
Skilled worker	6	12.2
Semi skilled worker	11	22.4
Unskilled worker	15	30.6
Unemployed	5	10.2
Family monthly income in Rupees		
More than 36017	0	0.0
18000-36016	3	6.1

Demographic Variables	No.	%
13495-17999	4	8.2
8989-13494	12	24.5
5387-8988	10	20.4
1803-5386	5	10.2
Less than 1802	15	30.6
Type of family		
Nuclear family	24	49.0
Joint family	19	38.8
Extended family	6	12.2
Broken family	0	0.0
Others	0	0.0
Type of diet		
Vegetarian	12	24.5
Non vegetarian	37	75.5
Marital status		
Married	37	75.5
Single	6	12.2
Widow	3	6.1
Divorce	3	6.1
Others	0	0.0

Table 4.2.1 shows frequency and percentage distribution of demographic variables of adults with respect to age, gender, education, Occupation, Family monthly income, type of family, type of diet, and marital status with regard to the demographic variables adults 29(59.2%) were in the age group of 41-45 years, 28(57.1%) were male, 16(32.7%) were non literate, 15(30.6%) were unskilled workers, 15(30.6%) had family monthly income of less than Rs.1802, 24(49%) belonged to nuclear family, 37(75.5%) were non- vegetarian and 37(75.5%) were married.

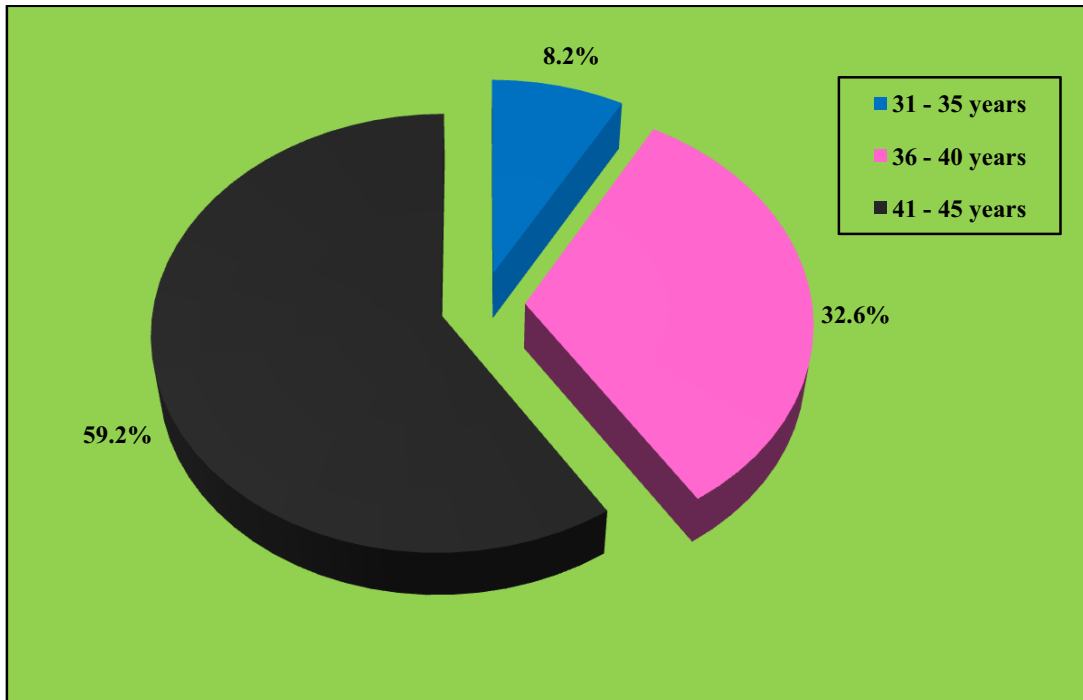


Figure 1.1: Percentage distribution of age of the adult population

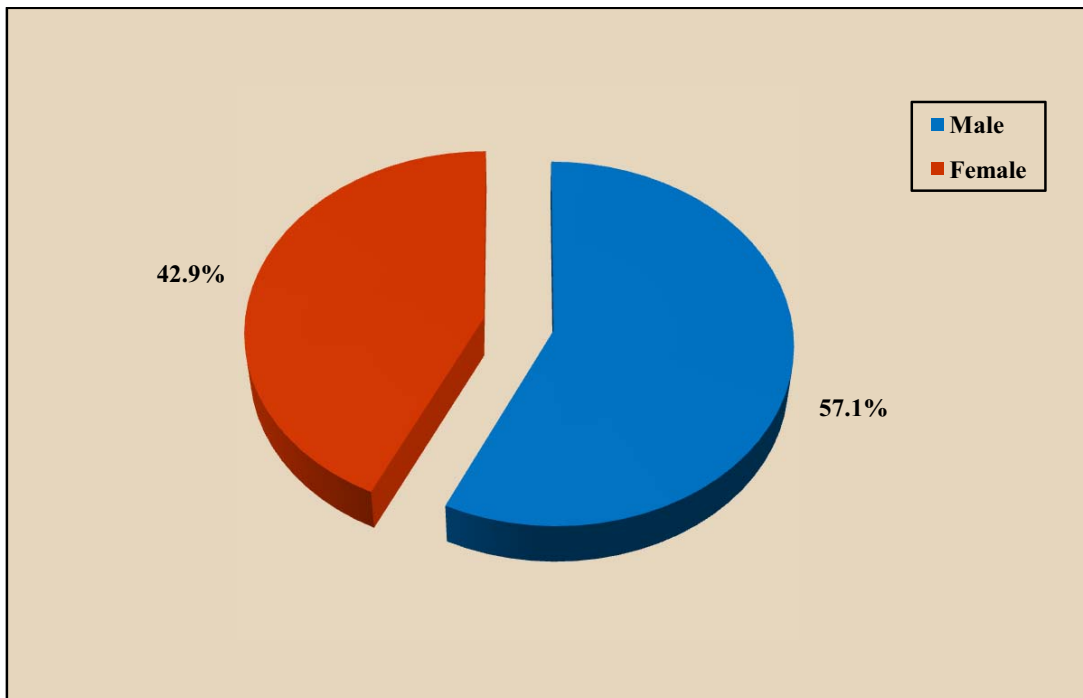


Figure 1.2: Percentage distribution of gender of the adult population

SECTION 4.3: ASSESSMENT OF LEVEL OF HYPERTENSION AND RISK FACTORS OF HYPERTENSION AMONG ADULT POPULATION.

Table 4.3.1: Frequency and percentage distribution of level of hypertension (Systolic) among adult population.

N = 49

Variable	Stage – I (140 – 159)		Stage – II (≥ 160)	
	No.	%	No.	%
Hypertension	47	77.55	2	22.45

Table 4.3.1 reveals the level of hypertension among adults with respect to the level of hypertension (systolic) 49(77.55%) had stage -I hypertension and only 2(22.45%) had stage –II hypertension

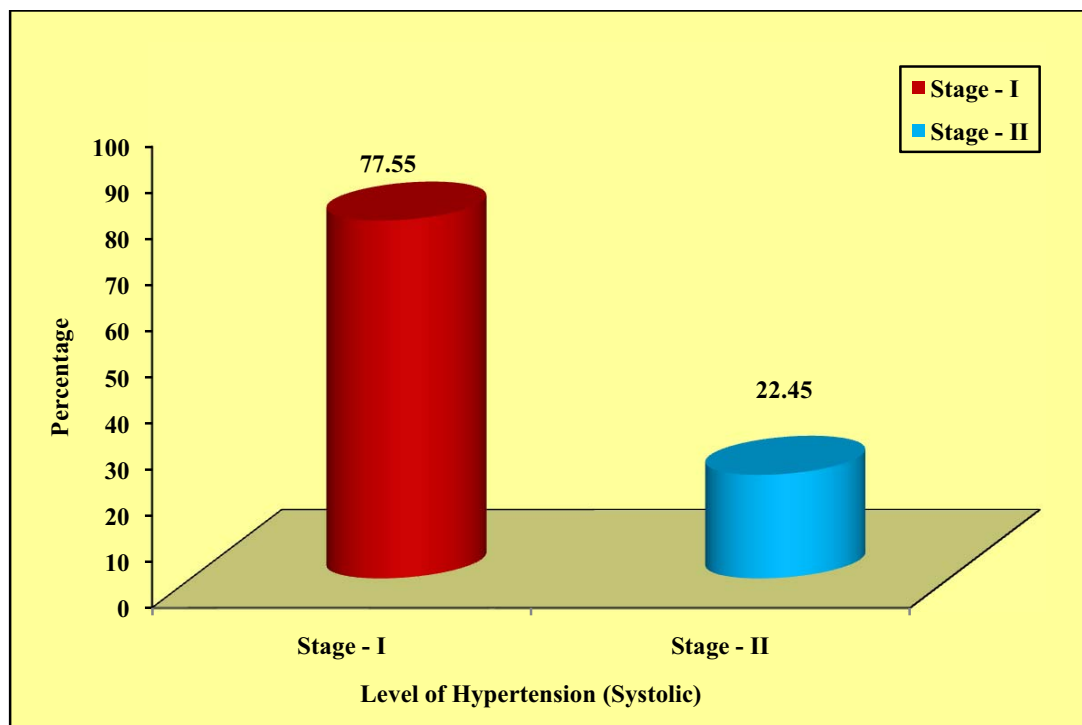


Figure 1.3: Level of Hypertension (systolic)

Table 4.3.2: Frequency and percentage distribution of level of risk factors of hypertension among adult population.

N = 49

Risk Factors	Low (≤50%)		Moderate (51 – 75%)		High (>75%)	
	No.	%	No.	%	No.	%
Non-modifiable	34	69.39	13	26.53	2	4.08
Modifiable	23	46.94	21	42.86	5	10.20
Overall	35	71.43	12	24.49	2	4.08

The table 4.3.2 shows that with regard to non-modifiable risk factors majority 34(69.39%) had low level of risk factors of hypertension, 13(26.53%) had moderate level of risk factors of hypertension and only 2(4.08%) had high level of risk factors of hypertension.

With respect to modifiable risk factors, majority 23(46.94%) had low level of risk factors of hypertension, 21(42.86%) had moderate level of risk factors of hypertension and only 5(10.20%) had high level of risk factors of hypertension.

The overall level of risk factors of hypertension revealed that, majority 35(71.43%) had low level of risk factors of hypertension, 12(24.49%) had moderate level of risk factors of hypertension and only 2(4.08%) had high level of risk factors of hypertension.

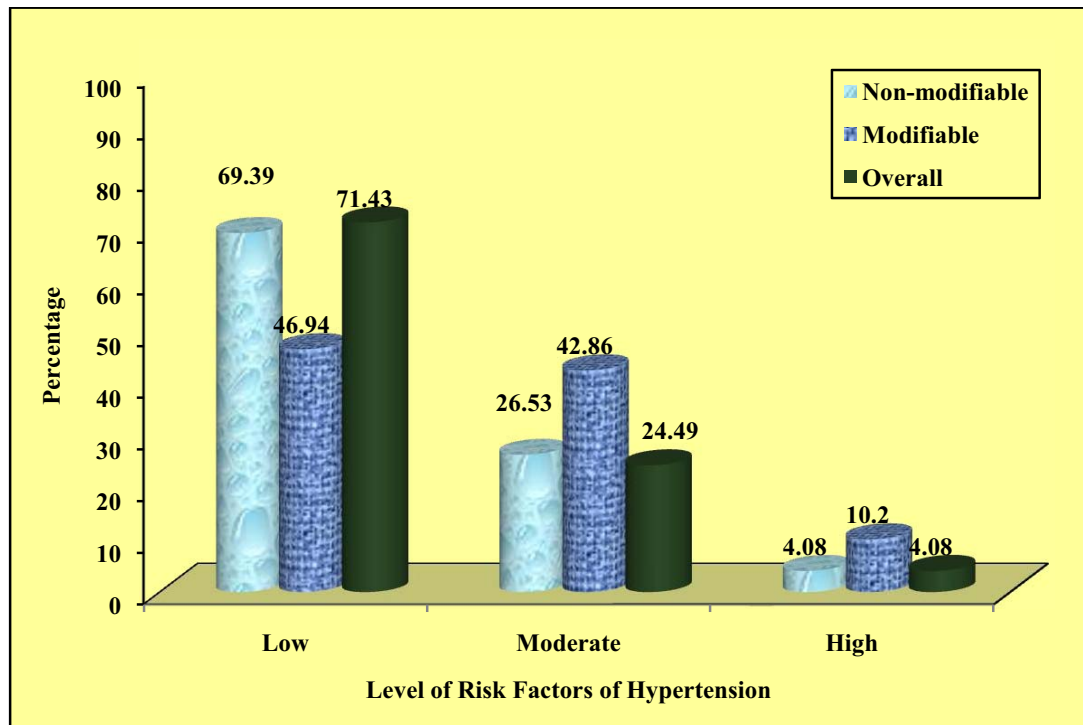


Figure 1.4: Percentage distribution of level of risk factors of hypertension among adult population

SECTION 4.4: COMPARISON OF RISK FACTORS CONTRIBUTING TO HYPERTENSION AMONG ADULT POPULATION.

Table 4.4.1: Comparison of non-modifiable and modifiable risk factors contributing to hypertension among adult population.

N = 49

Variable	Factors	Level of Risk Factors				Chi square test	Odds Ratio
		High		Low			
		N	%	N	%		
Risk Factors	Modifiable	26	26.5	23	23.5	$\chi^2=5.074$ d.f=1 p=0.024*	2.56
	Non-modifiable	15	15.3	34	34.7		
	Relative risk	1.73		0./67			

The table 4.4.1 shows the comparison of factors contributing to hypertension among adult population.

The table shows that majority 26(26.5%) modifiable risk factors and 15(15.3%) non-modifiable risk factors had been contributing to hypertension and there was significant association with the modifiable risk factors at the level of $p < 0.05$ and about 2.56 times the risk factors contribute to hypertension (OR = 2.56). The risk for developing hypertension due to modifiable risk factors is 1.73 times than that of the non-modifiable risk factors among adult population.

SECTION 4.5: ASSOCIATION OF LEVEL OF HYPERTENSION AND RISK FACTORS OF HYPERTENSION AMONG ADULT POPULATION WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Table 4.5.1: Association of level of hypertension (Systolic) among adult population with their selected demographic variables.

N = 49

Demographic Variables	Stage – I (140 – 159)		Stage – II (≥160)		Chi-Square Value
	No.	%	No.	%	
Age in years					$\chi^2=0.188$ d.f = 2 p = 0.910 N.S
31 - 35 years	3	6.1	1	2.0	
36 - 40 years	13	26.5	3	6.1	
41 - 45 years	22	44.9	7	14.3	
Gender					$\chi^2=0.039$ d.f = 1 p = 0.843 N.S
Male	22	22.0	6	12.2	
Female	16	16.0	5	10.2	
Education					$\chi^2=5.417$ d.f = 6 p = 0.492 N.S
Profession/Honours	3	6.1	0	0	
Graduate/Post graduate	4	8.2	2	4.1	
Intermediate/Post high school diploma	3	6.1	1	2.0	
High school	1	2.0	2	4.1	
Middle school	2	4.1	0	0	
Primary school	12	24.5	3	6.1	
Non literate	13	26.5	3	6.1	
Occupation					$\chi^2=3.822$ d.f = 6 p = 0.701 N.S
Profession	3	6.1	0	0	
Semi profession	3	6.1	2	4.1	
Clerical/Shop owner/Farmer	3	6.1	1	2.0	
Skilled worker	4	8.2	2	4.1	
Semi skilled worker	8	16.3	3	6.1	
Unskilled worker	12	24.5	3	6.1	
Unemployed	5	10.2	0	0	

Demographic Variables	Stage – I (140 – 159)		Stage – II (≥160)		Chi-Square Value
	No.	%	No.	%	
Family monthly income in Rupees					$\chi^2=5.920$ d.f = 5 p = 0.314 N.S
More than 36017	-	-	-	-	
18000-36016	3	6.1	0	0	
13495-17999	3	6.1	1	2.0	
8989-13494	7	14.3	5	10.2	
5387-8988	7	14.3	3	6.1	
1803-5386	5	10.2	0	0	
Less than 1802	13	26.5	2	4.1	
Type of family					$\chi^2=0.466$ d.f = 2 p = 0.792 N.S
Nuclear family	19	38.8	5	10.2	
Joint family	15	30.6	4	8.2	
Extended family	4	8.2	2	4.1	
Broken family	-	-	-	-	
Others	-	-	-	-	
Type of diet					$\chi^2=0.059$ d.f = 1 p = 0.807 N.S
Vegetarian	9	18.4	3	6.1	
Non vegetarian	29	59.2	8	16.3	
Marital status					$\chi^2=2.298$ d.f = 3 p = 0.513 N.S
Married	27	55.1	10	20.4	
Single	5	10.2	1	2.0	
Widow	3	6.1	0	0	
Divorce	3	6.1	0	0	
Others	-	-	-	-	

N.S – Not Significant

The table 4.5.1 shows that none of the demographic variables had shown statistically significant association with level of hypertension (Systolic) among adult population with hypertension.

Table4.5.2: Association of level of risk factors of hypertension among adult population with their selected demographic variables.

N = 49

Factors	Demographic Variables	Level of Risk Factors				Chi square test	Odds Ratio
		Low		High			
		N	%	N	%		
Age	<40 years	14	28.6	6	12.2	$\chi^2=0.034$ d.f=1 p=0.854 N.S	0.89
	>40 years	21	42.9	8	16.3		
Gender	Male	16	32.7	12	24.5	$\chi^2= 6.533$ d.f=1 p=0.011 S*	0.14
	Female	19	38.8	2	4.1		
Education	Literate	23	46.9	10	20.4	$\chi^2=0.148$ d.f=1 p=0.700 N.S	0.77
	Non literate	12	24.5	4	8.2		
Occupation	Employed	30	61.2	14	28.6	$\chi^2=2.227$ d.f=1 p=0.136 N.S	-
	Unemployed	5	10.2	0	0		
Family Income	>8988	13	26.5	7	14.3	$\chi^2=0.684$ d.f=1 p=0.408 N.S	0.59
	<8988	22	44.9	7	14.3		
Type of family	Nuclear	15	30.6	9	18.4	$\chi^2=1.838$ d.f=1 p=0.175 N.S	0.42
	Joint/Extended	20	40.8	5	10.2		
Type of diet	Vegetarian	8	16.3	4	8.2	$\chi^2=0.177$ d.f=1 p=0.674 N.S	0.74
	Non-vegetarian	27	55.1	10	20.4		
Marital status	Married	27	55.1	10	20.4	$\chi^2=0.177$ d.f=1 p=0.674 N.S	1.35
	Single/Widow/ Divorce/Others	8	16.3	4	8.2		

*p<0.05, S – Significant, N.S – Not Significant

The table 4.5.2 shows that the demographic variable gender had shown statistically significant association with the level of risk factors of hypertension among adult population at $p < 0.05$ level but the risk (odds ratio) shows that gender of the adult population was contributing to the high level of risk factors for hypertension where the other demographic variables had not shown statistically significant association with the level of risk factors of hypertension among adult population but the risk for hypertension was 1.35 times an one married adult population.

CHAPTER - 5

DISCUSSION

This chapter discusses in detail about the findings of the study derived from the data analysis and its relevance to the objectives of the study. The purpose of the study was to assess the incidence and risk factors associated with the Hypertension among adults.

The findings of the study were discussed based on the objectives:

5.1 The first objectives were to assess the incidence of hypertension among adult residing at Pallavaram.

The study findings revealed that incidence of hypertension among 100 adults as 47(47%) had stage –I hypertension and only 2(2%) had stage II Hypertension.

Shyamal Kumar Das (2012) these findings were consistent with the study of incidence of Hypertension among 1662 participants. The study concluded that pre-hypertensive levels of blood pressures were as 35.8% of the participants in systolic group (120-139mm of Hg) and 47.7% in diastolic group (80-89 mm of Hg). Systolic hypertension (140 mm of Hg) was present in 40.9% and diastolic hypertension (90 mm of Hg) in 29.3% of the participants.

5.2 The second objectives were to assess the risk factors of hypertension among adults.

With regard to non modifiable risk factors,34(69.39%) had low, 13 (26.53%) had moderate risk and only 2(4.08%) had high level risk with respect to modifiable risk factors, 23(46.94%) had low, 21(42.86%) had moderate risk only 5(10.20%) had high level risk.

This finding of the study was consistent with the study of **Wenju (2012)** who conducted a longitudinal study regarding risk factors of hypertension. It concluded that age is significant non-modifiable risk factors.

This findings were also consistent with the study **Mandale.et.al (2015)** who conducted a cross sectional survey to identify the non modifiable risk factors of Hypertension. The study concluded that diet, Physical activity, smoking, and obesity are the major modifiable risk factors which contribute to hypertension.

KM RAO (2013) conducted a cross-sectional study to assess increasing prevalence of hypertension and by adopting multistage random sampling procedure among tribal adult population. Data was collected on socio-demographic and behavioral factors, and anthropometric measurements were carried out. The risk of hypertension was 1.7 times higher among overweight/obese subjects. The prevalence of hypertension increases with age and genders. The findings showed that the risk of hypertension was significantly ($P<0.001$) lower among educated and among higher socio-economic status group.

5.3 The third objective of the study is to associate between and risk factors of hypertension among adult Population with their selected demographic variables.

Association between selected variables and risk factors of hypertension participation and selected variables (using chi square) showed that the study findings reveal that there was no significant association between demographic variables age, education, Occupation, Family Income, type of family, type of diet, marital status and risk factors ($p>0.05$). In this regard, the null hypothesis H2 “There will be no significant association between selected demographic variables and risk factors of hypertension among adults” was not accepted.

The epidemiology of demographic transition states that a long-term shift occurs in mortality and disease patterns, whereby infectious diseases are gradually displaced by degenerative and man-made diseases as the chief form of morbidity and death Furthermore, evidence shows that developing country in transition where people have adopted western living patterns are risk factors such as sedentary lifestyle obesity, stress, unhealthy diets and smoking have all been demonstrated in young adults. The country also has an increased prevalence of hypertension 19–25%.

5.4. The fourth objectives of the study is to Description of Demographic Variables of the adult Population.

The study findings revealed that 29(59.2%) were in the age group of 41-45 years and 28(57.1%) were male. With regard to the demographic variables 16(32.7%) were illiterate and 15(30.6%) were unskilled workers, 15(30.6%) were in the families earning the family monthly income <1802, 24(49%) belongs to nuclear family, 37 (75.5%) were non- vegetarian and 37(75.5%) were married.

CHAPTER – 6

SUMMARY, CONCLUSION, IMPLICATION, RECOMMENDATIONS AND LIMITATIONS

This chapter gives a brief account of the present study including the conclusion recommendations, Limitations of the study, suggestions for the study and nursing implications.

6.1 SUMMARY

This chapter is presents the findings, understanding and interpretation of results and recommendation to incorporate in nursing practice, nursing education, nursing administration, nursing research for further nursing research are presented. It also gives meaning to the results obtained in the study.

Hypertension is the one of the most leading cause of morbidity and mortality and also confirmed that despite all the efforts to diagnose and treat patients with high blood pressure. Hypertension is the significant problem in many developing countries experiencing epidemiological transition from communicable to non communicable disease. Persons who were newly diagnosed blood pressure above 140/90 mmHg. Adults refer to the age group of 31-45 year and increase the likelihood of developing hypertension. While reviewing the literature the investigator came across studies in relation to prevention of hypertension and screening. Many studies carried out in foreign and in India.

6.2 Statement of the problem

“A cross sectional study to assess the incidence and risk factors associated with hypertension among adult population residing at Pallavaram”

6.1.2 The objectives of the study were

1. To assess the incidence of hypertension among adult population residing at Pallavaram.
2. To assess the risk factors of hypertension among adult population residing at Pallavaram.

3. To associate between the incidence and risk factors for hypertension among adult population residing at Pallavaram.
4. To associate the findings with the selected demographic variables.
5. To develop a self – instructional module on prevention of hypertension

6.1.3 Assumptions made were

1. Adults who have associated risk factors may develop hypertension
2. Screening of adults for hypertension may give detail report the incidence.

6.1.4 Null Hypotheses formulated were

NH₁: There is no significant relationship between risk factors and the incidence of Hypertension.

NH₂: There is no significant association between the risk factors and selected demographic variables at $p < 0.005$ level.

The review of literature was collected from the primary and secondary sources.

The conceptual framework of the study was developed on the basis on Pender Health Promotion model (1987). An extensive expert's guidance was obtained for the development of the tools.

The researcher adopted quantitative approach and a non experimental cross sectional survey design the study. The investigators used a demographic variables proforma, and a WHO's modified risk assessment tool to collect the data.

The data collection tools were validated and reliability was established. After the pilot study the data for the main study was collected at Pallavaram. Ethical aspects of the study were followed. Hundred samples were selected using convenient sampling technique and they were provided a self instructional module on hypertension.

6.2 CONCLUSION

Hypertension is the one of the most leading cause of morbidity and mortality and also confirmed that despite all the efforts to diagnose and treat patients with high blood pressure. This study reveals that incidence and risk factors associated with hypertension

is high in male gender among adult population and modifiable factors are the high risk factors

6.3 IMPLICATIONS

The implication for nursing practices, nursing education, nursing administration, and nursing research are presented based on the findings.

6.3.1 Nursing Practices

1. The community health nurse practitioner has a key role in providing essential care to individual, family, and community.
2. The nurse needs to incorporate prevention strategies in her practice.
3. The nurse can conduct school Health Programme and address the school children about modifiable risk factors of Hypertension.
4. The community health nurse can conduct training programs to the school teachers to identify the children at risk for hypertension.

6.3.2 Nursing Education

1. Nurse educator should prepare nurses with the potential for imparting health information effectively through various methods like role play and demonstrations.
2. Nurse educator should encourage the students to prepare different audio visual aids in order to utilize for educating public during home visits.

6.3.3 Nursing Administration

1. Nurse administrators should be very enthusiastic and formulate policies for short and long term health education.
2. The nurse administrators should make arrangement to see that sufficient manpower and materials are available for disseminating health information.

6.3.4 Nursing Research

1. Nurse researcher should disseminate the study findings to other nurses and motivate them to apply it in practice.
2. Nurse researcher should develop an interest to publish the findings of the study in conference, workshops etc.

6.4 RESEARCH UTILIZATION

The research findings can be implemented in the schools and colleges to identify modifiable risk factors in order to reduce the incidence

6.5 RECOMMENDATIONS

1. A researcher recommends the Village Health Nurse, Lady Health visitor, Community Health nurse to follow the assessment module for early prevention of hypertension.
2. A comparative study can be conducted between the rural and urban settings.
3. The researcher recommends to school teacher to identify modifiable risk factors among school students.
4. The researcher recommends the B.Sc (N) student of the Vel's Venkateswara Health Center to utilize WHO assessment tool for screening the adults during their home visit.

6.6 PLAN FOR RESEARCH DISSEMINATION

1. The research findings will be presented at National and International conferences.
2. The research findings will be published in either the National or International Journal

6.7 LIMITATIONS

1. The researcher faced difficulties in gathering information about life style behaviors.
2. The study is limited only 100 samples residing at Pallavaram. So generalization could not be done.
3. The study is limited to a period of four weeks.

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APPENDIX – A
ETHICAL CLEARANCE CERTIFICATE

APPENDIX – B

**LETTER SEEKING AND GRANTING PERMISSION FOR CONDUCTING
THE MAIN STUDY**

APPENDIX - C

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From
Mr.R.Sarika,
M.Sc (N) I year,
Venkateswara Nursing College,
Thalambur
To

Respected Sir\Madam,

Subject: Requisition for expert opinion for content validity.

I am Ms.R.Sarika doing my M.sc Nursing I year specializing in Community Health Nursing at Venkateswara Nursing College under the guidance of Dr.Mrs.Ciby Jose, Principal and Specialty Guide Mrs.J.Lakshmi. As a part of my research project to be submitted to the Tamil Nadu Dr. M.G.R. Medical University December 2014 session and in partial fulfillment of the University requirement for the award of M.Sc (N) degree, I am conducting **“A cross Sectional Study to assess the incidence and risk factors associated with hypertension among adult population residing at Pallavaram.”** I have enclosed my data collection and intervention tool for your expert guidance and validation. Kindly do this needful.

Thanking you,

Yours faithfully

(R.SARIKA)

ENCLOSURES:

1. Research proposal
2. Data collection tool
3. Intervention tool
4. Content validity form
5. Certificate for content validity

LIST OF EXPERTS FOR CONTENT VALIDITY

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APPENDIX – D

CERTIFICATE FOR ENGLISH AND TAMIL EDITING

APPENDIX – E

INFORMED CONSENT REQUISITION FORM

Good Morning!

I am R.Sarika studying M.Sc (Nursing) at Venkateswara Nursing College, Thalambur. As a part of fulfillment of the Programme, I am conducting **“A cross sectional study to assess the incidence and risk factors associated with hypertension among adult population residing at Pallavaram.”**

I request you to participate in this study by giving your written consent and valuable response to the question asked. Your response will be kept confidential and will be used only for the research study.

Thanking you,

Signature of the Investigator

(R.Sarika)

INFORMED CONSENT FORM

I understand that I am being asked to participate in a research study conducted by **Ms.R.Sarika, M.Sc (N)** student Venkateswara Nursing College. This research study will evaluate A cross sectional study to assess incidence and risk factors associated with hypertension among adult population residing at Pallavaram. If I agree to participate in the study and no identifying information will be included when it is transcribed. I understand that there are no risks associated with their study

I realize that I may participate in the study if I am younger than 18 years of age with consent from my parent/guardian. I realize that the physiological well-being improved from this study may help either me or other people in the future. I realize that my participation in this study is entirely voluntary, and I may withdraw from the study at any time I wish. If I decide to discontinue my participation in this study, I will continue to be treated in the usual and customary fashion.

I understand that all study data will be kept confidential. However, this information may be used in nursing publication or presentation. If I need to, I can contact **Ms.R.Sarika**, Venkateswara Nursing College, Talambur, near to navalur, Chennai, 04432537098 any time during study.

The study has been explained to me. I have read and understood this content form, my entire questions have been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

Signature of Participant

Date

Signature of Investigator

Date

முன் அறிவிப்பு ஒப்புதல் படிவம்

வெங்கடேஸ்வரா செவிலியர் கல்லூரியின் சார்பில் இரண்டாம் ஆண்டு மாணவி நடத்தும் இந்த ஆய்வில் என்னை பங்கேற்க கேட்டுக் கொண்டதை நான் ஏற்றுக் கொள்கிறேன்.

இந்த ஆராய்ச்சியின் மூலம் பொது மக்களுக்கு ஆய்வை மேற்கொண்டுள்ளேன்.

இந்த ஆய்வுக்கு நான் ஒப்புக் கொண்டால் என்னிடம் நடத்தும் ஆராட்சியில் அனைத்தும் பதிவு செய்யப்படும் என்பதை நான் அறிவேன். என்னைப்பற்றி சேகரித்த சுய தகவல்கள் அனைத்தும் வெளியிடாமல் ஆய்வு மேற்கொள்ளப்படும் என்பதை நான் அறிவேன்.

இந்த ஆய்வின் மூலமாக எனக்கு எந்த பாதிப்பும் இல்லை என்பதை நான் அறிவேன்.

எதிர்காலத்தில் இந்த ஆய்வின் முடிவுகள் எனக்கோ அல்லது பிற மக்களுக்கோ பயன்படும் என்பதை நான் அறிவேன்.

நான் யாருடைய கட்டாயத்தின் பெயரிலோ அல்லது வற்புறுத்தலின் பெயரிலோ ஆய்வின் பங்கு கொள்ளவில்லை என்பதையும், தேவைப்பட்டால் நான் ஆய்விலிருந்து விலகி கொள்ளவும் எனக்கு முழு உரிமை உண்டு என்பதை நான் அறிவேன்.

என்னைப்பற்றிய அனைத்து தகவல்களும் இரகசியமாக பாதுகாக்கப்படும் என்பதை நான் அறிவேன். தேவைப்படும்போது ஆய்வின் முடிவுகளை செவிலியர் சார்ந்த பத்திரிகைகளிலும், கருத்தரங்கங்களிலும் வெளியிட முழு சம்மதம் அளிக்கிறேன்.

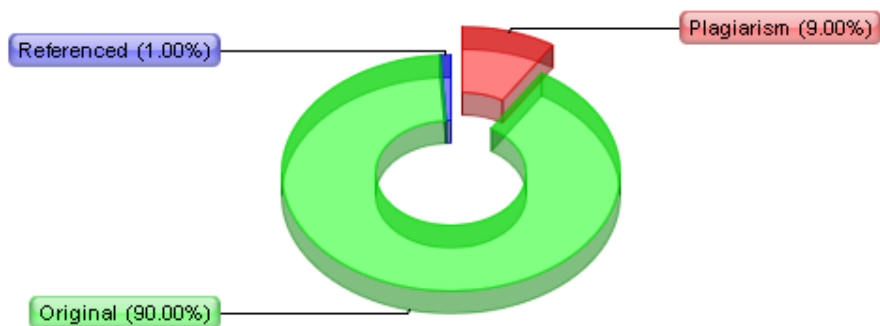
இந்த ஆய்வினை பற்றிய விளக்கமும் அளிக்கப்பட்டிருக்கிறது. ஆய்வினை முற்றிலுமாக புரிந்துகொண்டு ஆய்வில் பங்குகொள்ள சம்மதம் அளிக்கிறேன்.

பங்குகொள்பவரின் கையொப்பம்

தேதி:

APPENDIX – F
PLAGIARISM REPORT
"Ms. Sarika.docx"

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APPENDIX – G

CODING FOR DEMOGRAPHIC VARIABLES

Demographic Data	Code No.
1. Age in years	
A) 31-35 years	1
B) 36-40 years	2
C) 41-45 years	3
2. Gender	
A) Male	1
B) Female	2
C) Transgender	3
3. Education	
A) Profession/Honours	1
B) Graduate/Post graduate	2
C) Intermediate/Post high school diploma	3
D) High school certificate	4
E) Middle school certificate	5
F) Primary school certificate	6
G) Non literate	7
4. Occupation	
A) Profession	1
B) Semi profession	2
C) Clerical/Shop owner/Farmer	3
D) Skilled worker	4
E) Semi skilled worker	5
F) Unskilled worker	6

G) Unemployed 7

5. Family monthly income in Rupees

A) ≥ 36017 1

B) 18000-36016 2

C) 13495-17999 3

D) 8989-13494 4

E) 5387-8988 5

F) 1803-5386 6

G) ≤ 1802 7

6. Type of family

A) Nuclear family 1

B) Joint family 2

C) Extended family 3

D) Broken family 4

E) Others 5

7. Type of Diet

A) Vegetarian 1

B) Non Vegetarian 2

8. Marital history

A) Married 1

B) Single 2

C) Widow 3

D) Divorce 4

E) Others 5

APPENDIX – H**Part A - DEMOGRAPHIC VARIABLES**

SAMPLE NO ____

(Write your response in the box provided)**1. Age in years**

A) 31-35 years

B) 36-40 years

C) 41-45 years

2. Gender

A) Male

B) Female

C) Transgender

3. Education

A) Profession/Honours

B) Graduate/Post graduate

C) Intermediate/Post high school diploma

D) High school certificate

E) Middle school certificate

F) Primary school certificate

G) Non literate

4. Occupation

A) Profession

B) Semi profession

C) Clerical/Shop owner/Farmer

D) Skilled worker

E) Semi skilled worker

F) Unskilled worker

G) Unemployed

5. Family monthly income in Rupees

A) ≥ 36017

B) 18000-36016

C) 13495-17999

D) 8989-13494

E) 5387-8988

F) 1803-5386

G) ≤ 1802

6. Type of family

A) Nuclear family

B) Joint family

C) Extended family

D) Broken family

E) Others

7. Type of Diet

A) Vegetarian

B) Non Vegetarian

8. Marital history

A) Married

B) Single

C) Widow

D) Divorce

E) Others

Part-B: WHO'S RISK ASSESSMENT TOOL**Section-A: Anthropometric Measurement and Blood Pressure**

Date	Height (kg)	Weight (kg)	BMI	Waist (cm)	Nutritional Status			Blood pressure	Hypertension	
					<N	<N>	>N		Y	N

Section-B: Non-Modifiable Risk Factors**I. Family History of**

1. Hypertension ___yes ___ no
2. Cardiovascular disease ___yes ___ no
3. Diabetes mellitus ___yes ___ no
4. Asthma ___yes ___ no
5. Cancer ___yes ___ no

Section-C: Modifiable Risk Factors**1. Cigarette/Tobacco Smoking _____yes ___ no**

- Never smoked
- Passive smoker
- Current smoker
- No. of cigarettes per day: _____

If yes,

Age started smoking: _____

No. of Attempts to Quit: _____

Any desire to quit?: ___ Yes ___ No

Ex-smoker

- Age started smoking: _____
- Age quit smoking: _____
- No. of cigarettes per day: _____

2. Alcohol Drinking ___yes ___no

- Never
- Alcohol Drinker _____
- In the past month, how many times did
You drink ___

If yes,

Type of Alcohol: _____ (Beer/Wine/Distilled spirits)

Frequency of Intake:

- _____/day
- _____/week
- _____/month

3. Physical Activity ___yes ___no

If Yes

- Type of work/occupation: _____
- Means of travel to work : _____
- Activities other than work: _____
- Sedentary _____
- Active _____

4. Intake of High Fat/high Salt Foods ___Yes ___no

If yes,

- How often do you eat fast foods (e.g. instant Noodles, hamburgers, French fries, fried chicken Skin, etc.) ? _____ Times per _____

5. Dietary Fiber Intake: _____ yes _____**If yes,**

- Servings of fruits per day _____ adequate _____ inadequate
- Servings of vegetables per day _____ adequate _____ inadequate

6. Have you been diagnosed with diabetes mellitus _____ **Yes** _____ **No****If yes,**

- Date of Diagnosis: _____ FBS: _____

7. Do you often feel stressed _____ **Yes** _____ **No****If yes,**

- What are the sources of your stress

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APPENDIX – K
PHOTOGRAPHS





INTRODUCTION

Hypertension (HTN or HT), also known as high blood pressure or arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is persistently elevated. Blood pressure is expressed by two measurements, the systolic and diastolic pressures, which are the maximum and minimum pressures, respectively, in the arterial system. The systolic pressure occurs when the left ventricle is most contracted; the diastolic pressure occurs when the left ventricle is most relaxed prior to the next contraction. Normal blood pressure at rest is within the range of 100–140 millimeters mercury (mmHg) systolic and 60–90 mmHg diastolic. Hypertension is present if the blood pressure is persistently at or above 140/90 mmHg for most adults.

Signs and symptoms

- ❖ Palpitation
- ❖ Fatigue
- ❖ Giddiness
- ❖ Breathing difficulty

- ❖ Chest pain

- ❖ Edema

LIFE STYLE MODIFICATION

Healthy Dietary Habits:

Fatty foods

- ❖ Eat less fried foods (e.g.: Chips, savories, Vadai, Bondas, Fired non vegetarian foods, etc.)
- ❖ Limit fatty meats, diary fat and cooking oil (not more than two teaspoons per day that 10 ml per person per day.)

- ❖ Use less oil in your daily diet (Each person should not consume fat of more than 400 to 450 gms) per month which includes all fat in our food including oil, ghee, butter, etc)

- ❖ Replace palm or coconut oil with a sunflower oil/ soya/ corn oil/ safflower oil.
- ❖ Replace other forms of meat with chicken (without skin)

SALT (Sodium Chloride)

- ❖ Restrict to less than 5 grams (1 teaspoon per day)

- ❖ Reduce salt when cooking limit processed and fast foods. E.g. : fired rice, timed foods, stuff etc)
- ❖ Avoid salted foods like pickles, pappads, dry fish, and chips.
- ❖ Avoid canned foods, packed aerated drinks (cooler) and packed snacks.
- ❖ Advice to avoid added salts, avoid obviously salted foods, especially processed foods.
- ❖ Eat more foods cooked from natural ingredients.

Fruits and vegetables:

- ❖ Eat more fruits and green leafy vegetables
- ❖ 5 serving (400-500 grams) of fruits and vegetables per day

Fish

- ❖ Non vegetarian can take fish three times per week preferably small fishes (e.g.) Nathalie and oil fish such as terma, mackerel, salmon, Avoid fired fish in oil.

Alcohol

- ❖ Avoid alcohol intake, because the side effects dishes takes along with alcohol are mostly deep

fired foods and high salt content fast foods items, egg omlets, dry fishes.

Avoid over eating and over weight

- ❖ Care should be taken to consume adequate calorie of food according to requirement of the body weight instead of overweight instead of over eating.
- ❖ Over eating leads to obesity which leads to various diseases like DM, HT,HA, Stroke etc

Decreases your stress levels

- ❖ Walking is an excellent stress reliever
- ❖ Physical activities such as swimming, cycling, Playing instruments, dancing to music , meditation and yoga are beneficial in reliving and reducing stress

Maintain Ideal weight for Height

- ❖ Maintain an ideal BMI of 18 to 23 Kg/mt
- ❖ Control your body weight
- ❖ Avoid over weight

Smoking: While counseling on ill effects of tobacco consumptions

- ❖ Smoking and tobacco consumers are 2 to 3 times more at risk to develop heat diseases (Heart attack) and Paralysis than a non smokers

- ❖ Smoking tobacco can raise the blood pressure and suddenly reduces the blood flow to the heat blocking the blood vessels.

- ❖ Smoking can cause various cancers affecting oral cavity, lung, stomach or a Kidney
- ❖ Smoking affects the performance of physical activity as it cause of weakness
- ❖ Tobacco damages the living the of blood vessels all over the body and can the decreases the blood flows to the feet causing gangrene of the legs.
- ❖ Smoking can cause health problems for children and other family members due to second hand smokers.

Physical Activity /exercises

- ❖ Do physical exercises every day Do all your activities an your own such as household work, washing, cleaning, sweeping, mopping, and gardening etc,
- ❖ Do regular brisk walking, jogging, cycling, swimming activities help to burn our calories.

INSTRUCTIONAL MODULE FOR

PREVENTION OF HYPERTENSION