

**A STUDY TO ASSESS THE EFFECTIVENESS OF WATERMELON
CONSUMPTION IN CONTROL OF BLOOD PRESSURE AMONG
HYPERTENSIVE CLIENTS BETWEEN 40 -70 YEARS IN
SELECTED VILLAGES AT NAMAKKAL DISTRICT.**

By

301327753

Dissertation submitted to

The Tamil Nadu Dr. M.G.R. Medical University, Chennai,



In partial fulfillment of the requirements for the degree of

Master of Science

In

Community Health Nursing



ANBU
MAKES THE BEST

COLLEGE OF NURSING,

M G R NAGAR, KOMARAPALAYAM,

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Mrs. A.R. AHILAA., M. Sc (N),

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UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING
OCTOBER 2015**

VIVA VOCE:

1. INTERNAL EXAMINER:.....

2. EXTERNAL EXAMINER:.....

ENDORSEMENT BY HEAD OF THE INSTITUTIONS

This is to certify that the dissertation entitled “**A STUDY TO ASSESS THE EFFECTIVENESS OF WATERMELON CONSUMPTION IN CONTROL OF BLOOD PRESSURE AMONG HYPERTENSIVE CLIENTS BETWEEN 40 -70 YEARS IN SELECTED VILLAGES AT NAMAKKAL DISTRICT**”. Is a bonafide research work done by Reg.No.**301327753**, under the guidance of **Prof.A.R.AHILAA.,M.Sc.(NURSING)**, HEAD OF THE DEPARTMENT OF COMMUNITY HEALTH NURSING, ANBU COLLEGE OF NURSING.

Seal and Signature of the Principal.



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To lose yourself in the service of others.”*

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ABSTRACT

A study to assess the effectiveness of watermelon consumption in control of blood pressure among hypertensive clients between 40 -70 years in selected villages at Namakkal District.

OBEJECTIVES:

- To assess the level of blood pressure among hypertensive clients, in selected villages.
- To evaluate the effectiveness of watermelon consumption in reducing the blood pressure level among hypertensive clients
- To determine the association between the level of blood pressure and their selected demographic variables.

METHOD OF STUDY

The study was conducted in selected community area at Namakkal District.

The research design used was one group pre-test post test experimental design. The samples were selected by convenient sampling technique. The sample size consisted of 30 hypertensive clients between 40 – 70 years. The tool used for the data collection was a structured interview schedule to assess the level of knowledge regarding hypertension.

The tool used to collect the data comprised of 3 sections. Section I dealt with demographic variables, Section II had questionnaires to assess the knowledge of hypertension, Section III had observation checklist to assess the blood pressure level of the hypertensive clients.

The content validity was done by 5 experts. Reliability was done by test re-test method. The tool was found to have positive co-efficient correlation score ('r' = 0.98).The tool was found to be reliable. Data was collected for four weeks in the selected community area.

The data was analyzed by using descriptive statistics (percentage, mean and standard deviation) and inferential statistics (paired't' test and chi square).

THE MAJOR STUDY FINDINGS

FINDING – 1:

The mean post- test systolic blood pressure was 132.22, SD 11.53 and the mean pre- test systolic blood pressure was 144.94, SD 12.35. The obtained't' value was 13.796. It was highly significant at 0.05 level. It was inferred that the watermelon consumption was effective in reducing the blood pressure level.

FINDING - 2:

The mean post- test diastolic blood pressure was 86.83, SD 10.845and the mean pre- test diastolic blood pressure was 94.25, SD 8.853. The obtained 't' value was 5.492.It was significant at 0.05 level. It was inferred that the watermelon consumption was effective in reducing the blood pressure level.

FINDING - 3:

The association between the pre-test blood pressure level and the demographic variables of the hypertensive clients between 40 -70 years age, sex, education, occupation, type of family, type of occupation, monthly income ,marital status, habits, residential area, previous source of information were not significant at 0.05 level. The

dietary pattern was found have significant association with the pre-test blood pressure level. The χ^2 value was 32.38 and it was found to be significant at 0.05 level.

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LIST OF ABBREVIATIONS

W.H.O	World Health Organization
F	Frequency
Fig	Figure
H ₁	Research Hypothesis
M.Sc (N)	Master of Science (Nursing)
S.No	Serial number
P	Probability
Prof	Professor
S.D	Standard deviation
χ^2	Chi-Square test
%	Percentage
Et.al	And Others
HBP	High Blood Pressure
SBP	Systolic Blood Pressure
DBP	Diastolic Blood Pressure
LMIC	Low and Middle Income Countries
DASH	Dietary Approaches to Stop Hypertension
NCDs	Non communicable diseases
RCT	Randomized controlled trial
USDA	United States Department of Agriculture

CHAPTER - I



INTRODUCTION



CHAPTER-I

INTRODUCTION

“Eating an apple a day may keep the doctor away

But eating watermelon may just keep the cardiologist at bay”

- WEST LAFAYETTE, Ind.

Health is the level of functional or metabolic efficiency of a living organism. In humans, it is the ability of individuals or communities to adopt and self-managed when facing physical, mental or social challenges.

There is lot of types of health issues common with many people across the globe. Disease is one of the most common health deviations for all. **According to Global issues** approximately 36 million people die each year from non-communicable disease including cardiovascular disease, cancer,diabetes mellitus and chronic lung disease.

An important way to maintain our personal health is to have a healthy diet. Making healthy food choices is important because it can lower the risk of heart diseases, developing some types of cancer and it will contribute to maintaining a healthy weight.

Good nutrition is a basic component of health. Through centuries, food has been recognized as important for human beings in health and disease. The history of man has been, to a large extent, a struggle to obtain food.

Eating healthy is important for everyone. A healthy diet is the key to being fit. It even prevents some health issues. There are so many different reasons why eating healthy is important. It can prevent and control health problems. It has shown to help and prevent heart disease, high blood pressure, type 2 diabetes and even some cancers. It is not the same as going on a diet. It also improves our circulation, helps us to handle stress and

gives us more energy. Eating healthy is important. It can prevent and control health problems. A healthy diet is the key to a happy, long, fit life.

Fruits are protective foods. They are invaluable in human nutrition. They can be eaten fresh and raw. This raw intake makes the vitamins present in fruits easily available.

Watermelon, the summer fruit, is generally consumed for its soft pinkish flesh that quenches thirst. Apart from helping to beat the summer heat, the edible part of watermelon is rich in sodium, potassium, calcium, iron, copper, phosphorous, magnesium and other minerals.

The pink watermelon is a rich source of lycopene, the potent carotenoid. These powerful anti-oxidant helps in neutralizing free radicals in the body. Free radicals are substances in the body that can actually cause great damage, leading to increased incidences of Heart attack, Stroke, Asthma, Arthritic inflammation and Cancer.

Watermelon juice is also an excellent source of Arginine, the essential Amino acids that helps lowering blood pressure.

Hypertension is called as the “**SILENT KILLER**” because it is a disease that usually occurs without any symptoms. Hypertension may contribute to myocardial infarction, cerebrovascular accident, renal failure and atherosclerosis.

High blood pressure (HBP) 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.

Thus the researcher wants to provide a cost effective and a preventive approach for reducing the prevalence of hypertension, which could be acquired through regular intake of watermelon consumption.

NEED FOR THE STUDY

Diet and nutrition are important factors in the promotion and maintenance of good health throughout the entire life course. Healthy eating in childhood and adolescence is important for proper growth and development. Dietary patterns developed during adolescence may contribute to obesity and eating disorders and may increase the risk for several important chronic diseases later in life.

As a result of changes in the way we eat and live, some chronic diseases are increasingly affecting both developed and developing countries. Indeed, diet-related chronic diseases - such as obesity, diabetes, cardiovascular disease, cancer, dental disease, and osteoporosis - are the most common cause of death in the world and present a great burden for society.

Nutrients acts as a determinant of chronic non communicable disease are well established and they therefore occupy a prominent position in prevention activities.

Every year, **World Hypertension Day** is celebrated on May 17.

Hypertension is defined as a consistent constant elevation of the systolic or diastolic blood pressure above 140/90 mm Hg.

As per the World Health Statistics 2012, of the estimated 57 million global deaths in 2008, 36 million (63%) were due to non-communicable diseases (NCDs). The largest proportion of non-communicable disease deaths is caused by cardiovascular diseases (48%). In terms of attributable deaths, raised blood pressure is one of the leading behavioral and physiological risk factor to which 13% of global deaths are attributed. Hypertension is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries.

Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025. Earlier reports also suggest that the prevalence of hypertension is rapidly increasing in developing countries and is one of the leading causes of death and disability.

The situation in India is more alarming. It was reported that in India during 1990, there was 9.4 million deaths totally, among which cardiovascular diseases caused 2.3 million deaths due to coronary heart disease and 0.5 million due to stroke. It has been predicted that by 2020, there would be 111% increase in cardiovascular deaths in India.

The prevalence of hypertension in the last six decades has increased from 2% to 25% among urban residents and from 2% to 15% among the rural residents in India. According to Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, the overall prevalence of hypertension in India by 2020 will be 159.46/1000 population.

The prevalence of high normal blood pressure (also called pre hypertension in JNC-VII) has been seen in many recent studies and was found to be around 32% in a recent urban study from Central India. In some studies from South India (Chennai) and from Delhi prevalence of high normal blood pressure has been even higher up to 36% and 44% respectively in these regions. The prevalence of hypertension increases with age in all populations. In a recent urban study it increased from 13.7% in the 3rd decade to 64% in the 6th decade.

The prevalence of hypertension ranges from 20-40% in urban adults and 12-17% among rural 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.

Dietary interventions include; reducing salt, increasing potassium, and alcohol avoidance. But unlike in Western countries, stress management is often given greater emphasis in India.

Comprehensive management of hypertension should focus not only on reducing the blood pressure, but reducing the cardiovascular risk by lifestyle measures, lipid management, smoking cessation, and regular exercise.

Hypertension is increasing rapidly in most low and middle income countries (LMICs) driven by diverse health transitions. In 2001, it accounted for 10 per cent of global healthcare expenditure underlining the considerable economic implications to resource constrained health systems, particularly those in LMICs. Apart from health implications it has huge societal, developmental and economic costs. There is also noteworthy income loss to families affected by hypertension not only due to illness but also due to care giving and premature death. In 2004, the annual income loss from non-communicable diseases (NCDs) among working adults in India was ₹ 251 billion (about US\$ 50 billion) and that due to hypertension alone amounted to ₹ 43 billion. Further, hypertension was also a leading cause for hospitalizations and outpatient visits.

The National Institutes of Health (NIH) recommends the DASH (Dietary Approaches to Stop Hypertension) diet to lower high blood pressure. The DASH diet plan is high in fruits, vegetables, and low fat dairy products. It is also high in potassium, calcium and magnesium which are useful in controlling high blood pressure.

The Union Health Minister Harsh Vardhan felt that a certain day of each year should be declared as "**National Hypertension Day**" with the World Health Organization (WHO) stating that the disease accounts for 7 per cent of disability adjusted life years world-wide and 9.4 million deaths annually.

"I am preparing the Ministry to meet the growing burden of non-communicable diseases (NCD). Hypertension, diabetes, cancers, and coronary artery disease are projected by WHO as the biggest gnawers of our public health budget in the next decade," said Vardhan at the 23rd Annual Conference of the Hypertension Society of India (HSICON).

Adult Hypertension prevalence has dramatically over the past three decades from 5 percent to between 20-40 percent in urban areas and 12-17 percent in rural areas and most people are not aware that they are suffering from hypertension until it is too late. The number of hypertensive individuals is anticipate to nearly double from 118 million in 2000 to 213 million by 2025. It is estimated that 16 percent of ischemic heart disease , 21 percent of peripheral vascular disease , 24 percent of acute myocardial infarctions and 29 percent of strokes are attributable to hypertension.

In last 2 decades the prevalence of hypertension has been seen to be static in some urban areas. The prevalence of smoking has declined while that of diabetes, metabolic syndrome, hypercholesterolemia and obesity has been increasing.

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.

Recent (2012) studies show that for every known person with hypertension there are two persons with either undiagnosed hypertension or prehypertension.

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 alteration in physical activity.

Hypertension awareness, treatment and control status is low, with only half of the urban and a quarter of the rural hypertensive individuals being aware of its presence. It has been seen that only one in five persons is on treatment and less than 5% are controlled. Rural location is an important determinant of poor hypertension awareness, treatment and control. It has been said that in India the rule- of-halves is not valid and only a quarter to a third of subjects are aware of hypertension.

Preventive measures are required so as to reduce obesity, increasing physical activity, decreasing the salt intake of the population and a concerted effort to promote awareness about hypertension and related risk behaviors.

This emphasizes the huge impact of effective hypertension prevention and control can have on reducing the burden of cardiovascular disease.

In a study published in the April, 2014 edition of *American Journal of Hypertension*, researchers found that watermelon extracts significantly reduced blood pressure in overweight adults. And, the hypotensive effect held true whether the volunteers were under stress or at rest.

Researchers found that the watermelon extracts reduced aortic blood pressure and myocardial oxygen demand – even when the volunteers were under cold-induced stress – and concluded that watermelon extracts provide cardio-protection by reducing overload to the heart, causing it to work more easily during stressful situations.

In view of the increasing levels of BP in children and adults and the continuing epidemic of BP-related cardiovascular disease, efforts to reduce BP in both non-hypertensive and hypertensive individuals are warranted. Such efforts will require individuals to change behavior and society to make substantial environmental changes. 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 populations.

The researcher emphasize the need to implement effective and low cost management regimens based on absolute levels of cardiovascular risk appropriate for economic context. Certain researchers state that 20 million persons in India require regular antihypertensive medications. This carries a huge economic burden on the Indian economy. Studies that examine cost-effective approaches to control BP optimally among Indians are needed.

Thus in order to prevent or to reduce the prevalence of hypertension there is a need to create awareness among Indians to utilize the natural gift rendered by nature to lead a healthy life.

Nursing care is sensitive to the individual's need of care under all circumstances. Preventive approach is seen as part of nursing practice. This is due to the fact that

delivery of care is across a lifespan and activities reduce the burden of mortality from diseases. Nursing health promotion activities involves individuals, families, groups and the society as a whole. However, the individual is seen as a whole or holistic person. This means that the relationship of the individual to the external environment is vital in nursing.

(Kozier & Erb 2008).

During the community health nursing posting, the researcher identified at the time of survey and home visit that nearly 56% are hypertensive clients and among them nearly 33 %were under treatment and 23% were not taking any treatment. Thus as a community health nurse she felt to provide a cost effective management for treating hypertension.

As a community health nurse it is important to create awareness and to guide the people in meeting the challenge faced by them and to reduce the incidence of non-communicable diseases among the common public.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of watermelon consumption in control of blood pressure among hypertensive clients between 40 -70 years in selected villages at Namakkal District.

OBEJECTIVES:

- To assess the level of blood pressure level among hypertensive clients, in selected villages.
- To evaluate the effectiveness of watermelon consumption in reducing the blood pressure level among hypertensive clients
- To determine the association between the level of blood pressure and selected demographic variables.

HYPOTHESIS:

H₁: There will be significant reduction in the level of post - test blood pressure among the hypertensive clients.

H₂: There will be significant association between the pre- test blood pressure levels of the hypertensive clients with their selected demographic variable.

OPERATIONAL DEFINITION:

ASSESS : Calculate or estimate the effectiveness of watermelon.

EFFECTIVENESS : Outcome of watermelon consumption in control of blood pressure among hypertensive clients.

WATERMELON: A watermelon is a fruit that is part of the cucumber and squash family. Watermelons vary in size, Shape, and color, but most have red flesh and thick green rinds that are often spotted or striped.

BLOOD PRESSURE: Blood pressure is the force exerted by the blood against the walls of the blood vessels and must be adequate to maintain tissue perfusion during activity and rest.

HYPERTENSIVE CLIENTS: Hypertensive clients are those individuals having a consistent constant elevation of the systolic or diastolic pressure above 140/90 mm Hg.

ASSUMPTION:

- Clients will have a positive attitude in consuming watermelon.
- Clients will accept watermelon consumption as a cost effective management for preventing hypertension.

LIMITATION:

Study is delimited to who are,

- Having untreated hypertension
- Willing to participate
- In the age group of 40-70 years
- Available during data collection
- Able to understand Tamil language

CONCEPTIONAL FRAME WORK

KENNY'S OPEN SYSTEM MODEL

A conceptual frame work deals with the concepts assembled together by virtue of their relevance to research problem which provides a certain frame work of reference for clinical practice research and education.

Conceptualization is the process of framing ideas, designs and plan

- **Treece (1986)**

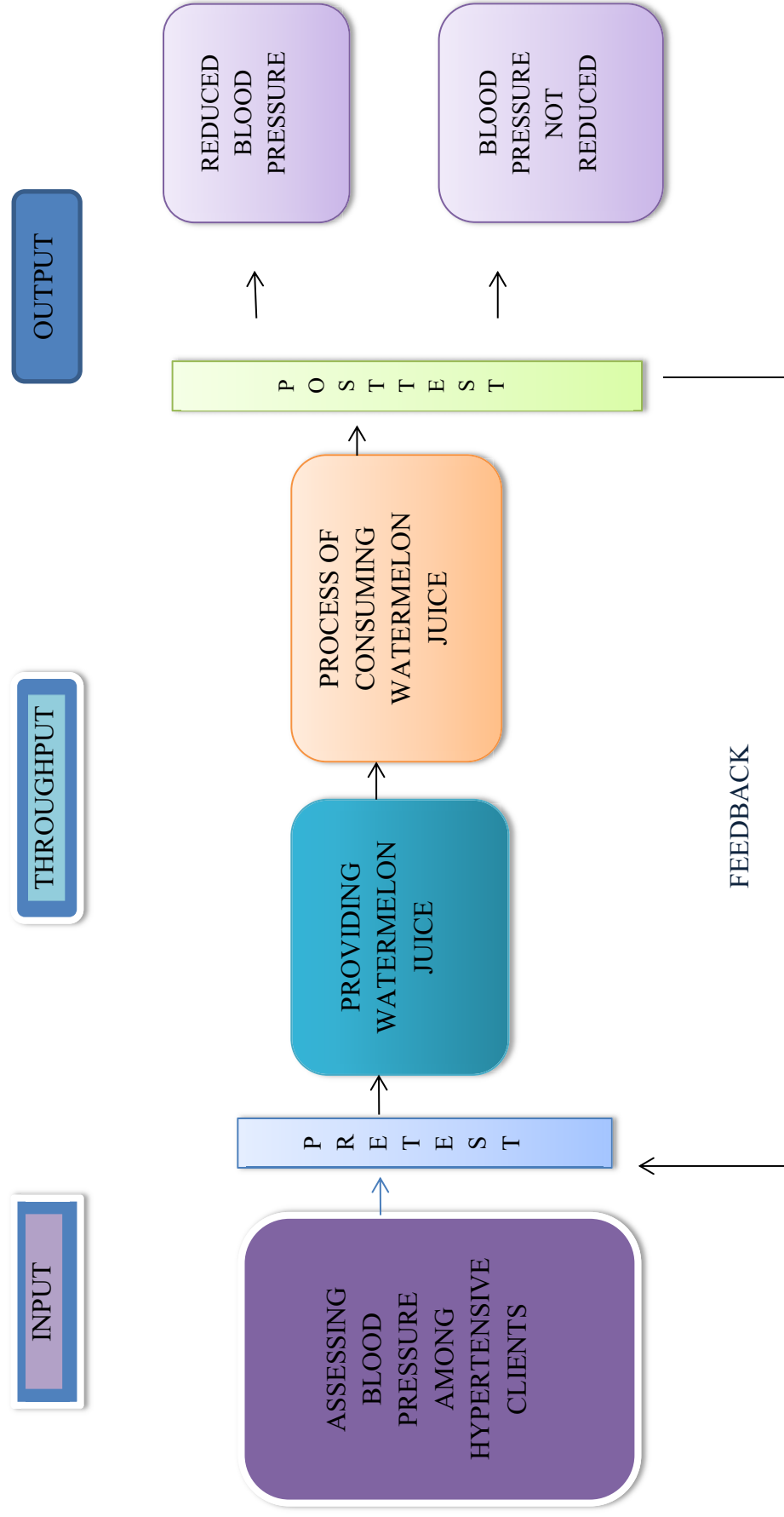
The study is based on KENNY'S OPEN SYSTEM MODEL. All the living system are open, in that there is continuous exchange of matter energy and information. Open system has changing degree of interaction with the environment from which the system receives input and gives back output in the form of matter, energy and information. For survival of all systems of nursing receive varying type and amount of matter energy and information. The main concept of open system model is input, throughput, output and feedback. In open system theory input refer to matter, energy and information that are processed. After processing the input system returns to output (matter, energy and information to the environment in an altered state). Feedback refers to environment response to the systems output used by the system in adjustment correction and accommodation to the interaction with the environment.

The study is under taken to determine the effect of watermelon consumption in control of blood pressure among hypertensive clients.

Pretest was conducted to assess the blood pressure of hypertensive clients.

- INPUT – Provide watermelon for reducing Blood pressure.
- THROUGHPUT – It is process of consuming watermelon and its effect on blood pressure among persons who had watermelon.
- POST-TEST – Again assessing the blood pressure
- OUTPUT – Refers to the effect of watermelon consumption in control of blood pressure by post test.

Fig – 1.1: CONCEPTUAL FRAMEWORK BASED ON J. W. KENNY’S OPEN SYSTEM MODEL



CHAPTER-II



REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

Review of literature is an essential component of the research process. It is a critical examination of publication related to the topic of interest. Review should be comprehensive and evaluative. It helps to plan and conduct the study in a systematic and scientific manner.

Nursing research may be considered as a continuing process in which knowledge from earlier studies is an integral part. Capitalizing on the review of expert research can be fruitful in providing helpful ideas and suggestions.

-Treece and Treece (1986).

For the present study the related literature was reviewed and organized in the following:

- Studies related to hypertension.
- Literatures related to Watermelon.
- Studies related to Non- Pharmacological management of Hypertension.

I.STUDIES RELATED TO HYPERTENSION

Youssef MK Farag et.al. (2014) conducted a study onburden and predictors of hypertension in India: results of SEEK (Screening and Early Evaluation of Kidney Disease) study.6120 subjects were participated .A community-based screening program in 53 camps in 13 representative geographic locations in India. Of those, 5929 had recorded blood pressure (BP) measurements. Potential predictors of HTN were collected using a structured questionnaire for SEEK study. HTN was observed in 43.5% of their cohort. Of note, proteinuria and CKD were observed in 19% and 23.5% of HTN subjects. About half (54%) of the hypertensive subjects were aware of their hypertension status.

This study concluded that HTN was common in this cohort from India. Older age, $BMI \geq 23 \text{ Kg/M}^2$, waist circumference, sedentary occupation, education less, diabetes mellitus, presence of proteinuria, and raised serum creatinine were significant predictors of hypertension. Their data suggested that HTN is a major public health problem in India with low awareness, and requires aggressive community-based screening and education to improve health.

Trevisol D.J. et.al (2011) conducted cross-sectional survey study on the health-related quality of life and hypertension. Data extraction was conducted by two researchers. Data were analyzed using random effects model. Results of the meta-analysis were expressed as differences of mean scores between hypertensive and normotensive individuals. The meta-analysis identified lower scores in hypertensive patients for physical [-2.43; 95% confidence interval (CI) -4.77 to -0.08] and mental (-1.68; 95% CI -2.14 to -1.23) components. Quality of life of individuals with hypertension is slightly worse than that of normotensive individuals. They concluded that the influence of high blood pressure and of the awareness to have hypertension requires further investigation.

Stabouliet. al.(2011), several studies conducted support the theory that primary hypertension at early age is associated with overweight and excessive salt intake. This is due to two established facts; firstly, excess gain of weight puts pressure on the heart. Secondly, excess salt intake causes fluid retention in the body causing too much burden to the heart. Furthermore, studies have shown that a high body weight in adolescents is related to the development of high blood pressure in adulthood.

Shyamal Kumar Das, et, al. (2010) conducted study about the trend of high prevalence of hypertension in a developing country. In the study they had an aim of identifying the risk factors and suggested intervention strategies. A total of 1609 respondents out of 1662 individuals were participated in the cross-sectional survey of validated and structured questionnaire followed by blood pressure measurement. Results showed pre hypertensive levels of blood pressures among 35.8% of the participants in systolic group and 47.7% in diastolic group. Systolic Hypertension was present in 40.9% and diastolic hypertension in 29.3% of the participants. Age and sex- specific prevalence of hypertension showed progressive rise of systolic and diastolic hypertension in women when compared to men. The study suggested the need for a comprehensive national policy to control hypertension in India, and, in other similar developing countries.

W.H.O. (2010) conducted an epidemiological studies had shown that hypertension is present in 25% of urban and 10% of rural subjects in India. There is a difference in measurement methodology of BP in epidemiological studies as compared to clinic-based measurements. It has been reported that epidemiological studies that rely on single-session measurements over diagnose hypertension by 20–25%. An Indian epidemiological study reported that 70% of these would be Stage I hypertension (systolic BP 140–159 and/or diastolic BP 90–99 mmHg). The Stage I hypertension (45.5 million subjects) can be managed initially by lifestyle measures. However, recent reports from the Seven Countries Study and Framingham Study show that borderline hypertension (systolic BP 130–139 and/or diastolic BP 85–89 mmHg) and Stage I hypertension carries a significant cardiovascular risk and there is a need to reduce this BP. Pharmacological therapies in this class of individuals need more studies, although TOMHS demonstrated

that it is helpful in reducing cardiovascular end-points. For Stages 2 and 3 hypertension multiple studies recommend pharmacological therapy and, therefore, 20 million persons in India belonging to this class require regular antihypertensive medications. This carries a huge economic burden on the already overstressed Indian economy. The studies concluded that the studies examining cost-effective approaches to control BP optimally among Indians are needed.

L. Kannan, et.al.(2009) conducted a cross sectional study among the adults in the age group of 30 years and above, residing under Mugalivakkam Primary Health Centre (PHC) area of Kancheepuram District, Tamilnadu. The mid-year population for 2002 covered in this PHC area was 40,850, out of which 12,051 were adults in the age group of 30 years and above (29.5%). By using cluster-sampling method, 750 individuals were selected and studied. Data entry was made using SPSS and Epi-info. 189 individuals (25.2%) were found to have hypertension including 93 known hypertensive. Among 357 adult males, 81 (22.6%) and among 393 adult females 108(27.4%) were found to have hypertension. The odds ratio for hypertension among Smokers were 2.4 (1.52-3.61) and was statistically significant ($P<0.003$), similarly alcohol use, obesity, tobacco chewing, diabetes and oral contraceptive use were statistically significant. The prevalence rate of hypertension was 25.2%. The prevalence rate was higher (27.4%) among females. Increase in age, family size, occupation, alcohol, smoking, chewing tobacco, obesity, oral contraceptives use and diabetes mellitus have been found to have association. The study concluded that health care providers should take note and institute appropriate preventive measures.

Terry et, al. (2007) conducted a study among individuals with family history of high blood pressure, stroke and other cardiovascular diseases are always at risk of developing it. In recent studies, hereditary was referred to as participants with one or more first-degree biological family members diagnosed of HBP to identify risk groups. Results from these studies showed the high prevalence of HBP in Black Americans than the White even though there were other factors as stress, poverty, lack of access to health care and racial discrimination associated with the high prevalence. They concluded that good nutrition is essential for proper growth of the body. Diets that are high in salt, sugar, fat and so on increase the risk of becoming overweight and developing HBP.

R.Gupta et.al.(2004) conducted a study on trends in hypertension in India. The study stated that cardiovascular diseases caused 2.3 million deaths in India in the year 1990; this is projected to double by the year 2020. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India. There was a strong correlation between changing lifestyle factors and increase in hypertension in India. The nature of genetic contribution and gene–environment interaction in accelerating the hypertension epidemic in India needs more studies. Pooling of epidemiological studies shows that hypertension is present in 25% urban and 10% rural subjects in India. A total of 70% of those would be Stage I hypertension (systolic BP 140–159 and/or diastolic BP 90–99 mmHg). Recent reports showed that borderline hypertension (systolic BP 130–139 and/or diastolic BP 85–89 mmHg) and Stage I hypertension carries a significant cardiovascular risk and there is a need to reduce this blood pressure. The study concluded that a population-based cost-effective hypertension control strategies should be developed.

II.LITERATURES RELATED TO WATERMELON

Beth Levine (2014) stated that watermelon reduces blood pressure. Watermelon is a popular warm weather treat. Refreshing and delicious, it's no wonder that it is a staple at barbecues, picnics, and dessert tables all throughout the spring and summer. Not only is watermelon very tasty, but it is a healthy natural treat. And now, new research has found another good reason to eat watermelon on a regular basis: It appears to be able to substantially lower blood pressure.

L. Bellows and R. Moore (2013) in his book on Diet and Hypertension stated that Hypertension is associated with a high sodium intake and excess body fat. Maintaining a healthy diet can prevent or manage hypertension in many individuals. For healthy individuals, the Dietary Recommendations suggest consuming no more than 2,300 milligrams of sodium per day, while those with certain risk factors should consume no more than 1,500 milligrams of sodium per day. Healthy potassium, magnesium, and calcium intakes have important, protective roles in the risk for high blood pressure. The DASH dietary pattern (Dietary Approaches to Stop Hypertension) is highly recommended for hypertension prevention and management.

Along with cantaloupe and honeydew, watermelons are a member of the botanical family Cucurbitaceae. This MNT Knowledge Center feature is part of a collection of articles on the health benefits of popular foods. It provides a nutritional breakdown of watermelon and an in-depth look at its possible health benefits, how to incorporate more watermelon into your diet and any potential health risks of consuming watermelon.

- *Medical News Today*

Nutritional breakdown of watermelon

One cup of diced watermelon (152 grams) contains 43 calories, 0 grams of fat, 2 grams of sodium, 11 grams of carbohydrate (including 9 grams of sugar and 1 gram of fiber) and 1 gram of fiber. One cup of watermelon will provide 17% of vitamin A, 21% of vitamin C, 2% of iron and 1% of calcium needs for the day. Watermelon also contains thiamin, riboflavin, niacin, vitamin B-6, folate, pantothenic acid, magnesium, phosphorus, potassium, zinc, copper, manganese, selenium, choline, lycopene and betaine. According to the National Watermelon Promotion Board, watermelon contains more lycopene than any other fruit or vegetable. Despite being a great source of the above nutrients, watermelon is made up of 92% water.

Possible health benefits of consuming watermelon

Consuming fruits and vegetables of all kinds has long been associated with a reduced risk of many lifestyle-related health conditions. Many studies have suggested that increasing consumption of plant foods like watermelon decreases the risk of obesity and overall mortality, diabetes, heart disease and promotes a healthy complexion and hair, increased energy, overall lower weight.

- www.naturalnews.com

Nutritional Value & Health Benefits

Watermelons are low in calories and very nutritious. Watermelon is high in lycopene, second only to tomatoes. Recent research suggests that lycopene, a powerful antioxidant, is effective in preventing some forms of cancer and cardiovascular disease. According to research conducted at the University of North Carolina at Chapel Hill, men

who consumed a lycopene-rich diet were half as likely to suffer a heart attack as those who had little or no lycopene in their diets.

Watermelon is also high in Vitamin C and Vitamin A, in the form of disease fighting beta-carotene. Research also suggests that the red pigmented foods provide this protection. Lycopene and beta-carotene work in conjunction with other plant chemicals not found in vitamin/mineral supplements. Potassium is also available, which is believed to help control blood pressure and possibly prevent strokes.

One of the more unusual aspects of watermelon is its rich supply of the amino acid, citrulline. Citrulline is an amino acid that is commonly converted by our kidneys and other organ systems (including cells that line our blood vessels) into arginine (another amino acid). The flesh of a watermelon contains about 250 milligrams of citrulline per cup. When our body absorbs citrulline, one of the steps it can take is conversion of citrulline into arginine.

A watermelon contains about 6% sugar and 91% water by weight. As with many other fruits, it is a source of vitamin C. The amino-acid citrulline was first extracted from watermelon and analyzed. Watermelon is mildly diuretic and contains large amounts of carotenoids. Watermelon with red flesh is a significant source of lycopene. Preliminary research indicates the consumption of watermelon may have antihypertensive effects.

- www.naturalhealth365.com

STUDIES RELATED TO WATERMELON:

Figuroa A et, al.(2011) conducted a study on effectiveness of watermelon supplementation on aortic blood pressure and wave reflection in individuals with prehypertension: a pilot study. Oral L-citrulline is efficiently converted to L-arginine, the

precursor for endothelial nitric oxide (NO) synthesis. Oral L-arginine supplementation reduces brachial blood pressure (BP). They evaluated the effects of watermelon supplementation on aortic BP and arterial function in individuals with prehypertension. There was a significant treatment effect (change in the value of watermelon minus placebo from baseline to 6 weeks) on bPP (-8 ± 3 mm Hg, $P < 0.05$), aSBP (-7 ± 2 mm Hg, $P < 0.05$), aPP (-6 ± 2 mm Hg, $P < 0.01$), AIx ($-6 \pm 3\%$, $P < 0.05$), AIx@75 ($-4 \pm 2\%$, $P < 0.05$), and P2 (-2 ± 1 mm Hg, $P < 0.05$). There was no significant treatment effect ($P > 0.05$) on bSBP, brachial diastolic BP (DBP), aortic DBP, Tr, P1, HR, and carotid-femoral PWV. They concluded that the study showed that watermelon supplementation improved aortic hemodynamics through a decrease in the amplitude of the reflected wave in individuals with prehypertension.

Wong A et, al. (2014) conducted study to find the effects of watermelon supplementation on aortic hemodynamic responses to the cold pressor test in obese hypertensive adults. Cold-induced increases in aortic blood pressure (BP) may cause adverse cardiac events in hypertensive by increasing ventricular afterload. L-citrulline supplementation reduces BP at baseline and during the cold pressortest (CPT), but the effect on wave reflection (augmentation pressure (AP) and index (AIx)) is controversial. Their aim was to assess the effect of L-citrulline-rich watermelon supplementation on aortic hemodynamic responses to CPT in hypertensive adults. Participants were randomized to a 6-week watermelon or placebo supplementation in a crossover design. They found that the watermelon reduced ($P < 0.05$) brachial systolic BP, aortic systolic BP, and CPT compared with placebo. They concluded that watermelon supplementation reduced aortic BP and myocardial oxygen demand during CPT and the

magnitude of the cold-induced increase in wave reflection in obese adults with hypertension. Watermelon may provide cardio protection by attenuating cold-induced aortic hemodynamic responses.

West Lafayette et.al.(2012) A research team from *Purdue University* and the *University of Kentucky* has published the results of a study in the *Journal of Nutritional Biochemistry* that finds watermelon has many potentially bioactive compounds including citrulline, which may influence the development of atherosclerosis. Scientists using a mouse model known to mirror human biochemistry found that consuming a diet including watermelon and watermelon juice provided considerable cardiovascular health benefits as compared to a control group. The team determined that citrulline, a bioactive compound found in watermelon, was responsible for lowering levels of deadly oxidized LDL cholesterol, reducing the volume of arterial plaque and aiding in weight management for the supplemented animals.

According to the **National Watermelon Promotion Board**, watermelon contains more lycopene than any other fruit or vegetable. One cup of diced watermelon (152 grams) contains 43 calories, 0 grams of fat, 2 grams of sodium, 11 grams of carbohydrate (including 9 grams of sugar and 1 gram of fiber) and 1 gram of fiber. One cup of watermelon will provide 17% of vitamin A, 21% of vitamin C, 2% of iron and 1% of calcium needs for the day. Watermelon also contains thiamin, riboflavin, niacin, vitamin B-6, folate, pantothenic acid, magnesium, phosphorus, potassium, zinc, copper, manganese, selenium, choline, lycopene and betaine. Despite being a great source of the above nutrients, watermelon is made up of 92% water. Diets rich in lycopene may help protect against heart disease. Consuming fruits and vegetables of all kinds has long been

associated with a reduced risk of many lifestyle-related health conditions. Many studies have suggested that increasing consumption of plant foods like watermelon decreases the risk of obesity and overall mortality, diabetes, heart disease and promotes a healthy complexion and hair, increased energy, overall lower weight.

Whelton et al. (2009) conducted a meta analysis that high potassium intake is associated with reduced BP. The meta-analysis that average systolic and diastolic BP reductions associated with an increase in urinary potassium excretion of 2 g/day (50 mmol/day) were 4.4 and 2.5 mmHg in hypertensives and 1.8 and 1.0 mmHg in normotensives. This effect was more in blacks. Potassium intake can be increased by consuming foods such as fruits and vegetables that are rich in potassium, rather than supplements. Increased potassium intake has a greater BP-lowering effect with a higher salt intake and lesser BP-lowering effect with a lower salt intake. However, the BP reduction from low salt intake is highest when potassium intake is low. Since data regarding a dose-response relation is scarce, a specific level of potassium intake cannot be recommended. Most trials had diets with 4.7 g/day (120 mmol/day) of potassium.

Klik link berikut (2009) conducted a study and concluded that supplements potassium 2-4 grams per day can help decrease blood pressure, potassium is generally found in several stout fruits and vegetables. Fruits and vegetables contain potassium and good for the consumption of high blood pressure include watermelons, avocados, melons, fruit pare, squash, bligo, machete pumpkin / squash, cucumber, aloe vera, celery, onion and garlic. In addition, foods containing omega-3 ingredient known Sagat was effective in helping to decrease blood pressure (hypertension).

In a 2009 study published in the “**American Journal of Hypertension**,” 17 men with normal blood pressure between the ages of 21 and 23 were given 6 grams per day of L-citrulline or a placebo for four weeks and given a cold pressor test, which artificially increases blood pressure. The group were taking L-citrulline with artificially high blood pressure had measurable drops in BP after supplementation.

A report in 2008 in the “**British Journal of Clinical Pharmacology**” found that oral L-citrulline supplementation raised levels of L-arginine in the blood better even than L-arginine supplements and also augmented nitric-oxide functioning. Nitric oxide helps protect the artery lining to keep your arteries from becoming clogged. The inner layer of cells in your arteries, called the endothelium, releases nitric oxide, which then signals the smooth-muscle cells in artery walls to dilate. Wider arteries help to increase blood flow and reduce blood pressure.

Chapel Hill (2008) conducted a research at the University of North Carolina and found that men who consumed a lycopene-rich diet were half as likely to suffer a heart attack as those who had little or no lycopene in their diets. Watermelon is also high in Vitamin C and Vitamin A, in the form of disease fighting beta-carotene. Researchers also suggested that the red pigmented foods provide this protection. Lycopene and beta-carotene work in conjunction with other plant chemicals not found in vitamin/mineral supplements. Potassium is also available, which is believed to help control blood pressure and possibly prevent strokes

A study published in “**Nutrition**” in **2007** found that the high concentrations of citrulline in watermelon increased levels of arginine in the blood of adult subjects who consumed three glasses of watermelon juice every day for three weeks. The scientists

proposed that further studies were needed to determine the best way to extract citrulline from watermelon so it would be easier to take. Florida State University researchers did just that in a study published in the “American Journal of Hypertension” in January 2011. They used 6 grams of a citrulline watermelon extract daily for six weeks on pre hypertensive subjects aged 51 to 57. The extract caused improved arterial function and lowered aortic blood pressure in all nine of the subjects.

AP.Vermaet.al.(2007),conducted a nutritional base study and stated that, watermelon seeds, usually thrown unused, can be the best way to control high Blood Pressure, offering the potential to control several major ailments, according to new research. The research shows that chemicals extracted from the juice of watermelon seeds contain cucurbotrin, a glucoside, which also has the efficiency to reduce cholesterol. Cucurbotrin also helps with weight loss and scanty urination. The substance extracted from these seeds is said to have a definite action in dilating the blood vessels, thereby lowering blood pressure. Watermelon juice is also an excellent source of Arginine, the essential amino acid that helps lower blood pressure. Arginine is a precursor for nitric oxide, known to lower blood pressure, reduce blood clotting, thereby protecting against strokes and myocardial infarction. Watermelon seeds, whether dried or roasted, can be consumed in liberal quantities. In general, it has been found that men who consumed a lycopene-rich diet were half as likely to suffer a heart attack, than those who had little or no lycopene in their diets.

Researchers at Vanderbilt Children’s Hospital used intravenous citrulline in pediatric patients before and after undergoing the surgery. High blood pressure sometimes occurs after heart surgery in children. The initial results, published in the

“Journal of Thoracic and Cardiovascular Surgery” in August 2007, were positive enough that the research team called for more studies into this potential therapy for postoperative pulmonary hypertension.

Lawrence J. Appel (1997) conducted a study published in the New England Journal of Medicine by Johns Hopkins University and associates at multiple medical centers throughout the United States evaluated 459 adults (133 that had hypertension) during an 8 week period. The study found that a diet rich in fruits and vegetables combined with low-fat dairy foods and with reduced saturated and total fat significantly lowered the blood pressure, especially in those patients with hypertension. Because blood pressures were lowered by the diet even in patients without hypertension, the authors of the study suggest that this diet may offer a nutritional approach for the prevention of hypertension. In any case, it appears that the combination diet offers an additional nutritional approach to treating hypertension. Diets high in fruits and vegetables with low-fat dairy foods and reduced saturated and total fat as well as low-sodium may prove important in the initial management of hypertension.

The study, which was conducted at Florida State University in Tallahassee, found that people who are overweight and have hypertension might be able to improve their blood pressure levels by consuming more watermelon. The subjects were 13 middle-aged men and women who were obese and had also been diagnosed with high blood pressure. The participants were randomly separated into two groups. One group was provided a daily dose of four grams of L-citrulline and two grams of L-arginine--natural amino acids sourced from watermelon extract--for six weeks, while the other group took a placebo instead. For the second six weeks of the 12-week experiment, the researchers had the

supplement and placebo takers swap. The scientists took blood pressure readings and measured heart rate and other signs of vascular health throughout the trial. While the members of a group were consuming the watermelon extract, those subjects were found to have notably lower aortic blood pressure and oxygen demand of the heart.

III. STUDIES RELATED TO NON-PHARMACOLOGICAL MANAGEMENT OF HYPERTENSION:

Kim MK et.al.(2014) had investigated in epidemiologic studies and evaluated the relation of combined and separate intake of fruits, vegetable intakes, and salty vegetables, as well as sodium and potassium, with blood pressure among the middle-aged and elderly populations. The present cross-sectional analysis of a prospective cohort baseline survey was performed with 6,283 subjects (2,443 men and 3,840 women) and free of hypertension, diabetes, cardiovascular diseases, and cancer. Dietary data were collected by trained interviewers using food frequency questionnaire. Kimchies consumption was positively related to DBP for men (78.2 mmHg in the lowest quintile vs 80.9 mmHg in the highest quintile for DBP, P for trend = 0.0003). Among women, these relations were not found. They concluded that fruits and/or non-pickled vegetables may be inversely, but sodium, sodium to potassium, and Kimchies may be positively related to blood pressure among men.

Hema Subramanian et.al.(2011) conducted a community-based cross-over randomized controlled trial on non-pharmacological interventions in hypertension. Hypertension is the most prevalent non-communicable disease causing significant morbidity/mortality through cardiovascular, cerebrovascular, and renal complications.

The community-based study tested the efficacy of non-pharmacological interventions in preventing/controlling hypertension. This is a cross-over randomized controlled trial (RCT) of the earlier RCT (2007) of non-pharmacological interventions in hypertension, conducted in the urban service area of our Institute. The subjects, pre-hypertensive and hypertensive young adults (98 subjects: 25, 23, 25, 25 in four groups) were randomly allotted into a group that he/she had not belonged to in the earlier RCT: Control (New Group I), Physical Exercise (NG II)-brisk walking for 50 to 60 minutes, three to four days/week, Salt Intake Reduction (NG III) to at least half of their previous intake, Yoga (NG IV) for 30 to 45 minutes/day, five days/week. Blood pressure was measured before and after eight weeks of intervention. Analysis was by ANOVA with a Games-Howell post hoc test. Persistence of significant reduction in BP in the three intervention groups after cross-over confirmed the biological plausibility of these non-pharmacological interventions. This study reconfirmed that physical exercise was more effective than Salt Reduction or Yoga. Salt reduction and Yoga were equally effective. They concluded that Physical exercise, salt intake reduction, and yoga are effective non-pharmacological methods for reducing blood pressure in young pre-hypertensive and hypertensive adults.

Amanda G Ribeiro et.al. (2011), conducted a comparative clinical trial of two education strategies in health and nutrition about Non-pharmacological treatment of hypertension in primary health care. The study was conducted to compare two intervention strategies regarding the adherence of adult women to dietary changes recommended for the treatment of hypertension in a community covered by Primary Health Care Unit. The study was a randomized controlled trial of a sample composed of 28 women with hypertension enrolled in the Primary Health Care Unit located in the

urban area of southeastern Brazil. The study lasted five months. The home orientation strategy promoted greater adherence to dietary changes, leading to a statistically significant improvement in the clinical, anthropometric, biochemical and dietary parameters. They concluded that nutritional orientations at the household level were more effective with regard to the adherence of individuals to non-pharmacological treatment of hypertension, regarding the reduction of clinical and behavioral risk parameters.

Ferrara et. al. (2007) had investigated the impact on blood pressure of returning to habitual diet following a dietary intervention among 307 hypertensive patients who reported having returned to their usual diet after at least 6 months on a low-energy and/or low sodium diet. Habitual diet was determined by semi-quantitative 24-item food frequency questionnaire. Participants were divided into three groups based on systolic blood pressure. The study results confirmed that returning to a diet richer in vegetables, legumes, and fish with lower saturated fat and sodium content is associated with better control of blood pressure without additional anti-hypertensive medications. The studies described above support the DASH diet as a guideline for hypertensive patients for extended periods of time. The second study also supported the effectiveness of even brief educational interventions in encouraging dietary modification.

O'Shaughnessy KM (2006) had evaluated the role of diet in hypertension management. The prevalence of hypertension is high and increasing worldwide. Drug therapy is effective, but for both "pre-hypertensive" and treated hypertensive patients, lifestyle changes are also important. Dietary modification is a key part of these changes, although skepticism about the role of diet in determining blood pressure has slowed implementation of the available guidelines. However, there is now a large body of

evidence supporting a role for dietary salt, potassium, alcohol, and body mass in determining blood pressure. Studies such as PREMIER have shown that salt restriction (<6 g/d), alcohol moderation (<2U/d in men and <1U/d in women), weight loss (if BMI>25), exercise, and a DASH (Dietary Approaches to Stop Hypertension) diet (supplying 20-30 mmol/d of potassium) can achieve decreases in systolic blood pressure of approximately 10 to 15 mm Hg when applied together. Of the dietary changes, salt intake remains the most amenable to change. But we must further reduce salt in processed food if it is to be part of a wider strategy to lower blood pressure in the general population. Nevertheless, the message to patients must be that dietary changes made within a concerted alteration in lifestyle can have a very significant impact on their blood pressure.

Lawrence J. Appel, et.al (2006) conducted a study on Dietary Approaches to Prevent and Treat Hypertension. A substantial body of evidence strongly supported 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” had emerged as effective strategies that also lower BP. Of substantial public health relevance are findings related to blacks and older individuals. Specifically, blacks were especially sensitive to the BP-lowering effects of reduced salt intake, increased potassium intake, and the DASH diet. The risk of cardiovascular disease increases progressively throughout the range of BP, beginning at 115/75 mm Hg. In view of the continuing epidemic of BP-related diseases and the increasing prevalence of hypertension, efforts to reduce BP in

both non hypertensive and hypertensive individuals were warranted. In non-hypertensive individuals, dietary changes can lower BP and prevent hypertension. 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.

S. Susan Hedayati et.al (2001) conducted a study on Non-pharmacological aspects of blood pressure management. Hypertension affects 29% of US adults and was a significant risk factor for cardiovascular morbidity and mortality. Epidemiological data supported contribution of several dietary and other lifestyle-related factors to the development of high blood pressure (BP). Several clinical trials investigated the efficacy of non-pharmacological interventions and lifestyle modifications to reduce BP. Best evidence from randomized controlled trials supported BP-lowering effects of weight loss, the Dietary Approaches to Stop Hypertension (DASH) diet, and dietary sodium (Na^+) reduction in those with prehypertension, with more pronounced effects in those with hypertension. In hypertensive participants, the effects on BP of DASH combined with low Na^+ alone or with the addition of weight loss were greater than or equal to those of single-drug therapy. Trials where food was provided to participants were more successful in showing a BP-lowering effect.

Sacks FM et.al (2001) had evaluated the effectiveness of reduced dietary sodium and the Dietary Approaches to Stop Hypertension (DASH) diet on blood pressure. They studied the effect of different levels of dietary sodium, in conjunction with the Dietary Approaches to Stop Hypertension (DASH) diet, which was rich in vegetables, fruits, and low-fat dairy products, in persons with and in those without hypertension. A total of 412 participants were randomly assigned to eat either a control diet typical of intake in the United States or the DASH diet. Within the assigned diet, participants ate foods with high, intermediate, and low levels of sodium for 30 consecutive days each, in random order. Reducing the sodium intake from the high to the intermediate level reduced the systolic blood pressure by 2.1 mm Hg ($P < 0.001$) during the control diet and by 1.3 mm Hg ($P = 0.03$) during the DASH diet. As compared with the control diet with a high sodium level, the DASH diet with a low sodium level led to a mean systolic blood pressure that was 7.1 mm Hg lower in participants without hypertension, and 11.5 mm Hg lower in participants with hypertension. The reduction of sodium intake to levels below the current recommendation of 100 mmol per day and the DASH diet both lower blood pressure substantially, with greater effects in combination than singly. Long-term health benefits will depend on the ability of people to make long-lasting dietary changes and the increased availability of lower-sodium foods.

CHAPTER-III



RESEARCH METHODOLOGY

CHAPTER - III

METHODOLOGY

“Research Methodology is a way to systematically form the research problem. It may be understood as a science of study how the research is done scientifically.”

-B.T. Basavanthappa(2003)

Research methodology is a way to systematically solve the research problem. It is a science of studying how research is done scientifically. Methodology is a significant part of the research under which the research is able to project a blue print of the research undertaken.

This chapter includes research design variable, setting, population, sample size, sample technique, development of tool, data collection procedure, plan for data analysis and ethical consideration, the problem stated in this study is “A study to assess the effectiveness of watermelon consumption in control of blood pressure among hypertensive clients between 40-70 years in selected villages at Namakkal District”.

RESEARCH DESIGN:

Research design is the blue print for conducting the study that maximizes control over factor that could interfere with the validity of the findings. It guides the researcher in planning and implementing the study in a way that is most likely to achieve the intended goal.

- Basavanthappa(2000)

The term research design refers to the plan of a scientific investigation. Research design helps the researcher in the selection of the subject, identification of variables, their manipulation, control, observation to be made and types of statistical analysis to interpret the data.

Considering all the above factors and the availability of time for data collection, the research design for this study will be quasi-experimental design.

GROUP	PRE – TEST	TREATMENT	POST TEST
EXPERIMENTAL	O1	X	O2

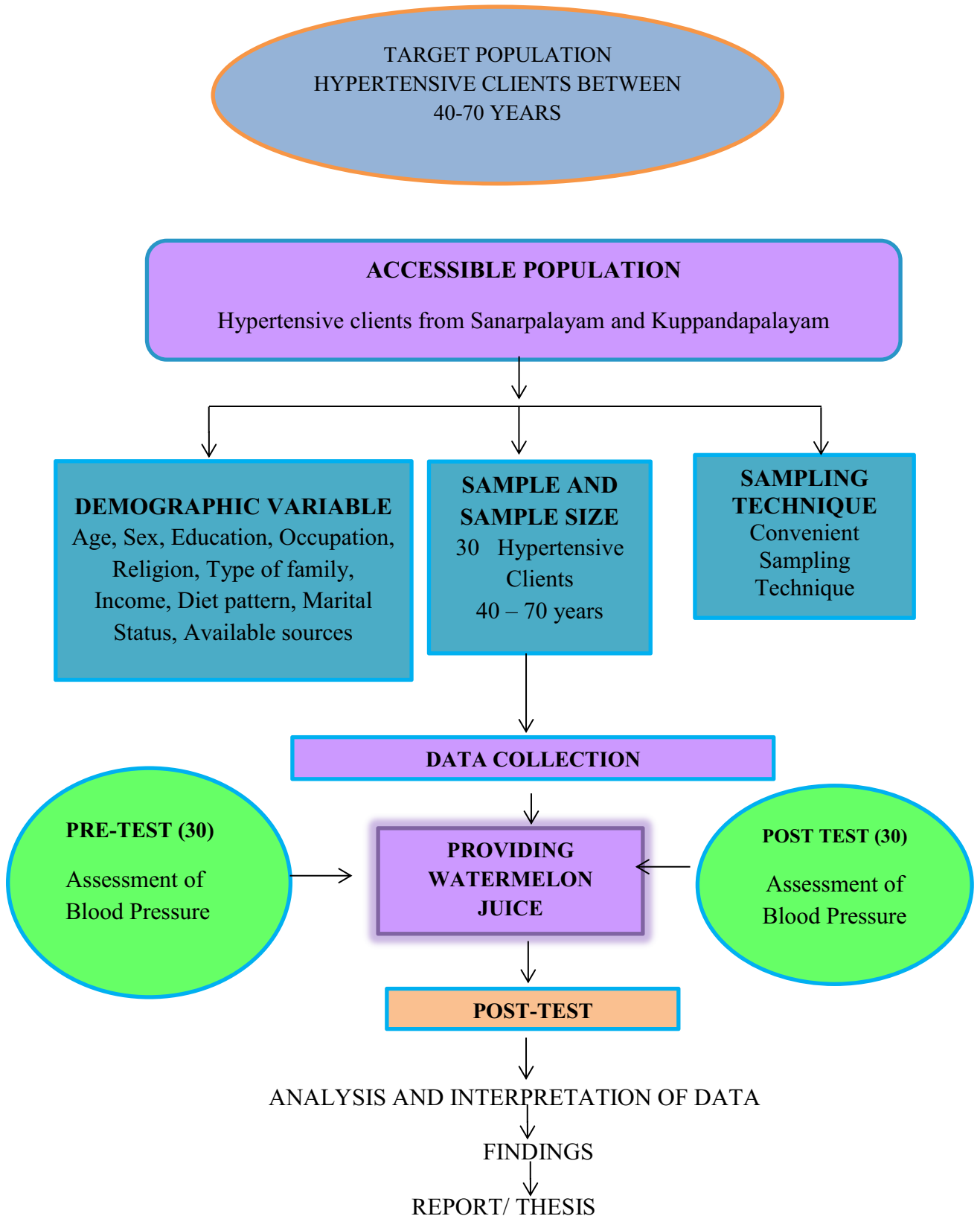
KEY:

O1 - Assessment of Blood Pressure in experimental group (Pre-test)

O2 - Assessment of Blood Pressure in experimental group (Post-Test)

X - Providing Watermelon

Fig-3.1.SCHEMATIC PRESENTATION OF RESEARCH DESIGN



VARIABLE:

The three categories of variables discussed in the study are

Independent variable : Watermelon consumption

Dependent Variable : Control of Blood Pressure

Attribute Variable : Age, Education, Sex, Religion, Type of family,
Occupation, Income, Dietary pattern, Marital Status.

SETTING OF THE STUDY:

Research setting is the specific place where data collection is to be made. The selection of setting will be done on the basis of feasibility of conducting the study, availability of subject and permission from authorities. The study will be conducted in Sanarpalayam and Kuppandapalayam areas at Namakkal District. This village is situated at a distance of 2 kilometers from Anbu College of Nursing, Komarapalayam.

POPULATION:

Polit and Hungler (2004) referred population as the entire set of individuals or subject having common characteristics. Sometimes referred to as universe. Population may be of 2 types, target population and accessible population.

TARGET POPULATION:

It refers to the population that the researcher wishes to make a generalization in this research target population is persons between age group of 40 -70 years.

ACCESSIBLE POPULATION:

It refers to the aggregate of cases which conform to design criteria and which is accessible to the researcher as the pool of subject or object. In this research the accessible

population is the hypertensive clients between 40 – 70 years in Sanarpalayam and Kuppandapalayam areas at Namakkal district.

SAMPLE:

Sample consists of the subset of the population selected to participate in the research study. In this study the samples are hypertensive clients between 40 – 70 years, who are residing at Sanarpalayam and Kuppandapalayam at Namakkal district. 30 samples will be selected for this study.

SAMPLE SIZE:

The sample size for the present study is arbitrary decided to be 30 hypertensive clients between 40 – 70 years. The sample size is determined based on the type of study variables will be studied, the statistical significance required and availability of sample and feasibility of conducting the study.

SAMPLING TECHNIQUE:

Sampling is the process of selecting a portion of the population to represent the entire population.

-Polit and Hungler(1999)

The purpose of using a sampling technique is to increase representativeness and to decrease bias and sample error. In this study convenient sampling technique will be used to select as they fulfill the inclusion criteria. Convenience sampling is a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher.

SAMPLING CRITERIA:

Inclusion criteria:

- Both sex
- Clients who have only hypertension
- Newly identified Hypertensive clients between 40-70 years.
- Who are willing to participate.
- Hypertensive clients who are able to converse in Tamil.

Exclusion criteria:

- Who have associated health problems
- Who are not willing to participate.
- Clients who are not present during time of data collection.
- Clients who are with known hypertension.

DEVELOPMENT OF TOOL

The following tools were used for the present study,

1. Structured interview schedule to assess the knowledge of hypertension among hypertensive clients between 40-70 years.
2. The observation checklist was developed to assess the blood pressure level of hypertensive clients.

THE STEPS USED FOR PREPARING TOOL:

1. Review of related literature:

The literatures (nursing books, medical and surgical book, journals, reports and articles) were referred to prepare the tools and guide was also consulted.

2. Preparation of tool:

Structured Interview Questionnaire:

It was prepared to assess the knowledge of hypertension.

3. Consultation with guide and research committee

The blue print was given to the experts in research committee .The research guide and committee members finalized the tool.

4. Preparation of the final draft:

Final draft of the tool was prepared after consulting with the experts and research committee.

DESCRIPTION OF THE TOOL

Tool consists of three sections.

SECTION I

Consists of demographic data of the samples. Age,sex,religion,education, type of family, occupation, type of occupation, income of the family, marital status, dietary pattern ,habit etc.

SECTION II

Consists of structured interview schedule containing 20 questions to assess the knowledge of hypertension.

Scoring of “1” will be given for every “RIGHT” answer and a score of “0” will be given for every “WRONG” answer. The maximum score will be 20 for 20 items.

SCORE RANGING

Below average	-	Less than 8
Average	-	9-12
Good	-	More than 12

SECTION III

Consists of observation checklist of blood pressure.

VALIDITY

Validity refers to an instrument or test actually testing is supposed to test.

-Treece and Treece.

In the present study, five experts including four nursing experts and Doctorate in siddha medicine and Statistician were consulted. The experts were requested to check for the relevance, sequence and adequacy of the tool. The tool was modified as per the expert's suggestions and their recommendation.

PILOT STUDY

The tool was administered and checked for the feasibility and appropriateness. The subjects chosen were similar in characteristics to those of the population under study. The tool was administered to 5 hypertensive clients between 40- 70 years. The hypertensive clients had 250 ml of watermelon juice in which blood pressure was checked before and after 1 hour of watermelon administration.

RELIABILITY

Reliability is defined as the ability of the instrument to create reproducible results. It is the absence of error in measurement.

-Talbot.

Reliability of the tool was established through test re-test method. The tool was found to have positive co-efficient correlation score ($r = 0.98$).The tool was found to be reliable.

DATA COLLECTION PROCEDURE

The present study was conducted in Kuppandapalayam and Sanarpalayam villages at Komarapalayam. The data was collected for 4 weeks. Prior permission from the authority was sought and obtained. Individual consent was taken from the study samples. The study samples were selected by convenient sampling method based on sample selection criteria.

All the persons who are between 40-70 years from the selected PHC were screened. In that 30 clients who were identified as new cases of hypertension were recruited for the study. The objectives and purpose of the study were explained and assured that the confidentiality will be maintained.

Pretest was conducted before administering the watermelon by observing the blood pressure levels using the observed checklist method among the hypertensive clients. In a day an average of 5 individuals was assessed. The time for assessment was varied from 15-20 minutes. The watermelon juice of 250 ml was administered to the study group and immediately after 1 hour post test was conducted by observation checklist. The tool was checked for completion.

PLAN FOR DATA ANALYSIS

The data analysis was organized and presented under the following headings.

- Section I: Data on demographic variables of hypertensive clients between 40- 70 years was analyzed by frequency and percentage distribution.
- Section II : Data on knowledge score of the hypertensive clients regarding hypertension.
- Section III : Data on effectiveness of watermelon consumption on post test blood pressure level among hypertensive clients between 40--70 years was analyzed by paired t-test.
- Section IV: Data on association between pre-test blood pressure level in relation to demographic variables among hypertensive clients between 40-70 years was analyzed by using χ^2 .

ETHICAL CONSIDERATION

The study objectives, intervention and data collection procedure were approved by the research and ethical committee of the institution. Prior to data collection the permission was obtained from the Medical officer of the Primary health center , Elanthakuttai and oral consent was obtained from the individual hypertensive clients between 40-70 years before starting data collection, in order to get their full cooperation , and also for the effectiveness of the study. Confidentiality was assured.

CHAPTER-IV



DATA ANALYSIS

AND INTERPRETATION

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

“Analysis has been designed as categorizing, ordering, manipulating and summarizing of data to obtain answers to research hypothesis questions”.

- **Kerlinzer (1976)**

This chapter deals with the description of the sample analysis and interpretation of data.

The purpose of the analysis was to reduce the collected data for intelligible and interpretable form, so that the relation of the research problem could be studied and tested.

According to **Denise Polite** (2005) analysis is the method of organizing, sorting and scrutinizing data in such a way that research question can be answered.

The analysis and interpretation of the data were based on the data collected through the structured interview schedule among hypertensive clients between 40-70 years. The results were analyzed by using descriptive and inferential statistics.

The analysis of the data was organized and presented under the following headings.

SECTION I : Data on demographic variables of hypertensive clients between 40-70 years was analyzed by frequency and percentage distribution.

SECTION II : Data on knowledge score of the hypertensive clients regarding hypertension.

SECTION III : Data on effectiveness of watermelon consumption on post test blood pressure level among hypertensive clients between 40--70 years was analyzed by paired t-test.

SECTION IV : Data on association between pre-test blood pressure levels in relation to demographic variables among hypertensive clients between 40-70 years was analyzed by using χ^2 .

SECTION I

DISTRIBUTION OF DEMOGRAPHIC VARIABLES OF

HYPERTENSIVE CLIENTS.

TABLE 4.1

Frequency and percentage distribution of demographic variables of hypertensive clients.

N = 30

S.No	Demographic Variable	F	%
1.	Age in years		
	(a) 41-50	7	23.3 %
	(b) 51-60	14	46.7 %
	(c) 61-70	9	30 %
2.	Sex		
	(a) Male	13	43.3%
	(b) Female	17	56.7%
3.	Education		
	(a) Illiterate	14	46.7%
	(b) Primary Education	11	36.7%
	(c) Graduate	5	16.6%
4.	Occupation		
	(a) Homemaker	9	30 %
	(b) Coolie	11	36.7%
	(c) Government Employee	0	0 %
	(d) Others	10	33.3%
5.	Type of family		
	(a) Nuclear family	16	53.4%
	(b) Joint family	10	33.3%

	(c) Extended family	4	13.3%
6.	Type of occupation		
	(a) Sedentary worker	06	20 %
	(b) Moderate worker	16	53.4%
	(c) Heavy worker	8	26.6%
7.	Monthly income of the family		
	(a) Less than 5000	16	53.4%
	(b) 5001-10,000	12	40 %
	(c) More than 10,000	2	6.6 %
8.	Marital status		
	(a) Married	26	86.7%
	(b) Unmarried	0	0 %
	(c) Widower	4	13.3%
9.	Dietary pattern		
	(a) Vegetarian	6	20 %
	(b) Non-Vegetarian	22	73.4 %
	(c) Ova-Vegetarian	2	6.6 %
10.	Habit		
	(a) Smoking	2	6.6 %
	(b) Alcohol	2	6.6 %
	(c) Betel Chewing	6	20 %
	(d) No bad habits	20	66.6 %
11.	Residential-area		
	(a) Town	0	0 %
	(b) Village	30	100 %
	(c) City	0	0 %
12.	Previous source of information		
	(a) Media	4	13.3 %
	(b) Family Members	16	53.4 %
	(c) Medical persons	10	33.3 %

The above data reveals that with regard to age among 30 hypertensive clients between 40-70 years 7(23.3 %) were in the age group of 41-70 years, 14(46.7%) were in the age group of 51-60 and 9(30%) were in the age of 61-70 years.

With regard to sex, 13(43.3 %) were male and 17 (56.7%) were female.

Regarding the educational qualification of the hypertensive clients 14(46.7%) were illiterate, 11(36.7%) were having primary education and 5 (16.6 %) were graduates.

Regarding the occupation of the hypertensive clients 9(30%) were homemakers, 11(36.7%) were coolie and 10 (33.3 %) of the people were other type of workers.

Regarding the type of family 16(53.4%) were from nuclear family, 10(33.3%) were from joint family and 4(13.3 %) were from extended family.

Regarding the type of occupation of the hypertensive clients 6(20%) were sedentary workers, 16(53.4%) were moderate workers and 8 (26.6 %) were heavy workers.

Regarding the monthly income of the family 16(53.4%) of them belongs to less than 5000/-, 12(40%) had 5000-10000/-and 2(6.6 %) had more than 10000/-.

Among the hypertensive clients 26(86.7%) were married, 4(13.3 %) were widower and none of them were unmarried.

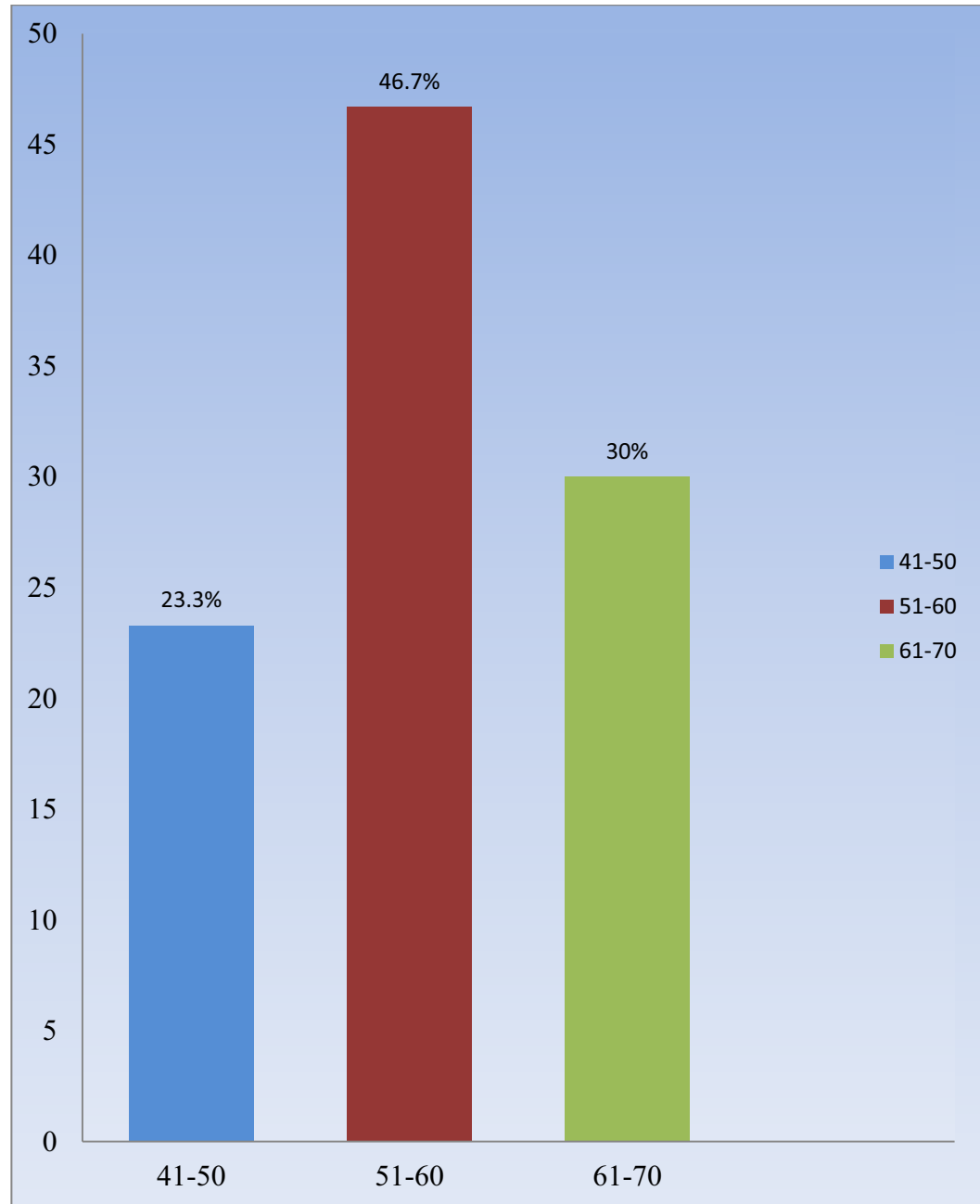
Regarding the dietary pattern of the hypertensive clients 6(20%) were vegetarian, 22(73.4%) were non vegetarian and 2(6.6 %) were ova vegetarian.

Regarding the habit of the hypertensive clients 2(6.6 %) were smokers, 2(6.6 %) had the habit of alcohol intake, 6(20%) had betel chewing habit and 20(66.6 %) were with no bad habits.

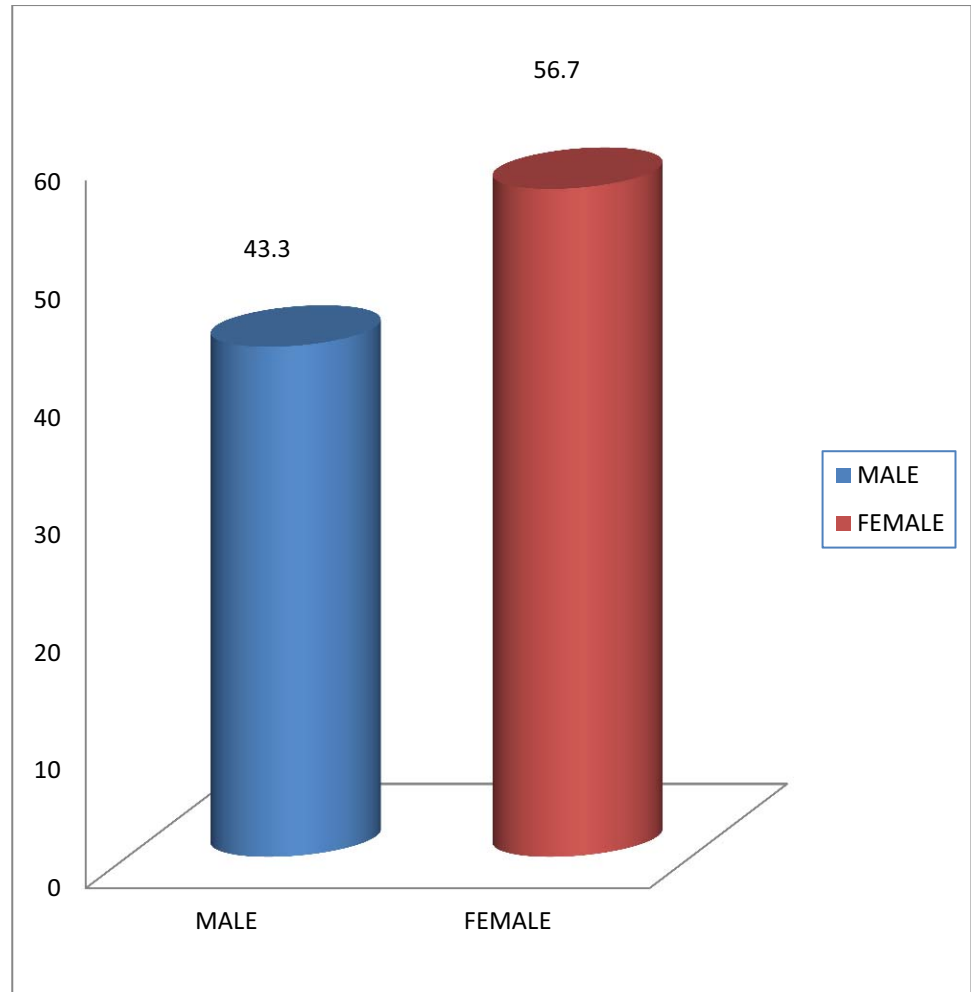
All the hypertensive clients 30(100%) were residing in the village, rural area.

Regarding the previous source of information 4(13.3 %) had through media, 16(53.4%) had through family members and 10 (33.3%) had through medical persons.

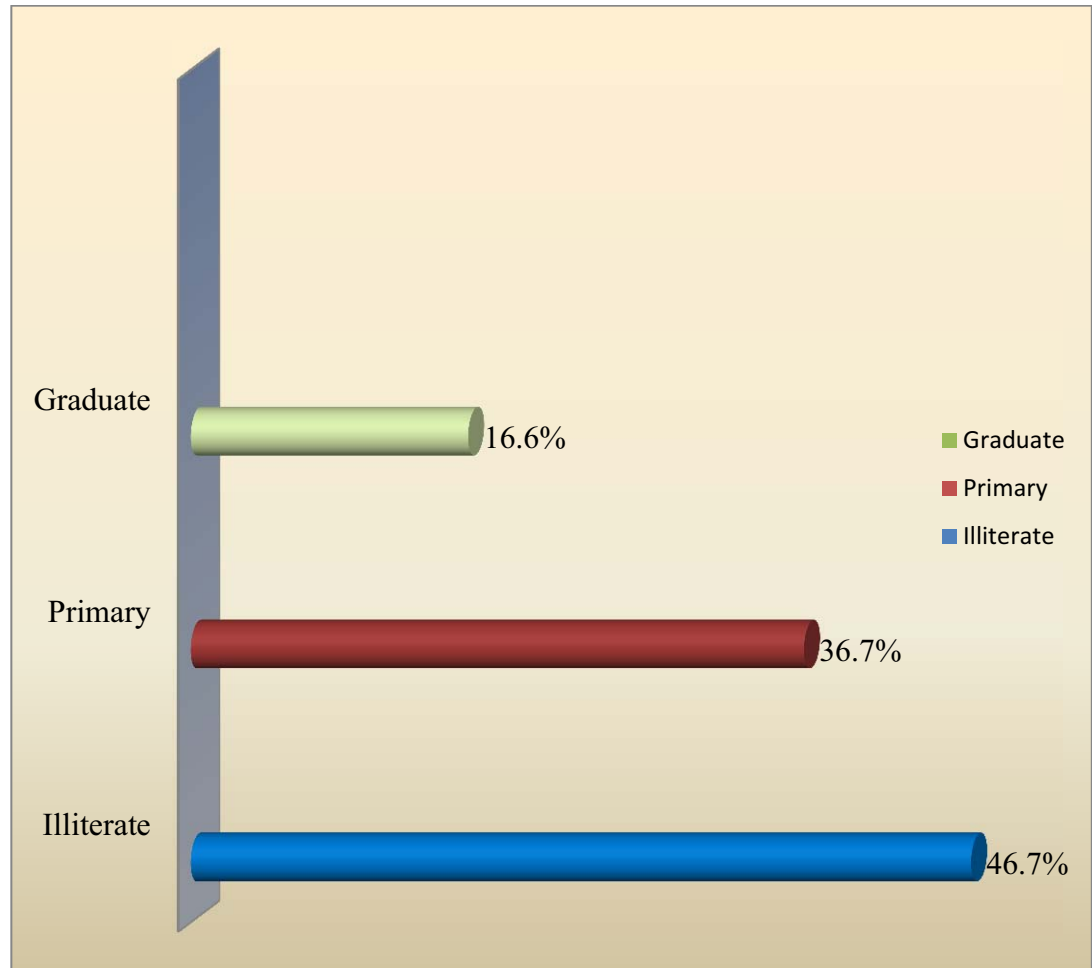
Fig -4.1: DISTRIBUTION OF HYPERTENSIVE CLIENTS BASED ON THEIR AGE



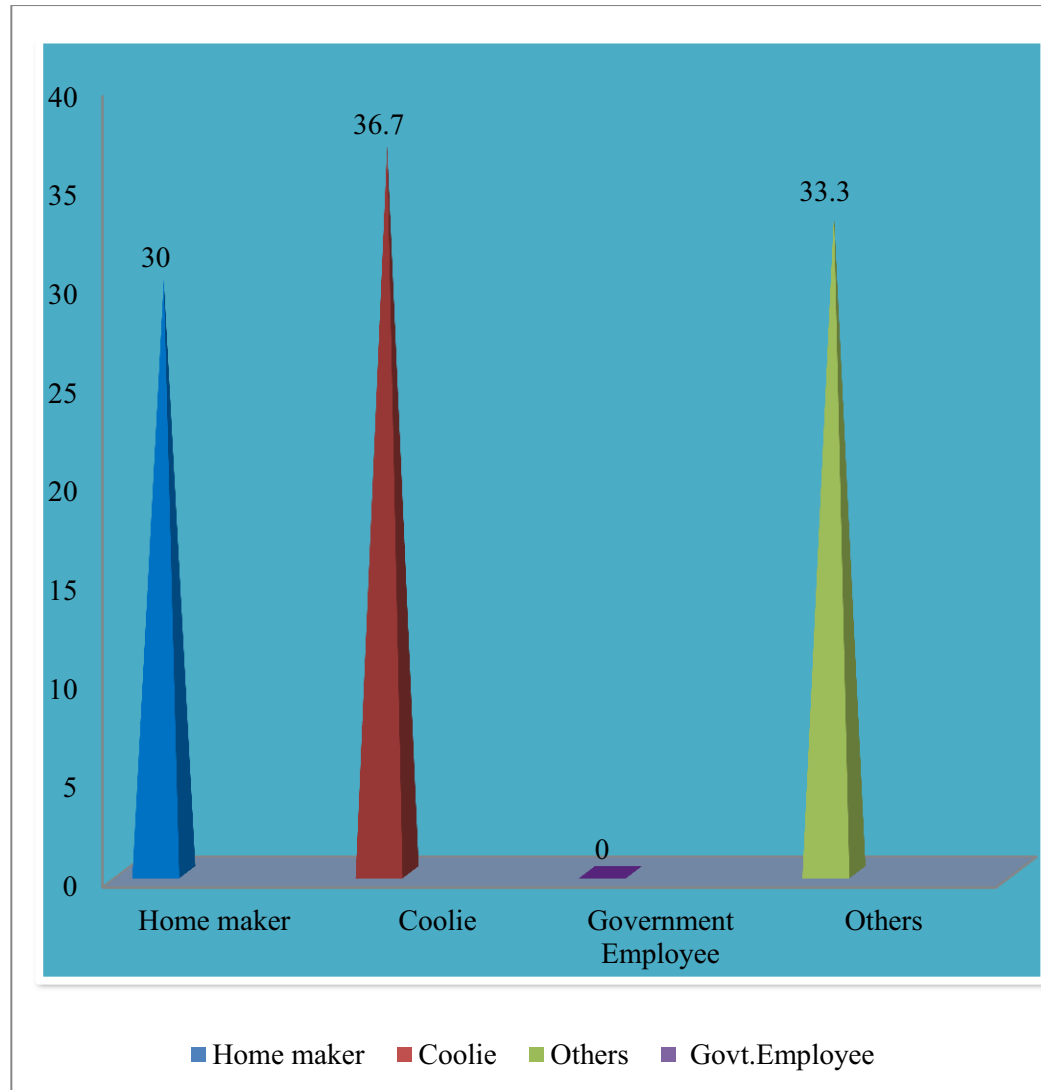
**Fig – 4.2: DISTRIBUTION OF THE HYPERTENSIVE CLIENTS
BASED ON THEIR SEX**



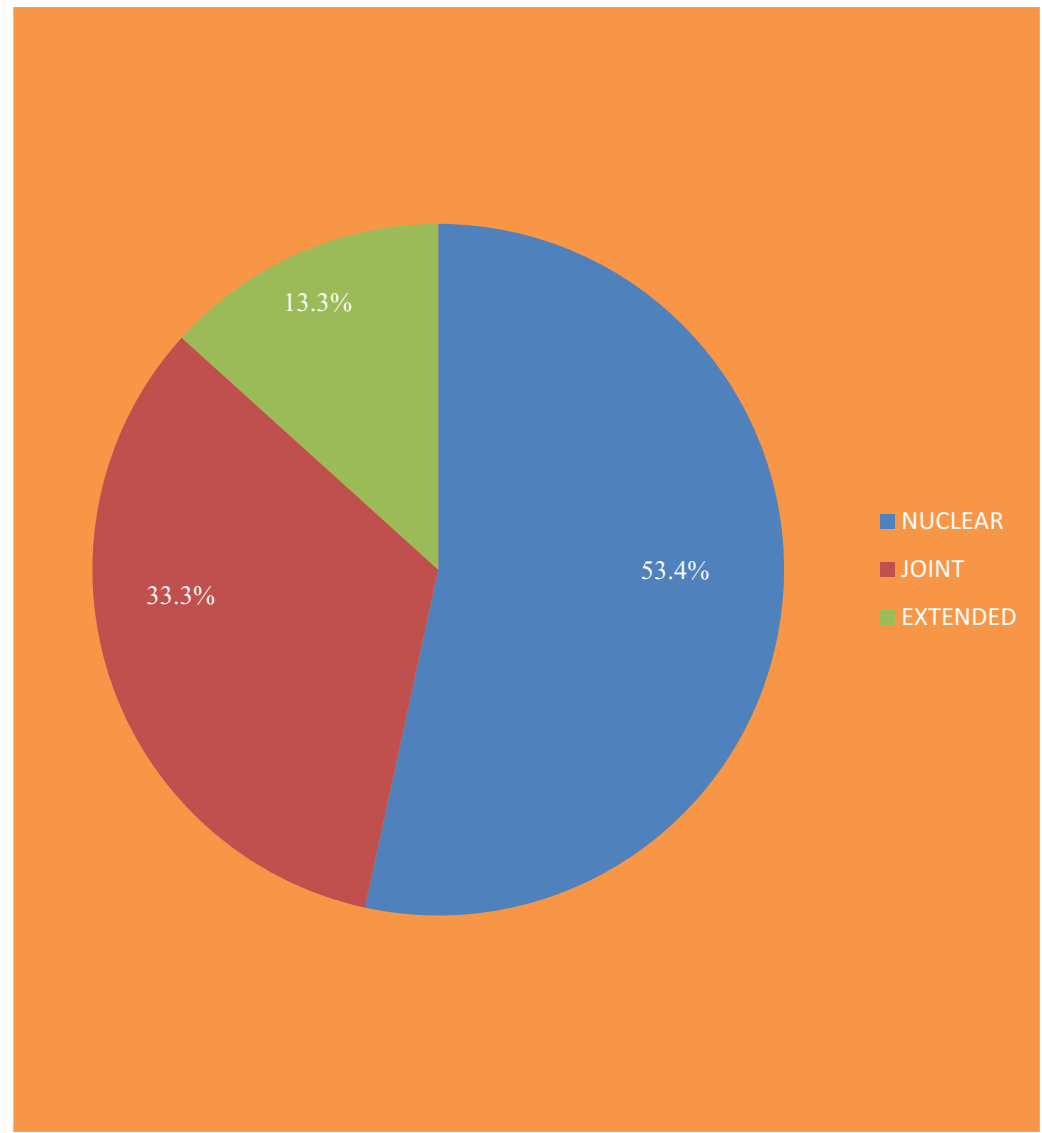
**Fig –4.3: DISTRIBUTION OF THE HYPERTENSIVE CLIENTS
BASED ON THEIR EDUCATION**



**Fig – 4.4: DISTRIBUTION OF THE HYPERTENSIVE CLIENTS
ACCORDING TO THEIR OCCUPATION.**



**Fig – 4.5: DISTRIBUTION OF THE HYPERTENSIVE CLIENTS
BASED ON THE TYPE OF FAMILY.**



**Fig – 4.6: DISTRIBUTION OF THE HYPERTENSIVE CLIENTS
ACCORDING TO THEIR TYPE OF OCCUPATION.**

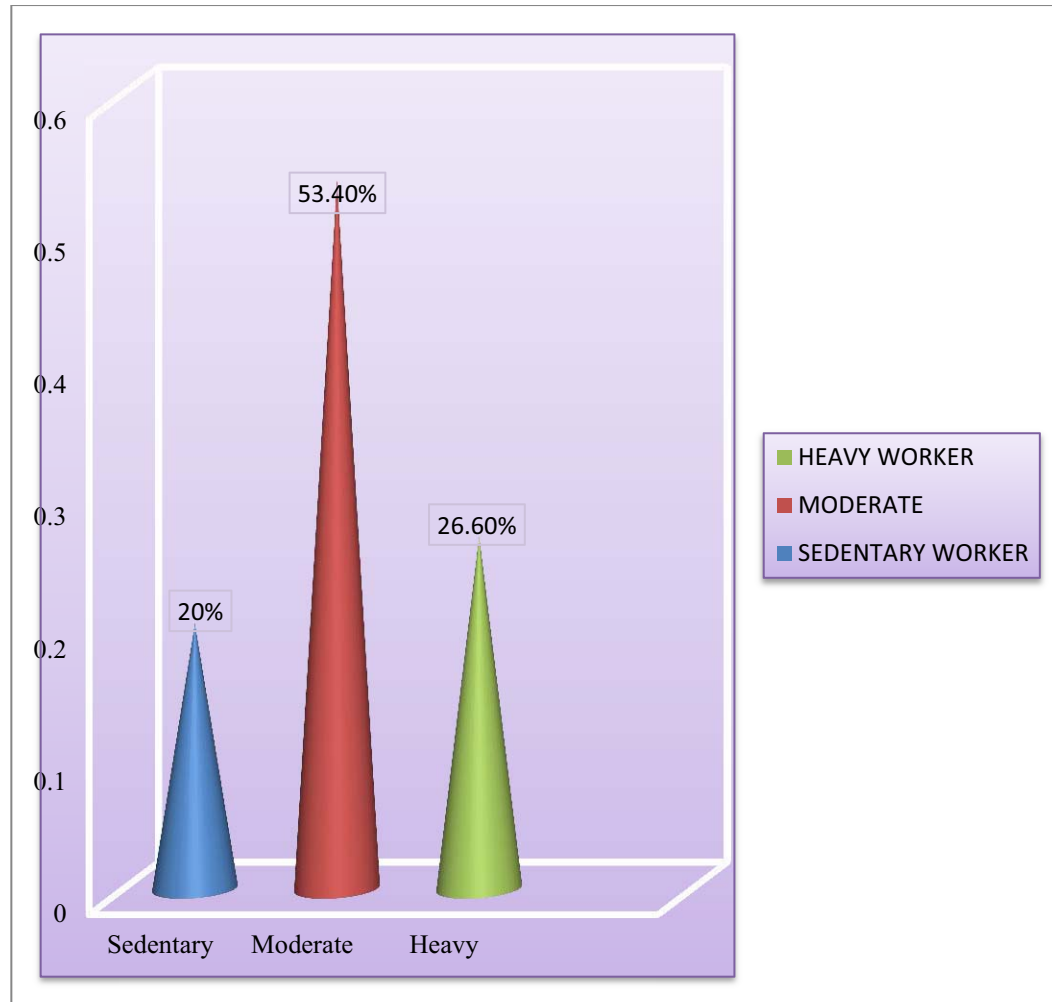
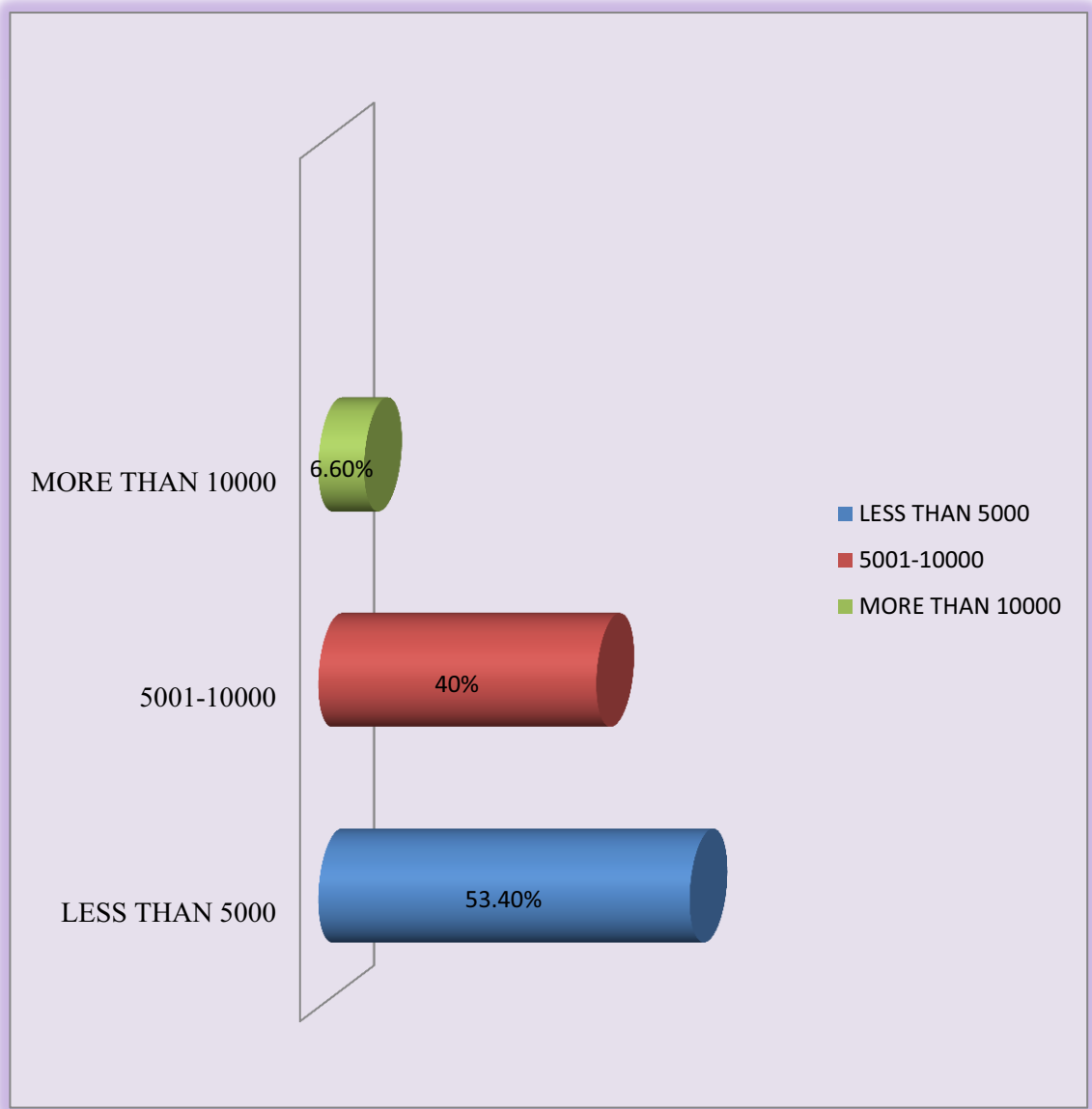


Fig – 4.7: DISTRIBUTION OF CLIENTS BASED ON THE MONTHLY INCOME OF THE FAMILY



**Fig – 4.8: DISTRIBUTION OF THE HYPERTENSIVE CLIENTS
BASED ON THEIR MARITAL STATUS**

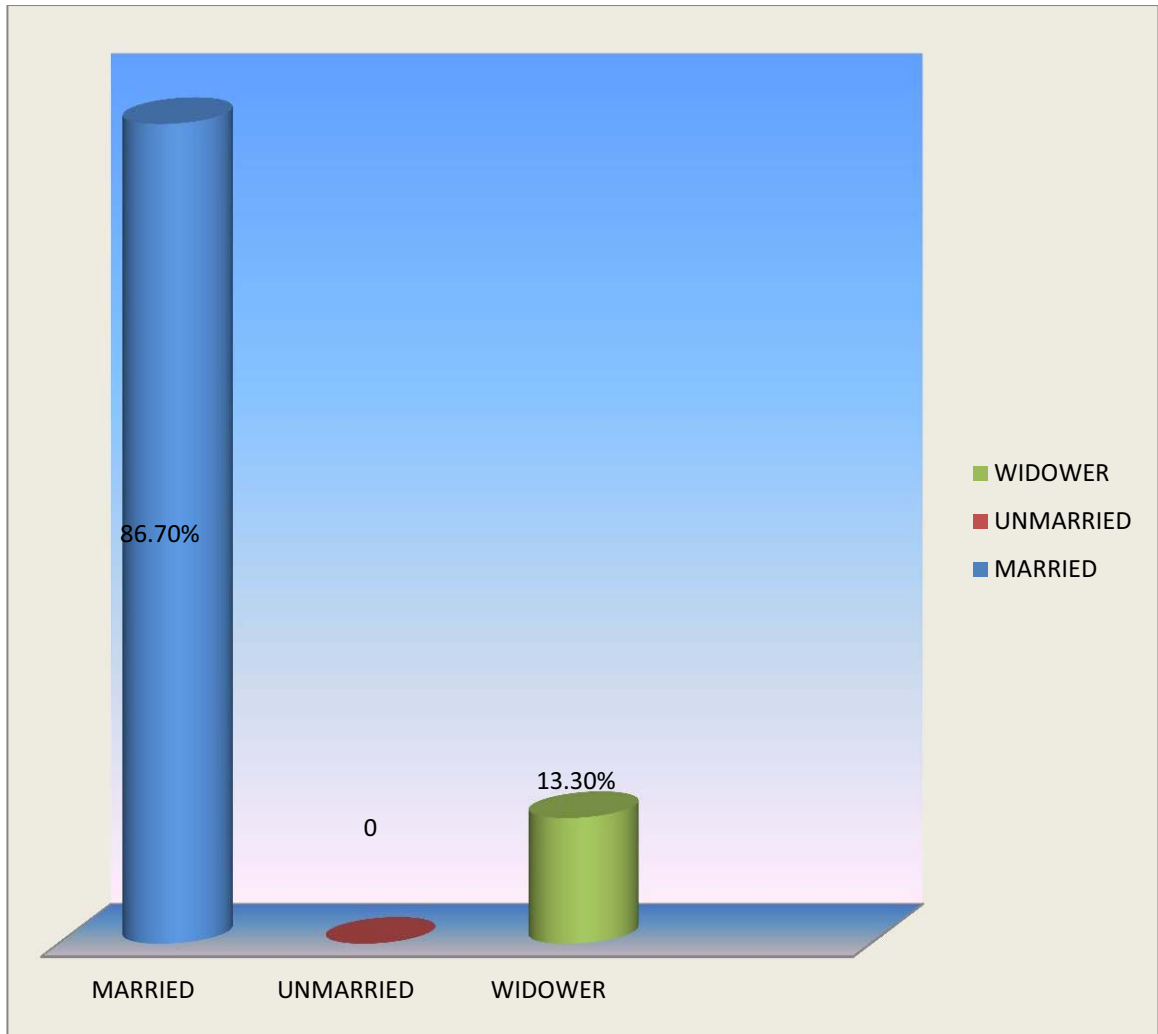


Fig – 4.9: DISTRIBUTION OF HYPERTENSIVE CLIENTS BASED ON THEIR DIETARY PATTERN .

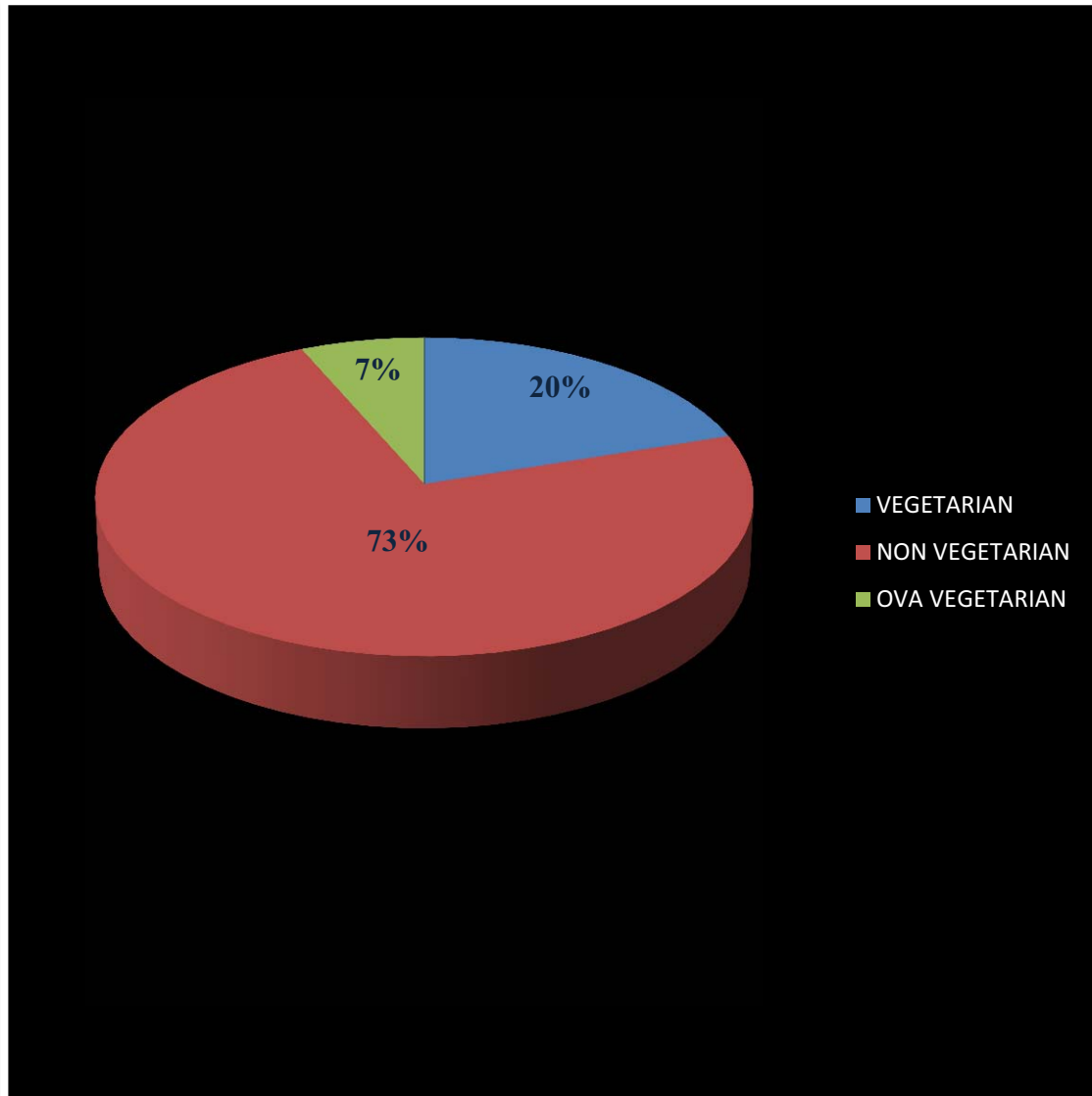
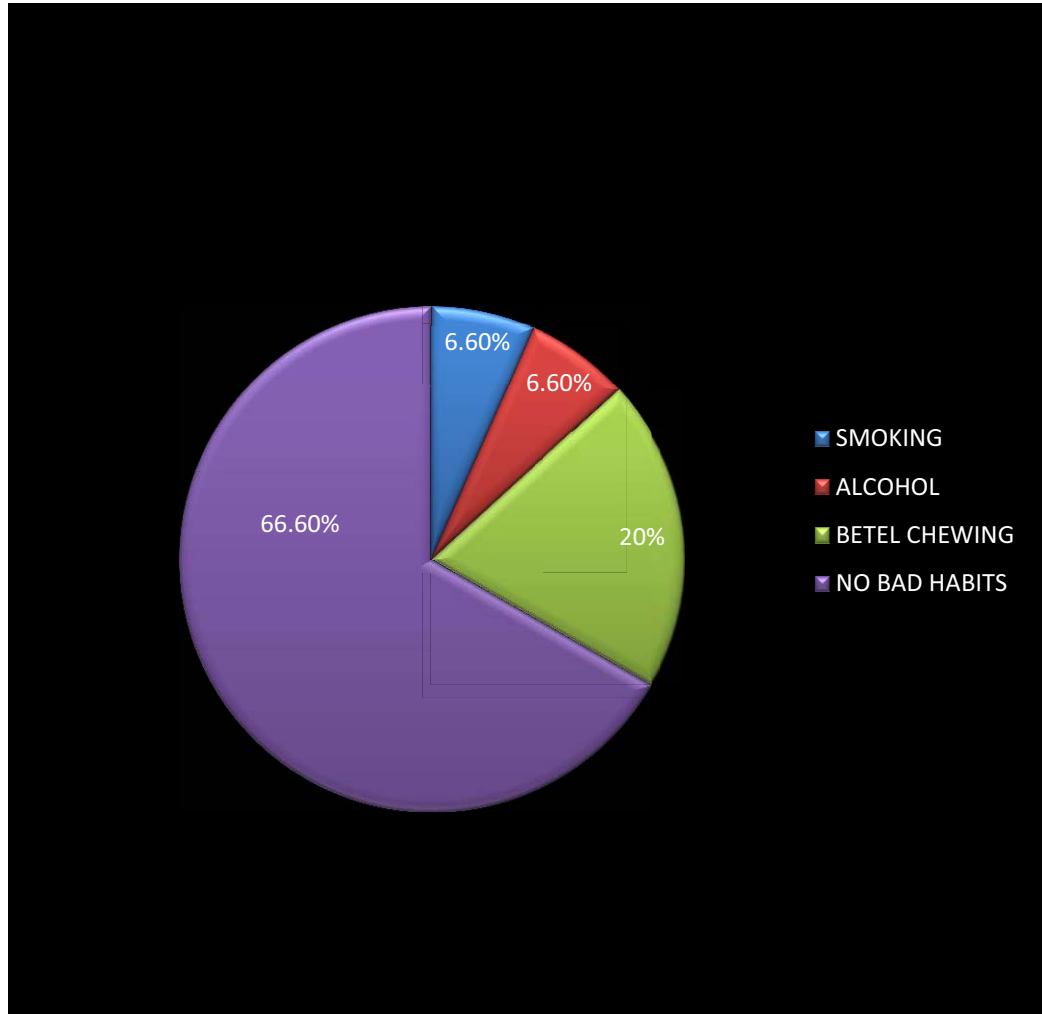
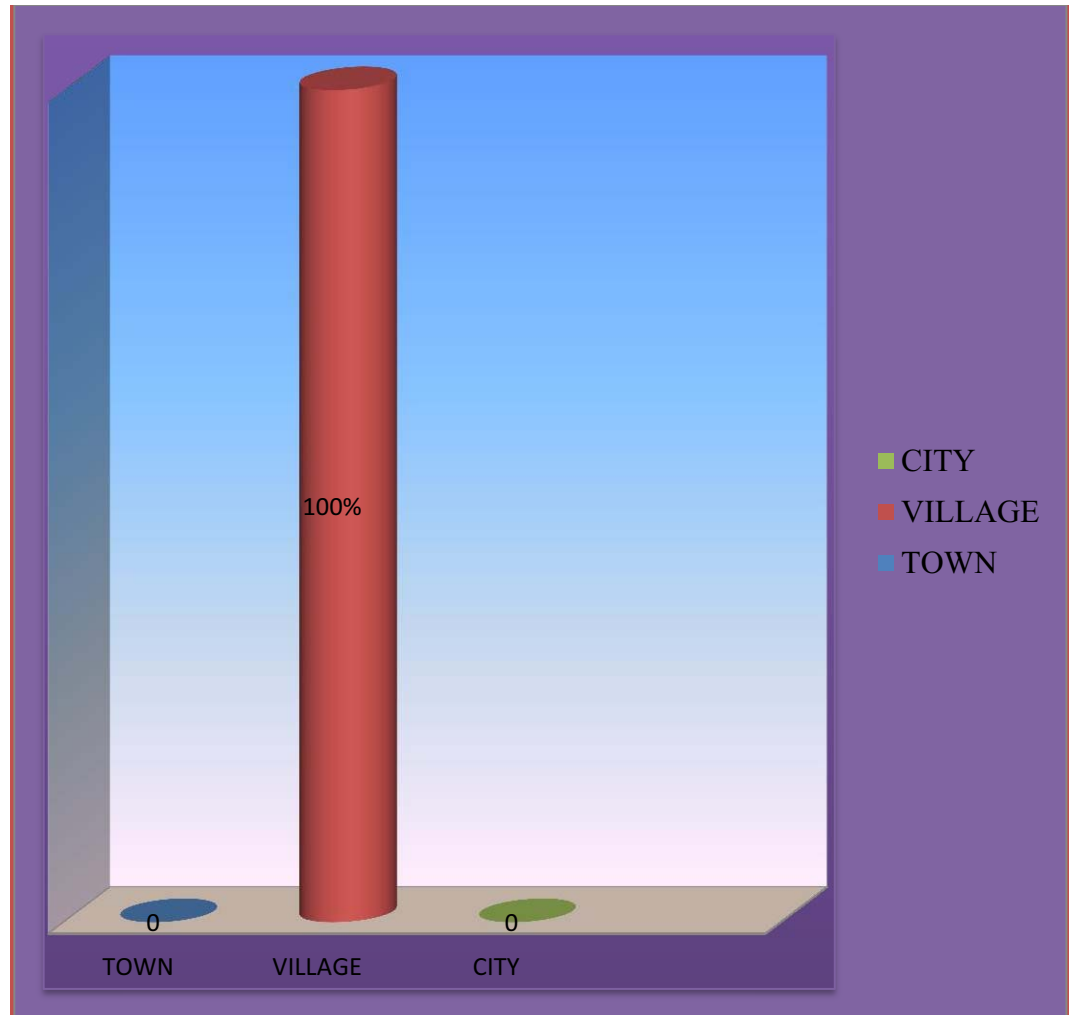


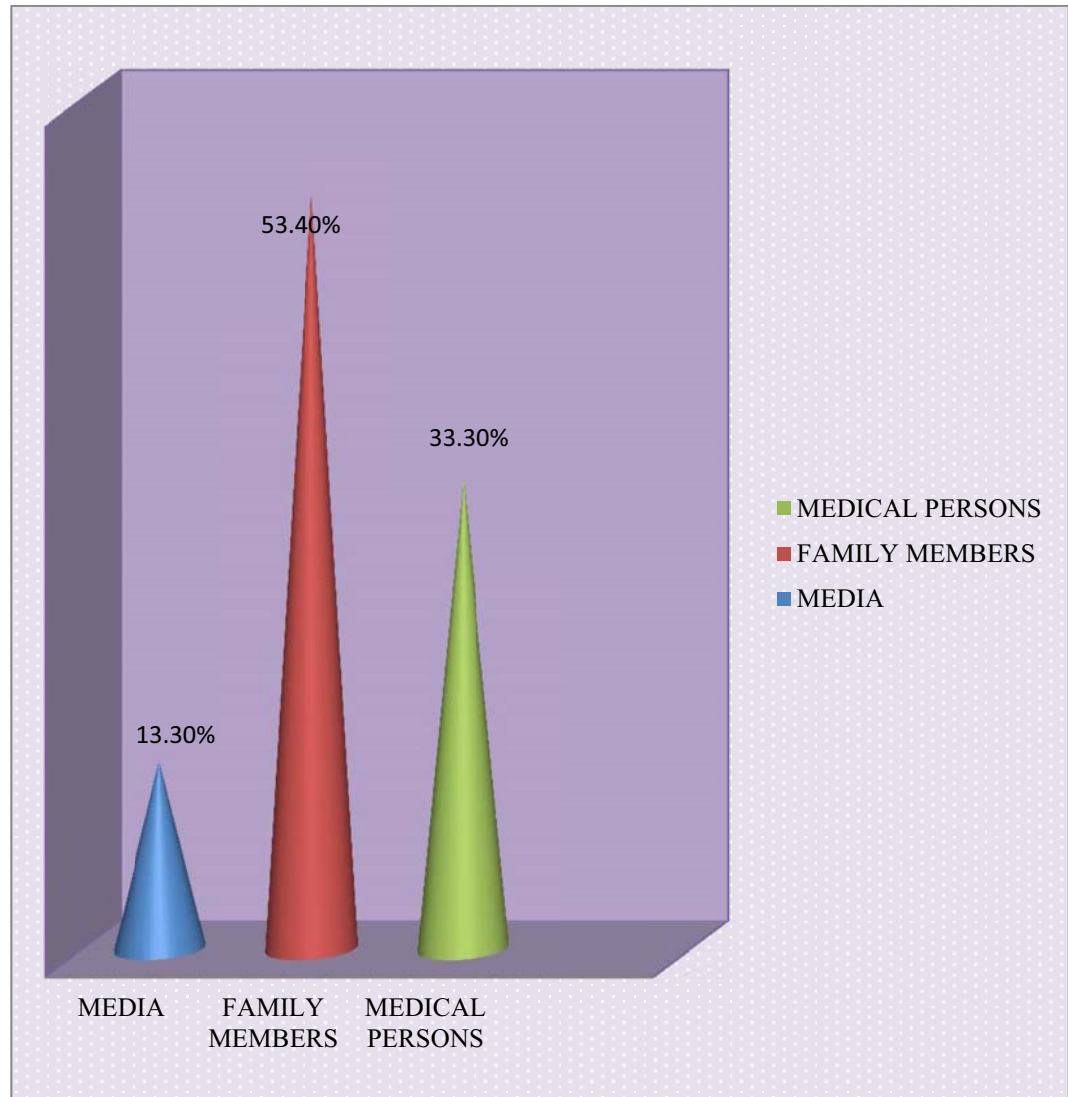
Fig –4.10: DISTRIBUTION OF THE HYPERTENSIVE CLIENTS BASED ON THEIR HABIT.



**Fig –4.11: DISTRIBUTION OF THE HYPERTENSIVE CLIENTS
BASED ON THEIR RESIDENTIAL AREA**



**Fig – 4.12 : DISTRIBUTION OF THE HYPERTENSIVE CLIENTS
BASED ON THEIR PREVIOUS SOURCE OF INFORMATION
ABOUT HYPERTENSION**



SECTION II

DATA ON KNOWLEDGE SCORE OF THE HYPERTENSIVE CLIENTS REGARDING HYPERTENSION.

TABLE – 4.2

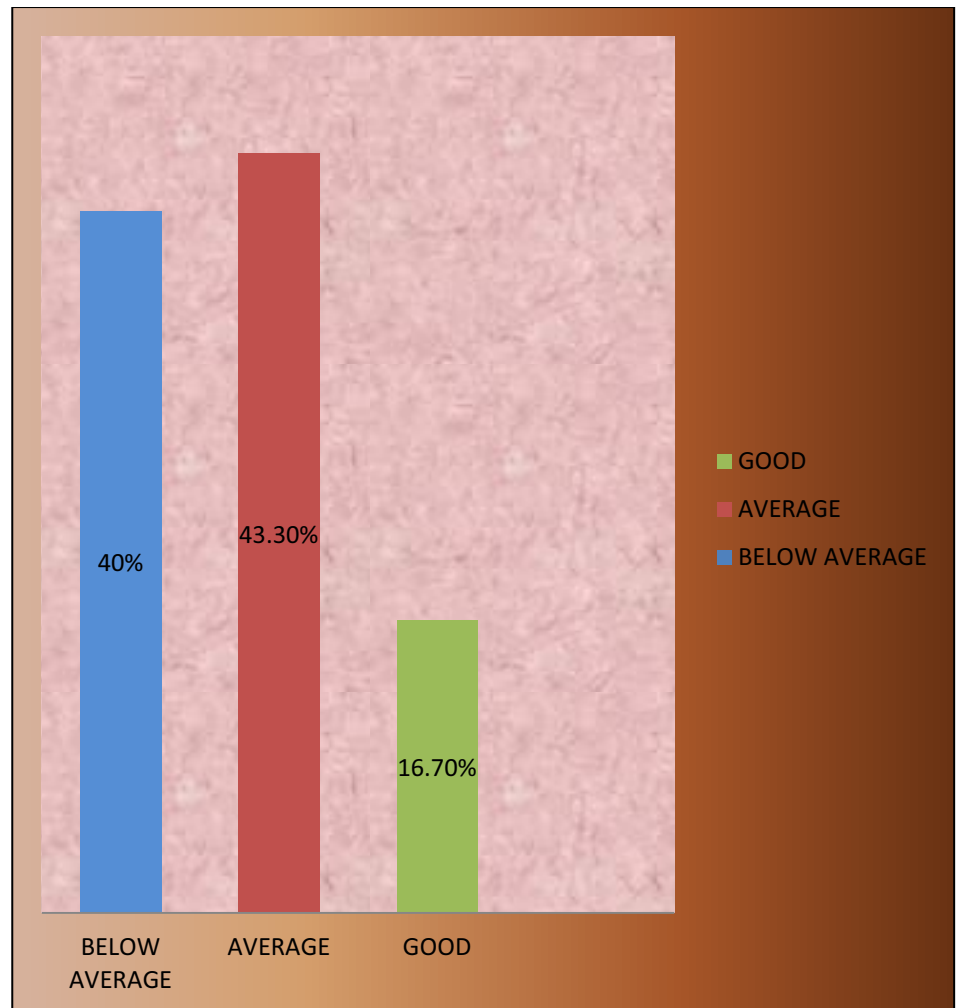
Frequency and percentage distribution of hypertensive clients according to their level of knowledge regarding hypertension in the pretest.

N = 30

S.No	LEVEL OF THE KNOWLEDGE	PRE TEST	
		F	%
1	Below average – less than 8	12	40%
2	Average – 9-12	13	43.3%
3	Good – more than 12	5	16.7%

The above data shows that 12(40%) of hypertensive clients had below average knowledge, 13 (43.3%) had average knowledge and 5 (16.7 %) had good knowledge about hypertension.

Fig – 4.13: DISTRIBUTION OF HYPERTENSIVE CLIENTS WITH REGARD TO THEIR LEVEL OF KNOWLEDGE.



SECTION III

DATA ON BLOOD PRESSURE LEVEL AMONG HYPERTENSIVE CLIENTS BEFORE AND AFTER WATERMELON CONSUMPTION.

H_{01} – There will be significant reduction in the level of post test blood pressure among the hypertensive clients.

TABLE – 4.3

Mean, standard deviation and ‘t’ value systolic blood pressure level among hypertensive clients.

<i>Test</i>	<i>Systolic Blood Pressure Of Hypertensive Clients (N=30)</i>				
	<i>Mean</i>	<i>Range</i>	<i>SD</i>	<i>Mean Difference</i>	<i>‘t’ value</i>
Pre test	144.94	128-165	12.35	12.72	13.796 P=0.05(S)
Post test	132.22	120-150	11.53		

Table reveals that the mean pre- test systolic blood pressure was 144.94, SD 12.35. The mean post- test systolic blood pressure was 132.22, SD 11.53. The obtained ‘t’ value was 13.796. It was highly significant at 0.05 level. So the null hypothesis was rejected.

It was inferred that the watermelon consumption was effective in reducing the blood pressure level.

TABLE – 4.4

Mean, Standard deviation and ‘t’ value of diastolic blood pressure level among hypertensive clients.

<i>Test</i>	<i>Diastolic Blood Pressure Of Hypertensive Clients (N=30)</i>				
	<i>Mean</i>	<i>Range</i>	<i>SD</i>	<i>Mean Difference</i>	<i>‘t’value</i>
Pre test	94.25	110-85	8.853	7.42	5.492
Post test	86.83	100-83	10.845		P=0.05 (S)

Table reveals that the mean pre- test diastolic blood pressure was 94.25,SD 8.853. The mean post- test diastolic blood pressure was 86.83; SD 10.845.The obtained’ value was 5.492.It was significant at 0.05 level. So the null hypothesis was rejected.

It was inferred that the watermelon consumption was effective in reducing the blood pressure level.

TABLE – 4.5

Frequency, percentage distribution of blood pressure level among hypertensive clients.

N=30

<i>Classification of Hypertension</i>		F	%	<i>Systolic BP</i>		<i>Diastolic BP</i>	
				F	%	F	%
Pre Hypertension	120-139/ 80-89	11	36.7%	7	23.3%	4	13.3%
Stage I Hypertension	140-159/ 90-99	13	43.3%	8	26.7%	5	16.7%
Stage II Hypertension	≥160/ ≥ 100	6	20%	3	10%	3	10%

**FIG- 4.14: DISTRIBUTION OF BLOOD PRESSURE LEVEL
AMONG HYPERTENSIVE CLIENTS.**

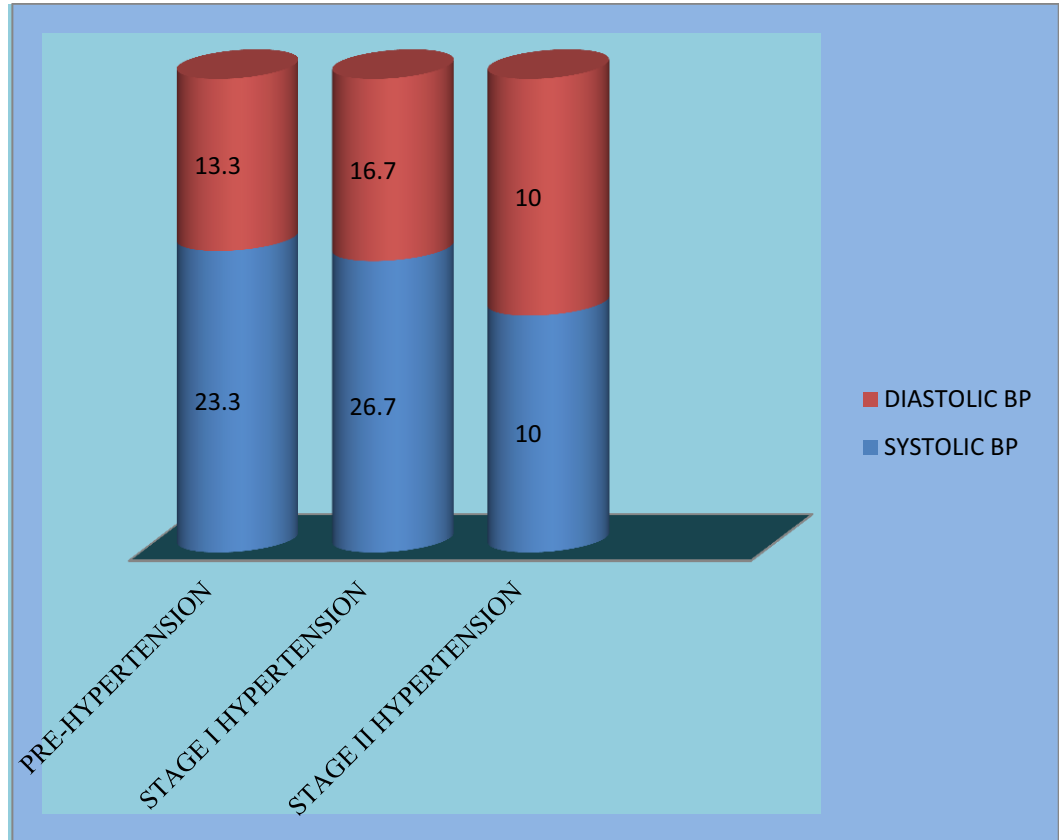


Table reveals that there were 11(36.7 %) pre hypertensive clients among which 7(23.3%) had systolic and 4 (13.3%) had diastolic elevation in blood pressure. 3(43.3%) were with Stage I hypertension among which 8(26.7%) had systolic and 5(16.7%) had diastolic elevation in blood pressure. 6(20%) were Stage II hypertensive, among which 3(10 %) had systolic and 3 (10 %) had diastolic elevation in blood pressure.

SECTION IV

DATA ON ASSOCIATION BETWEEN PRE TEST BLOOD PRESSURE LEVEL IN RELATION TO DEMOGRAPHIC VARIABLE AMONG HYPERTENSIVE CLIENTS BETWEEN 40-70 YEARS.

H_{02} – There will be significant association between pre-test blood pressure level of the hypertensive clients with their selected demographic variables.

TABLE – 4.6

Frequency, percentage distribution and χ^2 value of the demographic variable with pre-test blood pressure level among hypertensive clients.

S.No	Demographic variables	Pre hypertension		Stage I hypertension		Stage II hypertension		χ^2 Value
		F	%	F	%	F	%	
1	Age in years							
	(a) 41-50	4	13.3	3	10	0	-	1.0117
	(b) 51-60	4	13.3	7	23.3	3	10	
	(c) 61-70	3	10	3	10	3	10	
2	Sex							
	(a) Male	4	13.3	7	23.3	2	6.7	0.274
	(b) Female	7	23.3	6	20	4	13.3	NS
3	Education							
	(a) Illiterate	4	13.3	7	23.3	4	13.3	0.898
	(b) Primary Education	5	16.7	4	13.3	1	3.33	
	(c) Graduate	2	6.67	2	6.67	1	3.33	

4	Occupation							
	(a)Homemaker	4	13.3	2	6.67	3	10	2.318 NS
	(b)Coolie	2	6.67	7	23.3	2	6.67	
	(c)Government Employee	0	0	0	0	0	0	
	(d)Others	5	16.7	4	13.3	1	3.33	
5	Type of family							
	(a) Nuclear family	5	16.7	7	23.3	4	13.3	0.529
	(b) Joint family	5	16.7	4	13.3	2	6.67	NS
	(c) Extended family	1	3.33	2	6.67	0	0	
6	Type of occupation							
	(a)Sedentary worker	3	10	2	6.67	1	3.33	0.9074
	(b)Moderate worker	6	20	7	23.3	3	10	NS
	(c)Heavy worker	2	6.67	4	13.3	2	6.67	
7	Monthly income of the family							
	(a) Less than 5000	5	16.7	7	23.3	3	10	0.6752
	(b) 5001-10,000	5	16.7	6	20	0	-	NS
	(c) More than 10,000	1	3.33	0	0	0	-	
8	Marital status							
	(a) Married	10	33.3	10	33.3	5	16.7	0.5358
	(b)Unmarried	-	-	-	-	-	-	NS
	(c) Widower	1	3.33	3	10	1	3.33	

9	Dietary pattern							
	(a) Vegetarian	3	10	2	6.67	1	3.33	32.38
	(b) Non-Vegetarian	6	20	11	36.7	5	16.7	S
	(c) Ova-Vegetarian	2	6.67	-	-	-	-	
10	Habit							
	(a) Smoking	1	3.33	1	3.33	-	-	
	(b) Alcohol	-	-	1	3.33	1	3.33	3.071
	(c) Betel Chewing	2	6.67	1	3.33	3	10	NS
	(d) No bad habits	8	26.7	10	33.3	2	6.67	
11	Residential Area							
	(a) Town	-						Not
	(b) Village	30						applicable
	(c) City	-						
12	Previous source of information							
	(a) Media	1	3.33	3	10	1	3.33	1.4022
	(b) Family Members	6	20	7	23.3	4	13.3	NS
	(c) Medical persons	4	13.3	3	10	1	3.33	

TABLE 4.6:

Regarding age majority 14(46.7%) of them belong to age group of 51-60 years among which 4 (13.3%) were having pre hypertension, 7(23.3%) were having stage I hypertension and 3(10%) were with stage II hypertension. And 9(30%) belonged to the age group between 61-70 years among which 3(10%) were having pre hypertension, 3(10%) were having stage I hypertension and 3(10%) were with stage II hypertension. And 7(23.3%) belong to the age group between 41-50 years among which 4(13.3%) were pre hypertensive, 3(10%) were stage I hypertensive .The χ^2 value 1.0117 was not significant at 0.05 level.

Regarding sex, most of the hypertensive clients were females [17(56.7%)] and 13 (43.3%) were males. Among 17 females 7(23.3%) were having pre hypertension, 6(20%) were having stage I hypertension and 4(13.3%) were with stage II hypertension. Among 13 males, 4(13.3%) were having pre hypertension, 7(23.3%) were having stage I hypertension and 2(6.7%) were with stage II hypertension. The χ^2 value 0.274 was not significant at 0.05 level.

Regarding education 50 %(15) were illiterate in which 4(13.3%) were having pre hypertension, 7(23.3%) were stage I hypertensive and 4(13.3%) were with stage II hypertension .10 clients had primary education, among them, 5(16.7%) were having pre hypertension, 4(13.3%) were having stage I hypertension and 1(3.3%) was with stage II hypertension. Among the 5 graduates, 2(6.67%) were having pre hypertension, 2(6.67%) were having stage I hypertension and 1(3.3%) was with stage II hypertension. The χ^2 value 0.8989 was not significant at 0.05 level.

Regarding occupation majority (10) had other type of work in which 5(16.7%) were having pre hypertension, 4(13.3%) were having stage I hypertension and 1(3.3%) was with stage II hypertension. 9 were coolie, among them, 2(6.67%) were having pre hypertension, 7(23.3%) were having stage I hypertension and 2(6.67%) were with stage II hypertension. 9 were homemakers among them, 4(13.3%) were having pre hypertension, 2(6.67%) were having stage I hypertension and 3(10%) were with stage II hypertension. The χ^2 value 2.318 was not significant at 0.05 level.

Regarding type of family most of them {16 (53.3%)} belonged to nuclear family among them, 5(16.7 %) were having pre hypertension, 7(23.3%) were having stage I hypertension and 4(13.3%) were with stage II hypertension. 11 belonged to joint family, among them, 5(16.7%) were having pre hypertension, 4(13.3%) were having stage I hypertension and 2(6.67%) were with stage II hypertension. Only 3 belonged to extended family among them, 1(3.33%) was having pre hypertension, 2(6.67%) were having stage I hypertension. The χ^2 value 0.529 was not significant at 0.05 level.

Regarding type of occupation most of them {16(53.3%)} were moderate worker among 6(20 %) were having pre hypertension, 7(23.3%) were having stage I hypertension and 3(10%) were with stage II hypertension. 8 were heavy worker, among them, 2(6.67%) were having pre hypertension, 4(13.3%) were having stage I hypertension and 2(6.67%) were with stage II hypertension. 6 were sedentary worker among them, 3(10%) were having pre hypertension, 2(6.67%) were having stage I hypertension and 1(3.33%) was with stage II hypertension. The χ^2 value 0.9074 was not significant at 0.05 level.

Regarding monthly income majority {15(50%)} had less than 5000 among them , 5(16.7 %) were having pre hypertension, 7(23.3%) were having stage I hypertension and 3(10%) were with stage II hypertension .11had 5000-10000 as income, among them, 5(16.7 %) were pre hypertensive, 6(20%) were stage I hypertension. Only 1(3.33%) was with more than 10000as income, which was pre hypertension. The χ^2 value 0.6752 was not significant at 0.05 level.

Regarding marital status majority were married {25(83.3%)} among them , 10(33.3%) were having pre hypertension, 10(33.3%) were having stage I hypertension and 5(16.7%) were with stage II hypertension . 5(16.7 %) 5 were widower among them, 1(3.33%) was pre hypertensive, 3(10%) were having stage I hypertension and 1(3.33%) was with stage II hypertension. The χ^2 value 0.5358 was not significant at 0.05 level.

Regarding dietary pattern majority were non vegetarian{22(73.3%)} among them 6(20 %) were having pre hypertension, 11(.36.7%) were having stage I hypertension and 5(16.7%) were with stage II hypertension .6(20%)were vegetarians, among them, 3(10 %) were having pre hypertension, 2(6.67%) were having stage I hypertension and 1(3.33%) were Stage II hypertension. Only 2(6.67%) were Ova vegetarian, which was pre hypertension. The χ^2 value 32.38 was significant at 0.05 level.

Regarding habits majority{20(67%)} had no bad habits among them , 8(26.7 %) were pre hypertensive,10(33.3%) were having stage I hypertension and 2(6.67%) were with stage II hypertension .6 (20%)had betel chewing, among them, 2(6.67 %) were pre hypertensive, 1(3.33%) were having stage I hypertension and 3(10%) were stage II hypertension. Only 2(6.67%) had alcohol and smoking habit. Among which 1(3.33%)

was pre hypertensive, 2 (6.67%) were having stage I hypertension and 1 (3.33%) were Stage II hypertension. The χ^2 value 3.071 was not significant at 0.05 level.

Regarding previous source of information majority {17(56.7%)} had family as source among them, 6(20 %) were pre hypertensive, 7(23.3%) were having stage I hypertension and 4(13.3%) were with stage II hypertension 8 (27%) had medical persons as source of information among them 4(13.3%) were pre hypertensive, 3(10%) were having stage I hypertension and 1(3.33%) was stage II hypertension. Only 5(16.7 %) had media as source. Among which 1(3.33%) was pre hypertensive, 3(10%) were having stage I hypertension and 1 (3.33%) was Stage II hypertension. The χ^2 value 1.4022 was not significant at 0.05 level.

This shows that the dietary factor among the selected demographic variable had significant association with the pre-test blood pressure level. The χ^2 32.38 was significant at 0.05 level.

CHAPTER - V



DISCUSSION AND SUMMARY

CHAPTER-V

DISCUSSION AND SUMMARY

The aim of the present study was to evaluate the effectiveness of watermelon consumption in control of blood pressure among hypertensive clients between 40-70 years. The research design was quasi experimental design and the sample size was 30. Samples were selected by convenient sampling technique.

The pre-test and post-test blood pressure level was monitored using the observation checklist method.

The responses were analyzed through descriptive statistics (mean, frequency, percentage and standard deviation) and inferential statistics (co-efficient, paired 't' test and χ^2). Discussions on the findings were analyzed based on the objectives of the study.

OBJECTIVE – 1 :

To assess the level of blood pressure among hypertensive clients, in selected villages.

FINDINGS – 1:

Among the total 30 newly identified hypertensive clients 36.7 % were pre-hypertensive clients, 43.3% of them were with stage I hypertension and about 20 % of the samples were identified to have stage II hypertension.

DISCUSSION-1

The National health and Nutrition Examination Survey (NHANES) conducted survey from 2003-2010. In that survey they identified that 39% of people at national level were suffering with untreated and undiagnosed hypertension.

OBJECTIVE – 2:

To evaluate the effectiveness of watermelon consumption in reducing the blood pressure level among hypertensive clients.

FINDINGS – 2:

Revealed that the post test systolic blood pressure mean was 11.53 and the pre-test systolic BP mean was 12.35. The obtained 't' value = 13.796 which was highly significant at 0.05 level.

The post-test diastolic BP mean was 86.83 and the pre-test blood pressure mean was 94.25. The obtained 't' value = 5.492 which was significant at 0.05 level.

Thus the watermelon consumption was found to be effective in control of blood pressure among hypertensive clients between 40-70 years.

DISCUSSION-2

A study published in “**Nutrition**” in **2007** found that the high concentrations of citrulline in watermelon increased levels of arginine in the blood of adult subjects who consumed three glasses of watermelon juice every day for three weeks. Thus the study supports the watermelon consumption in control of blood pressure.

OBJECTIVE – 3:

To determine the association between the level of blood pressure and the selected demographic variables.

FINDINGS – 3

The association between the pre-test blood pressure and demographic variable of hypertensive client's age, sex, education, occupation, type of family, type of occupation, monthly income, marital status, habit sand previous source of information were not

significant at 0.05 level. The dietary pattern was found to have significant association at 0.05 level with the pre-test blood pressure level. The χ^2 value was 32.38 and it was found to be significant at 0.05 level.

DISCUSSION- 3

Appel, Sacks, Carey et, al (2005), in their studies showed that diets high in fruits, vegetables and low- fat dairy products could prevent the development of hypertension and lower elevated blood pressure.

SUMMARY

The study was conducted in selected community area at Namakkal District.

The research design used was one group pre-test post test experimental design. The samples were selected by convenient sampling technique. The sample size consisted of 30 hypertensive clients between 40 – 70 years. The tool used for the data collection was a structured interview schedule to assess the level of knowledge regarding hypertension.

The tool used to collect the data comprised of 3 sections. Section I dealt with demographic variables, Section II had questionnaires to assess the knowledge of hypertension, Section III had observation checklist to assess the blood pressure level of the hypertensive clients.

The content validity was done by 5 experts. Reliability was done by test re-test method. The tool was found to have positive co-efficient correlation score ($r = 0.98$). The tool was found to be reliable. Data was collected for four weeks in the selected community area.

The data was analyzed by using descriptive statistics (percentage, mean and standard deviation) and inferential statistics (paired 't' test and chi square).

IMPLICATION OF THE STUDY

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

NURSING PRACTICE

- ✓ Nurse can motivate the individuals to include watermelon in their daily diet.
- ✓ Nurse should know the preparation of watermelon juice, its nutritional value and how much to take, while considering its potassium content.

NURSING ADMINISTRATION

- ✓ Nurse administrator should plan for nutritional programmes and food exhibitions.
- ✓ The Nurse administrator can encourage the staff nurses and student nurses and multipurpose health workers to involve in research activities related to hypertension.
- ✓ Periodic seminar, discussion, workshop and conference have to be conducted for staff nurse and other medical personnel.

NURSE EDUCATION

- ✓ Nurse educator need to prepare the nursing students to obtain skills in educating the people about the importance of watermelon and its health benefits.
- ✓ Nurse must update the knowledge of hypertension and other alternative therapies.
- ✓ Nurse should motivate the need to prevent the chance of hypertension through dietary measures.

NURSING RESEARCH

- ✓ More research studies in India are needed to identify the problems of hypertension and the importance of dietary and lifestyle modifications.
- ✓ The study findings will help the nursing researcher to conduct studies on various aspects of hypertension.

LIMITATIONS

- ✓ The study was focused only on age group between 40-70 years.
- ✓ The study was limited to 30 samples.

RECOMMENDATIONS

The following recommendations are given for further research,

- ✓ A similar study can be done with large number of samples.
- ✓ The study can be done for known hypertensive clients.
- ✓ A similar study can be done as a comparative study with other alternative therapies.

CONCLUSION

The conclusion which was drawn from the present study was, there were numerous cases of undiagnosed hypertension who needs dietary modification through that there is a chance of preventing hypertension. After the consumption of watermelon, the blood pressure was reduced to some extent. Thus watermelon consumption was effective in controlling blood pressure.

BIBLIOGRAPHY

BOOK REFERENCES

1. B.T.Basavanthappa, **“NURSING RESEARCH”** .I edition. New Delhi: Jayapee Medical Publishers; 2005.219-223.
2. B.T.Basavanthappa, **“COMMUNITY HEALTH NURSING”**. II edition. New Delhi: Jayapee Medical Publishers; 2008.794-798.
3. Bharat Pareek, Shivani Sharma, **“A TEXT BOOK OF NURSING RESEARCH& STATISTICS”**. I edition. Jalandhar city: S.Vikas & Company (Medical Publishers); 2011.310-312.
4. Brunner & Suddarths et,al , **“MEDICAL-SURGICAL NURSING ”**. XIII edition. New Delhi: Published by Wolters Kulwer ; 2014.861-874. I Volume.
5. Denise.P.Polit & Cheryl Tatano Beck, **“NURSING RESEARCH GENERATING AND ASSESSING EVIDENCE FOR NURSING PRACTICE”**.VIII edition. New Delhi: Published by Wolters Kulwer; 2008.748.
6. D. Elakkuvana Bhaskara Raj, **“DEBR’S NURSING RESEARCH & STATISTICS”**. I edition. Bangalore : EMMESS Medical Publishers ;2014; 335-338.
7. K.K.Gulani,”**COMMUNITY HEALTH NURSING PRINCIPLES & PRACTICES”**. I edition. New Deihi: Kumar Publishing House; 2005;225.

8. KasthuriSundar Rao, **“AN INTRODUCTION TO COMMUNITY HEALTH NURSING”**. IV edition. New Delhi: B.I Publications (P) Ltd; 2004; 664-665.
9. S.Kamalam, **“ESSENTIALS IN COMMUNITY HEALTH NURSING PRACTICE”**.I edition . New Delhi: Jayapee Medical Publishers; 2005; 315.
10. Kothari CR ,**“RESEARCH METHODOLOGY”**. II edition. New Delhi: New Age International Publications; 2004;214.
11. Lewis,**“MEDICAL - SURGICAL NURSING”**.VI edition. Missouri: Mosby Publishers ; 2004; 777-779.
12. Melanie Mc Ewen, Evelyn M. Wills SSS,**“THEORETICAL BASIS FOR NURSING”**.III edition. Philadelphia: Published by Wolters Kluwer; 2011; 254.
13. Marilyn. E. Parker, **”NURSING THEORIES AND NURSING PRACTICE”**. II edition. New Delhi: Jayapee Medical Publishers; 2007.790-794.

JOURNALS

1. Amanda G Ribeiro, Sonia MR Ribeiro, et, al, **“NON-PHARMACOLOGICAL TREATMENT OF HYPERTENSION IN PRIMARY HEALTH CARE: A COMPARATIVE CLINICAL TRIAL OF TWO EDUCATION STRATEGIES IN HEALTH AND NUTRITION”**, *BMC Public Health* . 2011, 11:637
2. Appel LJ, Moore TJ, et, al, **“A CLINICAL TRIAL OF THE EFFECTS OF DIETARY PATTERNS ON BLOOD PRESSURE: DASH COLLABORATIVE RESEARCH GROUP”**, *New England Journal of Medicine*. 1997; 336: 1117–1124.
3. Bhatt SP, et,al , **“NON-PHARMACOLOGICAL MANAGEMENT OF HYPERTENSION”**, *INDIAN JOURNAL OF MEDICAL SCIENCE”*, 2007;61:616-24.
4. Conlin PR, Chow D, **“THE EFFECT OF DIETARY PATTERNS ON BLOOD PRESSURE CONTROL IN HYPERTENSIVE PATIENTS: RESULTS FROM THE DIETARY APPROACHES TO STOP HYPERTENSION (DASH) TRIAL”**, *Journal Of American Diet Association*, 1999 Aug; 99(8):S35-9.
5. Figueroa A, Wong A et, al, **“EFFECTS OF WATERMELON SUPPLEMENTATION ON AORTIC HEMODYNAMIC RESPONSES TO THE COLD PRESSOR TEST IN OBESE HYPERTENSIVE ADULTS”**, *American Journal of Hypertension*. 2014 July; 27(7): 899-906.

6. Figueroa A, Sanchez-Gonzalez MA et.al, **“EFFECTS OF WATERMELON SUPPLEMENTATION ON AORTIC BLOOD PRESSURE AND WAVE REFLECTION IN INDIVIDUALS WITH PREHYPERTENSION: A PILOT STUDY”**, *American Journal of Hypertension*, 2011 Jan; 24(1):40-44.
7. Geleijnse JM, Kok FJ, Grobbee DE, **“BLOOD PRESSURE RESPONSE TO CHANGES IN SODIUM AND POTASSIUM INTAKE: A META-REGRESSION ANALYSIS OF RANDOMIZED TRIALS”**. *Journal of Human Hypertension*,2003; 17: 471–480.
8. Gupta R, **“TRENDS IN HYPERTENSION EPIDEMIOLOGY IN INDIA”**, *Journal of Human Hypertension*.2004, 18(2):73-78.
9. Harsha. DW, Lin PH et. al. **”DIETARY APPROACHES TO STOP HYPERTENSION: A SUMMARY OF STUDY RESULTS. DASH COLLABORATIVE RESEARCH GROUP”**, *American Journal Of Hypertension*,2000 Sep;13(9):949-55.
10. Karanja NM, Obarzanek E, **“DESCRIPTIVE CHARACTERISTICS OF THE DIETARY PATTERNS USED IN THE DIETARY APPROACHES TO STOP HYPERTENSION TRIAL: DASH COLLABORATIVE RESEARCH GROUP”**. *Journal of American Diet Association*, 1999; 99: S19–S27.
11. Kim MK, Kim K. **“THE RELATIONSHIP OF DIETARY SODIUM, POTASSIUM, FRUITS, AND VEGETABLES INTAKE WITH BLOOD PRESSURE AMONG KOREAN ADULTS AGED 40 AND OLDER”**. *Nutritional Research Practice*. 2014 Aug ;8(4):453-62.

12. Obarzanek. E, Moore. T. J ,et.al. **“INDIVIDUAL BLOOD PRESSURE RESPONSES TO CHANGES IN SALT INTAKE: RESULTS FROM THE DASH-SODIUM TRIAL”**, *Hypertension*,2003; 42: 459–467.
13. O'Shaughnessy KM, **“ROLE OF DIET IN HYPERTENSION MANAGEMENT”**, *Current Hypertension Report*. 2006 Aug;8(4):292-7.
14. Rajiv Agarwal, Jennifer E. Bills, **“ROLE OF HOME BLOOD PRESSURE MONITORING IN OVERCOMING THERAPEUTIC INERTIA AND IMPROVING HYPERTENSION CONTROL-A SYSTEMATIC REVIEW AND META-ANALYSIS”**, *Hypertension* , 2011;57: pp 21–23.
15. Reddy KS, Yusuf S, **“EMERGING EPIDEMIC OF CARDIOVASCULAR DISEASE IN DEVELOPING COUNTRIES”**. *Circulation*. 1998, 97(6):596-601.
16. Trevisol DJ et . al. **”HEALTH-RELATED QUALITY OF LIFE AND HYPERTENSION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF OBSERVATIONAL STUDIES”**. *Journal of Hypertension*, 2011 Feb; 29(2):179-88.
17. Whelton M, Reynolds K, et.al, **“GLOBAL BURDEN OF HYPERTENSION: ANALYSIS OF WORLDWIDE DATA”**, *Lancet* 2005, **365**(9455):217-223.
18. Youssef MK Farag, Bharati. V. Mittal, et.al. **“BURDEN AND PREDICTORS OF HYPERTENSION IN INDIA: RESULTS OF SEEK (SCREENING AND EARLY EVALUATION OF KIDNEY DISEASE) STUDY”**, *BMC Nephrology* 2014, **15**:42.

NO AUTHORS REFERENCES

- a. Ethical Issue On Indian Guidelines On Hypertension (I.G.H.)-III, Epidemiology of Hypertension, February 2013, Vol. 61.
- b. The effects of non-pharmacologic interventions on blood pressure of persons with high normal levels. Results of the Trials of Hypertension Prevention, Phase I. Journal of American Medical Association, 1992 Mar 4; 267(9):1213-20.

NET REFERENCES

<http://www.biomedcentral.com/>

<http://www.naturalhealth365.com/>

<http://indianheartjournal.com/>

<http://www.biomedcentral.com/>

<http://www.naturalnews.com/>

<http://www.nutraingredients-usa.com/>

www.pubmed.com.

<http://hyper.ahajournals.org>

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LETTER REQUISITING OPINION AND SUGGESTION OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH TOOL

From

Mrs. S.Revathi,
II Year, M.Sc.(Nursing),
Anbu College of Nursing,
Komarapalayam – 638 183,

To

Through

The Principal,
Anbu College of Nursing,
Komarapalayam – 638 183,
Namakkal District.

Respected Sir/ Madam,

SUB : Requesting for opinion and suggestion of experts for
Content Validity – Regarding.

I am Mrs.S.Revathi, doing II year M.Sc. Nursing Community Health Nursing Speciality in Anbu College of Nursing, Komarapalayam.

As a partial fulfillment of the requirement for the award of the Degree of Master of Science in Nursing under The Tamil Nadu Dr.MGR Medical University, Chennai, I have selected the following topic for research **“A study to assess the effectiveness of watermelon consumption in control of blood pressure among hypertensive clients between 40 -70 years in selected villages at Namakkal District”**.

I herewith enclosed the tool for its Content Validity and I kindly request you to examine the tool and give your valuable opinion and suggestions.

Thanking You,

Place: Komarapalayam

Yours Sincerely,

Date:

ANNEUXER - III

LIST OF EXPERTS

1. Mrs. Arockiamary, M.Sc (N),
Reader,
Dept of Community Health Nursing,
Sre Sakthimayeil Institute of Nursing and Research,
Komarapalayam.
2. Mrs.Deepa., M.Sc(N),
Assistant Proffessor,
Dept of Community Health Nursing,
Vivekanandha College of Nursing,
Sankagiri.
3. Mrs.Aishwarya, M.Sc,M.Phil.,
Professor,
Bio-statistician,
Anbu College Of Nursing,
Komarapalayam.
4. Mrs.R.Indu Helen, M.Sc(N),
Reader,
Dept of Community Health Nursing,
Anbu College Of Nursing,
Komarapalayam.
5. Dr.R.Ramesh Kumar., B.S.M.S.,
Reg.No.1470 ,
Kongu Siddha Clinic,
Erode .

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of **Reg. No 301327753**, M.Sc(N) student who is undertaking, **“A STUDY TO ASSESS THE EFFECTIVENESS OF WATERMELON CONSUMPTION IN CONTROL OF BLOOD PRESSURE AMONG HYPERTENSIVE CLIENTS BETWEEN 40 -70 YEARS IN SELECTED VILLAGES AT NAMAKKAL DISTRICT”**.

Signature of the expert :

Name :

Designation :

SUGGESTION REPORT :

Please put () mark.

ITEMS	APPROPRIATE	INAPPROPRIATE	REMARKS
Demographic variables			
Knowledge questionnaires			
Observation Check list			

Signature of the Expert with Date

ANNEUXURE-IV

SECTION I

Instructions to the participants;

- The participants are instructed to listen and understand the questions.
- The participants are instructed answer the following questions to the best of their knowledge.
- The confidentiality will be maintained.

QUESTIONS REGARDING THE DEMOGRAPHIC VARIABLES

1. Age in years

- (a) 41-50 ()
- (b) 51-60 ()
- (c) 61-70 ()

2. Sex

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

3. Education

- (a) Illiterate ()
- (b) Primary Education ()
- (c) Graduate ()

4. Occupation

- (a) Housewife ()
- (b) Coolie ()

- (c) Government Employee ()
 - (d) Others ()

- 5. Type of family
 - (a) Nuclear family ()
 - (b) Joint family ()
 - (c) Extended family ()

- 6. Type of occupation
 - (a) Sedentary Worker ()
 - (b) Moderate Worker ()
 - (c) Heavy Worker ()

- 7. Monthly income of the family
 - (a) Less than 5000 ()
 - (b) 5001-10,000 ()
 - (c) More than 10,000 ()

- 8. Marital status
 - (a) Married ()
 - (b) Unmarried ()
 - (c) Widower ()

- 9. Dietary pattern
 - (a) Vegetarian ()
 - (b) Non-Vegetarian ()
 - (c) Ova-Vegetarian ()

10. Habit

- (a) Smoking ()
(b) Alcohol ()
(c) Betel Chewing ()
(d) No bad habits ()

11. Residential Area

- (a)Town () (b)Village () (c)City ()

12. Previous source of information

- (a) Media ()
(b) Family Members ()
(c) Medical Persons ()

SECTION II

Instructions to the participants;

- The participants are instructed to answer the following questions.
- These questions were selected to assess the knowledge of hypertension.
- The participants were instructed to answer the questions to the best of their knowledge.
- Oral consent was acquired before questioning.

Questions regarding knowledge of hypertension

1. Leading health problem in India is

- (a) Fever (b) Diarrhea (c) **Hypertension** (d) Cancer

2. Hypertension means

- (a) **Increased blood pressure**
- (b) Increased psychological stress
- (c) Increased physiological stress
- (d) Disease caused due to sin

3. The common cause for hypertension is

- (a) **Obesity**
- (b) Malnutrition
- (c) Poverty
- (d) Anemia

4. Risk factor for hypertension is

- (a) **Heredity**
- (b) Psychological stress
- (c) Starvation
- (d) Malnutrition

5. Hypertension is common among

- (a) Infants
- (b) Adolescents
- (c) **Old Age**
- (d) Adults

6. Hypertension can be identified by

- (a) Checking blood pressure
- (b) Urine test
- (c) Blood test
- (d) **All the above.**

7. The main symptom of hypertension is

- (a) **Headache**
- (b) Dyspnea
- (c) Profuse sweating
- (d) Diarrhea.

8. Hypertension can be treated by

- (a) Drinking more water
- (b) Avoiding rice intake
- (c) **Medications**
- (d) Reducing fruits intake

9. Hypertensive patients should reduce

- (a) Fruit
- (b) Vegetable
- (c) **Salt**
- (d) Rice

10. Hypertension can be controlled by

- (a) **Balanced body weight**
- (b) Decreased oil consumption
- (c) Decreased fruit intake
- (d) Increased protein intake

11. Hypertension can be prevented by

- (a) Reducing salt intake
- (b) Regular exercise
- (c) Balanced body weight
- (d) **All the above**

12. The mineral responsible for increased blood pressure is

- (a) Potassium
- (b) **Sodium**
- (c) Calcium
- (d) Magnesium

13. The organ highly affected by hypertension is

- (a) Eyes
- (b) Lungs
- (c) **Kidney**
- (d) Liver

14. Hypertensive clients should consume

- (a) **Fruits**
- (b) Fried fruits

- (c) Cereals (d) Baked foods

15. Complication of Hypertension is

- (a) Respiratory failure (b) **Kidney failure**
(c) Liver failure (d) Vision defect

16. Hypertensive clients should avoid

- (a) Walking
(b) **Smoking**
(c) Heavy lifting
(d) Dancing

17. Hypertension is a

- (a) Communicable disease
(b) **Non-Communicable disease**
(c) Temporary disease
(d) Acute illness

18. Fruit which may reduce Hypertension is

- (a) Custard Apple (b) Lemon
(c) Orange (d) **Watermelon**

19. Fruit helps in

- (a) Promoting circulation (b) Prevents Atherosclerosis
(c) Prevents Hypertension (d) **All the above**

20. Fruit should be taken during

- (a) Morning
- (b) Afternoon
- (c) Mid morning
- (d) **All the above**

SECTION III

BLOOD PRESSURE MONITORING CHECK LIST

SAMPLE NO.	SYSTOLIC BP		DIASTOLIC BP		REMARKS
	Before administering Watermelon	After administering Watermelon	Before administering Watermelon	After administering Watermelon	

SCORING:

Reduced

Not reduced

gFjp – I

egiug; gw;wpa jfty;fs; fPNo fz;ltw;wpy; cs;s Nfs;tpfspy; cq;fsJ tpguq;fis (✓
) ,e;j FwpaPl;by; Fwpf;fTk;.

1. taJ (Mz;Lfspy;)

m. 40 - 50 ()

M. 51 - 60 ()

,. 61 - 70 ()

2. ghypdk;

m. Mz; ()

M. ngz; ()

3. fy;tpj;jFjp

m. fy;tpj;jFjp ,y;iy ()

M. Muk;gf;fy;tp ()

,. gl;jhhp ()

4. njhopy;

m. ,y;yj;jurp ()

M. \$yp ()

,. murhq;f Ntiy ()

<. kw;wit ()

5. FLk;gj;jpd; tif

m. jdpf;FLk;gk; ()

M \$l;Lf;FLk;gk;; ()

, ePl;bg;Gf;FLk;gk; ()

6. njhopy; Kiw

m. kpjNtiy ()

M ruhrhp Ntiy ()

, fbd Ntiy ()

7. FLk;gj;jpd; khjtUkhdk;

m. 5000 f;Fk; FiwT ()

M. 5001 - 10000 ()

,. 10000 f;Fk; Nky; ()

8. jpUkzj; jFjp

m. jpUkzk; Mdth; ()

M. jpUkzk; Mfhjth; ()

,. Jiz ,oe;jth; ()

9. czTg; gof;fk;

m. irtk; ()

M. mirtk; ()

,. Kl;il rhh;ej irtk; ()

10. gof;fk;

m. Gifgpbj;jy; ()

M. Fbg;gof;fk; ()

,. ntw;wpiy nky;Yjy; ()

<. vJTk; ,y;iy ()

11. ,Ug:gplk;

m. efuk; ()

M. fpuhkk; ()

., khfuk; ()

12. cah; ,uj;j mOj;jk; gw;wpa jftiy vjd;%yk; mwpe;jPh;fs;?

m. jfty; njhlh;G rhjdq;fs; ()

M. FLk;g cWg;gpdh;fs; ()

., kUj;Jtj;Jiwiar; rhh;e;jth;fs; ()

gFip – II

II cah; ,uj;j mOj;jk; gw;wpa mwpT rhh;e;j tpdhf;fis ;

1. ,e;jpahtpy; mjpfkhf fhzg;gLk; Neha; vJ?

m. fha;r;ry;

M. tapw;Wg;Nghf;F

., **cah; ,uj;j mOj;jk;**

<. Gw;WNeha;

2. cah; ,uj;j mOj;jk; vd;gJ

m. mjpf ,uj;j mOj;jk;

M. mjpf kd mOj;jk;

., cly; cghijapdhy; tUk; mOj;jk;

<. ghtj;jpdhy; tUk; Neha;

3. cah; ,uj;j mOj;jj;jpw;fhd nghJthd fhuzk;

m. cly; gUkd;

M rj;J FiwghL

, tWik

< ,uj;j Nrhif

4. cah; ,uj;j mOj;jk; tUtjw;fhd tha;g;Gf;fhd fhuzp

m. guk;giu

M cly; cghij

, gl;bdp

< rj;Jf; FiwT

5. cah; ,uj;j mOj;jk; ,t;tajpdhplk; nghJthf fhzg;gLk;

m. 1 - 12 khj Foe;jfs;

M. gs;spf; Foe;jfs;

., **KjpNahh;**

<. ,sk; tajpdh;

6. cah; ,uj;j mOj;jj;ij fz;lwpAk; Kiw

m. ,uj;j mOj;jj;jpd; msit fz;fhzpj;jy;

M. rpWePh; ghpNrhjid

., ,uj;j ghpNrhjid

<. **Nkw;Fwpa midj;Jk;**

7. cah; ,uj;j mOj;jj;jpd; Kf;fpa mwpFwp

m. jiytyp

M. %r;Rj;jpzwy;

., mjpgkhf tpah;j;jy;

<. tapw;Wg;Nghf;F

8. cah; ,uj;j mOj;jj;jpw;fhd rpfpr;ir Kiw

m. mjpgf msT jz;zPh; gUFjy;

M. mhprp cztpidj; jtph;j;jy;

,. **kUj;Jt rpfpr;ir**

<. Fiwe;j msT goq;fis vLj;Jf; nfhs;Sjy;

9. cah; ,uj;j mOj;j Neahspfs; Fiwj;Jf;nfhs;s Ntz;baJ

m. goq;fs;

M. fha;fwpfs;

,. **cg;G**

<. mhprp

10. cah; ,uj;j mOj;jj;ij ,t;thW fl;Lg;gLj;jyhk;

m) cly; vil fl;Lg;ghL

M) mjpf msT vz;nza; cgNahfpj;jy;

,) Fiwe;j msT goq;fis vLj;Jf; nfhs;Sjy;

<) mjpf msT Gujr;rj;J vLj;Jf; nfhs;Sjy;

11. cah; ,uj;j mOj;jj;ij jLf;Fk; Kiw

m) cg;igf; Fiwj;jy;

M) Kiwahd clw;gapw;rp

,) ruhrhp cly; vil

<) **Nkw;\$wpa midj;Jk;**

12. ,uj;j mOj;jk; mjpfkhtjw;Ff; fhuzkhd jhJ

m) nghl;lhrpak;

M) Nrhbak;

,) fhy;rpak;

<) kf;dPrpak;

13. cah; ,uj;j mOj;jj;jpdhy; mjpfst ghjpf;fg;gLk; cWg;G

m) fz;fs;

M) EiaPuy;

,) rpWePufk;

<) fy;yPuy;

14. cah; ,uj;j mOj;jk; cs;sth;fs; vLj;Jf;nfhs;s Ntz;baJ

m) goq;fs;

M) nghwpj;j czT

,) gUg;G tiffs;

<) fil czT

15. cah; ,uj;j mOj;jj;jpd; tpisT

m) Eiuapuy; nray; ,oj;jy;

M) rpWePuf ghjpg;G

,) fy;yPuy; ghjpg;G

<) Gw;W Neha;

16. cah; ,uj;j mOj;jk; cs;sth;fs; jtph;f;f Ntz;baJ

m) eilgapw;;rp

M) Gifgpbj;jy;

,) kpjptz;b kpj;jy;

<) eldk;

17. cah; ,uj;j mOj;jk; vd;gJ

m) guTk; Neha;

M) guthj Neha;

,) jw;fhypf Neha;

<) FWfpa fhy eyf; FiwT

18. cah; ,uj;j mOj;jj;;ij fl;Lg;gLj;j cjTk; gok;

m) rPj;jhg;gok;

M) vYkpr;ir

,) MuQ;R

<) jh;g+rzp

19. goq;fs; cz;gjhy; tpisAk; ed;ik

m) ,uj;j Xl;l;j;ij Nkk;gLj;Jk;

M) ,uj;jf; Foha;fspy; nfhOg;Gg; gbtij jLf;Fk;

,) cah; ,uj;j mOj;jj;ij jLf;Fk;

<) Nkw;\$wpa midj;Jk;

20. goq;fs; vLj;Jf;nfhs;s cfe;j Neuk;

m) fhiy

M) kjpak;

,) ez;gfy;

<) Nkw;\$wpa midj;Jk;