DISSERTATION ON

A STUDY TO ASSESS THE EFFECTIVENESS OF CUCUMBER IN   REDUCTION   OF   BLOOD   PRESSURE   AMONG HYPERTENSIVE CLIENTS IN SELECTED   RURAL AREA AT MEDAVAKKAM, CHENNAI

MSc (NURSING) DEGREE EXAMINATION
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A dissertation submitted to

THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY,

CHENNAI – 600 032.

In partial fulfillment of requirements for the degree of

MASTER OF SCIENCE IN NURSING

APRIL 2016

CERTIFICATE

       This is to certify that this dissertation titled **" a study to assess the effectiveness of Cucumber in reduction of blood pressure among hypertensive clients in selected rural area at medavakkam"** is a bonafide work done by **Mrs.G. Sudha II year MSc (N) student** College of Nursing, Madras Medical College, Chennai – 600003 submitted to **The Tamilnadu Dr.M.G.R. Medical University, Chennai-32,** in Partial fulfillment of the requirements for the award of Degree of **Master of Science in Nursing, Branch - IV, Community Health Nursing** under our guidance and supervision during the academic period from **2014 – 2016**.

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"Unselfish and noble actions are the most radiant pages in the biography of souls."

-**David Thomas**

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DF	Degrees of Freedom
SD	Standard Deviation
CI	Confidence Interval
P	Significance
Fig	Figure
H	Hypothesis
M Sc (N)	Master of Science in Nursing
χ2	Chi square test
No	Number
SBP	Systolic Blood Pressure
DBP	Diastolic Blood Pressure
WHO	World Health Organization
DASH	Dietary Approach to Stop Hypertension
HTN	Hypertension
HBP	High Blood Pressure

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ABSTRACT

TITLE

A study to assess the effectiveness of Cucumber   in reduction of blood pressure among hypertensive clients in selected rural area at Medavakkam, Chennai

High blood pressure has no symptoms, but if it's not treated it can damage the kidney, heart and brain. So it needs lifelong treatment. It can be largely avoided by taking simple precautions and proper control of the disease.

Need for the study

One third of adults worldwide hypertensive clients, increase blood pressure a condition that causes around half of all death from stroke and heart diseases. In rural area 20% peoples are hypertensive clients but 25% of people only they taking treatment but75% of people with hypertension ignorant of their condition it leads to reduce their life, So I select the hypertension for my studies.

Objectives:

1) To assess the pre test and post test blood pressure level among hypertensive clients in experimental group.
2) To assess the pre test and post test blood pressure level among hypertensive clients in control group.
3) To identify the effectiveness of cucumber in the control of hypertensive clients in experimental group.
4) To find out the association between certain demographic variable and clinical variable with reduction of blood pressure level in the experimental group.

Methodology:

Research approach: Quantitative approach

Study setting: The study was conducted in rural streets at Medavakkam

Study design: pre test and post test only design

Study population: Hypertensive clients with in 40-60 years age group in
                        selected rural streets at Medavakkam.

Sample size: 60 hypertensive clients, 30 clients for experimental group and
                        30 clients for control group.

Sampling technique: Simple random sampling technique by lottery method.

Data collection procedure: In this study 100 grams of cucumber was administered once a daily in the mid morning for two weeks . At the end of the fourth week blood pressure were measured in both experimental and control group using sphygmomanometer by observing biological variables.

Data analysis: Data were analyzed through descriptive (frequency, percentage, distribution, mean, standard deviation) and inferential statistical (independent, paired 't' test and chi square test) methods.

Study results: The cucumber found to be effective in experimental group by considering SBP 6.9% of blood pressure was reduced, considering   DBP 9.8% of blood pressure was reduced than the pretest. and in control group 1.84% of systolic blood pressure and 3.67% reduction of DBP than the pretest.

Discussion: The collected data were analyzed using descriptive and inferential statistics and the results statistical significant was calculated under 95% of confidence interval , In experimental group before administration of cucumber the mean SBP was149 mmHg after the intervention 139 mmHg,($p=0.001$) In DBP before 95.33 and after the intervention 83.44mmHg ($p=0.001$) this shows the

effectiveness of cucumber on hypertensive clients, there is a statistical significant reduction of blood pressure in experimental group.

Conclusion:

The study proves that cucumber is effective in controlling blood pressure level more specifically diastolic blood pressure level among hypertension patients and prevents them from developing complications. It is one of the cost effective alternative source of reducing blood pressure among hypertensive clients in the community.

CHAPTER I

INTRODUCTION

"The most important and crucial part of any individuals life is
its health and sound life, because other than that
nothing is superior in this universe"

Blood pressure is the force exerted by the blood against the walls of blood vessels, and the magnitude of this force depends on the cardiac output and the resistance of the blood vessels.

Hypertension is having a blood pressure higher than 140 over 90 mmHg, a definition shared by all the medical guidelines. This means the systolic reading (the pressure as the heart pumps blood around the body) is over 140 mmHg (millimeters of mercury) or the diastolic reading (as the heart relaxes and refills with blood) is over 90 mmHg. While this threshold has been set to define hypertension, it is for clinical convenience and because achieving targets below this level brings benefits for patients.

High blood pressure, or hypertension, is a condition in which blood pressure is chronically elevated. According to the National Institutes of Health, blood pressure readings of 140/90 mm-Hg and higher on recurring measurements is considered hypertension. Persistent hypertension is one of the highest risk factors for stroke, heart attack, heart failure, and arterial aneurysm. It is a leading cause of chronic kidney failure.

Types of Hypertension

Essential or primary hypertension has no specific causes; it's associated with genetics, environment, diet, and lifestyle factors, including salt intake, stress, and lack of exercise.

Secondary hypertension is a result of other underlying - often serious - conditions such as tumors and kidney or liver disorders. Some medications, such as oral contraceptives, can also cause elevated blood pressure.

Table 1.1: Classification of blood pressure for adults		
Category	**systolic, mm Hg**	**diastolic, mm Hg**
Hypotension	< 90	< 60
Desired	**90–119**	**60–79**
Pre hypertension	120–139	80–89
Stage 1 hypertension	140–159	90–99
Stage 2 hypertension	160–179	100–109
Hypertensive urgency	≥ 180	≥ 110
Isolated systolic hypertension	≥ 160	< 90

Table 1.1 presented here shows the classification of blood pressure adopted by the American Heart Association for adults who are 18 years and older. It assumes the values are a result of averaging resting blood pressure readings measured at two or more visits to the Doctor.

Factors increases risk of high blood pressure

There are some factors that increase your risk of developing high blood pressure, which you cannot control. These includes:

- **Age:** as you get older, the effects of an unhealthy lifestyle can build up and your blood pressure can increase.
- **Ethnic origin**: people from African-Caribbean and South Asian communities are at greater risk than other people of high blood pressure.
- **Family history**: you are at greater risk if other members of your family have, or have had, high blood pressure.

- Some people may have high blood pressure that is linked to another medical condition, such as kidney problems.

Long term hypertension is a risk factor for many diseases, including kidney failure, heart disease, and stroke. So Hypertension often called as "SILENT KILLER". This requires the heart to work harder than normal to circulate blood through the blood vessels.

In India, the prevalence of hypertension is reported to be increasing rapidly in the urban areas and the same trend is spreading gradually to rural area. Is estimated that there were about 66 million hypertensive in India (32 million rural and 34 million urban). Lack of knowledge about the morbidity, complications and the method of control of hypertension contributes to a large percentage of undetected and untreated hypertensive subjects in the community. Therefore, health care professionals must identify and treat patients with hypertension but also promote a healthy lifestyle and preventive strategies decrease prevalence of hypertension in the general populations

Risk factors for hypertension are majorly divided into two classifications. First one is non modifying risk factors and second one is modifying risk factors non modifying risk factors are age, sex genetic factors and ethnicity. Modifying risk factors are density, increased salt intake, increasing cholesterol, decreasing factor intake, and decreasing physical activity, higher level blood pressure is low socio-economic groups. Other factor includes noise, vibration, temperature and humidity. Majority of risk factors are prevented by healthy life style factors

Management of hyper tension include and pharmacological and non pharmacological and Lifestyle modifications that effectively lower blood pressure are increased physical activity, weight loss, and limited alcohol consumption, reduce sodium intake and the dietary approaches to stop hypertension.

Dietary approach to sleep hypertension (DASH) now recommended as an important nutrients and fiber but also includes foods that contain two half times the amounts of electrolytes potassium, calcium, and magnesium, phosphorus, potassium, and sodium,

Population strategy is directed at the whole population irrespective if individual risk level. This involves multi factorial approach based on the non pharmacological intervention including nutrition (salt intake 5 gm per day moderate fat intake avoid alcohol) weight reduction of stress and smoking in valve yoga and meditation) self care.

1.1 Need for the study

Hypertension is the most prevalent chronic disease, one in three adult hypertensive clients, approximately 20% adult population worldwide. The prevalence of hypertension in India is reported ranging from 59.9 and 69.9 per 1000 males and females in urban population and 35.5 and 35.9 per 1000 males and females in the rural population.

As a report of Daily News at Hindu, at the state level 79.8% above 35 years of age have developed hypertension. In Tamil Nadu 65.4/1000 males, 47.8/1000 females were exposed to hypertension in urban areas and 22.8/1000 males and 17.3/1000 females in rural areas. In Chennai total population affected by the hypertension is 3.041.038. In that 1.528.308 males and 1.512.730 females affected.

In rural area 20% peoples are hypertensive clients but 25% of people only they taking treatment but75% of people with hypertension ignorant of their condition it leads to reduce their lifetime, so I select the hypertension for my studies.

Many studies shows that cucumber which has low sodium, high amount of potassium and diuretic effect which can be used in reducing hypertension, As a community health nurse, the researcher finds that cucumber which is easily available in the market can be consumed as one of the primary preventive measure for hypertension in the community settings. This vegetable is easily accepted by the clients and available at affordable cost.

1.2 Statement of the problem

A study to assess the effectiveness of cucumber in reduction of blood pressure among hypertensive clients in selected rural area at Medavakkam, Chennai.

1.3 Objectives:

1)   To assess the pre test and post test blood pressure level among hypertensive clients in experimental group.

2)   To assess the pre test and post test blood pressure level among hypertensive clients in control group

3)   To identify the effectiveness of cucumber   in the control of hypertensive clients in experimental group

4)   To find out the association between certain demographic variable and clinical variable with reduction of blood pressure level in the experimental group.

1.4 Operational definition

Assess:

It refers to the systematically and continuously collect, validate the information about the hypertensive clients.

Effectiveness:

Effectiveness is defined as successfully producing intended results. In this study effectiveness refers to the changes in the blood pressure level after administration of cucumber for hypertensive clients.

Cucumber:

Cucumbers are widely cultivated green fleshy vegetable used in slices which is obtained from the gourd family cucurbitaceous.

Hypertension:

Hypertension is a systolic blood pressure greater than 140mm of Hg and a diastolic pressure greater than 90 mm of Hg, based on the average at two or more correct blood pressure measurement taken during two or more contacts with a health care provider.

Hypertensive client:

It refers to the clients, male and female who were blood pressure above 140/90 mm of Hg.

1.5 Assumptions

The researcher assumes that

- Consumption of cucumber may reduce blood pressure among hypertensive clients.

1.6 Hypotheses

- H1: There is a significant difference in the post test blood pressure level between experimental group and control group.
- H2: There is a significant association between the reduction of blood pressure level among hypertensive client and their selected socio demographic variables.

1.7 Delimitation

- The study is limited to the hypertensive clients of the selected streets of Medavakkam.
- The study is limited to the period of four weeks.

CHAPTER II

REVIEW OF LITERATURE

This chapter deals with an extensive review of literature relevant to the research topic was done to gain insight and to collect maximum information for laying the foundation of the study.

The review consists of two parts.

   2.1 Review of related studies

   2.2   Conceptual frame work

2.1 Review of related studies

In this study the review of literature is focused under three aspects:

- section 1: studies related to hypertension.
- section 2: Studies on health benefits of cucumber.
- section 3: Studies on "the effect of cucumber on blood pressure".

Section 1: Studies related to hypertension:

Shankar Radhakrishnan, **et al. (***2015)*   conducted a study on Prevalence of diabetes and hypertension among a tribal population in Tamil Nadu, studies had been carried out among the tribal population. A total of about 525 tribal population above 40 years of age from various tribal places in Yercaud. All of them were screened for diabetes, by checking the random blood glucose levels and blood pressure, body mass index, dietary patterns, and physical activity levels were also recorded. Their knowledge about diabetes was also assessed by a set of 10 questions. Among the study population, people who had RBS ≥ 200 was 28 (male = 11 and female = 17) and between 140 and 200 were 39 (male = 18 and female = 21) and people whose were in the pre hypertensive stage was 185 (males 92 and female 93) and people in the stage 1hypertension was 102 (male = 47 and female = 54) and in stage 2 hypertension was 64 (male = 33 and female = 29). The co morbidity (diabetes and hypertension) was

present in among 45 (male = 25 and female = 20). The study documented that the prevalence of diabetes and hypertension is increasingly high in the tribal areas and their awareness levels were very poor.

Raghupathy Anchal et al., (2014) Conducted a study on hypertension in India, a region specific (Urban & rural parts of north, east west), a systematic review and meta analysis of (South India) prevalence, awareness and of hypertension, Medline, web of science databases from 1950 to 30 April 2013, Indian adults (>18 years) blood pressure >140 SBP mm of Hg and >90 mm of Hg DBP the results overall prevalence for hypertension in India was 29.8% in 33% urban 25% rural Indians are hypertension or these 25% rural and 42% urban Indians are aware of their hypertension status only 25% rural 38% of urban Indians are being treated for hypertension one tenth of rural and one fifth of urban Indians hypertension population have their BP under control.

Malinoc et al., (2013) Hypertension is a major global public health risk and significant precursor to cardiovascular disease, stroke, diabetes and maternal mortality. A possible strategy to reduce chronic disease in resources poor areas is social intervention. Research into the possible relationship of social determinants and disease is needed to determine appropriate social interventions. This study aims to determine the association between social capital and hypertension in rural Haitian women From June to August 2010, 306 women, ages 18-49, who attended one of Hospital Albert Schweitzer's five rural dispensaries as patients or accompanying patients, were interviewed.

Leong KT, Krum. H et all., (2013) Resistant hypertension poses significant health concerns. There are strong demands for new safe therapeutic to control resistant hypertension, while addressing its common causes specifically poor compliance to lifelong polypharmacy, lifestyle modification and physician inertia. The sympathetic nervous system plays a significant path-physiological role in hypertension. Surgical sympathectomy for blood pressure

reduction is an old but extremely efficacious therapeutic concept since abandoned, with the dawn of safer contemporary pharmacology era.

Diaz KM, et al., (2013) as the world wide prevalence of hypertension continues to increase, the primary prevention of hypertension has become an important global public health initiative. Physical activity is commonly recommended as an important lifestyle modification that my aid in the prevention of hypertension. Recent epidemiologic evidence has demonstrated a consistent, temporal, and dose dependent relationship between physical activity and the development of hypertension. Experimental evidence from interventional studies has further confirmed a relationship between physical activity and hypertension as the favourable effects of exercise on blood pressure reduction have been well characterized in recent years.

Thomas AJ et al. (2013) Acute ischemia of the brainstem has been known to produce hypertension. After an initial review of central nervous system mechanisms contributing to systemic hypertension and the impact of the dorsal ventro lateral medulla (DVLM) on arterial pressure, the authors propose that essential hypertension involves neuro chemical changes at the level of the DVLM which are triggered by cerebral ischemia. Experimental and clinical data are presented to show that there is a link between ischemia of the brainstem and chronic hypertension.

Bansal, et al. (2012) had shown that both males and females, age and high BMI were significant predictors of hypertension and similar results were also quoted by Gupta *et al*. whereas in our study smoking was the only modifiable risk factor, which had shown significant association with hypertension and the family history of hypertension, which was a non modifiable risk factor had also shown a statistical significant association for hypertension in both males and females.

Chandler S (2012) Lance Armstrong Foundation conducted a community based survey to estimate prevalence, awareness, treatment, control and risk factors for hypertension in a rural population of south India. Cross-sectional survey was done in 11 villages of Tamilnadu, by The National Institute of Epidemiology (Indian Council of Medical Research, Chennai) of total 10,463 patients. Hypertension was coexistent in 2,247 patients. 1,682 patients were newly diagnosed with hypertension. **The study demonstrated the substantial burden of hypertension is on the rise in India.**

Ashaye et al. (**2011**) Hypertension is a major risk factor for the heart disease and stroke, the first and third leading causes of death in the United States. This review discuses the magnitude or the problem, its epidemiology, and the evaluation and management of hypertension as recommended by the reports of the Joint National Committee on prevention, detection, evaluation of treatment of high blood pressure Data from National Health and Nutrition Examination survey 2008 to 2011 suggest approximately three quarters (75%) of black hypertension one aware of their diagnosis but only 57% one treated & just 25% have their blood pressure under control (>140 mm Hg systolic & > 90 mm Hg diastolic). This review serves to emphasis and reiterates the burden of hypertension among block and acts as a reminder of the need for additional research to determine if culturally competent intervention are appropriate to prevent, treat and control this disease with in this population.

Dong, et al (2011) Prevalence of hypertension was significantly higher in males than females. Similar findings were reported by Hazarika *et al.*and Malhotra *et al*. showed increased prevalence in females when compared with males. All the studies agree with the fact that prevalence of hypertension increased with age which is in par with this study. Age probably represents an accumulation of environmental influences and the effect of genetically programmed senescence in body systems.

Mridul Chaturvedi, et al. (2009) With increasing economic growth rate, India is not only facing the epidemic of CAD but also of obesity, diabetes mellitus, and hypertension. The Chennai Urban Rural Epidemiological Study (CURES) shows that hypertension was present in 1/5th of urban south Indian population and majority of the hypertensive subjects still remain undetected and the control of hypertension is also inadequate. The scenario is similar throughout India. This calls for urgent prevention and control measures for hypertension. However, lifestyle modification is mostly neglected in the management of hypertension. In the present article we will discuss some of the non-pharmacological measures in the prevention of hypertension.

Section 2:Studies on health benefits of Cucumber:

Bina rani et.al (2014) conducted by international chemistry and pharmaceutical sciences a study on benefits of cucumber and results shows that cucumber is a vegetable which is very low calorie , 100 g of cucumber provide 15 calories, 147 mg of potassium, and 2 mg of sodium. Cucumber peel is a good source of dietary fiber , It help to prevent water retention applied topically. Cucumber provides us with valuable antioxidant, anti inflammatory and anti cancer benefit. It is a good source of potassium a heart friendly electrolyte helps bring a reduction in total blood pressure and heart rate by countering effect of sodium and also diuretic effect it helps to reduce blood pressure.

Burhani Natural science (2011) conducted a study on health benefits of cucumber. Cucumbers scientifically known as cucumissativus, are grown to be eaten fresh. 100 grams of cucumber contains 5.51mg Vitamin C, 5.20mcg Molybdenum, 223.60IU Vitamin A, 149.76mg potassium, 0.08mg manganese, 13.52mcgfolate, 0.83gm dietary fiber, 0.01g tryptophan and 11.44mg magnesium. Cucumbers are a rich source of Vitamin C which is great in aiding a healthy immune system. It also is a great source of dietary fiber. It's one of the easiest ways to increase fiber and water intake. It has natural way to prevent water retention.

George Pararas (2011) Performed a study on the effectiveness of alternative therapies on the management of hypertension Cucumbers have also been proven through research for DASH (Dietary Approaches to stop Hypertension) to help in lowering blood pressure. Studies show that adding foods high in potassium, magnesium and fiber can lower the systolic BP by 5.5 points and the diastolic BP as much as over 3 points. lts that cucumber provides are closely related with the nutritional requirements for regulating blood pressure. An 8-inch cucumber provides 444mg of potassium, or 13 percent of the 3,500mg potassium according to The Food and Drug Administration daily value.

Section 3: studies on effect of cucumber on blood pressure

Qchan et al. (2013) Conducted study in America relation of raw and cooked vegetables consumption to blood pressure study in America relation of raw and cooked vegetables consumption to blood pressure (they selected 2195 Americans age 40-59 years. They using four standardized 24 hrs dietary recall and blood pressure measurement average unadjusted intake of raw vegetables was 40 g per 1000 k.cal for men and 50 g per 1000 k.cal for women, cooked vegetables 50 g for men, 60 g for women intake if both total raw and total cooked vegetables considered separately inversely related to BP associated with two standard deviation differences in raw vegetables, estimated systolic BP difference 6.9 mm Hg diastolic differences4.26 mm Hg . Commonly they consumed individual raw vegetables, cucumber, tomato, carrot, and scallions related significantly.

Zuhal Bahar et al.(2012) Conducted a study to determine herbal therapies used by hypertensive patients in turkey for regulation of blood pressure. This descriptive study was conducted in three districts of Izmir, Turkey. The study group included 193 patients with hypertension diagnosis who admitted to a primary care center . The subjects included in the study had suffered from hypertension for 8.28 – 7.92 years, and 95.9% of them received

medication to treat their hypertension. The patients used herbal therapies most commonly they used Garlic, parsley, and cucumber of all hypertensive patients 51.3% used herbal therapies for the treatment of hypertension.

*Martinotte.t.et al., (2010):*Conducted dietary fiber and blood pressure a meta analysis of randomized placebo controlled trails to estimate the effects of fiber supplementation on blood pressure overall and in population sub groups. Sample used 12 to 200 subjects, Fiber supplement vegetables and fruits used (Celery, Garlic, Cucumber, Tomato, Lemon etc,.) reduce the systolic blood pressure by 5.13 mmHg and diastolic blood pressure 4.36 mmHg. Reduction in blood pressure tended to be larger in older in hypertensive people. Increasing intake of fiber diet in western population may contribute to the prevention of hypertension.

Sabaianah Bachok, et al. (2014) conducted by Australian journal of basic and applied science a study of some plants health benefits and nutrient in. It is the blend of the three main ingredients of green apples, cucumbers and "celery". all materials used have their own nutrient-nutrient that is useful to our health. It help to reduce blood pressure.

Natures can cure-Herbal health care, (2012) In one of the study conducted by professional cardiologist, it's revealed that cucumbers can be amazingly useful in controlling high blood pressure. In fact, drinking its juice can help in lowering blood pressure without medications.

Cucumbers and its health benefits (2012) Clinical and experimental study of cucumber was conducted in treating essential hypertension in Geriatrics Institute, 1st Sanatorium, at Dalian. Patients (389) with essential hypertension were divided into two groups randomly, 241 patients were treated by cucumber, others as control. The marked effective rate in decrease of blood pressure and total effective rate were 52.7%, 90.9% and 58.1%, 92.6% (P< 0.05) respectively.

2.2 CONCEPTUAL FRAME WORK

The study is based on the concept of administration of 100gms of cucumber salad to hypertensive clients, will reduce blood pressure level. The investigator adopted the **Widenbach's Helping Art of Clinical Nursing Theory(1964)** as a base for developing the conceptual framework. Ernestin Widenbach proposes helping the art of clinical nursing theory in 1964 for nursing which describes a desired situation and way to attain it. It directs action towards the explicit goal.

This theory has three factors:

1. Central purpose
2. Prescription
3. Realities

1. Central purpose:

It refers to what the nurse want to accomplish. It is the overall goal towards which is a nurse strives.

2. Prescription:

It refers to the plan of care for patients. It will specify the nature of action that will fulfill the nurse's central purpose.

3. Realities:

It refers to the physical, physiological, emotional and spiritual factors that come in to play in situation involving nursing action. The five realties identified by Wiedenbach's are agent, recipient, goal, means and framework.

The conceptual frame work of the nursing practice according to this theory consists of three steps as follows.

Step-1:   Identifying the need for help.

Step-2:   Ministering the needed help.

Step-3:   Validating that the need for help was met.

Step1: Identifying the need for help

This step involves determining the need for help. The hypertensive adults were identified based on demographic variables (Age, Sex, Religion, Education, Occupation, Family Income, Family history, duration of illness, medication used and exercise) inclusive and exclusive criteria, simple random sampling technique was used to assign the adults in experimental and control group.

Step II: Ministering the needed help

Cucumber 100 grams was given to experimental group daily in the mid morning for 15 days.

Agent   : Investigator

Recipient   : Hypertensive adults

Goal   : To reduce blood pressure

Means   : 100gms of cucumber slices

Framework   : Selected rural streets of Medavakkam, Chennai.

Step III : Validating that need for help was met.

It is accomplished by means of post assessment of blood pressure level. It is followed by an analysis of the findings.

Central objective: To reduce blood pressure

Identifying the need for help

Ministering the need for help

Validating the need for help

DEMOGRAPHIC VARIABLES

- Age
- Sex
- Religion
- Education
- occupation
- Monthly Income
- Diet
- Exercise
- Type of exercise

Pre Assessment of blood pressure for experimental group (30)

EXPERIMENTAL GROUP
Cucumber slices 100mg administered along with existing treatment

Post Assessment of blood pressure level for experimental group

EXPERIMENTAL GROUP
Maximum reduction of blood pressure level

Pre Assessment of blood pressure level for control group(30)

CONTROL GROUP
Existing treatment

Post Assessment of blood pressure level for Control group

<u>CONTROL GROUP</u>
Minimal reduction of blood pressure level

Figure.2.1 Modified model of Wiedenbach's Helping Art of clinical nursing theory (1964)

CHAPTER III

METHODOLOGY

This chapter includes the research design, the setting of the study and sampling technique. It further deals with the development of tool, procedure for data collection and plan for data analysis.

3.1 Research approach:

Research approach adopted for this study is an evaluative **quantitative research approach.**

3.2 Data collection period:

The study was conducted for four weeks (16.07.16 to 15.08.16)

3.3 Study settings:

The study was conducted in rural streets of Medavakkam, Chennai. It is 42 kms away from the College of Nursing, Madras Medical College, Chennai. The centre covering the total population of 1,03,060/- totally there are twelve streets. The setting was selected based on the feasibility of conducting the study, availability of sampling and proximity of setting to the investigator.

3.4 Study design:

The research design selected for the present study is an experimental research design. **Pre-test, post-test only design**. In this study the subjects are randomly assigned to either the experimental or the control group. The effect of the dependent variable on the both groups is seen before the treatment. Later, the intervention is carried out in experimental group only, and after interventions, Observation of the dependent variable is made for the both groups to examine the effect of the manipulation of the independent variable on the dependent variable.
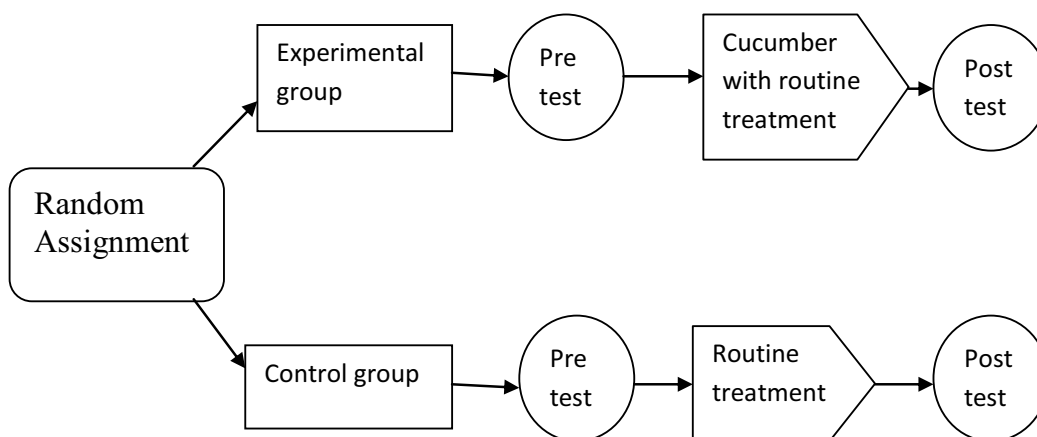
3.5 Study population:

Population is the entire aggregation of cases that meet a designed set of criteria. In this present study participants are subjects who are hypertensive clients between the age of 40-60 residing at Medavakkam, the streets of kalaingar nagar was selected for the study. The total clients with hypertension from the selected streets in kalaingar nagar were 96.

3.6 Sample size:

There are 60 hypertensive clients between 40-60 years, in that 30 hypertensive clients for experimental group and 30 hypertensive clients for control group both in rural community areas that fulfill the selection criteria.

3.7 Sampling criterion:

The sample was selected according to the following inclusion and exclusion criteria

3.7.1 Inclusion criteria:
➢ Clients who are willing to participate in the study.
➢ The hypertensive client who have age between 40-60 years, both male and female.
➢ The hypertensive clients having blood pressure level between 140/90 mmHg residing at the rural area, Medavakkam.
➢ Hypertensive clients who are able to read and understand English and/or Tamil.

3.7.2 Exclusion criteria:

- Hypertensive clients whose blood pressure is above 170/100 mmHg
- Client with any other co-morbid illness
- Hypertensive clients who are allergic to cucumber.
- Pilot study samples were not included in main study.

3.8 Sampling technique:

The sampling technique employed to recruit the samples for the study was simple random sampling method. The researcher conducted survey in the study area of Kalaingar nagar to identify the total hypertensive clients based on the inclusion and exclusion criteria, within ten streets where 96 hypertensive clients, from that 60 samples where selected by lottery method.

3.9 Research variables:

Independent Variable - 100 grams of cucumber slices for two weeks.

Dependent Variable - blood pressure of hypertensive adults

3.10 Development and description of the tool:

3.10.1 Development of the tool

The development of the tool was developed based on the objectives of the study, review of literature and the opinion from the experts and it helped the investigator in the development of the tool.

The tool used for data collection was formulated by the investigator by consulting the expert in Nursing, Statistics and community medicine department.

The tool used for measuring blood pressure is sphygmomanometer and stethoscope. The same tool was used throughout the study for both experimental and control group to monitor the blood pressure respectively.

3.10.2: Description of the tool

The tool consists of three sections. The tool used in this study was and interview and observation schedule on blood pressure for hypertensive clients.

Section A: Demographic profile of hypertensive clients it includes age, sex, religion, education, occupation, monthly income, dietary pattern, type of diet and exercise.

Section B : Clinical variables hypertension related information includes family history of hypertension, duration of illness, treatment, height, weight, body mass index, treatment ,complication of hypertension.

Section C: pre assessment of blood pressure level of both experimental and control group and there after post interventional assessment of blood pressure on the 15th day for both group.

The investigator has to assess and record blood pressure level before and after administration of cucumber.

Group	Pre Test O1	Treatment X	Post Test O2
Experimental group	Blood pressure level assessed	100 gram of Cucumber Slices	Blood pressure level assessed
Control group	Blood pressure level assessed	-	Blood pressure level assessed

Blood pressure assessment:

Maximum reduction of blood pressure level: 10-15 mm Hg

Minimum reduction of blood pressure level: <5 mmHg

3.10.3 Content validity

The content of the tool was validated by one medical expert, one community health nursing expert and one statistical expert suggestion were incorporated and the tool was finalized and used by the investigator for the main study.

3.11 Ethical consideration

The study objectives, intervention and data collection procedure were approved by the research and the ethics committee of Madras Medical College, Chennai.

3.12. Pilot study

In order to test the feasibility of the study, a pilot study was conducted among six clients in the same manner as final study. Hypertensive clients (6 in number 3 for experimental and 3 for control group) were selected using simple random sampling technique for the purpose of pilot study. Their blood pressure were assessed by the pre test using the research tools and then 100 grams of cucumber was given to the experimental group and routine treatment for control group was maintained. After a week post assessment was conducted to check the level of reduction of blood pressure using the research tool in both groups. Results were analyzed; there was a significant decrease in the level of blood pressure among hypertensive clients in experimental group after consumption of cucumber. The tool was found to be satisfactory in terms of simplicity and clarity. Based on the findings of the pilot study it was concluded that it was feasible and practicable to conduct the main study and criterion measures were found to be effective.

3.13 Reliability

After pilot study reliability of the tool was assessed by using Test retest method. The Reliability and correlation coefficient value of SBP was 0.93. and DBP was 0.91.This correlation coefficient is very high and it is good tool for assessing effectiveness of cucumber.

3.14 Data collection procedure

The study was conducted in selected rural areas Medavakkam after obtaining permission from Deputy Director of Health Services, Saidapet and medical officer upgraded primary health centre Medavakkam. A self introduction was given by the investigator and the informed written consent was obtained from the patients and benefits of cucumber was explained to the participants. The objectives and purpose of the study were explained and confidentiality was maintained. The data collection procedure was done for the period of 4 weeks and the time taken for the data collection for each patient was 15-20 minutes and 5-10 minutes for checking blood pressure for each patient and the investigator selected 60 samples (30 participants in experimental and 30 in control group) by simple random sampling technique based on the inclusion and exclusion criteria.

Pre-assessment of blood pressure and post-assessment of blood pressure level was assessed by blood pressure monitor in both experimental and control, same instrument was used the both group. Left hand was used commonly and the procedure was performed in upright sitting position. The experimental group of the hypertension clients with high blood pressure above 140 mmHg was informed about benefits of the cucumber.

The investigator given 100gms of sliced cucumber everyday in the mid morning to the experimental group for fourteen days. Then the blood pressure was taken for both experimental and control group and they will be checked for the blood pressure. Control group received no intervention other than their routine treatment, and the investigator advised the study participants if they notices any adverse event they have to report it.

Table 2: Intervention protocol :

Protocol	Experimental group	Control group
Place	Clients home	Clients home
Intervention Tool	100 grm of cucumber slices	Routine care
Duration	14 days	14 days
Frequency	Once in a day	Routine care daily
Time	Mid morning 9 am to 12 am	8 am to 9 am
Administered by	Investigator	-
Recipient	Hypertensive clients	Hypertensive clients

3.15 Data entry and analysis

The data were entered in Excel sheet and completed in two weeks the data was rechecked and were analyzed by using both descriptive and inferential statistics.

- Organize data

- Frequency and percentage distribution of the demography variables

- Data on blood pressure levels among control and experimental group were analyzed by the 't' test.

- Association between groups score was analyzed using Pearson Chi – square test.

- Difference between groups score was analyzed using student's independent 't' test.

- Difference between pre test and post test score was analyzed using student's paired 't' test

Figure 3.1: Schematic representation of research design

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                    ┌─────────────────────────┐
                    │  Quantitative approach  │
                    └────────────┬────────────┘
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                    │    Experimental study   │
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        │  Target population clients with hypertension │
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        │ Accessible population : Hypertensive clients │
        │        in selected areas of Medavakkam       │
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        │ Sampling technique –simple random technique  │
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        │ Sample Size 60 (30 for experimental group    │
        │         and 30 for control group             │
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        ┌──────────────────┐        ┌──────────────────┐
        │Experimental Group│        │   Control group  │
        └────────┬─────────┘        └────────┬─────────┘
                 ↓                           ↓
        ┌────────────────────────────────────────────┐
        │ Pre assessment of blood pressure among       │
        │          hypertensive client                 │
        │         Tool: Sphygmomanometer               │
        └────────┬──────────────────────────┬─────────┘
                 ↓                           ↓
        ┌──────────────────┐        ┌──────────────────┐
        │ Intervention –    │       │   Routine care   │
        │ 100 gm of Cucumber│       └────────┬─────────┘
        │ salad along with  │                ↓
        │ their regular     │       ┌──────────────────┐
        │ treatment         │       │ Post assessment  │
        └────────┬─────────┘        │ of blood pressure│
                 ↓                  │      level       │
        ┌──────────────────┐        └────────┬─────────┘
        │ Post assessment  │                 │
        │ of blood pressure│                 │
        │     level        │                 │
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        │ Data Analysis and Interpretation with        │
        │ Descriptive and Inferential Statistics       │
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                    │    Report and finding   │
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CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

The study aimed to assess the effectiveness of cucumber in blood pressure. The data was collected from 60 subjects (30 Experimental, and 30 Control) The findings were tabulated and interpreted in this chapter. The data was analyzed by using descriptive and inferential statistics. The data were analyzed based on the objectives formulated by the researcher. The analyzed data are tabulated under tables and figures under the sections given below.

Presentation of the Data:

The study finding of the samples are presented in the following sections.

Section A: Frequency and percentage description of demographic variables of
hypertensive client.

Section B: Assess the pre test and post blood pressure level among
hypertensive clients in experimental group

Section C: Assess the pre test and post test blood pressure level among
hypertensive clients in control group.

Section D: Comparison of pre test and post Blood pressure among
hypertensive client in experimental and control group.

Section E: Identify the effectiveness of cucumber among hypertensive
clients in experimental group.

Section F: Associate the findings with the selected demographic variables
among blood pressure clients in experimental group.

Statistical Analysis

- Demography variable in categorical / dichotomous were given in frequencies with their percentages
- SBP and DBP score were given in mean and standard deviation
- Association between level of hypertension and demographic variables were analyzed using Pearson's chi – square test
- Difference between pre test and post test scores was analyzed using student independent 't' test
- Difference between pre test and post test scores was analyzed using student's paired 't' test.
- Effectiveness of study in terms of reduction of hypertension was analyzed using proportion with 95 % confidence interval.
- $P < 0.05$ was considered statistically significant

Frequency and percentage distribution of demographic variables of hypertensive client

Table 3: Demographic profile of hypertensive clients

Demographic variables		Experimental group		Control group		Chi square test
		Frequency	%	frequency	%	
Age	40-45 yrs	7	23.3	8	26.6	χ^2=0.69
	46-50 yrs	5	16.7	6	20	P=0.44
	51-55 yrs	8	26.7	7	23.3	
	56-60 yrs	10	33.3	9	30	
Gender	Male	7	23.3	6	20	χ^2=0.098
	Female	23	76.7	24	80	P=0.754
Religion	Hindu	24	80	26	86.7	χ^2=0.55
	Christian	4	13%	3	10	p=0.75
	Muslim	2	6.7	1	3.3	
Education	Non literate	6	20	7	23.3	χ^2=1.43
	Primary education	8	26.	7	23.3	p=0.92
	Secondary education	4	13.3	6	20	
	Hr .sec .education	8	26.7	5	16.7	
	Diploma	2	6.7	3	10	
	Degree	2	6.7	2	6.7	
Occupation	Home maker	17	56.7	19	63.3	χ^2=0.61
	Private employee	5	16.7	3	10	P=0.737
	Self employee	8	26.7	8	26.7	
Income	1590-4726	5	16.7	4	13.3	χ^2=1.38
	4727-7877	7	23.3	5	16.7	P=0.71
	7878-11816	7	23.3	11	36.7	
	>11816	11	36.7	10	33.3	
Diet pattern	Vegetarian	6	20	7	23.3	χ^2=0.09
	Non vegetarian	24	80	23	76.7	P=0.75
If non vegetarian	Alternate day	4	16	1	4.3	χ^2=2.7
	Once in a week	10	40	13	56.5	P=0.42
	Monthly twice	4	16	2	8.7	
Family members	<2	4	13.3	1	3.3	χ^2=2.8
	3	8	20.7	9	30	P=0.42
	4-5	12	40	16	53.3	
	>6	6	20	4	13.3	
Conception of Cooking oil	<1 liter	3	10	1	3.3	χ^2=2.17
	2 liter	7	23.3	6	20	P=0.70
	3 liter	12	40	13	43.3	
	4 liter	8	26.7	9	30	
Exercise	Yes	18	60	15	50	χ^2=0.61
	No	12	40	15	50	P=0.43
Type of exercise	Walking	12	66.7	10	71.4	χ^2=1.91
	Jogging	3	16.7	1	7.1	P=0.59
	Running	1	5.6	0	0	
	Cycling	2	11.1	3	21.4	
Often exercise	Twice daily	2	11.1	3	20	χ^2=0.56
	Once daily	6	33.3	5	33.3	P=0.91
	Weekly thrice	7	38.9	5	33.3	
	Weekly once	3	16.7	2	13.3	

*Significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ ***very high significant at $P \leq 0.001$

Table 3 shows there is no statistical significant in demographic variable between experimental and control group.

Table 3 shows the distribution of the subjects according to their demographic variables In **age** distribution most of the study participants, about 33.3%were in 56-60 years in experimental and 30% in control group. In 51-55 years, 26.7% were in experimental group and 23.3% in control group. In 40-45 years 26.6% were in control group and 23.3% in experimental group, In 46-50years 20% were in control group and 16.7% in experimental group.

Gender: Most of the study participants 80% in control group and 76.7% in experimental group were female, In experimental group 23.3% were males and 20% in control group.

Religion: Most of the study participants were Hindus 80% in the experimental group 86.7% in control group, In 13% Christian were in experimental group,10% in control group.

Education: According to the educational status 26.7% in control group were completed primary education 23.3% in experimental group, 26.7% completed higher secondary education in experimental group 16.7% in control group. Around 20% were no formal education in both groups.

Occupation: Most of the study subjects were home makers and that is 63.3% in control group, and 56.7% in experimental group, 26.7% were self employee in both experimental and control group, 16.7% were private employee in experimental group 10% in control group.

Income: Most of the study participants 36.7% in control group and 23.6% in experimental group earns between Rs.7878 to11816, most of them 36.7% earns more than Rs.11816 in experimental group, and 33.3% in control group .

Diet pattern: On the basis of diet pattern most of the study subjects were non vegetarian in both groups that is 80% in experimental group and 76.7% in control group, In control group 23.3% were vegetarian and 20% in experimental group.

Non vegetarian: Regarding experimental group were consume non vegetarian once in a week 40% and 56.7% in control group.

Family members: Among the study subjects majority of them having 4 to 5 members in family it is about 40% in experimental group and 53.3% in control group, and 3 members in family were in control group 30%, in experimental group 20.7%.

Conception of Cooking oil: 40% of experimental and 43.3% control study subjects were using 3 liters cooking oil for a month, In experimental group 26.7% were using4 liters cooking oil per month in control group 30% were using.

Exercise: Exercise are also followed by the study subjects around 60% in experimental and 50% in control group. In experimental group 40% of clients were not do exercises and 50% in control group.

Type of exercise: Most of them were doing walking 66.7% in experimental group and 71.4% in control group. In experimental group were doing cycling 11.1%and 21.4% in control group.

Often exercise: Most of them were doing exercise weekly thrice 38.9% in experimental group, 33.3% in control group. Both group were doing exercise 33.3% once daily, In experimental group 16.7% were doing exercise weekly once 13.3% in control group.

Table 4: Frequency and percentage distribution of clinical variable

Demographic variables		Experimental group		Control group		Chi square
		frequency	%	frequency	%	
Family history of hypertension	Yes	16	53.31	15	50	χ^2=0.06 P=0.79
	No	14	46.7	15	50	
Relationship	Grand father	3	18.7	2	13.3	χ2=5.9 P=0.7
	Father	5	31.3	3	20	
	Grand mother	3	20	4	26.7	
	Mother	5	31.3	6	40	
Duration of illness	<1 year	3	10	6	20	χ2=1.2 P=0.75
	2-3 year	14	46.7	12	40	
	4-5 year	9	30	8	26.7	
	>5 year	4	13.3	4	13.3	
Salty food	Pickle	2	6.7	4	13.3	χ2=4.92 P=0.29
	Dryfish, appalam	3	10	1	3.3	
	Appalam	8	26.7	11	36.7	
	All the above	17	56.7	14	46.7	
Height	150-155 cm	4	13.3	3	10	χ2=1.3 P=0.85
	156-160 cm	7	23.3	10	33.3	
	161-165 cm	11	36.7	11	36.7	
	166-170 cm	4	13.3	2	6.7	
	171-175 cm	4	13.3	4	13.3	
Weight	40-50	1	3.3	2	6.7	χ2=3.6 P=0.59
	51-60	5	16.7	2	6.7	
	61-70	6	20	9	30	
	71-80	12	40	8	26.7	
	81-90	5	16.7	7	23.3	
	>90	1	3.3	2	6.7	
Body Mass Index	Under weight	1	3.3	0	0	χ2=2.6 P=0.45
	Normal weight	9	30	7	23.3	
	Over weight	16	53.3	15	50	
	Obesity	4	13.3	8	26.7	
Symptoms	Headache	7	23.3	9	30	χ2=2.0 P=0.57
	Fatigue	10	33.3	7	23.3	
	Vision changes	3	10	6	30	
	All the above	10	33.3	8	23.3	
Regular treatment	Yes	20	66.7	20	66.7	χ2=1.00 P=0.09
	No	10	33.3	10	33.3	
Medicine	T.Nifidepine	4	14.8	5	18.5	χ2=0.314 P=0.95
	T.Enalapril	9	33.3	8	29.6	
	T.Amlong	6	22.2	7	25.9	
	T.Atenolol	8	29.6	7	25.9	
Aware of complication	Myocardial infarction	7	23.3	8	26.7	χ2=0.746 P=0.86
	Renal failure	10	33.3	7	23.3	
	Stroke	5	16.7	6	20	
	All of the above	8	26.7	9	30	

*Significant at P ≤ 0.05   ** highly significant at P ≤ 0.01   ***very high significant at P ≤0.001

Table 4 shows there is no statistical significant in clinical variable between experimental and control group.

The **table 3** shows most of study participants are having **family history of hypertension** 53.3% in experimental group, 50% in control group. In experimental group 46.7% were no family history of hypertension 50% in control group.

Relationship: According to their relationship 31.3% were having a history of hypertension from mother in experimental group and 40% in control group, In experimental group 31.3% were history of hypertension from father and 20% in control group.

Intake of Salty food: Most of the study participants were using salty food 56.7% in experimental group and 46.7% in control group, In experimental group 26.7% were have appalam and 36.7% in control group.

Height: Regarding their height there is an equal proportion 36.7% were belongs to 161 to165cm in both groups. In experimental group and control group were height between 156 to160cm respectively 23.3% and 33.3%.

Weight: According to their weight 40% in experimental group ,and 26.7% in control group between in 71 to 80kg. In experimental group 16.7% were weight 81 to 90kg and 23.3% in control group

Body mass Index: Most of the study participants were overweight 53.3% in experimental and 50% in control group.

Symptoms: Regarding their symptoms in both groups have all the symptoms regarding hypertension 33.3% in experimental group 23.3% in control group.
Regular treatment: Most of the study participants in both group were on regular treatment 66.7%, and 33.3% were not follow regular treatment in both groups.

Medicine: Regarding medicine Tab.Enalapril is the commonest drug taken by the participants 33.3% in experimental and 29.6% in control group. In experimental group Tab.atenolol were used by 29.6% and 25.9% in control group.

Aware of complication: According to the complication of hypertension, In experimental 33.3% believe renal failure can occur and in control group 23.3%.

Assess the pretest and post test blood pressure level among hypertensive client in the experimental group.

Table 5: pre test and post test level of blood pressure among hypertensive clients in the experimental group

S.No	Blood pressure	N	Mean	SD	Students paired t test
1.	Pre systole	30	149.83	11.18	t=14.42 p=0.001***
	Post systole	30	139.50	10.37	
2.	Pre diastole	30	95.33	4.9	t=16.28 p=0.001***
	Post diastole	30	86.67	4.61	

*Significant at P ≤ 0.05

** highly significant at P ≤ 0.01

***very high significant at P ≤ 0.001

Table: 4 assess the pretest and post test blood pressure level among hypertensive client in the experimental group.

In the above table, the pre test SBP is 149.83 and the post systolic blood pressure is 139.50 . The difference is 10.33 which is considered as large difference value. So it is statistically significant (P≤0.001) in student's paired 't' test.

Regarding the DBP, the pretest level is 95.33 and the post test level is 86.67. The difference is which is considered as large difference value. So it is statistically significant (P=0.001) in student's paired 't' test.

SECTION C

Assess the pretest and post test blood pressure level among hypertensive client in the control group.

Table 6: pre test and post test level blood pressure among hypertensive clients in the control group

S.No	Blood pressure	No	Mean	SD	Student's paired 't' test
1.	Pre systole	30	150.67	10.48	t=3.610 p=0.07
	Post systole	30	148.83	8.38	
2.	Pre diastole	30	95.33	4.90	t=5.809 p=0.01
	Post diastole	30	91.67	4.22	

*Significant at $P \leq 0.05$

 ** highly significant at $P \leq 0.01$

 ***very high significant at $P \leq 0.001$

Table 5: assess the pre test and post test systolic and diastolic blood pressure level among hypertensive clients in control group.

On the above table shows the pretest SBP is 150.67 and the post SBP is 148.83 the difference is 1.84 which is consider small difference. So it is statistically not significant.($p>0.05$) in student's paired 't" test.

On pre DBP is 95.33 and post DBP is 91.67 the difference is 3.66 the difference is small statistically significant in student's paired 't' test. So it is statistically significant ($p \leq 0.08$) in students paired 't' test.

Identify the effectiveness of cucumber salad among hypertensive clients in experimental group

Table 7: comparison of pre test and post test blood pressure level among in experimental and control group

	Group	No	Mean	Standard deviation	Students paired t test
Pre systolic	Experimental	30	149.83	11.18	t=-.298 p=0.767
	Control	30	150.67	10.48	
Pre diastolic	Experimental	30	95.33	4.9	t=0.000 p=1.000
	Control	30	95.33	4.9	
Post systolic	Experimental	30	139.50	10.37	t=-.2.480 p=0.016**
	Control	30	148.83	9.38	
Post diastolic	Experimental	30	86.67	4.6	t=-4.38 p=0.001***
	Control	30	91.67	4.22	

*Significant at $P \leq 0.05$

** highly significant at $P \leq 0.01$

***very high significant $P \leq 0.001$

Considering pre test

On the SBP, experimental subjects have 149.83 as a mean blood pressure and the control have 150.67 as a mean blood pressure. Difference is 1 .07 score. The difference between experiment and control SBP value is small and is not statistically significant.

On the DBP, Experimental subjects have 95.33 and control group have 95.33 there is no difference.

Considering post test

On the SBP, experimental group subjects have 139.50 as a mean blood pressure and control group have 148.83 as a mean blood pressure.. Difference is 9.33 score. The difference between experiment and control SBP value is large and it is statistically significant.

On the DBP, experimental group have 86.67 as a mean blood pressure, control group have 91.67 as a mean blood pressure. Difference is 5 score. The difference between experiment and control DBP value is large and it is statistically significant

Table 8: Comparison of experimental and control group blood pressure

	N	Pretest mean+SD		Post test mean+SD		Student's paired 't' test
		Systole	Diastole	Systole	Diastole	
Experimental group	30	149.83± 11.18	95.33±4.9	139.50±10.7	86.67±4.61	t=14.42 p=0.001***
Control group	30	150.67± 10.8	95.33±4.9	148.83±9.38	91.67±4.6	t=4.8 p=0.07

*Significant at P ≤ 0.05

** highly significant at P ≤ 0.01

***very high significant at P ≤ 0.001

Table 6 Shows the comparison of experimental and control blood pressure level Differences between experiment and control group hypertension was analyzed using independent 't' test .The result showed that the difference value is large. So there is a statistically significant between experimental group and control group.

Table 9: Frequency and percentage distribution of post test reduction score of blood pressure among hypertensive clients in experimental and control group.

	Blood pressure Score	Experimental Group		Control Group		Chi-square test
		Frequency	%	Frequency	%	
Systolic blood pressure score	No reduction <5 6-10 11-15	0 5 21 4	0 16.7% 70% 13.3%	14 19 5 0	46.7% 36.6% 16.7% 0	χ^2=28.01 P=0.001
Diastolic blood pressure	No reduction <5 6-10 11-15	2 10 18 0	6.6% 33.3% 60% 0%	12 14 4 0	40% 46.7% 13.3% 0%	χ^2=24.10 p=0.001

*Significant at $P \leq 0.05$

** highly significant at $P \leq 0.01$

***very high significant at $P \leq 0.001$

Table 7 shows the post test level of blood pressure among hypertensive clients

Considering SBP: Among experimental group 70% of clients have 6-10 reduction, 16.7% of them have <5 reduction, and 13.3% of them have 11-15 reduction. In control group 46.7% of clients have no reduction, 36.6% of clients were <5 reduction, and 16.7% of them have 6-10 reduction of SBP. There is statistically significant difference between experiment and control. Statistically significance was calculated using chi square test.

Considering DBP: Among experimental group 60% of clients have 6-10 reduction 33.3% of them have <5 reduction, and 6.6% were no reduction.Among control group 46.7% of clients have <5 reduction , and 13.3% of them have 6-10 reduction , and 40% of clients no reduction.

There is statistically significant difference between experiment and control statistical significance was calculated using chi square.

Table 10: Effectiveness of cucumber

			Mean score	Mean hypertension difference with 95% Confidence Interval	Percentage of hypertension difference with 95% Confidence Interval
Experimental group	SBP	Pre test	149.83	10.33 (8.89-11.77)	6.9% (5.93-7.87)
		Post test	139.50		
	DBP	Pre test	95.33	8.66 (7.6-9.7)	9.08% (7.6-9.7)
		Post test	86.67		
Control group	SBP	Pre test	150.67	1.84 (0.72-2.96)	1.22% (0.22-2.34)
		Post test	148.83		
	DBP	Pre test	95.33	3.67 (2.41-4.96)	3.84% (2.41-4.93)
		Post test	91.67		

*Significant at $P \leq 0.05$

** highly significant at $P \leq 0.01$

***very high significant at $P \leq 0.001$

Considering SBP: Clients have reduced 6.9% than pre test.

Considering DBP: Clients have reduced 9.08% of than pre test.

Differences between pre test and post test score was analyzed using 95% CI(confidence Interval) and mean difference with 95% CI(confidence Interval). It shows the effectiveness of cucumber on blood pressure. In particular cucumber more effect on diastolic than systolic blood pressure.

In control group the reduction score was 1.84 of SBP and 3.84 % of DBP respectively. Here there is a minimal reduction of blood pressure with compare to experimental group.

SECTION F

Table 11: Association between certain demographic variable with reduction of Systolic blood pressure (SBP) in the experimental group

Demographic variable		Level of SBP			Total		Chi square
		<5	6-10	>11-14	Frequency	%	
Age	40-55 yrs	2	5	0	7	23.3	$\chi2=5.02$
	46-50 yrs	1	4	0	5	16.7	P=0.54
	51-55 yrs	0	6	2	8	26.7	
	56-60 yrs	2	6	2	10	33.3	
Sex	Male	3	1	3	7	23.3	$\chi2$=13.7 P=0.08
	Female	2	20	1	23	76.7	
Religion	Hindu	4	17	3	24	80	$\chi2$=3.19
	Christian	1	3	0	4	13.3	
	Muslim	0	1	2	3	80	P=0.526
Education	Non literate	0	5	1	6	20	
	Primary education	0	7	1	8	26.7	$\chi2$=12.76
	Secondary education	2	2	0	4	13.3	P=0.07
	Hr secondary	0	7	1	8	26.7	
	Diploma	1	0	1	2	6.7	
	Degree	2	0	0	2	6.7	
Occupation	Home maker	1	15	1	17	56.7	
	Private employee	0	4	1	5	16.7	**$\chi2$=12.24**
	Self employee	4	2	2	8	26.7	**P=0.02***
Income	1590-4726	1	4	0	5	16.7	$\chi2$=6.78
	4727-7877	0	5	2	7	23.3	P=0.34
	7878-11816	1	4	2	7	23.3	
	>11816	3	8	0	11	36.7	
Diet pattern	Vegetarian	1	5	0	6	20	$\chi2$=1.190
	Non vegetarian	4	16	4	24	80	P=0.06
If non vegetarian	Alternate days	I	1	2	4	16	$\chi2$=11.16
	Once in a week	3	5	2	10	40	P=0.07
	Twice in a week	0	7	0	7	28	
	Monthly twice	0	4	0	4	16	
Family members	<2	0	4	0	4	13.3	$\chi2$=3.48
	3	1	5	2	8	26.7	P=0.746
	4-5	3	8	1	12	40	
	>6	1	4	1	6	20	
Cooking oil	<1 liter	0	3	0	3	10	$\chi2$=3.5
	2 liter	1	4	2	7	23.3	P=0.94
	3 liter	3	8	1	12	40	
	>4 liter	1	6	1	8	26.7	
Exercise	Yes	4	10	4	18	60	**$\chi2$=4.8**
	No	1	11	0	12	40	**P=0.04***
Type of Exercise	Walking	2	8	2	2	66.7	$\chi2$=5.8
	Jogging	1	1	1	1	16.7	P=0.440
	Running	0	0	1	1	5.6	
	Cycling	1	1	0	0	11.1	
Often Exercise	Twice daily	0	2	0	2	14	$\chi2$=4.02
	Once daily	2	2	2	2	6	P=0.673
	Weekly thrice	2	4	1	1	7	
	Weekly once	0	2	1	1	3	

*Significant at P ≤ 0.05 ** highly significant at P ≤ 0.01 ***very high significant at P ≤ 0.001 Table 9 Shows the association between certain demographic variable with reduction of SBP self employee and exercise reduced more SBP. Statistical significant was calculated by Chi square test.

Table 12: Association between certain clinical variable with reduction of SBP in the experimental group.

Demographic variable		Level of SBP			Total		Chi square
		<5	6-10	11-15	Frequency	%	
Family history of HT	Yes	0	15	1	16	53.3	χ2=9.7P=0.33
	No	5	6	3	14	46.7	DF=6
Relation ship	Grand father	0	1	1	2	9.6	χ2=18.13
	Father	0	4	2	6	19.9	P=0.08
	Grand mother	0	3	0	3	10	Df =2
	Mother	0	5	0	5	16.7	
	None	5	6	3	14	46.7	
Duration of Illness	<1 yr	2	1	1	0	10	χ2=7.8
	2-3 yr	2	11	11	1	46.7	DF=6
	4-5 yr	1	6	7	2	30	P=0.24
	>5 yr	0	3	3	1	13.3	
Habits	Alcohol	1	0	0	0	6.7	χ2=18.3
	Smoking	1	1	1	1	10	P=0.07
	Tobacco	1	8	8	8	3.3	
	Snuff	1	2	2	2	30	
	None	2	10	10	10	40	
Salty food	Pickle	0	2	0	2	6.7	χ2=2.86
	Appalam , dryfish	0	2	1	3	10	P=0.94
	Appalam	2	5	1	8	26.6	
	All of the above	3	11	3	17	56.7	
Height	150-155 cm	1	2	1	4	13.3	χ2=9.79
	156-160 cm	0	6	1	7	23.3	DF=8
	161-165 cm	1	10	0	11	36.7	P=0.28
	166-170 cm	1	2	1	4	13.3	
	171-175 cm	2	1	1	4	13.3	
Weight	40-50 kg	0	1	0	1	3.3	χ2=11.17
	51-60 kg	1	3	1	5	16.7	Df=10
	61-70 kg	1	5	0	6	20	P=0.345
	71-80 kg	1	9	2	12	40	
	81-90 kg	1	3	1	6	20	
Body mass index	Under weight	0	1	0	1	3.3	**χ2=10.91**
	Normal weight	1	7	1	9	30	**DF=8**
	Over weight	4	11	1	16	53.3	**P=0.02 ***
	Obese	0	2	2	4	13	
Symptoms	Head ache	1	5	1	7	23.3%	χ2=0.81
	Fatigue	2	8	0	10	33.3%	DF=6
	Vision changes	0	2	1	3	10%	P=0.74
	All the above	2	6	2	10	33.3%	
Regular treatment	Yes	3	15	2	20	66.7%	χ2=814DF=2
	No	2	6	2	10	33.3%	P=0.66
Medicine	T. Nifidipine	0	3	1	4	14.8%	χ2=7.24
	T.Enalapril	1	8	0	9	33.3%	DF=6
	T.Amlong	1	3	2	6	16.7%	P=.29
	T.Atenolol	2	6	0	8	26.7%	
Aware of complication	Myocardial infarction	1	5	1	7	23.3%	χ2=1.19
	Renal failure	1	8	1	10	33.3%	DF=6
	Stroke	1	3	1	5	16.7%	P=.98
	All of the above	2	5	1	8	26.7%	

*Significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ ***very high significant at $P \leq 0.001$ Table 10: show sassociation between certain clinical variable with reduction of SBP in the experimental group, over weight clients SBP more reduced.

Table 13: Association between the certain demographic variable with the reduction of DBP in the experimental group.

Demographic variable		Level of DBP			Total		Chi square
		No Reduction	<5	6-10	T	%	
Age	40-55 yrs	1	1	5	7	23.3	χ2=10.02
	46-50 yrs	0	3	2	5	16.7	P=0.24
	51-55 yrs	0	0	8	8	26.7	
	56-60 yrs	0	3	7	10	33.3	
Sex	Male	0	3	4	7	23.3	χ2=2.1
	Female	1	4	8	23	76.7	P=0.06
Religion	Hindu	1	4	19	24	80	χ2=7.3
	Christian	0	3	1	4	13.3	
	Muslim	0	0	2	3	80	P=0.119
Education	Non literate	0	0	6	6	20	χ2=27.3
	Primary education	0	0	8	8	26.7	P=0.08
	Secony education	0	3	1	4	13.3	
	Higher .secondary	0	2	6	8	26.7	
	Diploma	1	1	1	2	6.7	
	Degree	0	0	0	2	6.7	
Cooking oil	<1 liter	0	0	3	3	10	χ2=5.35
	2 liter	1	1	5	7	23.3	DF=6
	3 liter	0	3	9	12	40	P=0.49
	>4 liter	0	3	5	8	26.7	
Occupation	Home maker	0	2	15	17	56.7	χ2=6.2
	Private employee	0	2	3	5	16.7	P=0.182
	Self employee	1	3	4	8	26.7	
Monthly family Income	1590-4726	1	1	3	5	16.7	χ2=8.48
	4727-7877	0	0	7	7	23.3	P=0.205
	7878-11816	0	2	5	7	23.3	
	>11816	0	4	7	11	36.7	
Diet pattern	Vegetarian	0	1	5	6	20	χ2=.495
	Non vegetarian	1	6	17	24	80	P=0.781
Family members	<2	0	1	3	4	13.3	χ2=5.7
	3	1	0	7	8	26.7	P=0.45
	4-5	0	4	8	12	40	
	>6	0	2	4	6	20	
If non vegetarian	Alternate days	0	1	3	4	16	χ2=5.69
	Once in week	1	3	6	10	40	P=0.45
	Twice week	0	0	7	7	28	
	Monthly twice	0	2	2	4	16	
Exercise	Yes	1	4	13	18	60	χ2=.69
	No	0	3	9	12	40	P=0.71
Type of Exercise	Walking	0	2	9	12	66.7	**χ2=8.01**
	Jogging	0	2	2	3	26.7	**P=0.03***
	Running	0	0	1	1	5.6	
	Cycling	0	1	1	2	11.1	
Often Exercise	Twice daily	0	1	1	2	11.1	
	Once daily	0	2	4	6	33.3	χ2=3.9
	Weekly thrice	1	1	5	7	38.9	P=0.68
	Weekly once	0	0	3	3	16.7	

*Significant at P ≤ 0.05 ** highly significant at P ≤ 0.01 ***very high significant at P ≤ 0.001 Association between the certain demographic variable with reduction of DBP in type of exercise more reduced in walking.(p=0.02*)

Table 14: Association between the certain demographic variable and with reduction of DBP in experimental group.

Demographic variable		Level of DBP			Total		Chi square
		No reduction	<5	6-10	T	%	
Family history of HT	Yes	0	1	15	16	53.30	χ2= **7.3**
	No	1	6	7	14	46.70	**P=0.02 ***
Relationship	Grand father	0	0	2	2	9.60	χ2=8.o
	Grand mother	0	0	6	6	19.90	P=0.88
	Father	0	0	3	3	10	
	Mother	0	1	4	4	16.70	
Duration of illness	<1 year	1	1	1	3	10	χ2=9.81
	2-3 year	0	3	11	14	46.7	P=0.012
	4-5 year	0	2	7	9	30	
	>5 year	0	1	3	4	13.3	
Height	150-155 cm	1	1	2	4	13.3	χ2=8.9
	156-160 cm	0	1	6	7	23.3	P=.34
	161-165 cm	0	2	9	11	36.7	
	166-170 cm	0	2	3	4	13.3	
	171-175 cm	0	0	2	4	13.3	
Height	150-155 cm	1	1	2	4	13.3	χ2=8.9
	156-160 cm	0	1	6	7	23.3	P=.34
	161-165 cm	0	2	9	11	36.7	
	166-170 cm	0	2	3	4	13.3	
	171-175 cm	0	0	2	4	13.3	
Body Mass Index	Under weight	0	1	1	1	3.3	χ2=3.02
	Normal weight	0	3	6	9	30	P=0.06
	Over weight	1	4	11	16	53.3	
	Obese	0	0	4	4	13.3	
Symptoms	Head ache	0	1	6	7	23.3	χ2 =3.08
	Fatigue	1	3	6	10	33.3	P=0.79
	Vision change	0	1	2	3	10	
	All the above	0	2	8	10	33.3	
Regular treatment	Yes	1	4	15	20	66.7	χ2=0.81
	No	0	3	7	10	33.3	P=0.66
Medicine	T. Nifidipine	0	1	3	4	14.8	χ2=2.58
	T. Enalapril	1	1	7	9	33.3	P=0.668
	T. Amlong	0	1	5	6	16.7	
	T .Atenolol	0	2	6	8	26.7	
Aware of complication	Myocardial infarction	0	2	5	7	23.3	χ2=4.06
	Renal failure	0	1	8	10	33.3	P=0.668
	Stroke	0	1	2	5	16.7	
	All of the above	1	1	6	8	26.7	

*Significant at P ≤ 0.05   ** highly significant at P ≤ 0.01 ***very high significant at P ≤ 0.001

Table 13 Shows that there is an statistically significant association between certain clinical variable with reduction of DBP in experimental group. Family history of hypertension more reduce in diastolic blood pressure(.p=0.02*)

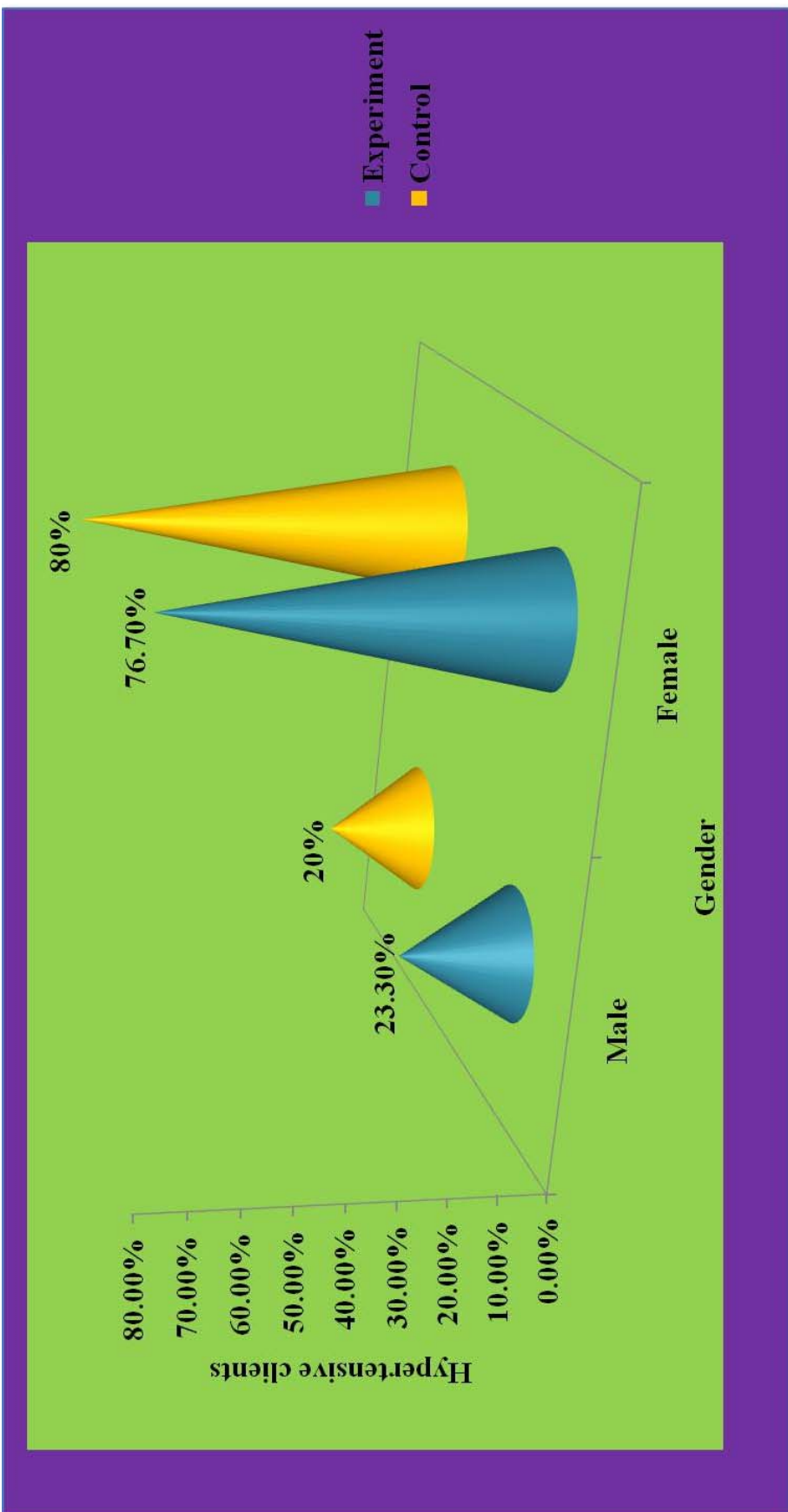**Figure 4.1: Age wise distribution of hypertensive clients**

Figure 4.2: Gender wise distribution of hypertensive clients
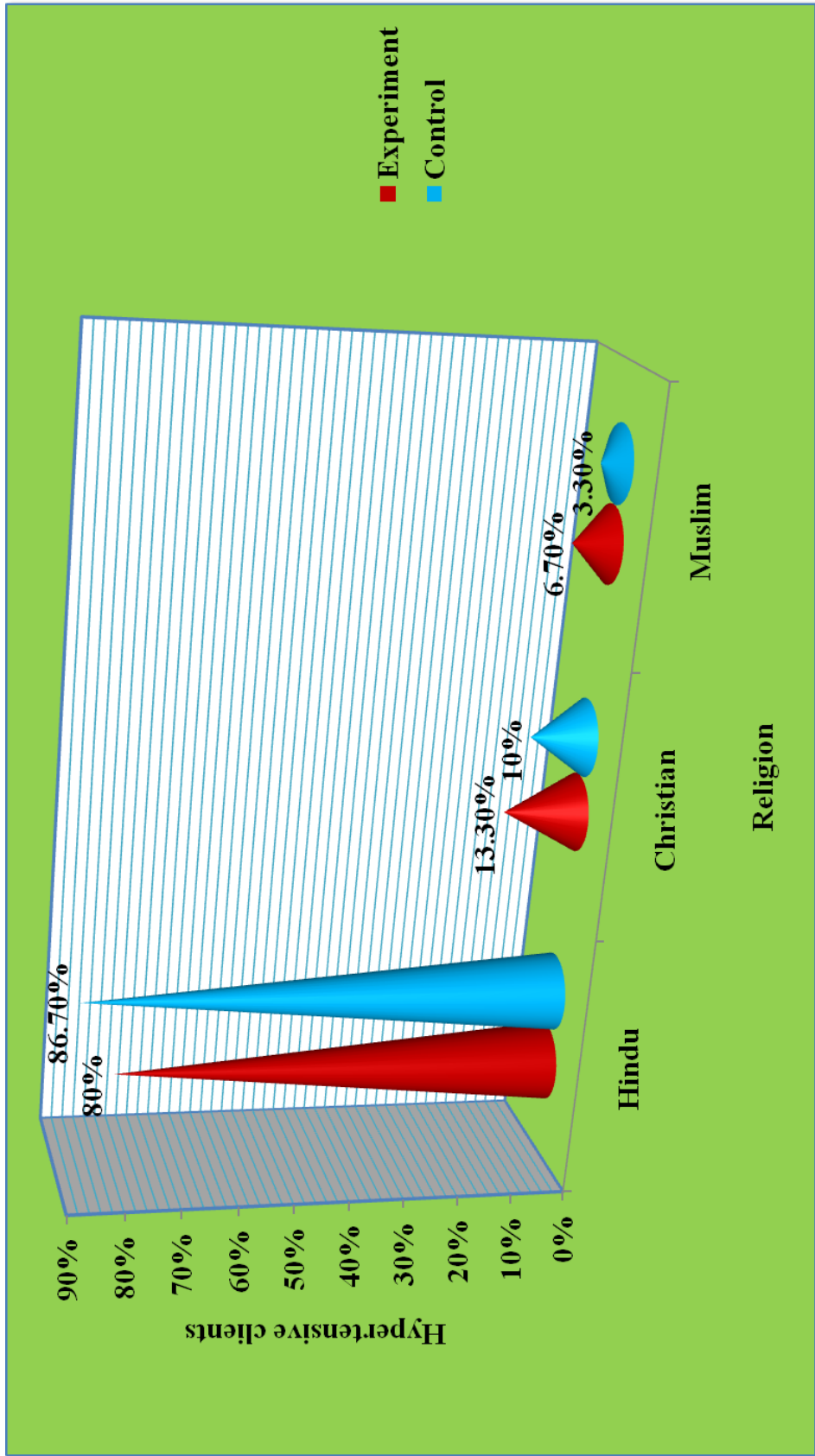
Figure 4.3: Religion wise distribution of hypertensive clients
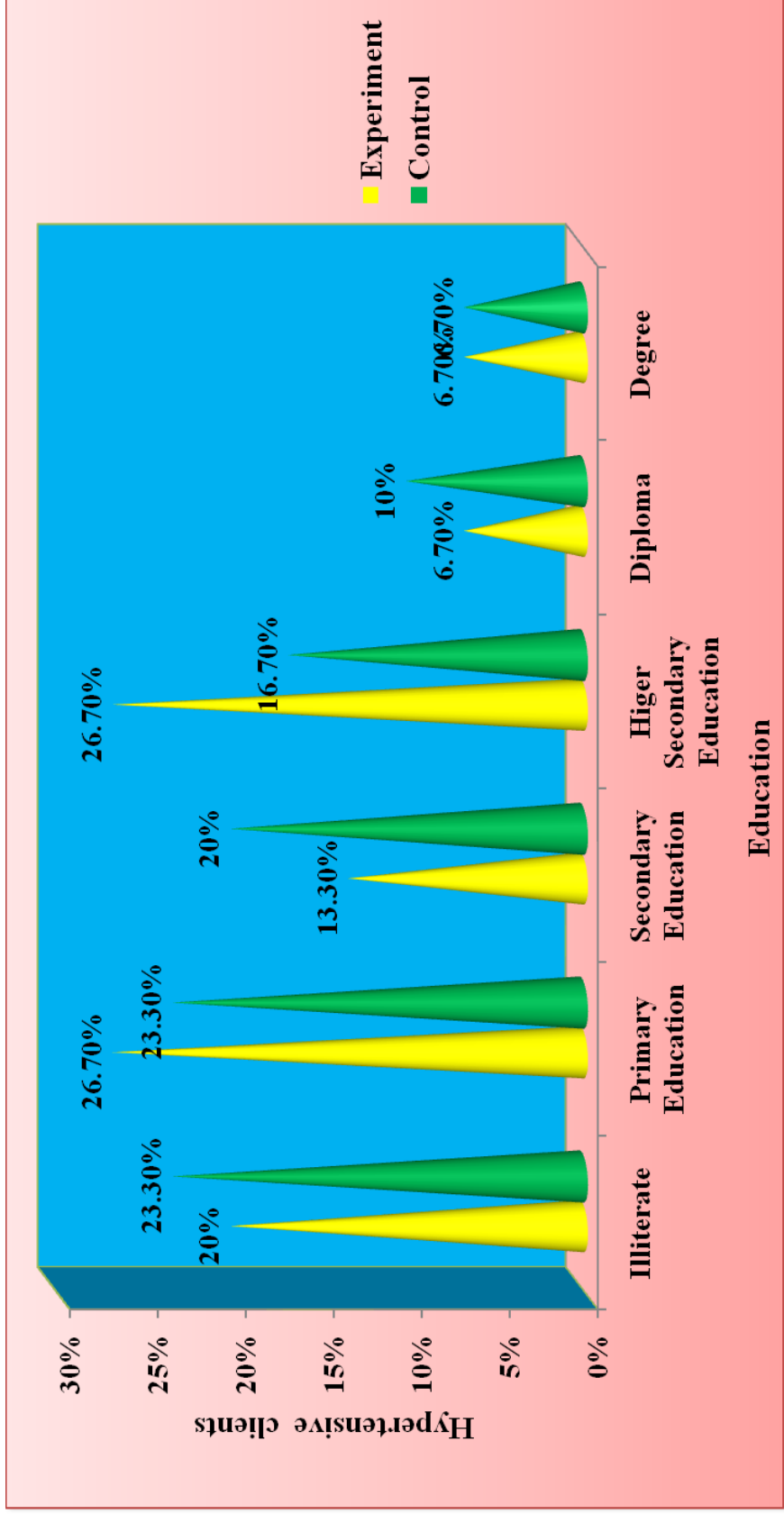
Figure 4.4: Education wise distribution of hypertensive clients
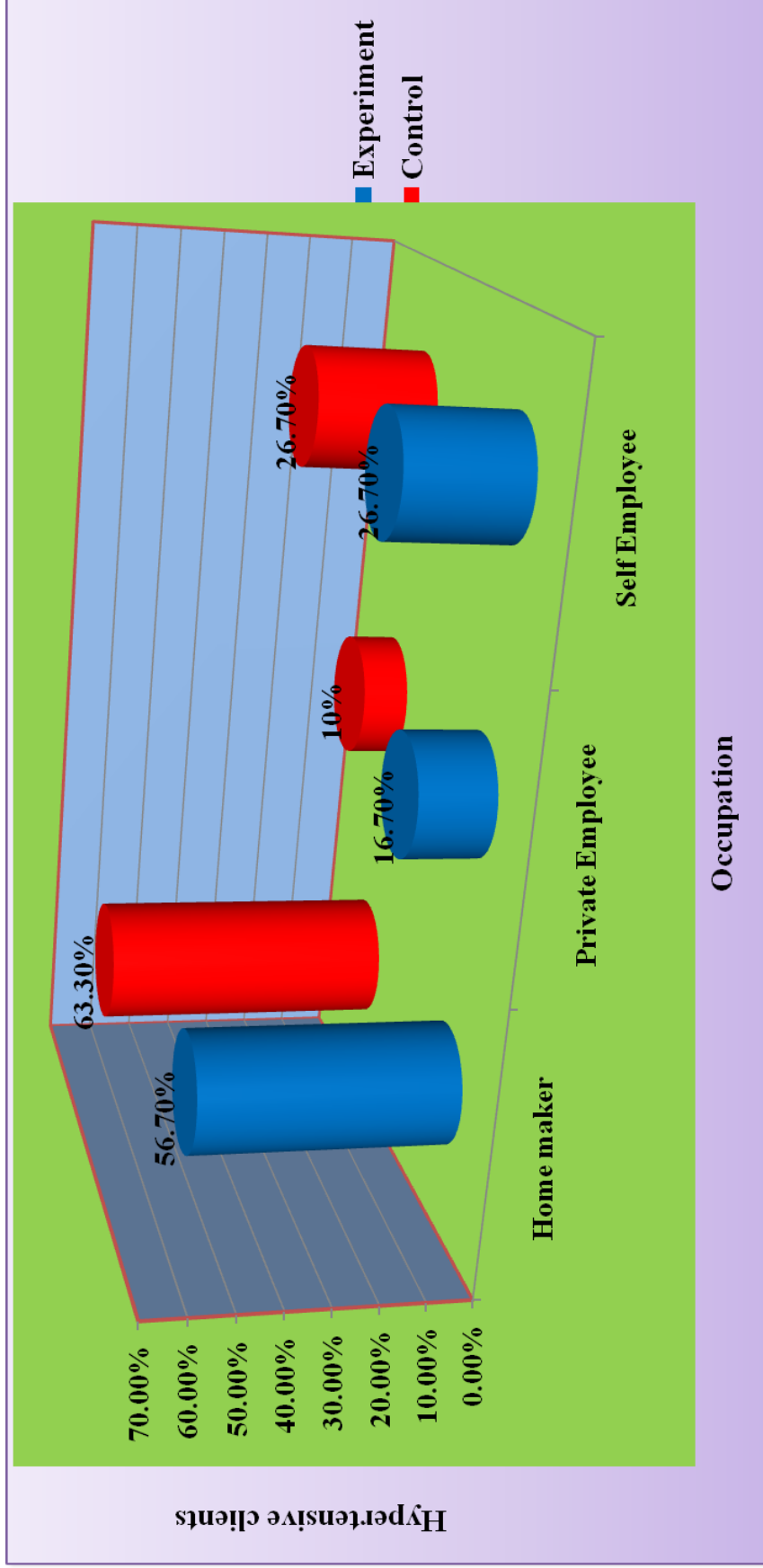
Figure 4.5: Occupation wise distribution of hypertensive clients
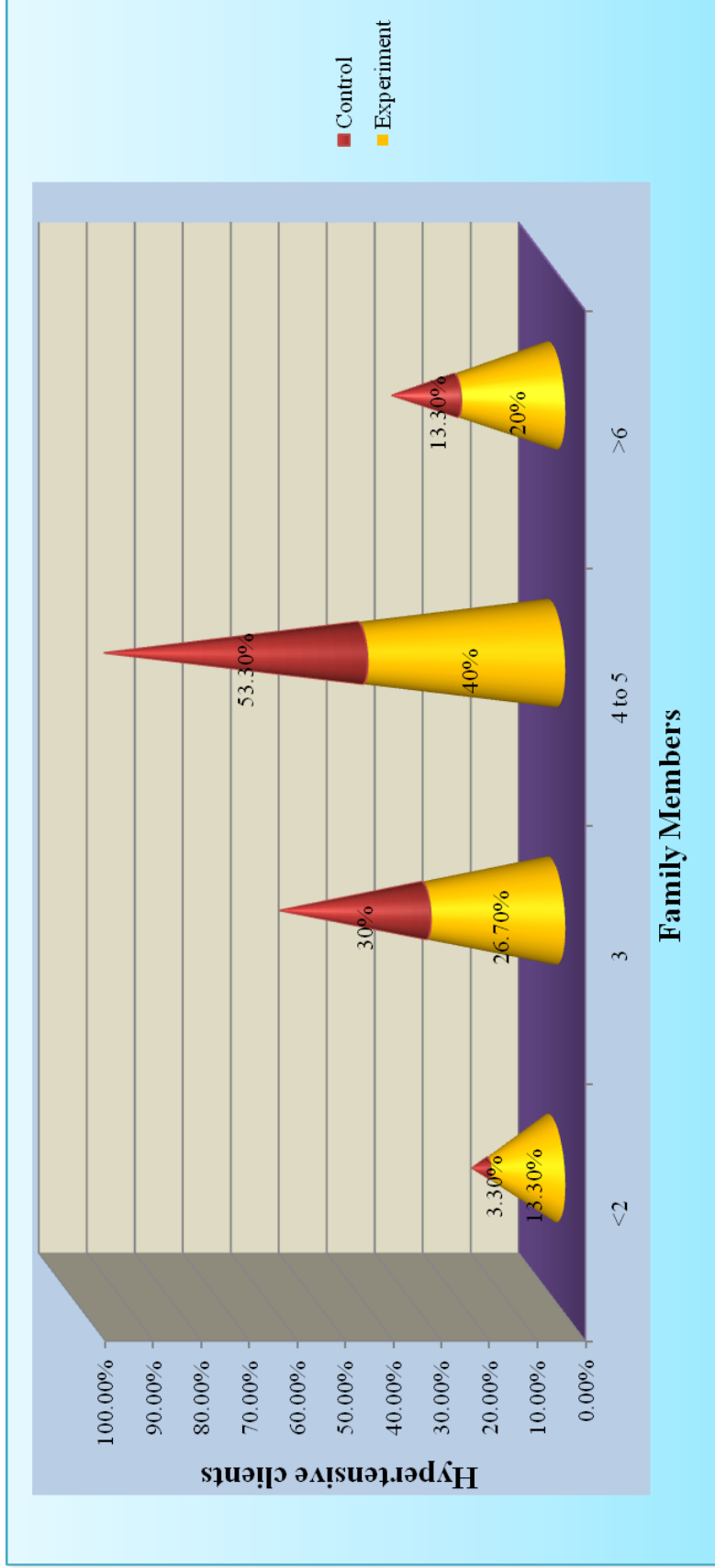
Figure 4.6: Family members wise distribution of hypertensive clients
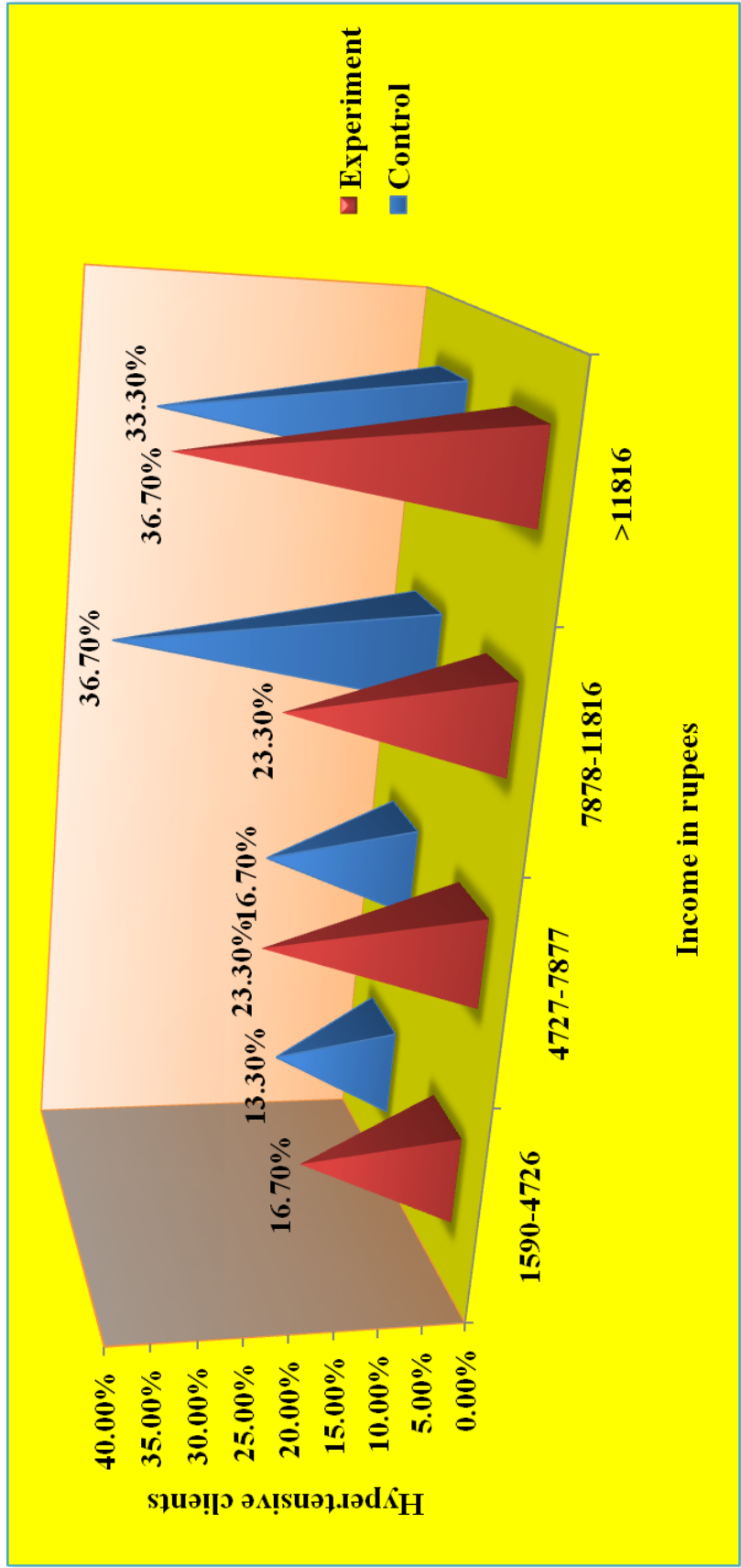
Figure 4.7: Monthly family Income wise distribution of hypertensive clients
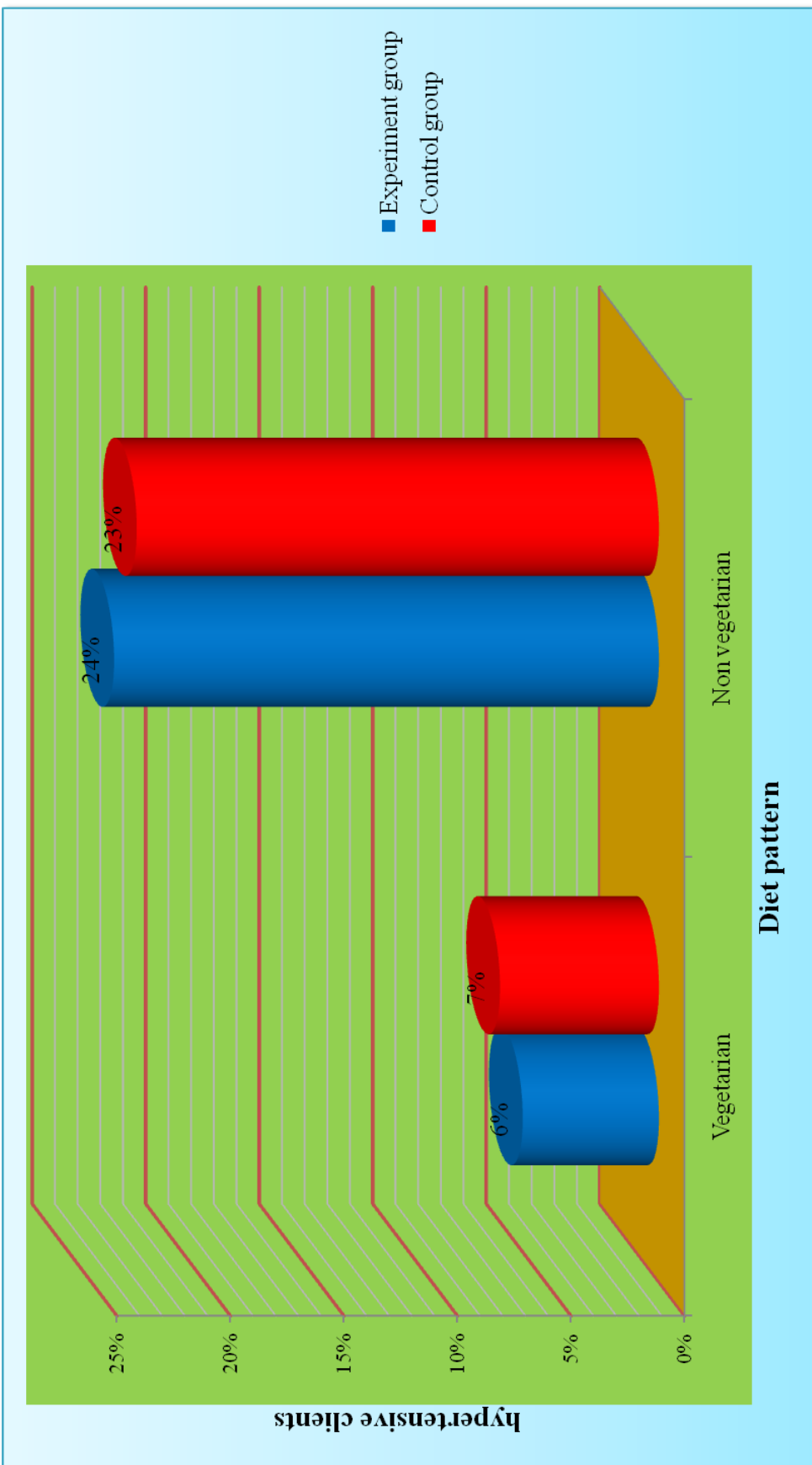
Figure 4.8: Diet pattern wise distribution of hypertensive clients
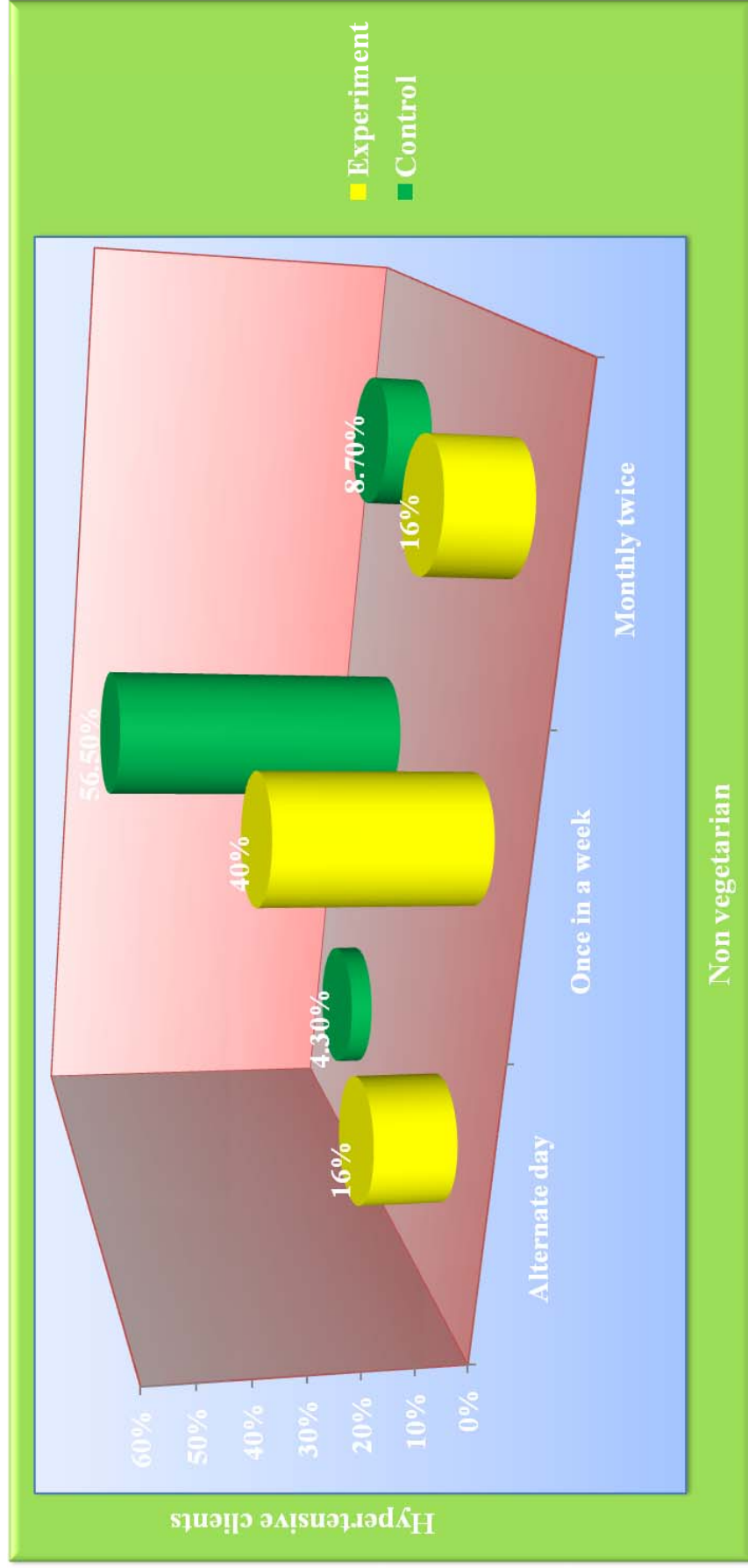
Figure 4.9: Non vegetarian wise distribution of hypertensive clients
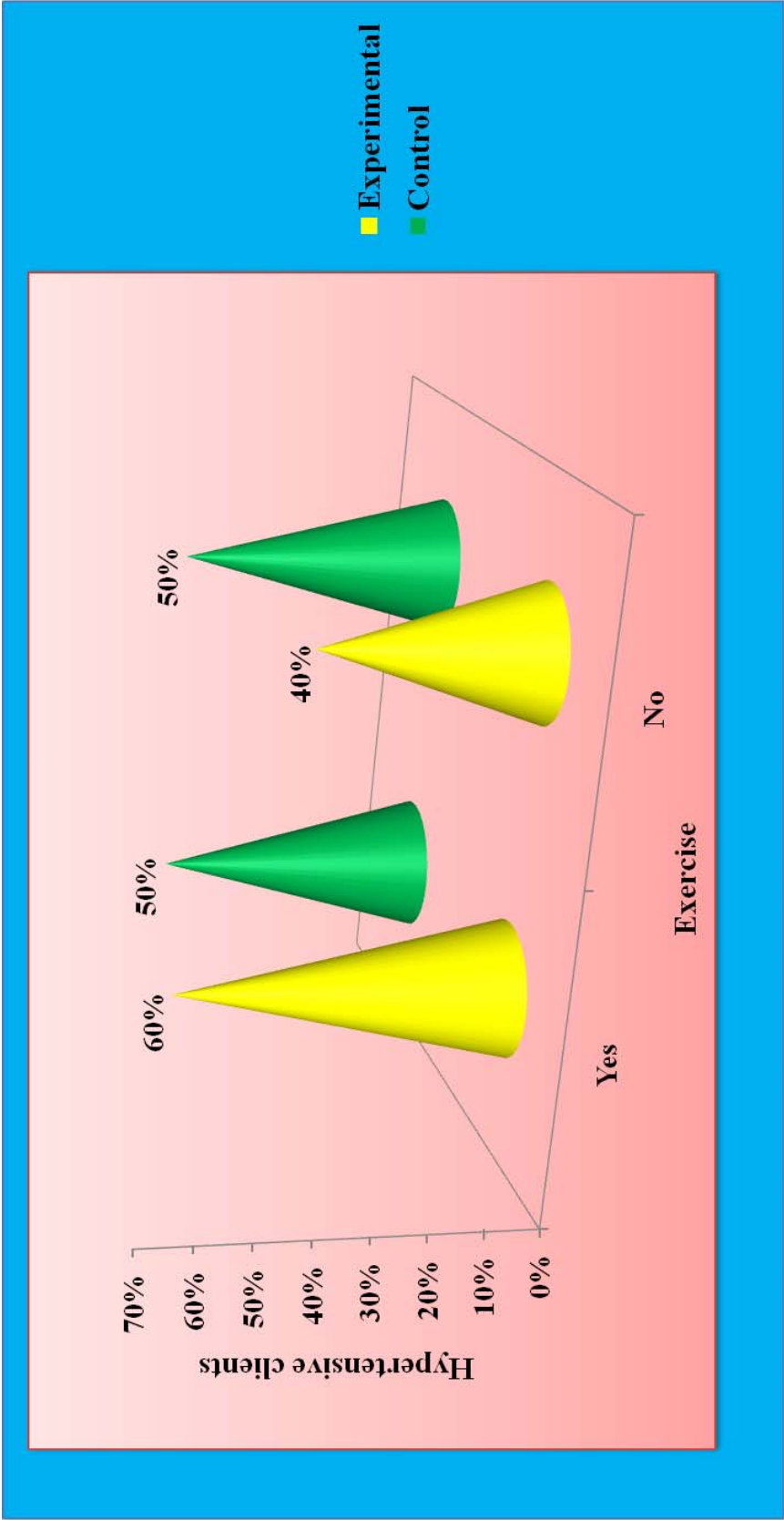
Figure 4.10: Exercise and distribution of hypertensive clients
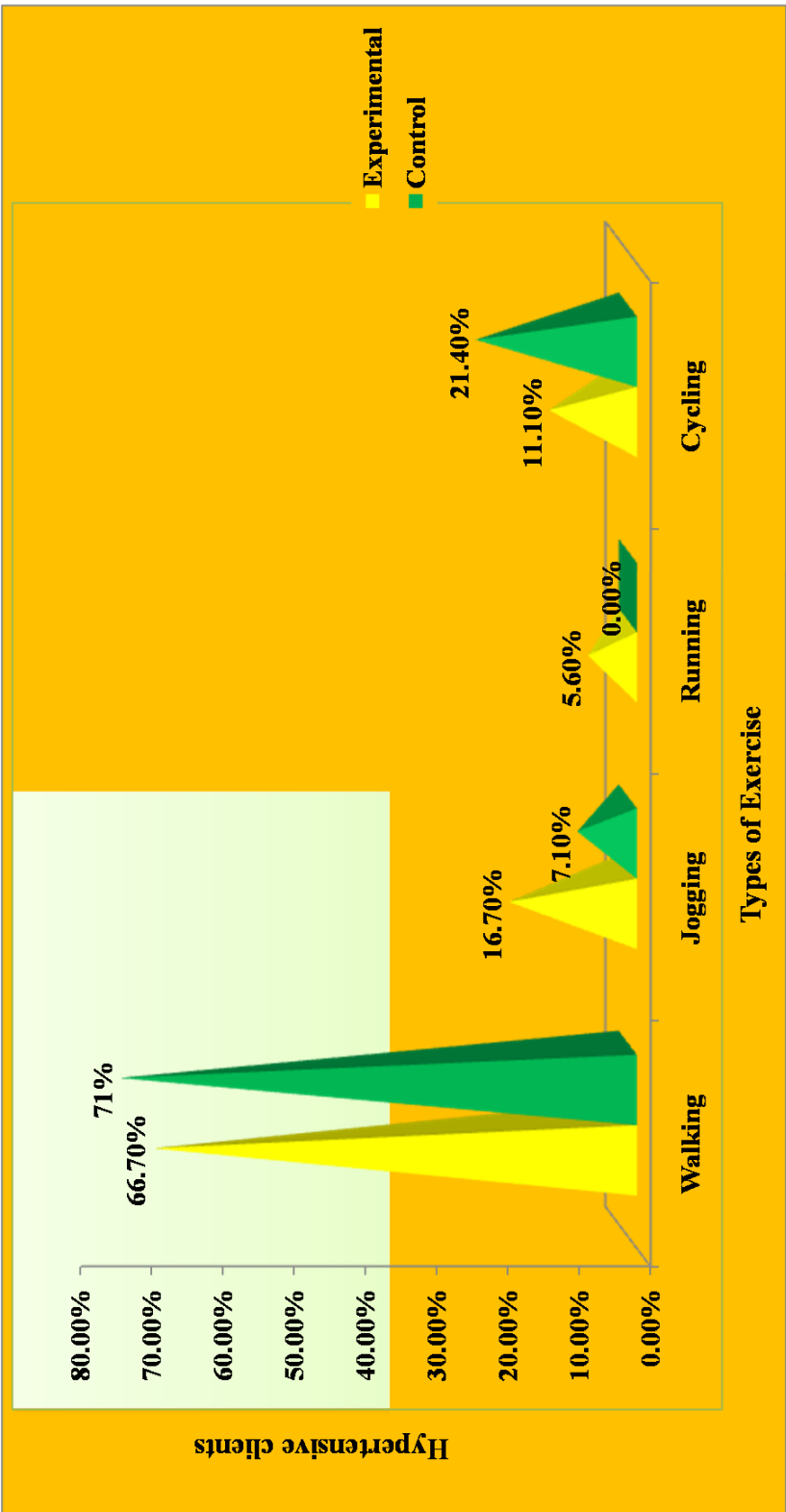
Figure 4.11: Types of Exercise and distribution of hypertensive clients
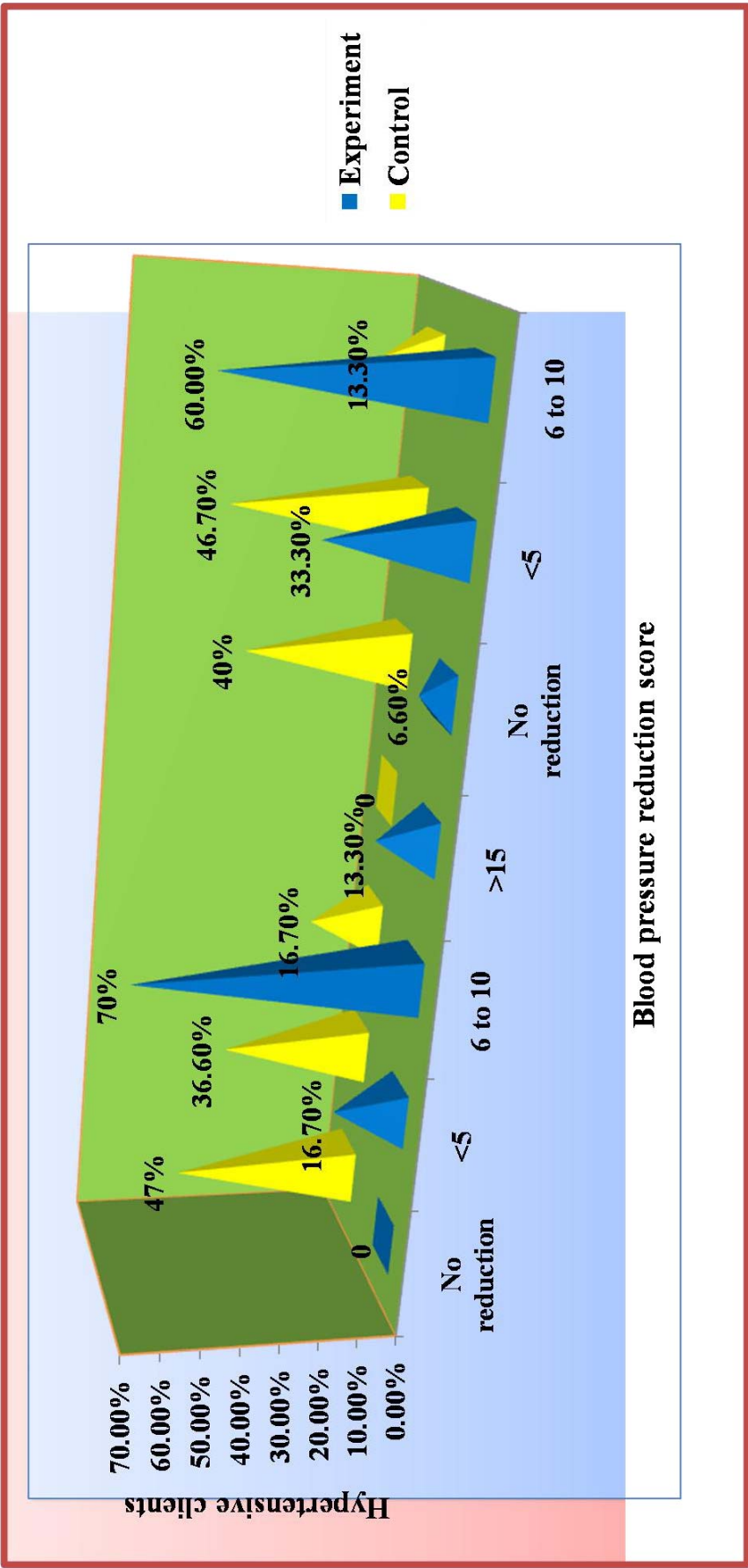
Table 4.12: Effectiveness of cucumber on systolic and diastolic BP reduction in experimental and control group.
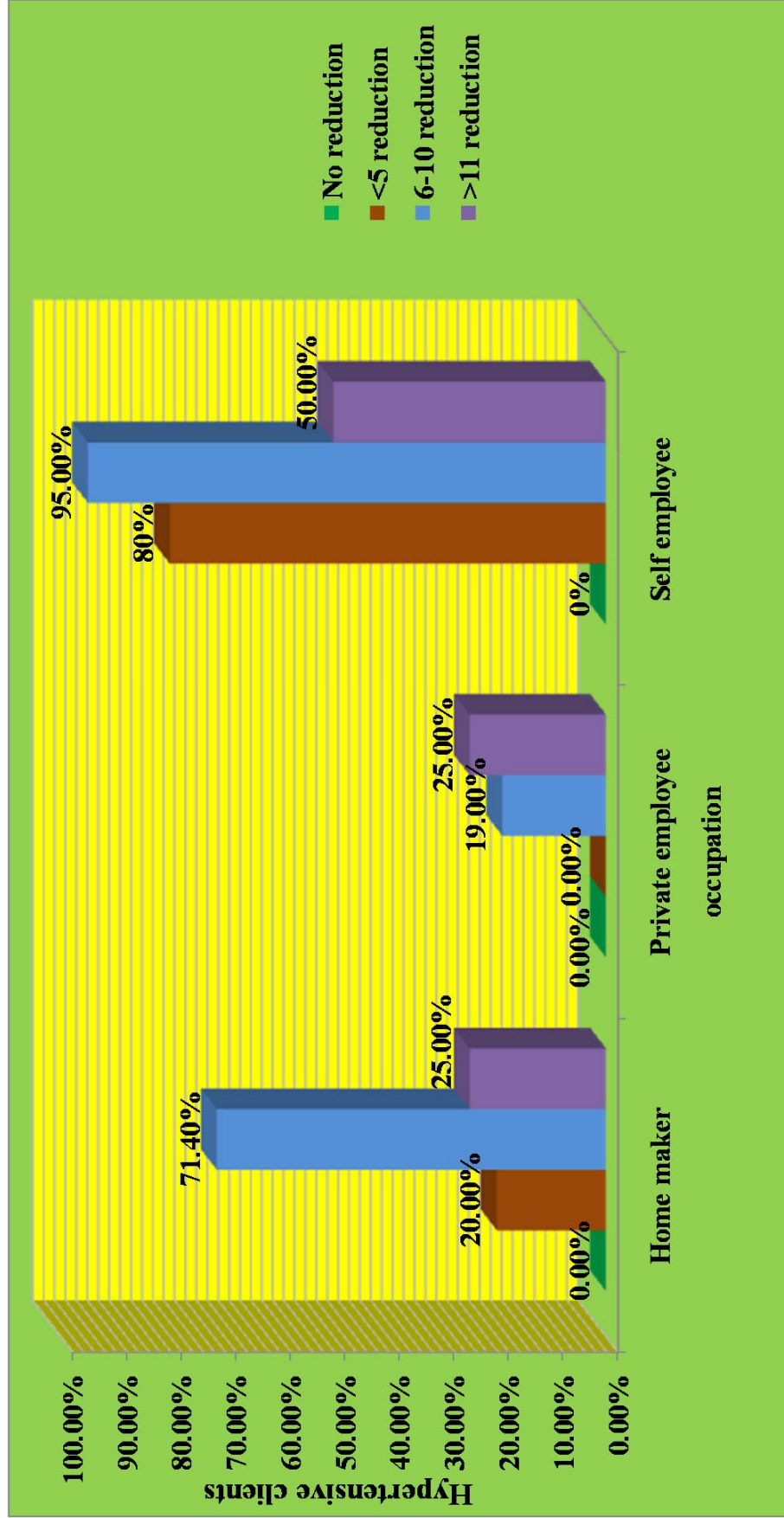
Figure 4.13 Association between occupation with reduction of systolic blood pressure
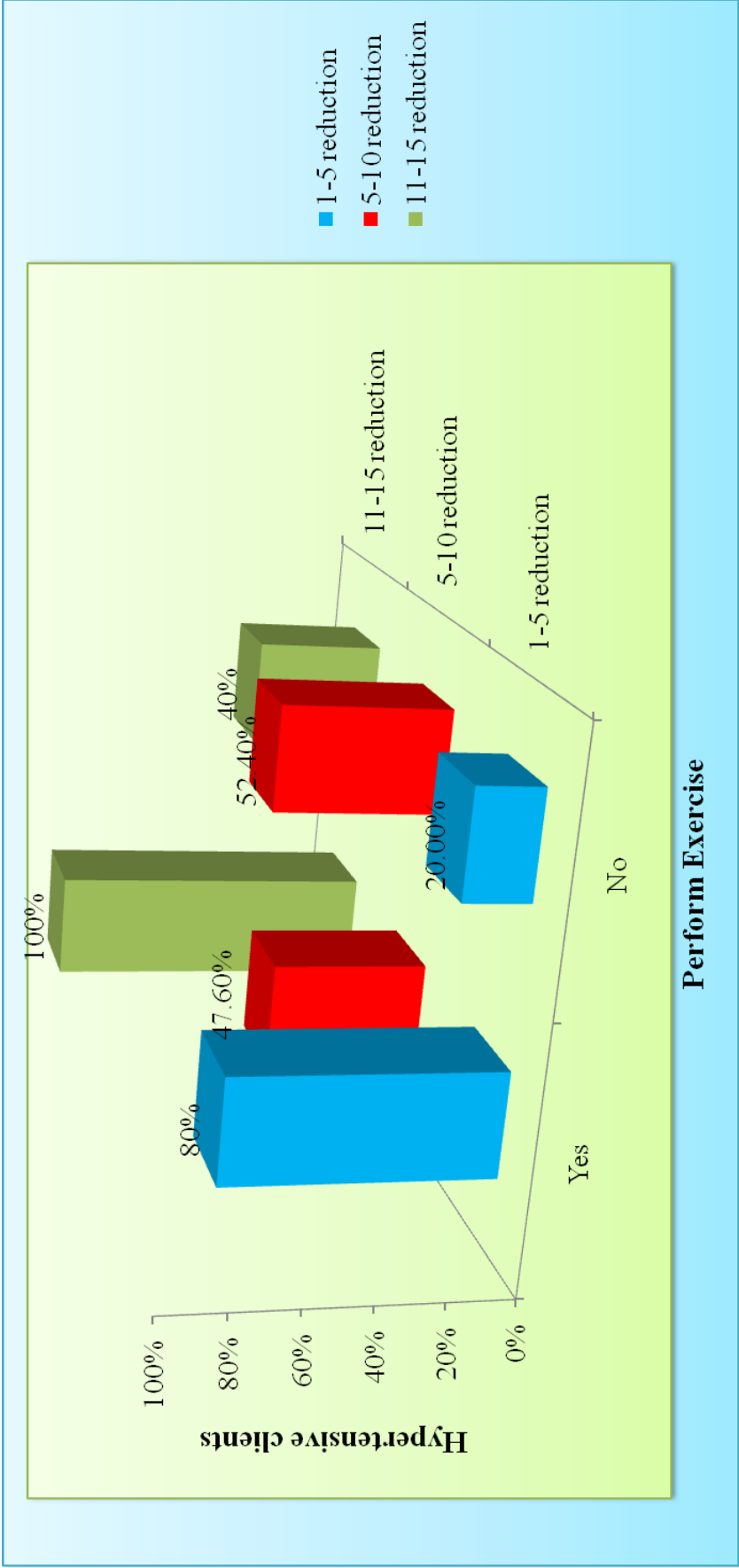
Figure 4.14: Association between exercise with reduction of systolic blood pressure
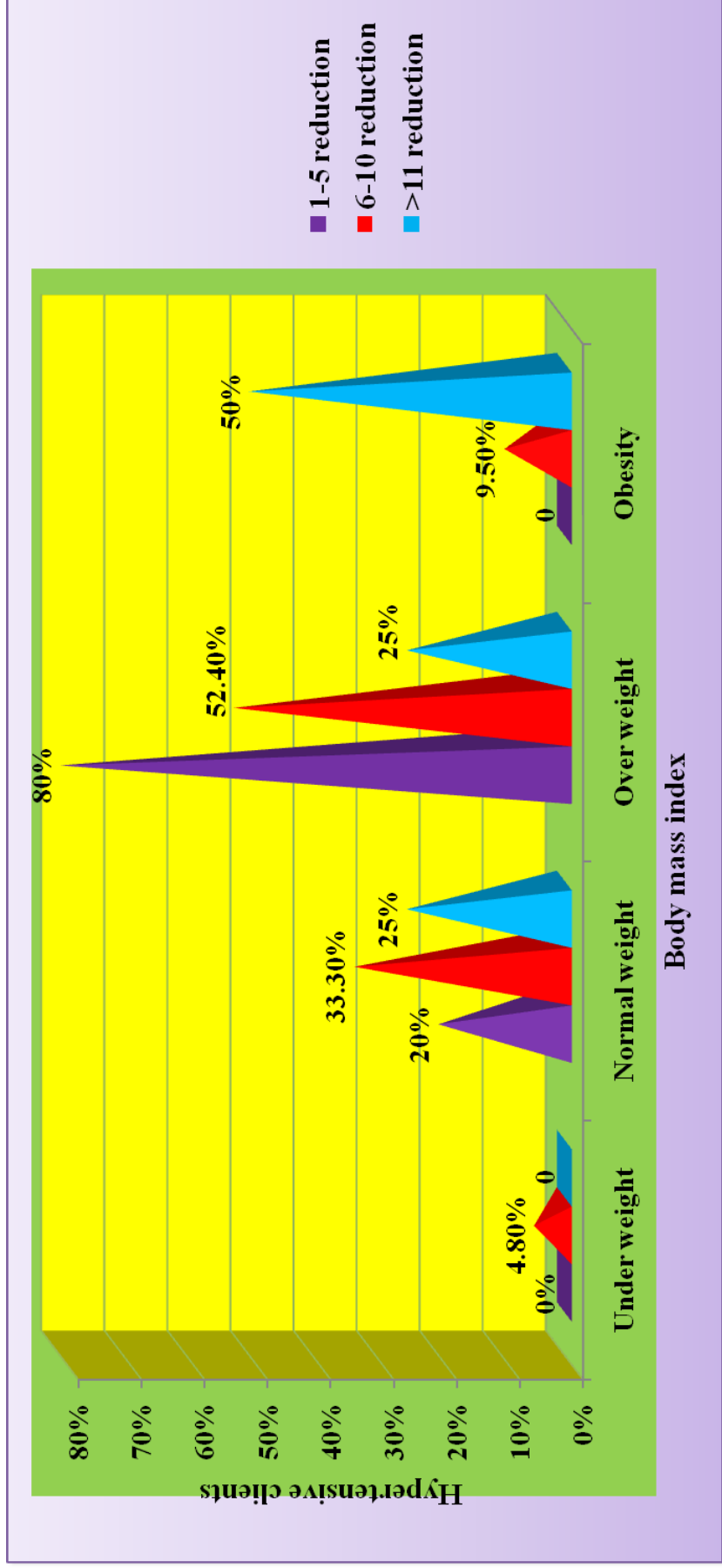
Figure 4.15 Association between Body mass index with reduction of systolic blood pressure
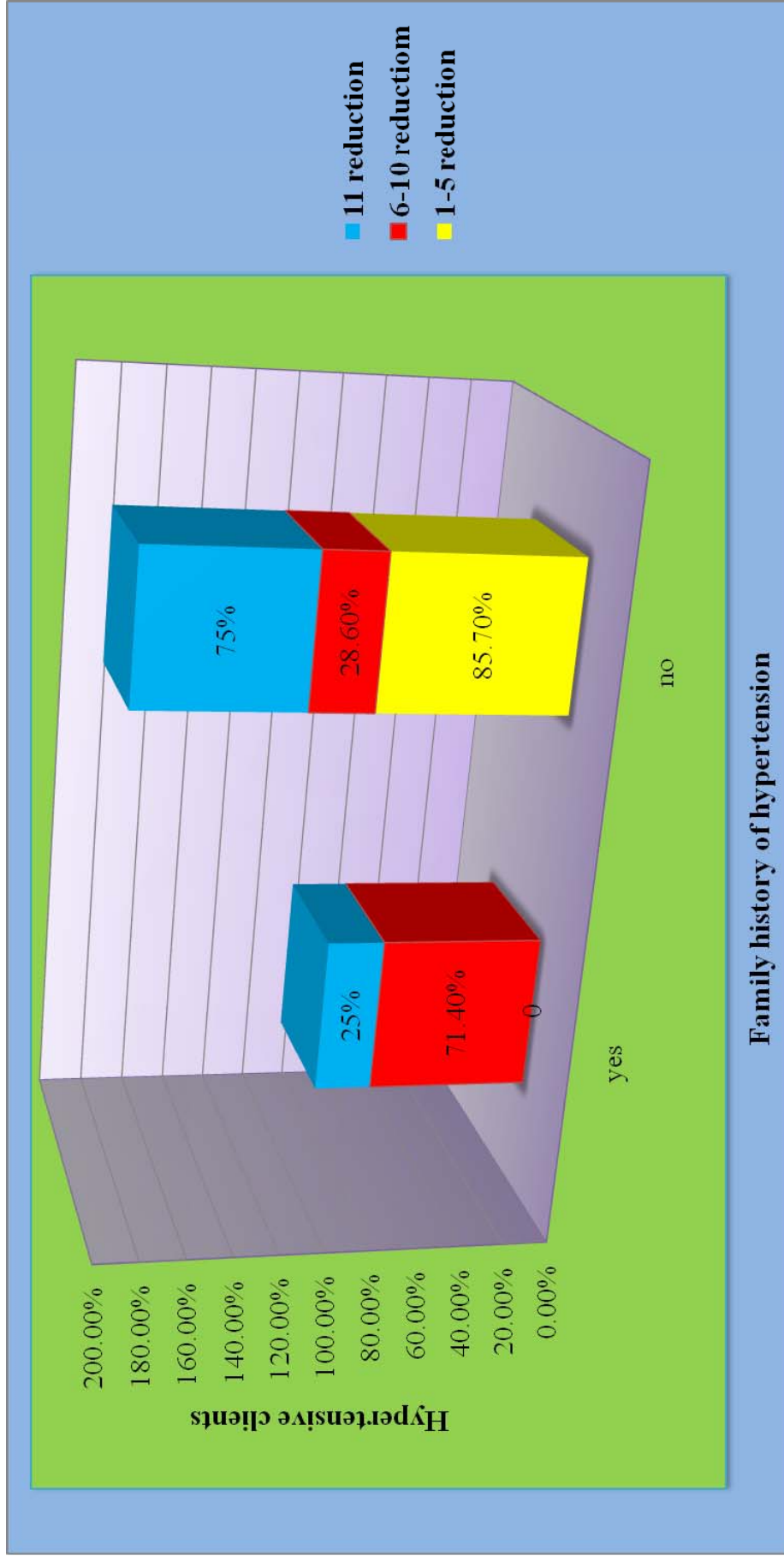
Figure 4.17: Shows the association between the family history of hypertension and reduction of DBP
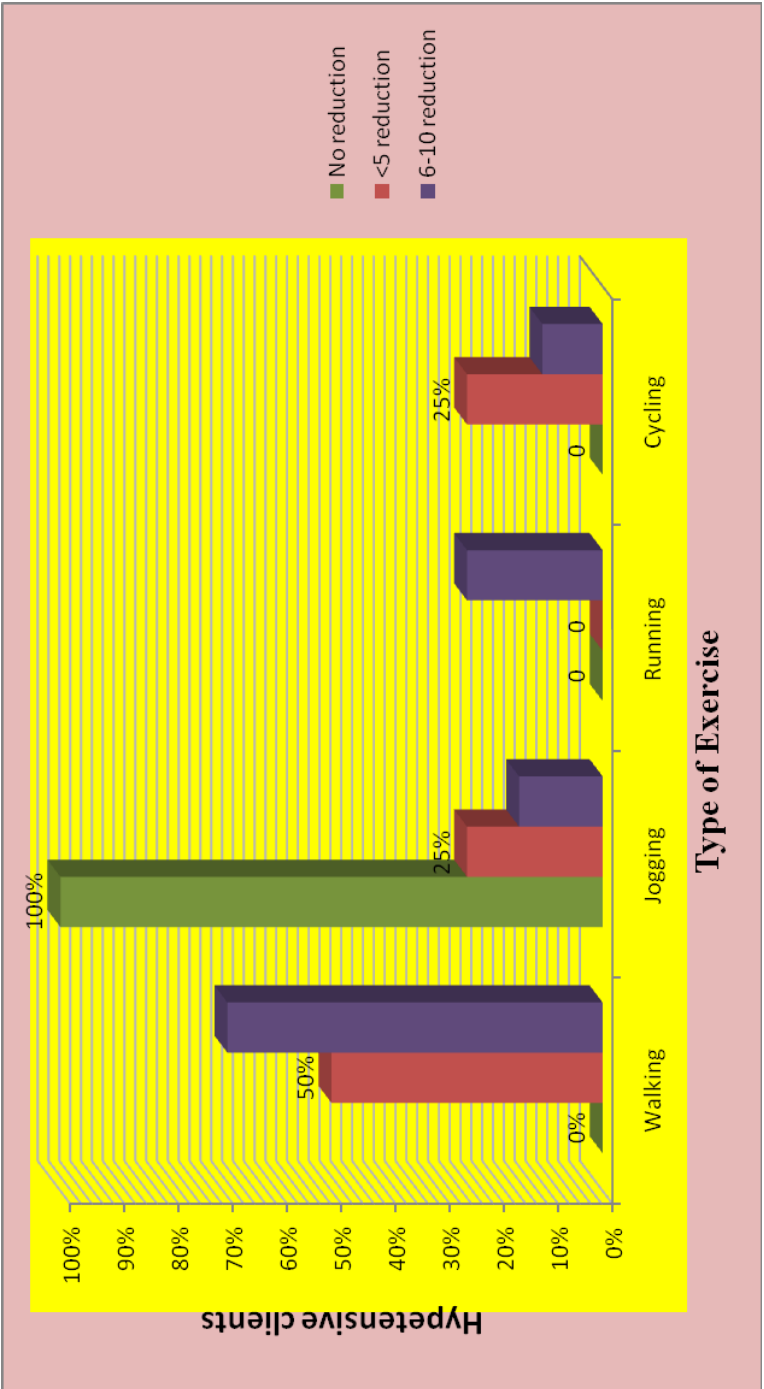
Figure 4.16 :Shows the Association between type of exercise with Diastolic Blood Pressure

CHAPTER V
SUMMARY OF RESULTS

With regards to the demographic variable of hypertensive clients:

Among experimental group majority 33% were between 56-60 years 76.7% were female , 80% were Hindus,26.7% were finished secondary education, 56.7% were home maker 40% had 4 to 5members in a family , 36.7% had income between 7878-11816,80% had non vegetarian, 40% had non vegetarian once in a week 60% were doing exercise among which 66.7 % practice walking exercise 38.9% do it only weekly thrice.

Among the control group majority were between 56 – 60 years 80% were female 86.7 % Hindus 23.3% were finished primary education, 63.3% were Home maker 53.3% had 4-5 member in a family 36.7% had income between 7878-11816, 76.7% had non-vegetarian 56.5% had non- vegetarian had once in a week, 50% were doing exercise among which 71.4 % were practice walking exercise 33.3 % do it weekly once.

With regards to the clinical variable of hypertension clients :

Among experimental group 53,3% have family history of hypertension 31.3% have history of hypertension from mother, 46.7% have 2-3 years of duration of illness, 56.7% have pickle dry fish, appalam were using salty food regarding the height 36.7% were belongs to 161 – 165 cms, 40% clients were 71-80 kg of body weight regarding body mass index most of the study participant were over weight 53.3%, 66.7% were regular treatment and 33.3% have T.enalapril was the common drug, according to the complication 33.3.% believe renal failure can occur.

Among control group 50% have family history of hypertension, 40% have history of hypertension from mother, 40% have 2-3 years of duration of illness, 46.7 % have pickle, dry fish, applam were using salty food, regarding the height 36.7 % were belongs to 161-165 cms, 30% were 61-70 kg of body weight, regarding body mass index most of the study participant were 50%

over weight, regarding treatment 66.7% on regular treatment, their taking 29.6% common tablet of enalapril, according aware of complication 26.7% they believe myocardial infarction.

The major objectives brought out the following findings

- The mean SBP of pre test level was 149.83 in experimental group and 150.67 in control group
- The mean SBP of post test level was 139.50 in experimental group and 148.83 in control group
- The mean DBP of pre test level was 95.33 in experimental group and 95.33 in control group
- The mean DBP post test level was 86.67 in experimental group and 91.67 in control group
- Cucumber was found effective in reducing BP level among hypertensive level clients has the blood pressure level reduced from the systolic and diastolic mean of 149.83 to 139.50 and 95.33 to 86.67 due to the cucumber they are reduced 10.33 and 8.66 from base line score the difference is large and it is statistically significant (p =0.001)
- There was no significant difference between the pre test and post test and diastolic blood pressure of the control group
- Comparison level of blood pressure value between experimental and control group showed that, in experimental group between pre test and post test the difference is large and statistically significant with p=0.0001 but in the control group between pre test and post test difference is small so it is not statistically significant
- The cucumber was found to be effective in experimental group by considering SBP 6.9% of blood pressure was reduced then the pre test and by considering DBP 9.08% blood pressure was reduced than the pre test, in control group 1.22% of SBP and 3.84 % reduction of DBP than the pre test.

In considering SBP the association of the effectiveness of cucumber with the selected demographic variable among experimental group was found that occupation there was a significant association,χ^2=12.24,p=0.02, and those who are practice exercise ,χ^2=6.8,p=0.04 and body mass index significant association with overweight ,χ^2=10.91, p=0.02

In considering DBP, the association of the effectiveness of cucumber with the selected demographic variable among experimental group was found that type of exercise those who are doing walking exercise there was a significant association ,χ^2=8.04,p=0.03 and no family history of hypertension χ^2=7.3%,p=0.02 statistically significant.

CHAPTER-VI

DISCUSSION

Hypertension is a disease which needs lifelong treatment. Left untreated or improperly treated, it shortens life considerably or debases its quality substantially. They can be largely avoided by taking simple precautions and proper control of the disease which would certainly make it possible to lead a normal, active and healthy life. Research has shown that blood pressure if maintained normally can prevent many hypertension-related complications. The purpose of the study was to evaluate the effectiveness of cucumber slices in control of blood pressure .

Objective:1 To assess the pre test and post test blood pressure level among hypertensive clients in experimental group

Most of the participants 76.7% in experimental were females. Majority of the clients have hypertension around 2 – 3 years in experimental (46.7%) group. High percentage of participants in this groups have all the symptoms regarding hypertension (33.3%)**.**Tab.enalapril is the commonest drug taken by the participants 33.3% experimental group. The pre test systolic blood pressure level is 149.83 and the post systolic blood pressure is 139.50 .The differences is 10.33 and this difference is large and it is statistically significant. Regarding the diastolic blood pressure, on an average, the pre test level is 95.33 and the post test level is 86.67, the difference is 8.66 and this difference is large and it is statistically significant. The above findings show the blood pressure values and demographic values of study participants in experimental group.

Objective 2: To assess the pre test and post test blood pressure level among hypertensive clients in control group

Most of them among the participants in control group are having family history of hypertension 50%. Majority of the clients are having

hypertension around 2 – 3 years in control 40% group. High percentage of participants in this groups have all the symptoms regarding hypertension 23.3%, About 66.7% (20) of them in control group were on regular treatment.

On An average, the mean pretest systolic blood pressure is 150.67 and the post SBP is 148.83 the difference is 1.83 which is consider small difference. Pre DBP is 95.33 and post DBP is 91.67 the difference is 3.66 which is statistically significance

Objective 3:To identify the effectiveness of cucumber in the control of blood pressure among hypertensive clients

It shows that there is a significant reduction of systolic and diastolic blood pressure after had intervention of cucumber.

In experimental group the mean SBP reduction is 10.33 and the DBP is 8.66 on the average SBP was reduced 6.9 % than pre test and DBP was reduced to 9.08% than pre test.   In control group the mean systolic blood pressure reduction is 1.84 and DBP is 3.67 and the average SBP was reduced 1.22% than pre test and DBP was reduced 3.84% than pre test.

In the above findings the effectiveness of cucumber shows as 6.9% of SBP and 9.08 % DBP reduced than the pre test in experimental group and control group.

Natures can cure-Herbal health care,2012 In one of the study conducted by professional cardiologist, it's revealed that cucumbers can be amazingly useful in controlling high blood pressure. In fact, drinking its juice can help in lowering blood pressure without medications

Qchan et al. (2013) Conducted study in America relation of raw and cooked vegetables consumption to blood pressure study in America relation of raw and cooked vegetables consumption to blood pressure (they selected 2195 Americans age 40-59 years. They using four standardized 24 hrs dietary recall and blood pressure measurement average intake of raw vegetables was 40 g per

1000 k.cal for men and 50 g per 1000 k.cal for women, cooked vegetables 50 g for men 60 g for women intake if both total raw and total cooked vegetables considered separately inversely related to BP associated with two standard deviation differences in raw vegetables, estimated systolic BP difference 6.9 mm Hg diastolic differences 4.26 mm Hg Commonly they consumed individual raw vegetables, cucumber, tomato, carrot, and scallions related significantly.

Objective 4: To find out the association between certain demographic variable and clinical variable with reduction of blood pressure level in the experimental group.

Table no.11,12,13 and 14 shows the association between level of systolic and blood pressure reduction and their demographic variables the factors contributing to hypertension and the clinical variables of hypertension.

On comparing the pre and post blood pressure level in relation to intake of cucumber among hypertensive clients in experimental group and control group, the obtained "t" values of t=-4.38and p=0.001 it is statistically significant at p<0.001 levels and The finding implies that there is a significant difference between pre diastolic and post diastolic blood pressure level in experimental and control group.

In association between level of SBP reduction and their demographic variable, the cucumber salad was found effective among self employee 95 % and statistically significant χ^2=12.24, p=0.02 and effective among those who are doing exercise χ^2=6.8 p=0.04. It was effective 80 % among those body mass index in over weight statistically significant χ^2=10.91,p=0.02.

Considering the association between diastolic blood pressure and demographic variables.In this association of demographic variable type of exercise $\chi 2$=8.04, p=0.02, In this association effect in the clinical variable no

family history of hypertension (85%) $\chi 2 = 7.3$. p=0.002 were have a marked reduction of diastolic blood pressure.

This study was supported by ***Cucumbers and its health benefits 2012*** Clinical and experimental study of cucumber was conducted in treating essential hypertension in Geriatrics Institute, 1st Sanatorium, at Dalian. Patients (389) with essential hypertension were divided into two groups randomly, 241 patients were treated by of cucumber as control. The marked effective rate in decrease of blood pressure and total effective rate were 52.7%, 90.9% and 58.1%, 92.6% (P < 0.05) respectively.

The overall finding of the study showed that the cucumber was effective in reducing blood pressure level among hypertensive clients in experimental group. Thus as a community health nurse the researcher has educated the community people about the benefits of cucumber at the end of the study.

- H1: There is a significant difference in the post test blood pressure level between experimental group and control group.

  In experimental group, the mean pre SBP is 149.83 mmHg and in control group is 150.67mmHg and post SBP is 139.50mmHg and in control group is 148.83mmHg. So it is statistically difference (p<0.001) with (CI at 95%) between pretest and post test among experimental and control group.

  Hence the first hypothesis was proved.

- H2: There is a significant association between the reduction of blood pressure level among hypertensive client and their selected socio demographic variables

  The participants occupation, exercise, body mass index association with the reduction of systolic blood pressure. Among the study participants, type of exercise, family history of hypertension is associated with the DBP.

  Hence the second hypothesis was proved.

CHAPTER-VII
CONCLUSION AND RECOMMENDATION

Introduction:

An experimental study with pretest post test control group research design was used to evaluate the effectiveness of cucumber reduce blood pressure among hypertensive clients. Cucumber is cost effective and easily available can be used by all people daily and improve the general well being of the clients. It prevents clients from developing complication and reduce the wastage or drug.

Major finding of the study:

- The mean SBP of pre test level was 149.83 in experimental group and 150.67 in control group
- The mean SBP of post test level was 139.50 in experimental group and 148.83 in control group
- The mean DBP of pre test level was 95.33 in experimental group and 95.33 in control group
- The mean DBP post test level was 86.67 in experimental group and 91.67 in control group
- Cucumber was found effective in reducing BP level among hypertensive level clients has the blood pressure level reduced from the systolic and diastolic mean of 149.83 to 139.50 and 95.33 to 86.67 due to the cucumber they are reduced 10.33 and 8.66 from base line score the difference is large and it is statistically significant (p =0.001)
- There was no significant difference between the pre test and post test and diastolic blood pressure of the control group
- Comparison level of blood pressure value between experimental and control group showed that, in experimental group between pre test and post test the difference is large and statistically significant with p=0.001 but in the

control group between pre test and post test difference is small so it is not statistically significant

- The cucumber was found to be effective in experimental group by considering SBP 6.9% of blood pressure was reduced then the pre test and by considering DBP 9.08% blood pressure was reduced than the pre test, in control group 1.22% of SBP and 3.84 % reduction of DBP than the pre test.

In considering SBP the association of the effectiveness of cucumber with the selected demographic variable among experimental group was found that occupation there was a significant association,χ^2=8.24,p=0.02*,and those who are practice exercise ,χ^2=6.8,p=0.04 and body mass index significant association with overweight ,χ^2=10.91, p=0.02*

In considering DBP, the association of the effectiveness of cucumber with the selected demographic variable among experimental group was found that type of exercise those who are doing walking exercise there was a significant association, ,χ^2=8.04,p=0.03* and no family history of hypertension,χ^2=7.3%,p=0.02* statistically significant.

7.1 Implications of the study

The implications of this study can be seen in areas of nursing practice, nursing education, nursing administration and nursing research.

7.1.1 Nursing practice

❖ The community health nurses have a vital role in providing information for all the Hypertensive population.

❖ The community health nurse as a service provider should periodically organize and conducts mass education program regarding hypertension awareness.

❖ cucumber being cost effective and have high minerals, fiber, potassium and low sodium and diuretic effect and effective in reducing the blood

pressure level, the community health nurse must implement information education and communication (IEC) to create awareness to the community on the benefits of cucumber.

7.1.2 Nursing administration

❖ The community health nurse as an administrator should design formal teaching programme on hypertension and its prevention using pharmacological and various non-pharmacological methods in reducing blood pressure levels in the community.

❖ The nurses posted in the Primary Health Centers for control and prevention of non-communicable disease should take active part in identifying the risk peoples and preventing the occurrence of disease in its earlier stage.

❖ She should organize for hypertension camps with collaboration with nursing students attending the Primary Health Centre and along with other NGO'S and it should be properly communicated to the public through mass medias.

❖ The hypertension training program to be continued and opportunities must be provided to all the nurses for the effective training in control and prevention of Hypertension.

7.1.3 Nursing education

❖ As a nurse educator, we must strengthen the concept of non-pharmacological methods for management of Hypertension.

❖ Nursing education should emphasize more on preparing the nurses to impart current changes in health information and to update the knowledge in all fields.

❖ Nursing curriculum to be equipped with knowledge regarding various health information.

7.1.4 Nursing research

Nurses should conduct periodic review of research findings and disseminate the findings through conferences, seminars and publication in professional, national and international journals and in the web site also.

7.2 Limitation

- ➢ The study was limited to a short period
- ➢ The study was limited to small population who are hypertensive

7.3 Recommendations

- ❖ A comparative study can be conducted using cucumber in control of Hypertension among urban and rural people.

- ❖ A similar study can be conducted in other population like nurses, teachers, drivers, obese clients etc. in Chennai.

- ❖ This study can be replicated with larger samples for better generalization.

- ❖ The adolescent children should be educated by means of mass health awareness programs on Hypertension.

- ❖ Help line to be provided to Hypertensive Clients.

Conclusion

The study proves that cucumber is effective in controlling blood pressure level more specifically diastolic blood pressure level among hypertensiveclients and prevents them from developing complications. As cucumber contains vitamins, fiber, minerals, potassium, low sodium, water and diuretic effect, it is cheaper it is applicable to be used even by low socio economic group peoples. It is one of the cost effective alternative source of reducing blood pressure among Hypertensive clients in the community.

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INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI-3

EC Reg No.ECR/270/Inst./TN/2013
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CERTIFICATE OF APPROVAL

To
Mrs. G. SUDHA
M.Sc., (Nursing)
College of Nursing
Madras Medical College,
Chennai – 600 003.

Dear Mrs. G. SUDHA ,
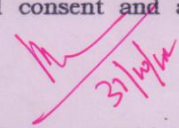
The Institutional Ethics Committee has considered your request and approved your study titled **A STUDY TO ASSESS THE EFFECTIVENESS OF CUCUMBER IN REDUCTION OF BLOOD PRESSURE AMONG HYPERTENSIVE CLIENTS IN SELECTED RURAL AREA AT MEDAVAKKAM. No.14102014.**

The following members of Ethics Committee were present in the meeting held on 21.10.2014 conducted at Madras Medical College, Chennai-3.

1. Dr.C.Rajendran, M.D.,	: Chairperson
2. Dr.R.Vimala, M.D., Dean, MMC, Ch-3	: Deputy Chairperson
3. Prof.B.Kalaiselvi, M.D., Vice-Principal, MMC, Ch-3	: Member Secretary
4. Prof.R.Nandhini, M.D., Inst.of Pharmacology, MMC	: Member
5. Prof.K.Ramadevi, Director i/c, Inst.of Biochemistry, MMC	: Member
6. Prof.Saraswathy, M.D., Director, Pathology, MMC, Ch-3	: Member
7. Prof.S.G.Sivachidambaram, M.D., Director i/c, Inst.of Internal Medicine, MMC	: Member
8. Dr.Raghumani, M.S., Professor of Surgery, MMC	: Member
9. Thiru S.Rameshkumar, Administrative Officer	: Lay Person
10. Thiru S.Govindasamy, B.A., B.L.,	: Lawyer
11. Tmt.Arnold Saulina, M.A., MSW.,	: Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

Member Secretary, Ethics Committee

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool constructed by Ms.G.SUDHA, M.Sc. Nursing II year, College of Nursing, Madras Medical College which is to be used in her study titled **"A STUDY TO ASSESS THE EFFECTIVENESS OF CUCUMBER IN REDUCTION OF BLOOD PRESSURE AMONG HYPERTENSIVE CLIENTS IN SELECTED RURAL AREA AT MEDAVAKKAM"** has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

SIGNATURE WITH SEAL

NAME : Dr. JOY PATRICIA PUSHPARANI, MD

DESIGNATION: Professor and H.O.D of community Medicine

COLLEGE : Madras Medical college, chennai-03.

PLACE: Chennai-03.

DATE: 13.07.15

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool constructed by Ms. G.Sudha, M.Sc. Nursing II year, College of Nursing, Madras Medical College which is to be used in her study titled **"A study to assess the effectiveness of cucumber in reduction of blood pressure among hypertensive clients in selected rural area at Medavakkam"** has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

SIGNATURE WITH SEAL

NAME : EBI GOLDA MARY. V

DESIGNATION: READER

COLLEGE : MADHA COLLEGE OF NURSING

PLACE: KUNRATHUR

DATE: 15 - 07 - 2015 .

ந.க.எண்.1647/பி1/2015

பொருள் - பணித்தொகுதி - பொது சுகாதாரம் - சென்னை மருத்துவக் கல்லூரியில் 2 ஆம்
ஆண்டு பயிலும் மாணவிகள் - மேடவாக்கம் ஆரம்ப சுகாதார நிலையத்தில் -
மூட்டு வலி, உயர்ரத்த அழுத்தம், நீரழிவு நோய், மற்றும் மூட்டு வலியினை
நுண்துளை மருத்துவம் (Accupuncture) மூலம் குணப்படுத்துவது - திட்ட
செயல்புரிய (Project work) அனுமதியளிக்க கோரியது - அனுமதி வழங்குவது -
சம்மந்தமாக.

பார்வை - 1. அரசாணை (டி) எண்.648 சுகாதாரம் மற்றும் குடும்ப நலத் துறை (MCA1)
நாள் 02.06.2009.
2. செல்வி.எம்.மகேஸ்வரி M.Sc. (Nursing) II nd year மாணவி சென்னை
மருத்துவக் கல்லூரி விண்ணப்ப நாள் 01.07.2015.
3. செல்வி.ஜி.சுதா M.Sc. (Nursing) II nd year மாணவி சென்னை
மருத்துவக் கல்லூரி விண்ணப்ப நாள் 01.07.2015.
4. திருமதி.கே.என்.கோமதி M.Sc. (Nursing) II nd year மாணவி சென்னை
மருத்துவக் கல்லூரி விண்ணப்ப நாள் 01.07.2015.
5. செல்வி. இளஞ்செல்வி. M.Sc. (Nursing) II nd year மாணவி சென்னை
மருத்துவக் கல்லூரி விண்ணப்ப நாள் 01.07.2015.

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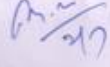
பார்வையில் கண்டுள்ள விண்ணப்பங்களில், சென்னை மருத்துவக் கல்லூரியில், M.Sc.(Nursing)
II nd year பயிலும் கீழ்குறிப்பிட்டுள்ள மாணவிகள் அவர்களுக்கெதிரே குறிப்பிடப்பட்டுள்ள பொருள் குறித்து
13.07.2015 முதல் 12.08.2015 வரை ஆய்வுப்பணி மேற்கொள்ள அனுமதி வழங்க கோரியுள்ளனர்கள்.

வ.எண்.	மாணவி பெயர்	கல்லூரியின் பெயர்	ஆய்வுப்பணி மேற்கொள்ளவுள்ள பொருள்
01.	செல்வி.எம்.மகேஸ்வரி M.Sc. (Nursing) II nd year	சென்னை மருத்துவக்கல்லூரி	50-60 வயது மதிக்கதக்க பெண்மணிகளுக்கு ஏற்படும் மூட்டுவலியினை கடுகு பூச்ச மூலம் குணப்படுத்துவது குறித்து
02.	செல்வி.ஜி.சுதா M.Sc. (Nursing) II nd year	சென்னை மருத்துவக்கல்லூரி	உயர் ரத்த அழுத்தத்தினை வெள்ளரிக்காய் மூலம் குணப்படுத்துவது குறித்து
03.	திருமதி.கே.என்.கோமதி M.Sc. (Nursing) II nd year	சென்னை மருத்துவக்கல்லூரி	நீரழிவு நோயினை கருவேப்பிலை மூலம் குணப்படுத்துவது குறித்து
04.	செல்வி. இளஞ்செல்வி M.Sc. (Nursing) II nd year	சென்னை மருத்துவக்கல்லூரி	மூத்தவர்களுக்கு ஏற்படும் மூட்டு வலியினை நுண்துளை மருத்துவம் (Accupuncture) மூலம் குணப்படுத்துவது குறித்து

பார்வை 1ல் கண்டுள்ள அரசாணையில் துணை இயக்குநருக்கு வழங்கப்பட்டுள்ள அதிகாரத்தின்
பேரில் சம்மந்தப்பட்ட மாணவிகளுக்கு ஆய்வுப்பணி தொடங்குவதற்கான அனுமதி வழங்கப்படுகிறது.

மேடவாக்கம் ஆரம்ப சுகாதார நிலையத்தின் அன்றாடப் பணிகளுக்கு இடையூறு ஏற்படா
வண்ணம் அவர்கனது ஆய்வுப்பணிகளை நிறைவேற்ற வேண்டுமென பணிக்கப்படுகிறார்கள். மேற்கூறப்பட்ட
பணியினை நிறைவு செய்த விவரத்தினை துணை இயக்குநர் அவர்களிடம் தெரிவிக்க வேண்டுமெனவும்
கேட்டுக்கொள்ளப்படுகிறார்கள்.

- 2 -

எனவே மேடவாக்கம் ஆரம்ப சுகாதார நிலைய முதன்மை குடிமை மருத்துவ அலுவலர் மேற்குறிப்பிடப்பட்டுள்ள நபர்கள் தங்களது நிலையத்தில் ஒருமாத காலம் ஆய்வுப் பணிகளை மேற்கொள்ளவுள்ளதால், ஆரம்ப சுகாதார நிலைய அலுவலர்களுக்கு இடையூறு ஏற்படா வண்ணம் செயல்பட வேண்டும் என்றும், இப்பொருள் குறித்து எவ்வித தகவல்களும் பத்திரிக்கை மற்றும் ஊடகங்களில் வெளியிடக்கூடாதெனவும் தெரிவிக்கப்படுகிறது.

துணை இயக்குநர் சுகாதாரப்பணிகள்
கைதாப்பேட்டை காஞ்சிபுரம் மாவட்டம்.

பெறுநர்

1) செல்வி.எம்.மகேஸ்வரி M.Sc. (Nursing) II nd year மாணவி)(சென்னை மருத்துவக் கல்லூரி முதல்வர்
2) செல்வி.ஜி.கதா M.Sc. (Nursing) II nd year மாணவி)(மூலமாக.
3) திருமதி.கே.என்.கோமதி M..Sc. (Nursing) II nd year மாணவி)(
4) செல்வி. இளஞ்செல்வி. M..Sc. (Nursing) II nd year மாணவி)(

நகல் :-

முதல்வர் சென்னை மருத்துவக் கல்லூரி சென்னை - 600 003.
முதன்மை குடிமை மருத்துவ அலுவலர் ஆரம்ப சுகாதார நிலையம் மேடவாக்கம்.

Section – A

Instructions:

- Please be frank and free in answering the question.
- Read each item carefully and answer all the question.
- Answer will be used only for research purpose and will be confident.
- Please put a tick mark at the appropriate option.

Sample No :   Name :;

Address :

1) Age

a) 40 - 45 Years

b) 46 - 50 Years

c) 51 - 55 Years

d) 56 - 60 Years

2) Sex

a) Male

b) Female

3) Religion

a) Hindu

b) Chrishtain

c) Muslims

d) Others

4) Educational Status

a) No formal education

b) Primary Education

c) Secondary Education

d) Higher Sec. Education

e) Diploma

f) Degree

5) Occupational Classification specify

   a) Home Maker ☐

   b) Private Employee ☐

   c) Self Employee ☐

6) Monthly family Income in Rs

   a) < 1589 ☐

   b) 1590 - 4726 ☐

   c) 4727 - 7877 ☐

   d) 7877 - 11816 ☐

   e) > 11816 ☐

7) Dietary Pattern

   a) Vegetarian ☐

   b) Non-Vegetarian ☐

   If non – vegetarian, you will take non – vegetarian

   a) Alternative days ☐

   b) Once in a week ☐

   c) Twice in a week ☐

   d) Monthly twice ☐

8) Family members at home

   a) < 2 ☐

   b) 3 ☐

   c) 4 - 5 ☐

   d) > 6 ☐

9) How much of cooking oil using for a month

   a) < 1 lt ☐

   b) 2 lt ☐

   c) 3 lit ☐

   d) > 4lt ☐

10) Do you perform exercise

   a) Yes

   b) No

   If yes, what type of exercise

   a) Walking

   b) Jogging

   c) Running

   d) Cycling

11) How often you will perform exercise

   a) Twice daily

   b) Once daily

   c) Weekly thrice

   d) Weekly once

Section – B

1) Do you have family history of hypertension

   a) Yes

   b) No

2) If yes, mention the relationship

   a) Grandfather

   b) Grandmother

   c) Father

   d) Mother

3) Duration of illness Family members at home

   a) < 1 Year

   b) 2 – 3 Years

   c) 4 – 5 Years

   d) > 5 Years

4) Are you having habit of taking salty food

   a) Pickle

   b) Dry fish

   c) Appalam

   d) All the above

5) Body Height

   a) 150 – 155 cm

   b) 156 – 160 cm

   c) 161 – 165 cm

   d) 166 – 170 cm

   e) 171 – 175 cm

   f) 176 – 180 cm

6) Body Weight

   a) 40 – 50 kg ☐

   b) 51 – 60 kg ☐

   c) 61– 70 kg ☐

   d) 71– 80 kg ☐

   e) 81– 90 kg ☐

   f) >90 kg ☐

7) Body mass index

   a) Under weight ☐

   b) Normal weight ☐

   c) Over weight ☐

   d) Obesity ☐

8) What are the symptoms you have experienced before treatment

   a) Headache ☐

   b) Fatigue ☐

   c) Vision Changes ☐

   d) All the above ☐

9) Are you on regular treatment

   a) Yes ☐

   b) No ☐

10) What is the medicine prescribed for you specify

   a) T Nifidepine ☐

   b) Enalapril ☐

   c) Amlodepine ☐

   d) Atenolol ☐

11) Are you aware of the complication of hypertension

   a) Myocardial Infection ☐

   b) Renal failure ☐

   c) Stroke ☐

   d) All of the above ☐

Section – C

Pre assessment blood pressure

Post assessment blood pressure

SCORING KEY :

Pre assessment blood pressure :

140 – 159/90-99	Mild hypertension	-	1
160 – 179/100-109	Moderate hypertension	-	2
160 – 179/100-109	Severe hypertension	-	3

Post assessment blood pressure :

No Reduction	-	1
< 5 Reduction	-	2
6 – 10 Reduction	-	3
11 – 15 Reduction	-	4
> 15 Reduction	-	5

சுய விபர கேள்வித்தாள்
பகுதி - அ

மாதிரி எண்   பெயர்

விலாசம்

1) வயது வரம்பு

   அ) 40 – 45 வருடம்   ☐

   ஆ) 46 – 50 வருடம்   ☐

   இ) 51 – 55 வருடம்   ☐

   ஈ) 56 – 60 வருடம்   ☐

2) பாலினம்

   அ) ஆண்   ☐

   ஆ) பெண்   ☐

3) மதம்

   அ) இந்து   ☐

   ஆ) கிருத்துவர்கள்   ☐

   இ) முஸ்லீம்   ☐

4) படிப்பு தகுதி

   அ) முறையான கல்வி பயிலாதவர்   ☐

   ஆ) ஆரம்பக்கல்வி   ☐

   இ) நடுநிலை கல்வி   ☐

   ஈ) மேல்நிலைக்கல்வி   ☐

   உ) பட்டயப்படிப்பு   ☐

   ஊ) பட்டப்படிப்பு   ☐

5) தொழில் வகைப்பாடு

    அ) இல்லத்தரசி ☐

    ஆ) தனியார் துறை ☐

    இ) சுயதொழில் ☐

6) குடும்ப மாத வருமானம் (ரூபாய்)

    அ) < 1589 ☐

    ஆ) 1590 - 4726 ☐

    இ) 4727 -7877 ☐

    ஈ) 7877 - 11816 ☐

    உ) > 11816 ☐

7) உணவு பழக்கம்

    அ) சைவம் ☐

    ஆ) அசைவம் ☐

நீங்கள் அசைவம் எனில் எத்தனை நாளைக்கு ஒருமுறை அசைவம் சாப்பீடுவீர்கள்

    அ) தினமும் ☐

    ஆ) வாரத்திற்கு ஒருமுறை ☐

    இ) வாரத்திற்கு இருமுறை ☐

    ஈ) மாதம் இருமுறை ☐

8) குடும்ப உறுப்பினர்கள்

    அ) < 2 ☐

    ஆ) 3 ☐

    இ) 4 - 5 ☐

    ஈ) > 6 ☐

9) மாதத்திற்கு சமையல் எண்ணெய் எத்தனை லிட்டர் உபயோகப்படுத்துவீர்கள்

அ) < 1 லிட்டர் ☐

ஆ) 2 லிட்டர் ☐

இ) 3 லிட்டர் ☐

ஈ) >4 லிட்டர் ☐

10) நீங்கள் உடற்பயிற்சி செய்வீர்களா?

அ) ஆம் ☐

ஆ) இல்லை ☐

ஆம் எனில் என்ன வகையான உடற்பயிற்சி

அ) நடைப்பயிற்சி ☐

ஆ) மிதமானஓட்டம் ☐

இ) ஓட்டப்பயிற்சி ☐

ஈ) சைக்கிள் பயிற்சி ☐

11) எத்தனை முறை உடற்பயிற்சி செய்வீர்கள் ,

அ) தினமும் இருமுறை ☐

ஆ) தினமும் ஒருமுறை ☐

இ) வாரத்திற்கு மூன்று முறை ☐

ஈ) வாரத்திற்கு ஒருமுறை ☐

பகுதி - ஆ

1) உங்கள் குடும்பத்தில் யாருக்கேனும் உயர் இரத்த அழுத்தம் உள்ளதா?

அ) ஆம் ☐

ஆ) இல்லை ☐

2) ஆம் எனில் உறவுமுறை

அ) தாத்தா ☐

ஆ) பாட்டி ☐

இ) அப்பா ☐

ஈ) அம்மா ☐

3) எத்தனை வருடங்களாக உயர் இரத்தம் அழுத்தம உள்ளது ?

அ) 1 வருடத்திற்குள் ☐

ஆ) 2 - 3 வருடத்திற்குள் ☐

இ) 4 - 5 வருடத்திற்குள் ☐

ஈ) 5 வருடத்திற்கு மேல் ☐

4) உப்பு மிகுந்த உணவு சாப்பிடும் பழக்கம் உண்டா? ஆம் எனில் பின் குறிப்பிட்டவற்றில் எவை

அ) ஊறுகாய் ☐

ஆ) கருவாடு ☐

இ) அப்பளம் ☐

ஈ) அனைத்தும் ☐

5) உயரம்

அ) 150 – 155 செ மீ ☐

ஆ) 156 – 160 செ மீ ☐

இ) 161 – 165 செ மீ ☐

ஈ) 166 – 170 செ மீ ☐

உ) 171 – 175 செ மீ ☐

ஊ) 176 – 180 செ மீ ☐

6) உடல் எடை

அ) 40 - 50 கிலோ ☐

ஆ) 51 - 60 கிலோ ☐

இ) 61 - 70 கிலோ ☐

ஈ) 71 - 80 கிலோ ☐

உ) 81 - 90 கிலோ ☐

ஊ) 90 கிலோ மேல் ☐

7) எடை உயர விகித குறியீடு

அ) குறைந்த எடை ☐

ஆ) சரியான எடை ☐

இ) அதிக எடை ☐

ஈ) பருமானண எடை ☐

8) மருத்துவத்திற்கு முன் கீழ்கண்ட நோய் அறிகுறிகள் ஏதாவது இருந்ததா?

அ) தலைவலி ☐

ஆ) அதிகமான சோர்வு ☐

இ) பார்வை மாற்றம் ☐

ஈ) இவை அனைத்தும் ☐

9) நீங்கள் தொடர்ந்து சிகிச்சை எடுக்கின்றீர்களா?

அ) ஆம் ☐

ஆ) இல்லை ☐

10) உங்களுக்கு பரிந்துரைக்கப்பட்ட மருந்து எது ?

அ) நிபிடிப்பின் ☐

ஆ) எனராப்பிரில் ☐

இ) அமிலோடிப்பின் ☐

ஈ) அட்டினலால் ☐

11) உயர் இரத்த அழுத்த பாதிப்பினால் ஏற்படும் பின்விளைவுகள் யாவை ?

அ) இருதய நோய் ☐

ஆ) நரம்பு பாதிப்பு ☐

இ) சிறுநீரக பாதிப்பு ☐

ஈ) அனைத்தும் ☐

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பகுதி - இ

இரத்த அழுத்ததிற்கான நேர்காணல் படிவம்

வ. எண்	இரத்த அழுத்தம் எடுக்கப்படும் நாட்கள்	இரத்த அழுத்தத்தின் அளவு வெள்ளரிக்காய் உட்கொள்ளும் முன்	இரத்த அழுத்தத்தின் அளவு வெள்ளரிக்காய் உட்கொள்ளும் பின்
1.	4 வது நாள்		
2.	8 வது நாள்		
3.	12 வது நாள்		
4.	15 வது நாள்		

ஆய்வு தகவல் தாள்

ஆய்வு தலைப்பு : வெள்ளரிக்காய் சாப்பிடுவதன் மூலம் உயர் இரத்த அழுத்தத்தை குறைத்தல் பற்றிய ஓர் திறனாய்வு

ஆய்வாளர் :

பங்கேற்பாளர் :

இந்த ஆய்வு மெடவாக்கம் கிராமத்தில் நடைபெற உள்ளது. நீங்களும் இந்த ஆய்வில் பங்கேற்க நாங்கள் விரும்புகிறோம், இதிலுள்ள தகவலின் அடிப்படையில் இந்த ஆய்வில் பங்கேற்பதா அல்லது வேண்டாம என்று நீங்கள் முடிவு செய்து கொள்ளலாம். உங்களது சந்தேகங்களை எங்களிடம் கேட்டு நிவர்த்தி செய்து கொள்ளலாம்,

இந்த ஆய்வின் நோக்கம்

வெள்ளரிக்காய் சாப்பிடுவதன் மூலம் உயர் இரத்த அழுத்தத்தை குறைத்தல் பற்றிய ஓர் திறனாய்வு

இந்த ஆய்விற்கு இன்ஸ்டிட்யூசனல் எத்திகல் கமிட்டி சம்மதம் பெற்றிருக்கிறோம்,

ஆய்வின் செயல்முறை

இந்த ஆய்வில் கலந்து கொள்பவர்கள் **A** மற்றும் **B** என்று இரு குழுக்களாக பிரிக்கப்படுவீர்கள். குழுவில் இருப்பவர்கள் வழக்கமான சிகிச்சையுடன் வெள்ளரிக்காய் பெறுவார்கள். இந்த ஆய்வில் முதல் மற்றும் 15ம் நாள் முடிவில் இரத்த அழுத்தம் பரிசோதிக்கப்படும். இந்த ஆய்வின் போது ஏதேனும் பக்க விளைவுகள் ஏற்பட்டால் உடனடியாக எங்களிடம் தெரிவிக்க வேண்டும்,

ஆய்வினால் ஏற்படும் நன்மைகள்

இந்த ஆய்வில் கலந்து கொள்வதன் மூலம் நீங்கள் நோயின் தன்மையில் முன்னேற்றம் பெறலாம். மேலும் வருங்காலத்தில் பிற நோயாளிகளும் பயன் பெற இந்த ஆய்வு உதவியாக அமையும்.

மருத்துவ சிகிச்சையின் தகவல்கள் குறித்து விவரங்கள்

உங்கள் மருத்துவ சிகிச்சை குறித்த தகவல்கள் ரகசியமாக பாதுகாக்கப்படும் (பெயர், மருத்துவ பரிசோதனை முடிவு, மருத்துவ ஆய்வு முடிவு) இந்த தகவல் தாளில் கைபெழுத்திடுவதன் மூலம் உங்களை பற்றிய குறிப்புகளோ, எடுத்து கொண்ட சிகிச்சை முறையை பற்றியோ ஆய்வாளரோ இன்ஸ்டியூட்சன் எத்திக்ஸ் கமிட்டியை சார்ந்தவர்களோ தேவைப்பட்டால் அறிந்து கொள்ளலாம் என்று சம்மதிக்கிறீர்கள். முடிவுகளை அல்லது கருத்துக்களை வெளியிடும் போதோ அல்லது ஆய்வின் போதோ தங்களது பெயரையோ

அல்லது அடையாளங்களையோ வெளியிடமாட்டோம் என்பதையும் தெரிவித்துக்கொள்கிறோம்,

இந்த ஆய்வில் பங்கேற்காவிட்டாலும் நீங்கள் வழக்கமான சிகிச்சையை தொடர்ந்து பெறலாம். இந்த ஆய்வில் பங்கேற்பது தங்களுடைய விருப்பத்தின் பேரில் தான் இருக்கிறது. மேலும் நீங்கள் எந்நேரமும் இந்த ஆய்விலிருந்து பின் வாங்கலாம் என்பதையும் தெரிவித்துக்கொள்கிறோம்,

இந்த சிறப்பு சிகிச்சையின் முடிவுகளை ஆய்வின் போதோ அல்லது ஆய்வின் முடிவின் போதே தங்களுக்கு அறிவிப்போம் என்பதையும் தெரிவித்துக்கொள்கிறோம்.

ஆய்வாளரின் கையொப்பம்   பங்கேற்பாளர்- பாதுகாவலர் கையொப்பம்

தேதி   தேதி

சுய ஒப்புதல் படிவம்

ஆய்வு தலைப்பு : வெள்ளரிக்காய் சாப்பிடுவதன் மூலம் உயர் இரத்த அழுத்தத்தை குறைத்தல் பற்றிய ஓர் திறனாய்வு

பெயர்   வயது   தேதி

,,, என்பவராகிய நான் அந்த ஆய்வின் விவரங்களும் அதன் நோக்கங்களும் முழுமையாக அறிந்துக்கொண்டேன். எனது சந்தேகங்கள் அனைத்திற்கும் தகுந்த விளக்கம் அளிக்கப்பட்டது, இந்த ஆய்வில் முழு சுதந்திரத்துடன் மற்றும் சுயநினைவுடன் பங்கு கொள்ள சம்மதிக்கிறேன்,

எனக்கு விளக்கப்பட்ட விஷயங்களை நான் புரிந்து கொண்டு எனது சம்மதத்தை தெரிவித்துக்கொள்கிறேன். இச் சுய ஒப்புதல் படிவத்தை பற்றியும் எனக்கு விளக்கப்பட்டது. இந்த ஆய்வினை பற்றிய அனைத்து தகவல்களும் எனக்கு தெரிவிக்கப்பட்டது. இந்த ஆய்வில் எனது உரிமை மற்றும் பங்கினை பற்றி அறிந்து கொண்டேன்.

இந்த ஆய்வில் பிறரின் நிர்பந்தமின்றி என் சொந்த விருப்பத்தின் பேரில் தான் பங்கு பெறுகிறேன் மற்றும் நான் இந்த ஆராய்ச்சியிலிருந்து எந்நேரமும் பின் வாங்கலாம் என்பதையும் அதனால் எந்த பாதிப்பும் ஏற்படாது என்பதையும் நான் புரிந்து கொண்டேன்.

இந்த ஆய்வில் கலந்து கொள்வதன் மூலம் என்னிடம் பெறப்படும் தகவலை ஆய்வாளர் இன்ஸ்டியூசனல் எத்திக்ஸ் கமிட்டியினரிடமோ, ஆரசு நிறுவனத்திடமோ தேவைப்பட்டால் பகிர்ந்து கொள்ளலாம் என சம்மதிக்கிறேன்,

இந்த ஆய்வில் முடிவுகளை வெளியிடும்போது எனது பெயரோ, அடையாளமோ வெளியிடப்படாது என அறிந்து கொண்டேன். இந்த ஆய்வின் விவரங்களைக் கொண்ட தகவல் தாளை பெற்றுக் கொண்டேன். இந்த ஆய்விற்காக இரத்த அழுத்த பரிசோதனை செய்து கொள்ளவும் சம்மதிக்கிறேன். இந்த ஆய்வில் பங்கேற்கும் போது ஏதேனும் சந்தேகம் ஏற்பட்டால், உடனே ஆய்வாளரை தொடர்பு கொள்ள வேண்டும் என அறிந்து கொண்டேன்.

இச்சுய ஒப்புதல் படிவத்தில் கையெழுத்திடுவதன் மூலம் இதிலுள்ள அனைத்து விஷயங்களும் எனக்கு தெளிவாக விளக்கப்பட்டது என்று தெரிவிக்கிறேன் இச்சுய ஒப்புதல் படிவத்தின் ஒரு நகல் எனக்கு கொடுக்கப்படும் என்றும் தெரிந்து கொண்டேன்.

ஆய்வாளரின் கையொப்பம்   பங்கேற்பாளர்- பாதுகாவலர் கையொப்பம்

தேதி   தேதி

Control Group	Age	Sex	Religion	Education	Occupation	Family Members	Income	Diet Pattern	If Non Veg	Cooking Oil	Salty Food	Exercise	Type of Exercise	Often exercise	Weight	Height	BMI	Family h/o HT	Relation ship	Duration of illness	Symptoms	Regular treatment	Type of treatment	Medicine	Aware of complication	pre test BP Syst	pre test BP Dias	pre test BP Score	post test BP Syst	post test BP Dias	post test BP Score
1	2	2	1	2	4	3	3	2	2	3	4	2			3	3	2	1	4	1	2	1	1	2	4	140	90	1	140	90	1
2	3	2	1	1	1	2	2	2	2	2	4	1	1	4	4	2	3	2		3	1	2	1	4	2	170	100	2	160	90	3
3	2	2	1	3	4	3	5	2	3	4	3	1	1	2	4	3	3	2		2	1	1	1,2	2	4	140	90	1	130	95	2
4	2	1	2	5	4	3	4	2	3	3	4	1	4	2	5	5	3	1	3	2	2	1	1	2	1	150	90	1	160	100	3
5	4	2	1	1	1	2	2	1		2	3	2			1	3	2	2		2	4	2	1	2	2	160	100	2	150	100	3
6	1	2	1	3	2	3	4	2	2	3	1	1	1	1	4	3	3	2		1	3	1	1,2	3	3	130	90	1	140	90	1
7	3	1	1	2	1	1	2	2	2	1	4	2			5	3	4	2		3	3	2	1,3	3	2	160	100	2	160	100	1
8	4	2	2	1	1	4	5	2	3	4	3	2			3	2	2	1	4	4	4	1	1	1	2	170	100	2	160	90	3
9	1	2	1	6	1	2	5	2	2	3	3	1	1	1	3	3	2	1	2	1	2	1	1	3	4	130	90	1	140	90	1
10	3	2	1	2	1	3	4	1		3	1	2	1	3	5	4	3	1	5	2	3	1	2	4	3	160	100	2	160	90	3
11	4	2	1	1	1	3	3	2	4	3	3	2			3	2	3	2		3	4	1	1		1	150	100	1	160	100	2
12	2	1	1	4	2	2	4	2	3	1,3	1	2			6	5	4	2		2	4	1	1,3	3	2	140	90	1	140	90	1
13	4	2	1	2	1	4	5	2	2	4	4	1		3	4	1	4	1	2	4	3	2	1,2	4	2	160	100	2	150	90	3
14	2	2	1	3	1	3	4	1		3	3	1	1	4	3	2	3	2		2	1	1	1	3	3	140	90	1	150	90	1
15	3	2	1	3	1	2	3	2	3	3	1	2	1	1	4	3	3	2		3	4	1	1	1	3	150	100	1	150	90	3
16	2	2	1	4	4	3	4	2	2	3	4	2			3	3	2	1	4	1	2	1	1	3	4	140	90	1	130	80	3
17	3	2	1	2	4	3	2	2	2	3	3	1			5	2	4	2		3	1	2	1	4	1	130	90	2	140	90	3
18	3	2	3	3	1	4	5	1		4	4	1	1	3	4	3	4	1	4	4	4	1	4	4	1	160	100	1	155	100	2
19	2	2	1	2	1	3	4	2	1	4	3	2	1	2	3	2	3	1	2	2	3	2	1		3	140	90	1	135	90	2
20	1	1	1	4	1	2	4	1		2	3	1	1		2	2	2	1	2,5	2	2	1	1	2	4	140	90	2	140	90	1
21	4	2	1	1	1	3	5	2	2	2	3	2	4	3	6	5	4	1	4	3	1	1	1,2	1	1	160	100	1	160	90	3
22	2	2	1	5	4	3	5	2	3	3	4	1			3	2	3	1	1	2	1	1	1	2	1	140	90	1	150	90	1
23	3	1	2	2	1	3	3	2	2	3	4	2			2	2	2	2		4	4	1	3	4	2	160	95	2	150	90	3
24	1	1	1	3	1	2	4	1		4	1,3	1			1	1	4	1	3	1	2	1	1		1	130	90	1	120	90	2
25	3	2	1	1	1	4	5	2	2	4	3	1	4	3	5	2	3	2		3	1	1	1	1	4	160	100	2	160	95	1
26	3	2	1	4	4	3	5	2	3	4	3	1	1	2	5	5	3	2		2	3	1	1,2	4	4	150	90	1	150	90	1
27	1	1	1	6	4	2	4	1		4	4	2	2	2	3	3	3	1	2	1	2	2	1	2	4	140	90	1	140	90	1
28	3	2	1	5	2	3	5	2	2	4	3	1			5	4	4	2	4	3	1	1	1		4	150	100	1	150	100	1
29	2	1	1	4	1	2	4	2	4	2	4	2			4	2	3	1		2	4	1	1	2	4	140	90	1	150	90	1
30	4	2	1	1	1	3	3	2	2	4	3	2			2	1	3	2		2	1	2	1	3	3	160	100	2	150	90	3

Exp.Group	Age	Sex	Religion	Education	Occupation	Family Members	Income	Diet Pattern	If Non Veg	Cooking Oil	Salty Food	Exercise	Type of Exercise	Often exercise	Weight	Height	BMI	Family h/o HT	Relationship	Duration of illness	Symptoms	Regular treatment	Type of treatment	Medicine	Aware of complication	Pre Test Sys	Pre Test Dia	Pre Test Score	Post Test Sys	Post Test Dia	Post Test Score
1	1	2	1	2	1	2	4	2	3	3	2,3	1	1	3	3	3	3	2		3	1	1	1	2	2	150	100	2	140	90	3
2	3	2	1	2	1	3	5	2	3	3	3	2			4	2	3	1	3	3	4	1	1	2	2	160	100	2	150	90	3
3	1	2	1	4	4	2	3	2	2	2	3	1	1	3	3	2	2	1	4	2	2	1	1	3	4	140	90	1	130	90	3
4	4	2	1	1	1	3	3	2	2	3	4	2			4	3	3	1	3	3	4	1	1	1	2	160	100	2	150	90	3
5	1	1	1	5	4	3	5	2	2	3	4	1	2	2	4	5	3	2		2	4	1	1	3	4	140	100	1	130	90	3
6	4	2	1	2	1	1	2	1		1	2	2			4	2	1	2		3	1	2	1	4	3	170	100	2	160	90	3
7	1	1	3	4	2	3	4	2	1	3	4	1	4	1	5	5	3	1	1,3	2	2	1	1	1	4	140	90	1	130	80	3
8	1	1	1	2	1	3	3	2	3	3	4	2			4	3	3	1	2		3	1	1	4	1	140	90	1	120	80	4
9	4	2	1	3	1	4	5	2	2	4	3	2			5	5	3	2		3	4	2	2		2	145	95	1	140	90	2
10	3	2	2	1	2	1	3	1		2	4	1	1	3	3	2	3	1	4	3	4	1	1	3	1	160	100	2	150	90	3
11	2	2	2	4	4	4	2	2	2	2	3	2			3	3	2	1	4	3	2	2	1	2	3	140	95	1	140	90	2
12	1	2	1	4	1	2	5	1		4	4	2			4	4	3	1	3	2	1	1	2	4	2	150	100	1	140	90	3
13	4	2	1	1	1	4	2	2	4	1	1	1	1	4	2	3	2	1	3	1	1	1	1,2	2	4	160	100	2	140	90	5
14	4	2	1	2	2	1	5	2	4	4	4	2			5	4	4	1	2	4	4	1	1	4	2	160	100	2	150	90	3
15	3	1	1	4	4	4	2	1	3	1	1	1	2	2	2	3	2	1	2	2	2	2	1,2	2	1	135	90	1	130	80	3
16	3	2	2	2	1	3	3	2	1	2	4	1	1	2	6	5	4	2		3	3	1	3		1	170	100	2	155	90	4
17	2	2	2	6	2	4	5	2	1	3	4	1	1	3				2		1	1	2	1,2	4	3	140	90	1	140	90	1
18	2	2	3	4	1	2	5	2	4	4	4	1	1	1	2	1	2	2	3,4	2	2	2	2		1	150	90	1	140	85	2
19	4	1	1	1	1	3	4	2	1	4	4	1	1	4	4	1	4	1	3,5	4	4	1	1	1	2	160	100	2	140	85	5
20	2	2	1	4	1	4	5	2	3	3	3	2	1	2	4	3	3	1	4	2	4	2	1	2	4	140	90	1	130	80	3
21	3	2	1	1	1	2	4	1	2	3	4	1			1	1	2	1	4	2	1	1	1,2	2	2	160	100	2	150	90	3
22	4	2	1	1	4	3	5	2	3	4	4	1	1	4	4	3	3	1		4	2	1	1,2	4	1	140	100	1	130	90	3
23	1	1	1	6	1	1	2	2	2	2	4	2	1	3	2	1	3	2		1	2	2	1	2	4	140	90	1	140	90	1
24	3	2	1	2	1	3	5	2	2	4	3	2			4	3	3	2		2	4	1	1	4	2	160	100	2	150	90	3
25	2	2	1	3	4	3	3	2	3	2	4	1			3	2	3	2		2	2	1	1	2	4	130	90	1	120	80	3
26	3	2	1	4	1	2	4	2	2	3	4	2	3	2	4	4	3	2		2	1	1	1	3	4	140	90	1	120	80	4
27	4	1	1	3	1	3	4	2	4	2	4	1			4	2	3	2		4	3	1	1	1	2	150	90	1	140	85	3
28	4	1	1	5	2	3	3	2	2	2	3	1	2	3	2	2	2	1		3	4	1	1	3	3	170	100	2	150	90	5
29	3	2	1	2	1		5	1		3	1,3	1	1	3	5	3	4	1	1	2	2	2	1,3	3	3	140	90	1	130	80	3
30	4	1	1	3	4		4	1		3	3	1	4	2	5	4	3	2		2	2	2	1	4	1	150	90	1	145	90	2