TO ASSESS THE EFFECTIVENESS OF RAW GARLIC CLOVE ON BLOOD PRESSURE LEVEL IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION RESIDING AT SAMAYANALLUR, MADURAI.

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APRIL - 2012

CERTIFICATE

This is to certify that this dissertation titled **TO ASSESS THE EFFECTIVENESS OF RAW GARLIC CLOVE ON BLOOD PRESSURE LEVEL IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION RESIDING AT SAMAYANALLUR, MADURAI** is a bonafide work of Mrs.M.Jayakodi, College of Nursing, Madurai Medical College, Madurai - 20, submitted to The Tamilnadu Dr.M.G.R.Medical University, Chennai in partial fulfilment of the university rules and regulations towards the award of the degree of Master of Science in Nursing, Branch IV, Community health Nursing Under our guidance and supervision during the academic period from 2010 -2012.

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ABSTRACT

To assess the effectiveness of raw garlic clove on Blood pressure level in clients with treated uncontrolled hypertension residing at Samayanallur, Madurai.

INTRODUCTION

Non communicable disease play an important role in recent years because of life style changes, environmental condition food habit, work force, stress, high salt intake, aging are the major cause for the increasing the blood pressure. Hypertension is the great risk factor was the person health is concerned. It is not controlled in the early stage cardiovascular mortality and morbidity will occur due to urbanization and the associated health risk with sedentary lifestyle out of every four people at least one of them will be affected by hypertension in their lives. Adequate control of hypertension is essential and if not done so can culminate into uncontrolled hypertension.

OBJECTIVE:

- To assess the blood pressure level in clients with treated uncontrolled hypertension among experimental and control group.
- To evaluate the effectiveness of raw garlic clove on blood pressure level in clients with treated uncontrolled hypertension among Experimental group.
- To compare the pretest and post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group.
- To associate the post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group with selected demographic variable.

HYPOTHESIS:

- There will be a significant difference in the level of blood pressure among hypertensive clients before and after raw garlic intervention.
- There will be a significant association between blood pressure level in clients with treated uncontrolled hypertension with selected demographic variable.

METHODOLOGY:

The research approach used for this study quantitative approach simple random sampling techniques the research Design is quasi experimental pretest and posttest control group design. Setting of the study conducted in Samayanallur. The sample of 60 hypertensive clients from male and female the aged group 35 years to 66years and above. The 30 clients in experimental group and 30 clients in control group. Conceptual Framework Modified Roy's adaptation theory model 1996. Outcome Measure blood pressure level measured before and after administration of raw garlic clove Intervention 4gm of Raw garlic clove is given to the experimental group.

FINDINGS :

The result of the Experimental client's systolic blood pressure score reduced from 172.40 to 154 in post test due to raw garlic glove with the difference of 18.40. Whereas in Diastolic Blood Pressure, the score reduced from 106 to 94.60 in post test due to raw garlic glove with the difference of 11.40. Clients who received raw garlic clove reported highly significant reduction in the blood pressure level (P = 0.001). There was significant association between the posttest blood pressure level and age, income, food habit, hypertensive drug taking in experimental group.

CONCLUSION:

The results supported that raw garlic clove administration is very suitable and alternative therapy of non pharmacological measure of reduction in uncontrolled hypertension.

TABLE OF COTENTS

CHAPTER	CONTENTS	PAGE
I	**INDRODUCTION**	1
	Need for the study	3
	Statement of the problem	5
	Objectives	6
	Hypotheses	6
	Operational definition	6
	Assumption	7
	Delimitation	7
II	**REVIEW OF LITERATURE**	8
	Review of literature related to the study	9
	Conceptual framework	25
III	**METHODOLOGY**	26
	Research approach	26
	Research design	26
	Setting of the study	27
	Population of the study	27
	Sample	27
	Sample size	27
	Sample technique	29
	Criteria for sample selection	29

CHAPTER	CONTENTS	PAGE
	Variables	29
	Development of the tool	30
	Description of the instrument	30
	Content validity	30
	Reliability of the tool	31
	Validity of the instrument	31
	Ethical committee approval	31
	Pilot study	31
	Data collection method	31
	Plan for data analysis	32
	DATA ANALYSIS AND INTERPRETATION	33
V	**DISCUSSION**	43
VI	**SUMMARY CONCLUSION AND RECOMMENDATION**	49
	BIBLIOGRAPHY	
	APPENDICES	

LIST OF TABLES

TABLE. NO	TITLE	PAGE NO.
1.	Description of demographic variable of the clients with treated uncontrolled hypertension	35
2.	Description of the clinical variable of the clients with treated uncontrolled hypertension	37
3.	Assess the blood pressure level in clients with treated uncontrolled hypertension among experimental and control group	39
4.	Evaluate the effectiveness of raw garlic clove on blood pressure level in clients with treated uncontrolled hypertension among experimental group	40
5.	Compare the pre test and post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group	41
6.	Associate the post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group with selected demographic variables	42

LIST OF FIGURES

FIG. NO	TITLE	PAGE NO.
1.	Conceptual frame work	25
2.	Research design	28
3.	Monthly Income	36
4.	Food habits	36
5.	Hypertensive drug taking	38

LIST OF APPENDICES

APPENDIX	TITLE
I	Data collection tool for English
II	Data collection tool for Tamil
III	Record of blood pressure level chart (Experimental and control group)
IV	Copy of letter seeking permission to conduct the study
V	Copy of certificate of content validity

CHAPTER-I

INTRODUCTION

"Every human being is the author of his own health (or) disease".

"He, who has health, has hope and he, who has hope, has everything".

"It is health that is real wealth and not pieces of gold and silver".

- Bernad

Inthe growing world non communicable diseases like hypertension, diabetic mellitus, cancer, coronary heart diseases play an important role. Hypertension is one of the major risk factor for cardio vascular mortality which accounts to 20-50 % of all deaths in India. It is a major problem worldwide. According to Joint national committee 2008 Blood pressure is classified into mild (140-159, systolic blood pressure, 90- 99mm/Hg in diastolic blood pressure). Moderate (160-179 in systolic blood pressure, 100-109 in diastolic blood pressure) and severe (in systolic above 180 blood pressure and above 110 for diastolic blood pressure).

The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood pressure produce report on a number of factors increase blood pressure, including obesity, insulin resistance, high alcohol intake, high salt intake, aging and perhaps sedentary lifestyle, stress, low potassium intake, and low calcium intake. The diagnosis of hypertension is made when the average of two or more diastolic blood pressure is 90 mm Hg or when the average of multiple systolic Blood pressure readings on two or more subsequent visits is consistently 140 mm Hg. Hypertension is a great risk factor where the person's health is concerned. Due to urbanization and the associated health risks with a sedentary lifestyle out of every four people at least one of them will be affected by hypertension in their lives. Adequate control of hypertension is essential and if not done so can culminate into uncontrolled hypertension.

The Ministry of Health, United States of America, 2005 report estimates that,nearly one in three United States. Adults have high blood pressure, because there are nosymptoms, nearly one-third of these people even don't know they have it for years. Uncontrolled high blood pressure can lead to stroke, heart attack, heart failure or kidney failure. This is why high blood pressure is often called the "silent killer". Hypertensive clients can reduce the risk for heart attack and stroke with proper monitoring by a healthcare provider and simple lifestyle changes.

Hypertension is a condition in which constricted arterial blood vessel increases the resistance to blood flow, causing the blood to exert excessive pressure against vessel walls. The heart must work harder to pump blood through the narrowed arteries. If the condition persists, it is damage for the heart and vessels, increasing the risk for stroke, cardiovascular disorder, heart attack and kidney failure. Often it causes no symptoms until it reaches a life threatening stage.

Hypertension can be treated with more allopathic medicines, even though the naturopathy medicines like garlic have wonderful effect. In recent years dietary factors play a key role in development of various human diseases including cardio vascular diseases. Garlic is rich in sulphur -containing molecules called polysulphides turns out that these polysulphide once inserted into our Red blood cells, it can be further converted into a gas called hydrogen sulphide. It helps to control blood pressure by triggering and dilation of our blood vessels. The ‘stinking Rose’ Garlic has amazing abilities to cure many health ailments and lower blood pressure. It is one of the most effective herbs to lower blood pressure and increases your over heart health. Garlic is one of the excellent remedy in reducing blood pressure level .It is an herbal medicine to treat wide range of diseases and conditions related to heart and blood pressure system.

Ellen et al (2006) stated that garlic is an excellent drug to reduce blood pressure and improve heart function. Garlic can be made into raw or paste and mixed with milk or butter milk or honey. Garlic is a “miracle food” and it can cure all types of diseases. “Garlic is a tremendously nutritious healthy food and a miraculous healing plant”. It can be called the kingdom of the vegetable in the clinical practice garlic and garlic preparation caused very dramatic drop in the blood pressure of the patient.

NEED FOR THE STUDY

Dr Patricia M Kearney. et.al, 2005**,** conducted a study on hypertension as a global burden, identified as the leading risk factor for mortality. The prevalence of hypertension has been reported for various regions throughout the world. "Measurement of the global burden of hypertension would allow international public-health policy-makers to assign sufficient priority and resources to its management and prevention" .From 30 regional or local population-based samples involving more than 700 000 people to estimate the overall prevalence and absolute burden of hypertension "in the whole world" and in various regions in 2000 and to estimate the global burden in 2025. Included studies that reported age and sexspecific prevalence of hypertension in representative samples.The conclusion of the study was 50 million of people worldwide are having an elevated blood pressure. In 2005 over all 26.4% of adult population had hypertension 26.6% men and 26.1% of women were projected to have this condition, by 2025 , 29.2% of the adult population will have hypertension. The number of men with hypertension was predicted to increase to 29.0% and women up to 29.5% and overall 60% of total population.

At the State level 79.8% are above 35years of age.have developed hypertension. In Tamilnadu 65.4/1000 males, 47.8/1000 females were exposed to hypertension in urban areas. 22.8/1000 males 17.3/1000 females in rural areas.Madurai population 3,041,038 male 1,528,308 and 1,512,730 females are affected by hypertension. In Samayanallur total population 8718, Males-4177

and Female 4541 people are affected by hypertension. In Vaigainagar total population 2451 in these 400 peoples are affected by hypertension. Were as in Barmanagar total population 1665 in this 495 people is affected by Hypertension.

OxfordUniversity (2008) estimated the worldwide prevalence for hypertension as 1 billion affected individuals and 7.1 million deaths per year. The prevalence of hypertension varies widely among populations in Rural Indian the rates are low as 3.4 %. In economically developed countries, the prevalence of hypertension is 20% to 50%. At the state level 79.8%, above 35 yrs of age have developed hypertension.

Assokar (2005) carried out a study in India and estimated that there are approximately 50 million cases of hypertension in India with a prevalence of 2.3-15.4% of the beginning of the next millennium.

Pittler et.al (2004) suggested garlic as one of the best and safest way to reduce blood pressure. Garlic dilates the muscles of blood vessels which help in lowering blood pressure. It consists of a compound called hydrogen sulphide which helps in vasodilatation and also muscle relaxation.

Banerjee(2002) conducted a study on eating a clove of raw garlic once in a day reduces the blood pressure, also reduces bad cholesterol and triglycerides level both of which are associated with heart disease. It helps to reduce fats in blood stream and to minimize risk of blood platelets adhesion harmful blood clots.

Health uses of garlic

- Reduce cholesterol and lower chances of heart diseases.
- Anti-oxidant: Garlic is rich in anti-oxidants that help to treat cancer, heart diseases and effects of ageing.
- Anti-bacterial: Garlic may be used to treat infection like thrush.
- Reduced blood pressure: Garlic can help to reduce blood pressure.
- Garlic also helps to regulate blood sugar level.

The study was conducted with the objective of finding out the efficacy of garlic administration in uncontrolled hypertension. In this 21st century the attention is focused on alternative and complementary therapies. The investigator, during the clinical experience found that more number of uncontrolled hypertensive clients is in Vaigainagar and Burma nagar. Many article and reports provide generalized statement on the benefit of garlic in various disorders, henceforth the investigator is motivated to create empirical evidence on the efficacy of garlic administration in treated uncontrolled hypertension. This will also provide a sound scientific base principle for implementing garlic administration as a nursing intervention for treated uncontrolled hypertension.

STATEMENT OF THE PROBLEM

To assess the effectiveness of raw garlic clove on Blood pressure level in clients with treated uncontrolled hypertension residing at Samayanallur, Madurai.

OBJECTIVES

- To assess the blood pressure level in clients with treated uncontrolled hypertension among experimental and control group.
- To evaluate the effectiveness of raw garlic clove on blood pressure level in clients with treated uncontrolled hypertension among Experimental group.
- To compare the pretest and post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group.
- To associate the post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group with selected demographic variable.

HYPOTHESES

- There will be a significant difference in the level of blood pressure among treated uncontrolled hypertensive clients before and after raw garlic intervention.
- There will be a significant association between blood pressure level in clients with treated uncontrolled hypertension with selected demographic variable.

OPERATIONAL DEFINITIONS

Assess

It refers to evaluation or estimation of the nature, ability andimportance of raw garlic on treated uncontrolled hypertension.

Effectiveness

It refers to the extent to which the garlic reduces the blood pressure level in clients with treated uncontrolled hypertension.

Garlic clove

It refers to raw garlic clove oral administration of 4gm in empty stomach.

Blood pressure

Blood pressure refers to the pressure of the blood within the arteries. It is produced primarily by the contraction of the heart muscle. Its measurement is recorded by two numbers. The first systolic pressure is measured after the heart contracts and is highest. The second diastolicpressure is measured before the heart contracts and lowest.

Uncontrolled hypertension

It is a condition in which the blood pressure level is 140/90 mm of hg although taking regular antihypertensive drug and the age group of 35 yrs.

ASSUMPTION

- Alternative system of medicine has the effects on lowering the blood pressure.
- Alternative system of medicines is more effective than allopathic medicines in lowering blood pressure level.

DELIMITATION

- Data collection period is four weeks only.
- The study was delimited to treated uncontrolled hypertension clients residing at Samayanallur**.**

CHAPTER II

REVIEW OF LITERATURE

Review of literature is a systematic identification, location scrutiny and summary of written materials that contain information on research problems. The review of literature in research report is a summary of current knowledge about particular problems of practice and includes what is known and not known about the problem. The literature is reviewed to summarize knowledge for use in practice (or) to provide a basis for conducting a study.

- Hulme and Grones (1994)

This chapter deals with the information collected with relevant to the present study through published materials. These publications are the foundation to carry out the research work. Highly extensive review of literature pertaining to research topic was done to collect maximum information for laying foundation of the study.

Literature review in this study is arranged under the following headings.
Literature is divided into two parts

PART – A REVIEW OF LITERATURE RELATED TO STUDIES

PART – B CONCEPTUAL FRAME WORK

PART – A REVIEW OF LITERATURE RELATED TO STUDY

This section on literature is divided into three parts which explores the literature and the previous studies of awareness and practices regarding treated uncontrolled hypertension this section is divided into the following headings.

Section - I

*Literature related to prevalence and incidence of uncontrolled hypertension.

Section -II

***** Literature reviewrelated to effects of garlic and health.

Section – III

*Literature related to effects of garlic on reducing blood pressure level in hypertension.

PART – A REVIEW OF LITERATURE RELATED TO STUDY

Section- I *Literature related to prevalence and incidence of uncontrolled hypertension.

Ifeoma.I. et.al., (2011) conducted a study onhigh Prevalence and Low Awareness of Hypertension in a Market Population. The prevalence of hypertension was 32.8%. Market workers in lead sedentary life style and often depend on salt-laden fast food while at work. An unselected population workers was screened for hypertension. Hypertension was defined as BP ≥ 140 and/or ≥ 90 mmHg or being on drug therapy. 42% of the screened population was hypertensive. Of this number, 70.6% did not know they were hypertensive before the screening. More males than females $P =. 0 2 2$ were hypertensive. Prevalence of hypertension increased with age from 5.4% in the age group <20 years to 80% in the age group ≥70 years. The Conclusion was prevalence of hypertension workers in this study was 42%, and the majority of them were unaware of their disease.

Hebert.P.L.et.al, (2010) conducted a study on uncontrolled hypertension the uncontrolled hypertensive patients with blood pressure ≥150/95, or ≥140/85mm/ Hg. Changes from baseline to 9 months in systolic blood pressure relative to usual care was -7.0 mm Hg in the nurse management plus home blood pressure monitor arm, and +1.1 mm Hg in the home blood pressure monitor only arm. No statistically significant differences in systolic

blood pressure were observed among treatment arms at 18 months. No statistically significant improvements in diastolic blood pressure were found across treatment arms at 9 or 18 months. Changes in prescribing practices did not explain the decrease in blood pressure in the nurse management arm.

Prince.M.J.et.al, (2010) conducted a study on uncontrolled Hypertension prevalence was higher in urban range 52.6-79.8% than rural sites range 42.6-56.9%, and lower in men than women. Educational attainment was positively associated with hypertension in rural and least-developed sites.. Control was poor in urban India (12%) and rural India (9%). The proportion controlled, not compositional factors age, sex, education and obesity, explained most of the between-site variation in systolic blood pressure Uncontrolled hypertension is common among older people in developing countries, and may rise further during the demographic and health transitions.

Kerby.et.al, (2009) conducted a study on the alternative therapies and lifestyle changes in patients with uncontrolled blood pressure..296 participants, completed the baseline questionnaire, mean age was 62 years, 44% were female, 17% were minority race/ethnicity, and 49% were college graduates. 96 (32%) had tried an alternative therapy and 177 (60%) had made a lifestyle changetocontrol blood pressure. Conclusion was Patients with uncontrolled blood pressure who volunteered for a clinical trial report using a variety of non-pharmacologic methods to control hypertension.

Green.B.et al, (2009) conducted a study on high blood pressure measurement. 9298 patients sampled, used a High blood pressure Measurement. Patients willing to attend the screening visit. The conclusion was, patients with a blood pressure measure at the first screening visit, reported using High blood pressure. Measurement towards improved blood pressure control (blood pressure <140/90 mm Hg) compared to patients not using High blood pressure Measurement, relationship was not statistically significant.

Job.S.et.al, (2009)conducted a study to assess the effectiveness of abdominal breathing exercise on blood pressure among hypertensive patient. 40 hypertensive patients were selected by simple random sampling technique and assigned as experimental (no=20) and control (n=20) group. Abdominal breathing exercise was performed for 21 days. Result of the study was shown that there was a significant difference between the mean systolic blood pressure before 145.5(SD=18.20) after 136.6(S D=19.03) and t=6.52(p=0.01) and significant difference between the mean diastolic blood pressure before 84.7(S D=8.81), after 76.8(S D=7.96) t= 5.89(p=0.01).

Alsaadi.R.et.al, (2008) conducted a study on prevalence of uncontrolled hypertension in primary care settings conducted by Ministry of Health, Oman**.**39% of the studied patients. Lower blood pressure control was found among uncontrolled hypertensive patients with diabetes 6.4%, P = <0.001 and renal disease 18.5%, P = 0.02; those with cardiovascular disease relatively better control (58%). Age and gender had no impact on blood pressure control. Most patients were only on one (24%) or two (47%) antihypertensive medications, the most frequently used being β-blockers 58.2% and diuretics 56.3%. The conclusion is uncontrolled hypertensionis not adequately controlled in over 60% of treated patients; Improving the quality of uncontrolled hypertension**.**

Romanalli.RJ.et.al, (2008) conducted a study interventions to improve the treatment of hypertension in high-risk populations. Hypertensive subjects were identified, were aged 18 years or older, with 2 or more claims for antihypertensive medication, race/ethnicity, and 1 or more blood pressure readings. 76.4% of patients had their blood pressure <140/90 mm Hg and 52.3% of those who had their blood pressure <130/80 mm Hg. The overall blood pressure control was 71.4%. Factors included younger age, lower disease burden, better medication and household income. Adjusting for age, sex, and

disease burden, black, Hispanic race/ethnic group individuals were less likely than white individuals to have their treated blood pressure controlled. The conclusion of the study was potential disparities among individuals of minority race/ethnicity were found with regard to blood pressure control and the agents used to treat hypertension.

Framing ham.et.al, (2007) studied the prevalence of uncontrolled hypertension in rural and urban population of India. In that 40.55% of prevalence rate in India, 32.65% in urban population is due to lifestyle modification, whereas 28.3% rural population is affected by uncontrolled hypertension. It was concluded that uncontrolled hypertension is a emerging as a major health concern in India and is more in urban than in rural subjects. People with uncontrolled hypertension may have a greater risk of cardiovascular disease risk factors. The factors such as high cholesterol; life style modifications, obesity, and diabetes are seen in people with uncontrolled hypertension than in those with normal blood pressure.

IhabHajjar.et.al, (2007) conducted a study on trends in Prevalence, Incidence, and Control of hypertension. Hypertension is the leading cause of cardiovascular disease worldwide. In 1999–2002, 28.6% of the United States. Population had hypertension. Hypertension prevalence has also been increasing in other countries, and an estimated 972 million people in the world are suffering from this problem. Incidence rates of hypertension range between 3% and 18%, depending on the age, gender, ethnicity, and body size of the population studied. The conclusion was that only about one third of all hypertensive patients are controlled in the United States. Programs that improve hypertension control rates and prevent hypertension are urgently needed.

Shyamal KumarDas.et.al, (2006) conducted a study of urban community survey in India-growing trend of high prevalence of hypertension in a developing country. Results showed uncontrolled hypertensive levels of blood pressures among 35.8% of the participants in systolic group 120-139mm of Hg and 47.7% in diastolic group 80-89 mm of Hg. Systolic hypertension 140 mm of Hg was present in 40.9% and diastolic hypertension 90 mm of Hg in 29.3% of the participants. Age and sex-specific prevalence of hypertension showed progressive rise of systolic and diastolic hypertension in women when compared to men. The conclusive prevalence of hypertension in this study suggests the need for a comprehensive national policy to control hypertension in India.

Kearney.et.al, (2006) Journal of hypertension: The reported prevalence of hypertension varied around the world, with the lowest prevalence in rural India 3.4% in men and 6.8% in women and the highest prevalence in Poland 68.9% in men and 72.5% in women. Awareness of hypertension was reported for 46% of the studies and varied from 25.2% in Korea to 75% in Barbados; treatment varied from 10.7% in Mexico to 66% in Barbados and control blood pressure < 140/90 mmHg while on antihypertensive medication varied from 5.4% in Korea to 58% in Barbados.

Brian Haynes.R.et.al, (2005) conducted a study on uncontrolled hypertension. 38 hypertensive Canadian steelworker's blood pressure feel in 20 experimental group and 18 in control group patients compliant neither with medications nor at required diastolic blood-pressure. Six months after starting treatment were allocated either to a control group or to an experimental group .They were taught to measure their own blood-pressures, asked to chart their home blood-pressures and pill taking, These men were also seen fortnightly by a high school graduate with no formal health professional training who reinforced the experimental rewarded improvements in compliance and blood-pressure. The conclusion was six months later, average compliance had fallen by 1·5% in the control group but rose 21·3% in the experimental group. Blood-pressures fell in 17 of 20 experimental patients and in 10 of 18 control patients.

Gregory, et.al, (2005) have brought out the mechanisms which stress may contribute to the racial difference in the prevalence of essential hypertension and associated target organ damage remain unclear. The study examined differences in stress induced pressure natriuresis in 69 blacks and 52 white age 14 to 27 years, all with a positive family history of hypertension. Urine samples of sodium excretion were collected before and after . The average increase in blood pressure to the 2 tasks was calculated. Blacks had higher mean systolic $P < 0.02$ and diastolic $P < 0.001$ blood pressure and a greater average change in systolic pressure $P < 0.001$. This was associated with a smaller change in sodium excretion $P< 0.002$. The change in sodium excretion was related to the change systolic $P< 0.03$ and diastolic $P < 0.05$ blood pressure in whites but not in blacks. Relative wall thickness was greater in blacks $P < 0.002$.

David.J.et.al, (2005) conducted a study on characteristics of Patients with Uncontrolled Hypertension in the United States. The study sample consisted of 16,095 adults who were at least 25 years old. Blood-pressure values were estimated that 27 percent of the population had hypertension, but only 23 percent with hypertension were taking medications. Elevation in the systolic blood pressure with a diastolic pressure of less than 90 mm Hg. Hypertension were an age of at least 65 years, male sex, black race, and not having visited a physician within the preceding 12 months. The same variables, except black race, were independently associated with poor control of hypertension among those who were aware of their condition. An age of at least 65 years accounted for the greatest proportion of the attributable risk of the lack of awareness of hypertension and the lack of control of hypertension among thosewho were aware of their condition.Most cases of uncontrolled hypertension consist of isolated, mild systolic hypertension in older adults.

Section-II * Literature review related to effects of garlic and health.

Kim.M.J.et.al, (2011) conducted a study on Effect of garlic on high fat induced obesity examine the effects of garlic on obesity and blood lipid profiles in high-fat induced obesity model, and to elucidate the molecular mechanisms responsible for such effect. C57BL/6 was fed a standard diet or high-fat diet for 5 weeks to induce obesity. divided into four groups with 10 per group, and fed experimental diet for 4 weeks; standard group, high fed diet group, high fed diet containing 2% or 4%garlic group.. Administration of garlic significantly reduced high fed diet -induced body weight reduced by 83% and 91%, respectively, in 2% and 4% garlic supplemented group. These results suggest that garlic may have a potential benefit in preventing obesity.

Touloupakis.E.et.al, (2011) conducted a study on Garlic effects on medicine is one of world's oldest medicines that have been employed not only for flavoring but also as a medical herb for its prophylactic and therapeutic actions. Most of garlic beneficial effects are due to the presence of the organosulphate molecule allicin. Allicin is a highly unstable molecule during processing, is rapidly transformed into a variety of organo sulfur components. The enzyme alliinase, which is responsible for the conversion of allin to allicin, is irreversibly destroyed at the acidic environment of stomach. This is the reason most garlic supplements contain garlic powder or granules, Garlic alliinase could be encapsulated and coated with materials which would protect it in the harsh conditions of the stomach. The objective of this is to summarize the most important garlic health benefits promising encapsulation/ stabilization approaches.

Miroddi.M.et.al, (2011) conducted a study on the use of non-conventional medicines, especially herbal medicine, is common in patients with cancers including haematologic malignancies. Diet components may also modify the risk of cancer through the influence on multiple processes, including DNA repair, cell proliferation and apoptosis. Garlic (Allium sativum), considered either food or herbal medicine, possess antimutagenic or antiproliferative properties that can be used in anticancer interventions effects

of garlic and garlic compounds. Garlic contains water soluble and oil-soluble sulfur compounds. The latter are responsible for anticancer effects exerted through multiple mechanisms such as: inhibition of metabolic carcinogenic activation, arrest of cell cycle, antioxidant and pro-apoptotic action.

Bagheri.F.et.al, (2010).conducted a study on garlic juice prevents renal reperfusion-induced functional and histological injuries in a total of 30 male were divided into 5 groups. After right nephrectomy, renal ischemia and reperfusion were induced. At the end of the experiment kidney function tests and histopathological examination were performed. Results. Reperfusion increased serum urea and fractional excretion of sodium levels, while it decreased urine potassium levels and creatinine clearance, garlic juice significantly decreased serum urea levels in the reperfusion with garlic juice. The results of this study showed that garlic juice significantly prevented renal reperfusion-induced functional and histological injuries.

Bagher.I.F.et.al, (2010) conducted a study on consumption of high levels of Allium vegetables reduces the risk for gastric cancer 19 case-control and 2 cohort studies, of 543,220subjects,. In a pooled analysis of all studies, consumption of large amounts of Allium vegetables reduced the risk for gastric cancer. The estimated summary odds ratio for an increment of 20 g/day of Allium vegetables, consumption of high levels of Allium vegetables reduced the risk for gastric cancer risk.

Tsubura.A.et.al, (2010) conducted a study on Garlic and garlic-derived compounds reduce the development of mammary cancer and suppress the growth of human breast cancer cells. Oil-soluble compounds derived from garlic, such as dually disulfides are more effective than water-soluble compounds in suppressing breast cancer. Selenium-enriched garlic or organo selenium compounds provide more potent protection against mammary carcinogenesis and greater inhibition of breast cancer cells in culture than natural garlic or the respective organ sulfur analogues. The effect, a breast

cancer suppressor, and antagonizes the effect of linoleic acid, a breast cancer. Garlic extract reduces the side effects caused by anti-cancer agents. As, garlic and garlic-derived compounds are promising candidates for breast cancer control.

Pittler.M.H. et al., (2008) conducted a study on relate to cancer, common cold, hypercholesterolemia, hypertension, peripheral arterial disease. Randomized study on effectiveness of garlic Allium sative and preeclampsia. The evidence based on of garlic is convincing. For hypercholesterolemia, garlic has the effects reducing blood pressure level.

Section-III *Literature related to effects of garlic on reducing blood pressure level in hypertension.

Maryland medical university (2011) conducted a study on garlic consumption that may decrease the progression of cardiovascular disease. Cardiovascular disease is associated with several factors, including raised serum total cholesterol, raised low density lipoprotein, and increased Low density lipo protein oxidation, increased platelet aggregation clumping, hypertension, and smoking. Garlic may help decrease low-density lipoprotein and total cholesterol levels while raising good cholesterols decreasing platelet aggregation and decreasing blood pressure. Recently, garlic was also found to decrease cardiovascular disease. Garlic reduces blood pressure that oral garlic is associated with reduced systolic and diastolic blood pressure.

Ried.K.et.al, (2011) Conducted a study on garlic extract which lowers blood pressure level in patients with treated and uncontrolled hypertension by involving 50 patients. The active treatment group received four capsules of garlic extract 960 mg containing 2.4 mg S- allylcysteine daily for 12 weeks, and the control group received matching placebos. In patients with uncontrolled hypertension SBP $\geq$ 140 mmHg at baseline, systolic blood pressure was on average p=0.03, lower in the garlic group compared with controls over the 12-week treatment period. It is concluded that garlic extract in lowering systolic blood pressure in patients with treated and uncontrolled hypertension.

Heather.S.et.al, (2011) Conducted a study on beneficial effects for aged garlic extracts in reducing high blood pressure (hypertension). 50 people with treated uncontrolled hypertension subjects either received a daily dose of aged garlic .Garlic extract of 3.84 grams (equivalent to 2.5 grams of fresh garlic) for 12 weeks. They found a drop in systolic blood pressure of 10.2mm of Hg, These trial concludes that aged garlic extract is lowering systolic blood pressure in patients with treated and uncontrolled hypertension.

Sobenin.I.A.et al, (2010) conducted a study to assess the effect of time released garlic powder tablets lowers systolic and diastolic in 84 men with mild or moderate arterial hypertension. Patients received either 2400 mg Allicor daily (n=18) or 900 mg Kwai daily (n=16). Allicor treatment 600 mg daily resulted in a lower of both systolic and diastolic blood pressures by 7.0 mm Hg. Treatment with Kwai resulted in the same decrease in systolic blood pressure 5.4 mm of Hg.Theresults of this study show that garlic is more effective for the treatment of uncontrolled hypertension.

Reinhart.K.M.et.al, (2010) conducted a study on human evaluating garlic's effect on blood pressure. Ten trials were included in this analysis; 3 of these had patients with elevated Systolic blood pressure. Garlic reduced Systolic blood pressure by 16.3 mm Hg, Diastolic blood pressure by 9.3 mm Hg compared with placebo in patients with elevated Systolic blood pressure. The use of garlic reduced Systolic blood pressure and Diastolic blood pressure in patients with high blood pressure. This meta-analysis concludes that garlic is associated with blood pressure reductions in patients with an elevated Systolic blood pressure.

Duda.G.et.al, (2010) conducted a study oneffects of short-term garlic supplementation on lipid metabolism and antioxidant status in hypertensive adults.Seventy subjects aged 30 to 60 years with primary arterial hypertension, including 38 females and 32males, took part in the study. In addition toreceiving a standard antihypertensive pharmacotherapy they took 6 capsules

ofgarlic preparation daily for 30 days. The analyzed garlic preparation was found to lower the lipid level in the blood. The results of this study investigated garlicpreparation can be used as an adjunct agent in treatment of uncontrolled hypertension.

Ried.K.et.al, (2010) conducted a study on effect of garlic on blood pressure. 25 studies showed a mean decrease of 4.6 +/- 2.8 mm Hg for Systolic blood pressure in the garlic group, the mean decreases in the hypertensive subgroup was 8.4 +/- 2.8 mm Hg for Systolic blood pressure ($n = 4$; $p < 0.001$), and 7.3 +/- 1.5 mm Hg for Diastolic blood pressure ($n = 3$; $p < 0.001$). Regression analysis revealed a significant association between blood pressure at the start of the intervention and the level of blood pressure lower Systolic blood pressure: $R = 0.057$; $p = 0.03$; Diastolic blood pressure: $R = -0.315$; $p = 0.02$. The study concludes that garlic preparations are reducing blood pressure in individuals with uncontrolled hypertension.

Zare.A.et.al, (2010) conducted a study to evaluate garlic used to measure blood pressure, the first reading is systolic, and the second reading is diastolic. Three clinical trials showed a lower in systolic blood pressure of at least 7.7 mm hg, and four clinical trials showed a lower in diastolic blood pressure of at least 5 mm hg with garlic.

Livingston.et.al, (2009) conducted a study on high blood pressure for 12 weeks with participants having high blood pressure. To lower their high blood pressure a single clove of garlic per day was ingested by the participants. The conclusion was a significant lower in their systolic blood pressure of 20mm of Hg and the diastolic blood pressure by 10 mm of Hg to 20 mm of Hg in participants.

Kishen.et.al, (2008) conducted a study on high blood pressure in West German among 100 Subjects with diastolic blood pressure between 95 to 104 mm of Hg. The patients were given 2 raw garlic cloves a day for 4 weeks. In duration blood pressure monitored during the treatment of Eight trails were

identified patients using garlic cloves of the seven trails compared the effect of garlic cloves. Four showed significant decrease in diastolic blood pressure (18mm of Hg). As a conclusion, diastolic blood pressure which was greater during the study was treated with the garlic cloves and lowered.

Rahman.K.et.al, (2009) conducted a study on epidemiology to show an inverse correlation between garlic consumption and progression of cardiovascular disease. The study point that garlic reduces cholesterol, inhibits platelet aggregation, reduces blood pressure, and increases antioxidant status. 44% have indicated a lower in total cholesterol, and the most profound effect has been observed in garlic's ability to reduce the ability of platelets to aggregate. As a conclusion it proves that garlic is efficient in the area of blood pressure and oxidative-stress lower among uncontrolled hypertensive clients.

Dhawan.V.et al, (**2008)** conducted a study on garlic supplementation which prevents oxidative DNA damage in essential hypertension. Twenty patients of essential hypertension, as diagnosed by Joint national committee, 20 as experimental age and sex matched with 20 control groups. Both groups were given garlic pearls in a dose of 250 mg per day for 2 months. Baseline samples were taken at the start of the study, i.e. 0 day, and 2 months followed. The conclusion of the study is the beneficial effects of garlic supplementation in reducing blood pressure and counter acting oxidative stress in uncontrolled hypertension.

Durak.L.et.al, (**2007)** conducted a study on effects of garlic extract consumption on blood lipid and oxidant/antioxidant parameters in humans with high blood cholesterol. A total of 23 volunteer subjects with high blood cholesterol >5.98 mmol/L participated in the study.13 patients were evaluated as a hypertensive group and the others a normotensive group. The conclusion of the study is that garlic extract improves blood lipid profile, strengthens blood antioxidant potential, and causes significant reductions in systolic and diastolic blood pressures.

Bobb-Liverpool.B.et al, (2007) conducted a study on compliance and blood pressure control in women with hypertension. A pre-tested questionnaire with 37 in-depth items was administered to 30 (37.5%) women, selected by quota sampling, from a population of 80 women with hypertension, on four consecutive regular clinic days. Weights and the mean of two blood pressure measurements were recorded. The median age and weight of the respondents was 57 years (range 36-85 years) and 80.3 kg (range 66.8-150 kg). Median duration of hypertension was five years. The longer the patient had been hypertensive, the greater the compliance with medication $p < 0.05$. Twenty per cent were controlled to blood pressure < or = 140/90 mm Hg. One third believed that hypertension could be "cured with garlic".

Qidwai.W.et al., (**2007)** conducted a study on effect of dietary garlic (Allium Sativum) on the blood pressure. A questionnaire was developed the dietary intake of garlic per person per month and to record three blood pressure readings on each individual. It was administered to 101 adult subjects, The various demographic parameters including age, sex, marital status and education were recorded. Those subjects found to be overweight with known history of hypertension. Diabetes mellitus, ischemic heart disease, smoking and medications, which affects blood pressure, were excluded from the study. This was done to remove the effect of confounding variables on Blood Pressure. An average garlic use of 134 grams per case per month was found. 67% of the subjects used garlic in cooked food while the rest used either in the raw form or in pickles. 59% thought that dietary use of garlic is healthy. As a conclusion subjects with blood pressure on the lower side are found to consume more garlic in their diets.

Silagy.C.A.et al, (2008) conducted astudy onthe effect of garlic on blood pressure. Eight trials were identified with data from 415 subjects included in the analyses. Only three trials were specifically conducted in hypertensive subjects, of seven trials that was compared with the effect of garlic, three showed a significant lower in systolic blood pressure and four in diastolic blood pressure.The results conclude that this garlic raw can be used in subjects with uncontrolled hypertension.

McMahon.F.G.et al, (2008) conducted a study on the preparation of raw garlic to reduce blood pressure containing 1.3% allicin at a large dose (2400 mg) in nine patients with rather severe hypertension (diastolic blood pressure > or = 115 mm Hg). Sitting blood pressure fell 7/16 (+/- 3/2 SD) mm Hg at peak effect approximately 5 hours after the dose, with a significant decrease in diastolic blood pressure ($p < 0.05$) from 5-14 hours after the dose. Results conclude that raw garlic can reduce blood pressure in uncontrolled hypertensive clients.

PART - B

CONCEPTUAL FRAME WORK

A conceptual model can be defined as a set of concepts and that assumption that integrated them in to a meaningful configuration (Fewett, 1980).

The conceptual framework is an organized phenomenon which deals with concept that is assembled by virtue of their relevance to a common theme. Conceptual framework can severe to guide research which will further support theory development. The conceptual models attempt to represent reality with its minimal use of words.

Theoretical model for this study was derived from Callista Roy's*Adaptation Theory Model (1996).*Roy employs a feedback cycle of input, through put and output. Input is defined as stimuli, which can come from the environment or from within a person. Stimuli are classified as focal (immediately confronting the person), contextual (all other stimuli that are present). Input also includes a person's adaptation level (the range of the stimuli to which a person can adapt easily).

Throughput makes use of a person's processes and effectors. "Processes" refers to the control mechanisms that a person uses an adaptive system. "Effectors" refers to the physiological function, self concept, and role function involved in adaptation. The adaptive modes are the ways that a person adapts through physiological needs, self concepts and role function and inter dependant relation. In the adaptive system, system is defined as self parts connected to function as a whole for some purpose and it does by virtue of the inter dependence of its parts. Adaptive means the human system has the capacity to adjust effectively to change environment. The adaptive system is regarded as a holistic system. This has two major internal controls process called regulator and cognator sub system.

These systems are viewed as innate or acquired copying mechanisms are generally determined and are generally viewed as automatic process. Acquired coping mechanisms are developed through process such as learning.

The regulator sub system responds automatically through neural, chemical and endocrine coping process. The cognator sub system responds to input from external and internal stimuli that involves physical, physiological, psychological and social factors including regular sub system outputs. The regulator and cognator activity is manifested through the coping behaviour in four adaptive modes. That is through the physical needs self concept and role function and interdependence relations.

The modified model in this study explains the output as the

Focal stimuli - Blood pressure uncontrolled hypertension

Contextual stimuli - Age, sex, educational status, marital status, type of family, occupation, income, nature of work, food habits

Coping mechanism - The cognator and regulator subsystem occurs through oral garlic administration.

Adaptive response - The experimental group of uncontrolled hypertensive clients as lower in the blood pressure level.

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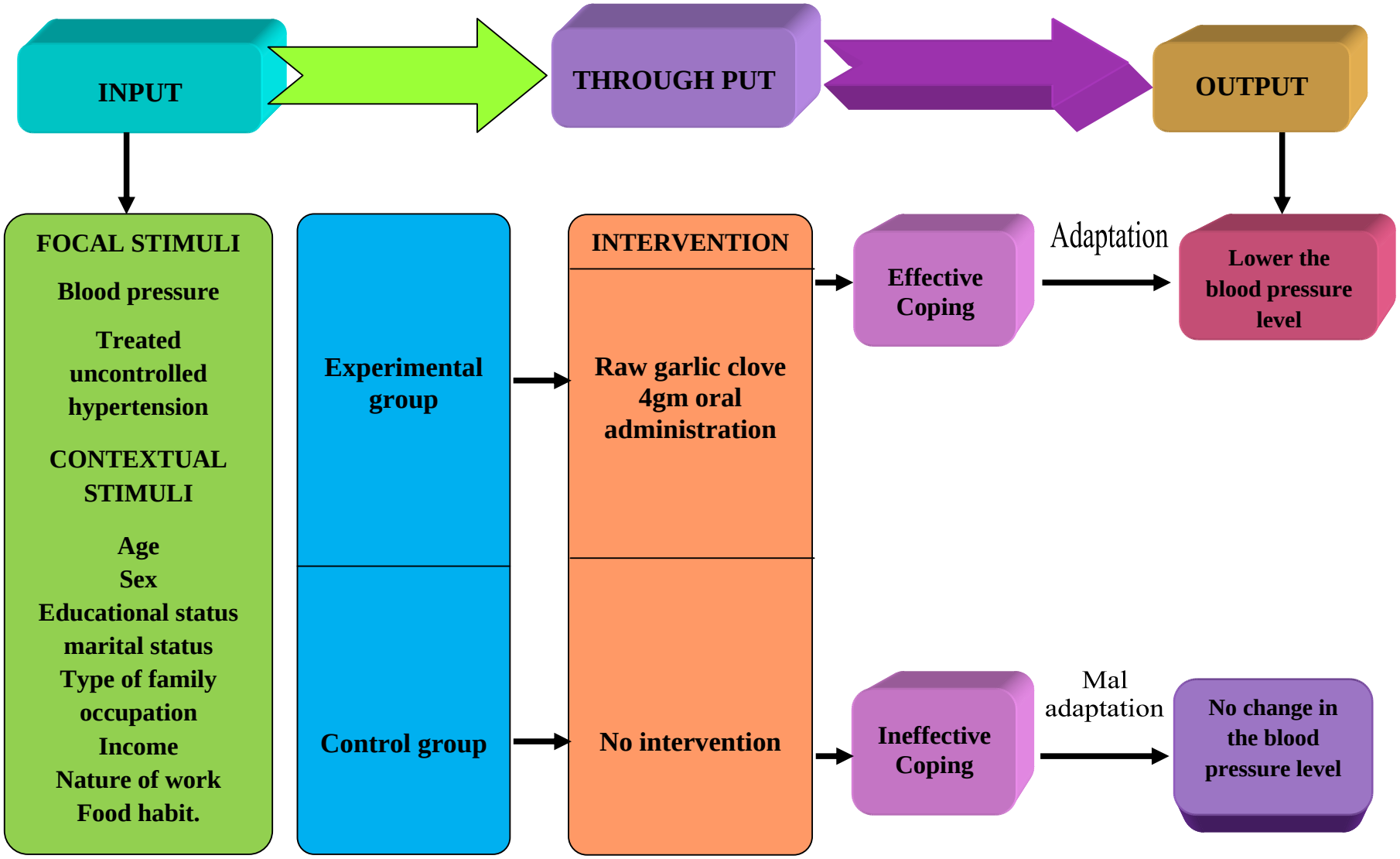


MODIFIED CALLISTA ROY'S ADAPTATION THEORY MODEL (1996)

CHAPTER - III

METHODOLOGY

Methodology is a systematic way to solve the research problems. The research methodology in values the systematic procedure by which the investigation starts from the initial identification of the problem to its final conclusion.

- ***Leister***

This chapter deals with description of the methods and different steps used for collecting and organizing data for the investigation. It includes research approach, the research design, setting of the study ,the study population the sample and sample size, the sample technique, the sampling criteria ,developing of the tool and description of the tool, ethical committee approval, content validity ,the pilot study, data collection procedure and the plan for data analysis in this study.

This present study was done to assess the effectiveness of raw garlic clove to lower the blood pressure level in clients with treated uncontrolled hypertension.

RESEARCH APPROACH

The investigator selected the research approach used for this study is Quantitative approach.

RESEARCH DESIGN

The overall plan for addressing a research question, including specifications for enhancing the study's integrity is referred to a research design is quasi experimental pretest and post test control group

RE O1 x O2
RC O3 – O4

R - Randomization
E - experimental group
C - control group
X - intervention
O - observation.

SETTING OF THE STUDY

The investigator conducted the study in Samayanallur. It consist of six subcentres Samayanallur-1, Samayanallur-II, Thennur, Vilankudi, Paravai and Karisalkulam among the 6 sub centre 2-subcentres Samayanallur -1 and Paravai was adopted by the department of community health nursing, College of Nursing, to provide preventive and curative care to the population. In Samayanallur -1 Vaigainagar and Barmanagar have been selected to conduct the present study. This is situated within the radius of 7- kilometers from GovernmentRajajiHospital, Madurai. Vaigainagar consist of four streets the first and second street have been selected to conduct the study. The treated uncontrolled Hypertension client's population - 90. The investigator taken this for experimental group. Where as in Barmanagar it consists of- 5 streets. The first and second street has been selected to conduct the study, the treated uncontrolled hypertension clients population is 80. The investigator taken this for control group.

POPULATION OF THE STUDY

The study population comprising of clients identified to have uncontrolled hypertension residing at Vaigainagar and Burmanagar.

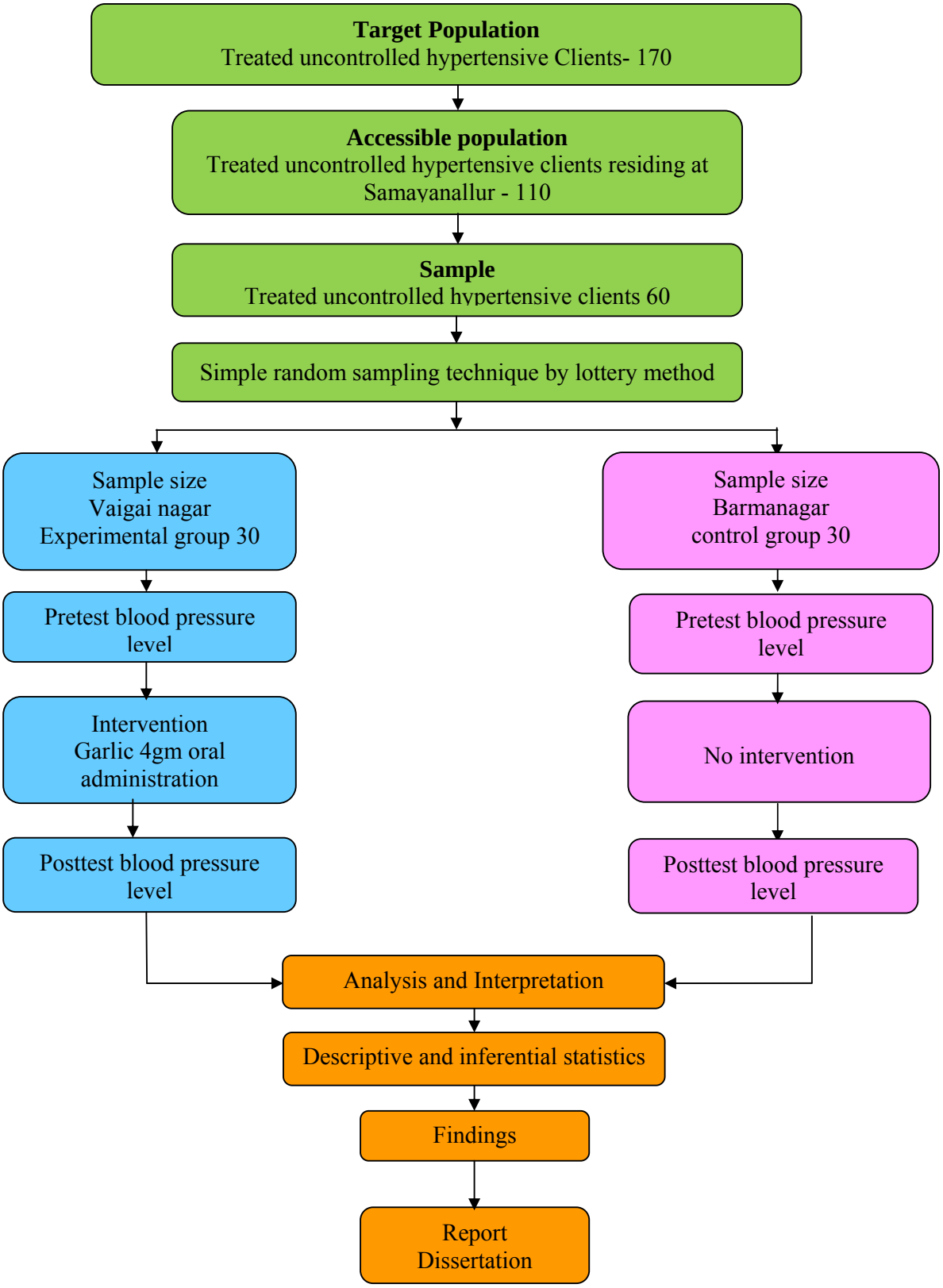
SAMPLE

The sample for the present study comprised of treated uncontrolled hypertension clients residing at Samayanallur and who have met the inclusion criteria.

SAMPLE SIZE

Sample size of the present study is 60 treated uncontrolled hypertension clients (30clients from Vaigainagar and 30 clients from Barmanagar).

FIG-2 SCHEMATIC REPRESENTATION OF RESEARCH DESIGN



SAMPLE TECHNIQUE

The sample consists of a total number of 60 treated uncontrolled hypertensive clients (30 uncontrolled hypertension clients from Vaigainagar for experimental group and 30 uncontrolled hypertension clients from Barmanagar for control group) who satisfy the inclusion criteria. Uncontrolled hypertension clients were selected from two streets of Vaigainagar the first and second street. In Barmanagar it consists of five streets the first two streets was selected for conducting the study. Sampling technique used for the present study was simple random sampling simple random technique writing the house number picking up by lottery method.

CRITERIA FOR SAMPLE SELECTION

INCLUSION:

- Treated uncontrolled hypertension clients residing at Samayanallur.
- Treated uncontrolled hypertension clients aged 35 years and above.
- Both genders are included in the study.

EXCLUSION

- Treated uncontrolled hyper tension client with bleeding disorder.
- Treated uncontrolled hypertension clients with gastro intestinal problem.
- Treated uncontrolled hypertension clients with communicable disease like tuberculosis, HIV and AIDS.
- Those who are not willing to participate.
- Pilot study sample not included in main study.

VARIABLES

Variable are characters that can have more than one value .The three categories of variables discussed in the present study.

Independent variable - Raw garlic.

Dependent variable - level of blood pressure.

Attribute variable - Age, sex, marital status, educational status, and occupation, nature of work, monthly income, and type of family &food habits, duration of illness, duration of treatment, specify the drug, taking antihypertensive client, average hour of sleeping.

DEVELOPMENT OF THE TOOL

A structure interview schedule was developed based on the objectives of the study through review of literature on related studies, journals and books, opinion from the experts. All these helped in the ultimate development of the tool.

DISCRIPTION OF THE INSTRUMENT

Section-I : Demographic variables includes - Age, sex , marital status , educational status, occupation, nature of work, monthly income, type of family &food habits.

Section II: Clinical variables includes – duration of illness, duration of treatment, specify the medication taken, hypertensive drug taking, sleeping hour & nap in the afternoon.

Section-III: Record of blood pressure level includes the pre and post test of blood pressure level in experimental group and control group

CONTENT VALIDITY

In order to measure the content validity the tool was given to one social and preventive medicine expert and one Siddha medicine expert and five experts from the nursing department were requested to judge the items for their clarity, relevance, comprehensiveness and appropriateness of the content. Appropriate modifications were made in each section as per the suggestions given by the experts.

RELIABILITY OF THE TOOL

The reliability of the instrument was established by inter- rater reliability. The instrument was administered to 5 individuals simultaneously by 2 nursing personnel and the tool was found to be reliable for the study. The obtained reliability co- efficient r=0.83 was high.

VALIDITY OF THE INSTRUMENT

Validity of the sphygmomanometer instrument was done by comparing blood pressure measurements of 5 individuals with standard one used by the physician and found to be the same.

ETHICAL COMMITTEE APPROVAL

The researcher got the approval from the ethical committee on 19.06.2011.The study objectives, intervention and data collection procedures were approved by the research and ethical committee of the institution. Main study was conducted after obtaining permission. Informed consent was obtained from treated uncontrolled hypertension clients.

PILOT STUDY:

The pilot study was conducted in Munichalai for the period of 1 week from 11.07.2011 to 17.07.2011.Were as treated uncontrolled hypertension 10 clients was chosen for the study. 5 Clients were assigned to experimental group and 5 Clients were assigned to control group. The investigator found that the instrument was feasible for use and no further modification were needed before implementation of the study.

DATA COLLECTION METHOD

The data collection was done for the period of four weeks from 01.09.2011 to 30.09.2011. The data was collected on all the days including Sundays. The investigator got permission from the medical officer Samayanallur primary health centre. The investigator establishes rapport with the clients and collects the demographic data. Subsequently the investigator

visit 10 treated uncontrolled hypertensive clients from 6am to 4pm were selected for based on the inclusion criteria. The investigator went to their home morning and holidays. The investigator has spent approximately 25 to 30minutes with one client to complete the interview schedule. A pretest blood pressure was assessed for experimental and control group. After administered 4 gm of raw garlic in the experimental group for 21 days under the supervision of investigator. In the morning the client consumed raw garlic in an empty stomach. Post test blood pressure was assessed for experimental and control group.

PLAN FOR DATA ANALYSIS

Data analysis enable to researcher to reduce summarize, organize, evaluate, interpret and communicate numerical information to obtain answer to research question analysis and interpretation was based on objectives of the study. The data were using descriptive statistics like mean, standard deviation frequency, and percentage. Inferential statistics like chi square test and Pearson correlation coefficient the significant findings were expressed in the form of table.

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of the data collected and there by to assess the effectiveness of raw garlic clove to lower the blood pressure level in clients with treated uncontrolled hypertension and to determine variables. Analysis is the appraisal of the data and interpretation of the data consisting of relation between findings of the study to the research problem and theoretical framework for the study. An important function of the process interpretation is to link the finding of the study to the research problem & theoretical framework for the study. An important function of the process of interpretation is to link the findings of the study to the main stream of scientific knowledge in the field the data collected from 60 uncontrolled hypertensive clients 30 for experimental and 30 for control group being analyzed classified & tabulated on the basis of the objectives of the study.

PRESENTATION OF THE DATA

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

Section - A: Description of demographic variable of the clients with treated uncontrolled hypertension.

Section -B: Description of clinical variable of the clients with treated uncontrolled hypertension.

Section - C: Assess the blood pressure level in clients with treated uncontrolled hypertension among experimental and control group.

Section – D: Evaluate the effectiveness of raw garlic clove onblood pressure level in clients with treated uncontrolled hypertension among Experimental group.

Section –E: Compare the pretest and post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group.

Section – F: Associate the post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group with selected demographic variable.

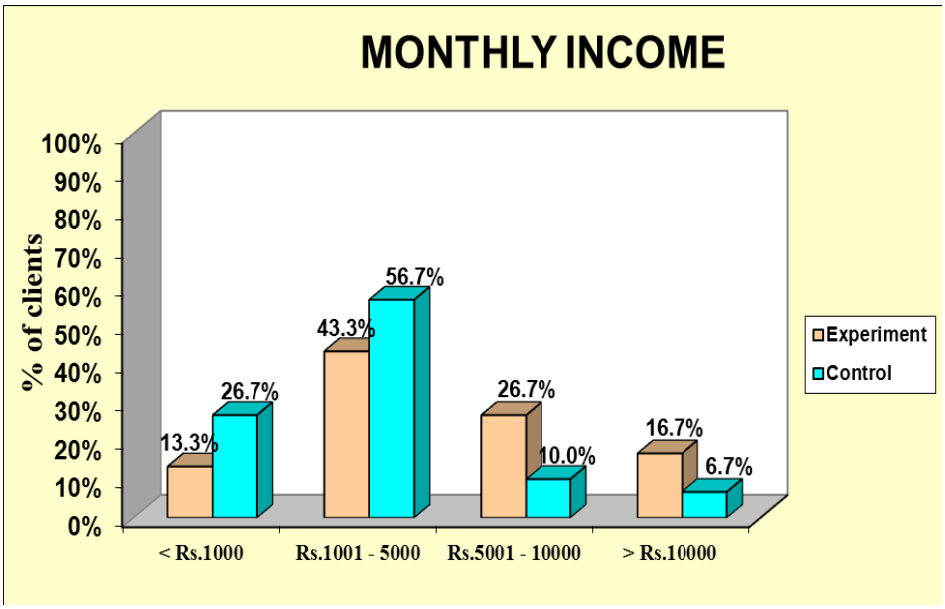
SECTION - A

TABLE-1: DESCRIPTION OF DEMOGRAPHIC VARIABLE OF THE CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION

DEMOGRAPHIC VARIABLES		Group			
		Experiment		Control	
		No. of clients	%	No. of clients	%
AGE	35 -45 yrs	8	26.7%	5	16.7%
	46 -55 yrs	6	20.0%	8	26.7%
	56 -65 yrs	14	46.7%	13	43.3%
	> 65 yrs	2	6.7%	4	13.3%
SEX	Male	12	40.0%	8	26.7%
	Female	18	60.0%	22	73.3%
EDUCATION	Primary	8	26.7%	6	20.0%
	Middle school	3	10.0%	5	16.7%
	High school	7	23.3%	7	23.3%
	HSC	7	23.3%	4	13.3%
	Professional	2	6.7%	2	6.7%
	Non formal	3	10.0%	6	20.0%
MARITAL STATUS	Single	1	3.3%	0	0.0%
	Married	25	83.3%	21	70.0%
	Divorce	0	0.0%	2	6.7%
	Widow/widower	4	13.3%	7	23.3%
OCCUPATION	Profession	4	13.3%	2	6.7%
	Clerical/shop owner/Former	13	43.3%	14	46.7%
	Skilled worker	3	10.0%	0	0.0%
	Unemployed	10	33.3%	14	46.7%
NATURE OF WORK	Sedentary worker	14	46.7%	19	63.3%
	Moderate worker	16	53.3%	11	36.7%
TYPE OF FAMILY	Nuclear family	14	46.7%	17	56.7%
	Joint family	16	53.3%	13	43.3%

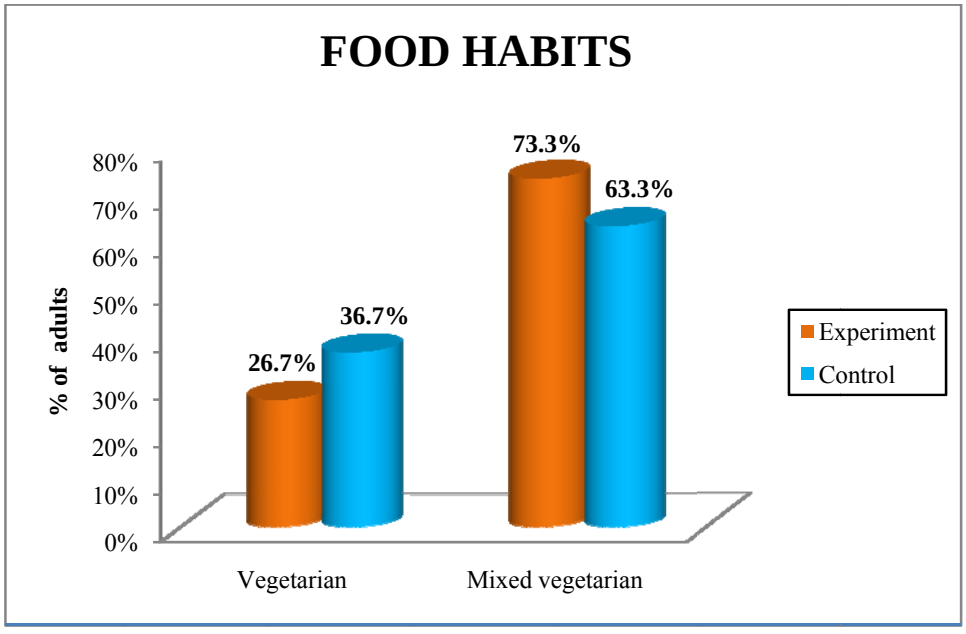
The above table revealed that maximum percentage of uncontrolled hypertensive clients in the age group of 56 - 65 years is (46.7%) in experimental group and (43.3%) in control group with same age group. More than half of the proportion 60% of female clients in experimental group and (73.3%) of female in control group.

FIGURE -3



The above figure revealed that maximum monthly income for earning between Rs.1001 - 5000 in experimental group (43.3%) and (56.7%) in control group in the same income.

FIGURE -4



The above figure revealed that regarding food habits (73.3%) mixed vegetarian in experimental group (63.3%) in control group the same food habits.

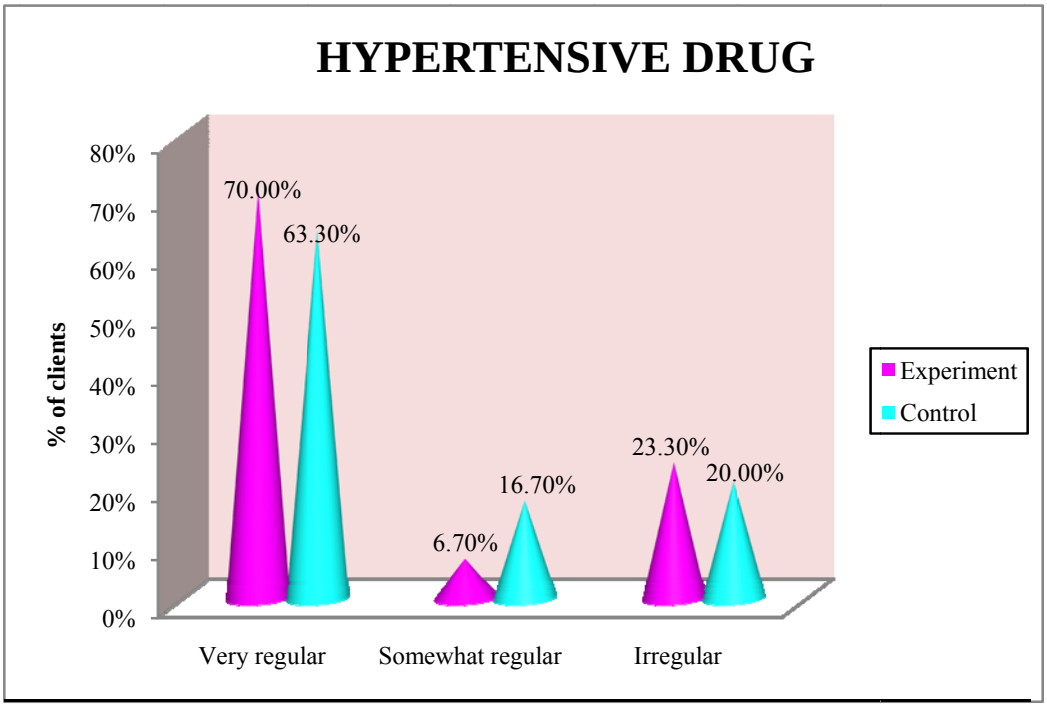
SECTION - B

TABLE - 2DESCRIPTION OF CLINICAL VARIABLE OF THE CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION.

CLINICAL VARIABLES		Group			
		Experiment		Control	
		no	%	no	%
Duration of illness	< 1 yr	15	50.0%	15	50.0%
	1 -3 yrs	13	43.3%	12	40.0%
	3 -5 yrs	2	6.7%	3	10.0%
Duration of treatment	< 1 yr	15	50.0%	15	50.0%
	1 -3 yrs	13	43.3%	12	40.0%
	3 -5 yrs	2	6.7%	3	10.0%
Specify the medication taken	Allopathy	20	66.7%	21	70.0%
	Naturopathy	2	6.7%	2	6.7%
	Siddha	4	13.3%	5	16.7%
	Homeopathy	4	13.3%	2	6.7%
Sleeping hour	< 8 hours	8	26.7%	10	33.3%
	8 hours	18	60.0%	16	53.3%
	> 8 hours	4	13.3%	4	13.3%
Nap in the after noon	Yes	8	26.7%	9	30.0%
	No	22	73.3%	21	70.0%

The above table shows that the uncontrolled hypertensive clients in experimental group and control group the maximum duration of illness is (50%) in less than 1 year considering the duration of treatment is (50%) in both experimental and control group. Regarding theAllopathy medication taken by the uncontrolled hypertensive clients (66.7%) in experimental group and (70%) in control group. considering the sleeping 8 hours the maximum8hrs sleeping (60%) in experimental group were as (53.3%) in control group. Considering afternoon nap no is (73.3%) in experimental group were as (70%) in control group.

FIGURE -5 HYPERTENSIVE DRUG TAKING



The above figure revealed that taking very regular uncontrolled hypertensive clients in (70%) is the maximum in experimental group were as (53.3%) is the maximum control group.

SECTION - C

TABLE-3: ASSESS THE BLOOD PRESSURE LEVEL IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION AMONG EXPERIMENTAL AND CONTROL GROUP

BLOOD PRESSURE LEVEL		GROUP			
		PRETEST		POSTTEST	
		No. of clients	%	No. of clients	%
SBP	Mild	6	20.0%	8	26.7%
	Moderate	20	66.7%	19	63.3%
	Severe	4	13.3%	3	10.0%
DBP	Mild	6	20.0%	7	23.3%
	Moderate	20	66.7%	20	66.7%
	Severe	4	13.3%	3	10.0%

The above revealed that maximum systolic blood pressure in experimental group of moderate level is (66.7%) and control group blood pressure level is (63.3%) in moderate. Regarding the diastolic blood pressure (66.7%) maximum in experimental group and (66.7%) in control group moderate level of blood pressure.

SECTION - D

TABLES 4 EVALUATE THE EFFECTIVENESS OF RAW GARLIC CLOVE ONBLOOD PRESSURE LEVEL IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION AMONG EXPERIMENTAL GROUP.

BLOOD PRESSURE LEVEL		EXPERIMENTAL GROUP				Pearson chi square test	CONTROL GROUP.				Pearson chi square test
		Pretest		Posttest			Pretest		Posttest		
		No. of clients	%	No. of clients	%		No. of clients	%	No. of clients	%	
SBP	Normal	0	00.0%	5	16.7%	**$\chi 2$=14.81 P=0.002** significant**	0	00.0%	2	6.7%	$\chi 2$=2.69 P=0.44 DF=3 not significant
	Mild	6	20.0%	14	46.7%		8	26.7%	10	33.3%	
	Moderate	20	66.7%	11	36.6%		19	63.3%	15	50.0%	
	Severe	4	13.3%	0	00.0%		3	10.0%	3	10.0%	
DBP	Normal	0	00.0%	6	20.0%	**$\chi 2$=16.53 P=0.001** significant**	0	00.0%	3	10.0%	$\chi 2$=3.51 P=0.31 DF=3 not significant
	Mild	6	20.0%	14	46.7%		7	23.3%	8	26.7%	
	Moderate	20	66.7%	10	33.3%		20	66.7%	16	53.3%	
	Severe	4	13.3%	0	00.0%		3	10.0%	3	10.0%	

The above table revealed that after administration of raw garlic clove lowerthe blood pressure level in experimental group is statistically significant.

SECTION – E

TABLE – 5 COMPARE THE PRETEST AND POST TEST LEVEL OF BLOOD PRESSURE IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION IN EXPERIMENTAL AND CONTROL GROUP.

S. NO	TEST	NO	SYSTOLIC BLOOD PRESSURE						DIASTOLIC BLOOD PRESSURE					
			EXPERIMENTAL GROUP		CONTROL GROUP		PAIRED 'T' TEST VALUE MEAN	LEVEL OF SIGNIFICANT SD	EXPERIMENTAL GROUP		CONTROL GROUP		PAIRED 'T' TEST VALUE MEAN	LEVEL OF SIGNIFICANT SD
			MEAN	SD	MEAN	SD			MEAN	SD	MEAN	SD		
1.	PRE TEST	30	172.40	10.4	173.20	13.0	6.16	**0.001 Significant**	106	5.5	106.40	5.0	11.44	**0.001 Significant**
2.	POST TEST	30	154.00	8.37	171.00	12.6			94.60	3.29	105.00	3.74		

In experimental clients the systolic blood pressure level lower from 172.40 to 154.00 in posttest due to raw garlic clove the difference18.40 mm of Hg in systolic blood pressure were as in diastolic blood pressure level lower from 106 to 94.60 in posttest. Thisreductionindicates statistically significant.

SECTION - F

TABLE – 6 ASSOCIATE THE POST TEST LEVEL OF BLOOD PRESSURE IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION IN EXPERIMENTAL AND CONTROL GROUP WITH SELECTED DEMOGRAPHIC VARIABLE.

DEMOGRAPHIC VARIABLE		Posttest level of Systolic blood pressure						Total	Pearson Chi-square test	Posttest level of Diastolic blood pressure						Total	Pearson Chi-square test
		Normal		Mild		Moderate				Normal		Mild		Moderate			
		no	%	no	%	no	%			no	%	no	%	no	%		
Age	< 55 yrs	3	21.4%	4	28.6%	7	50.0%	14	**χ^2=6.43P=0.04* DF=2 significant**	3	21.4%	4	28.6%	7	50.0%	14	**χ^2=6.16P=0.04* DF=2 significant**
	> 55 yrs	2	12.5%	10	62.5%	4	25.0%	16		3	18.8%	10	62.5%	3	18.8%	16	
Monthly income	< Rs.5000	4	23.5%	6	35.3%	7	41.2%	17	**χ^2=5.82P=0.05* DF=2 significant**	5	29.4%	6	35.3%	6	35.3%	17	**χ^2=6.92P=0.03* DF=2 significant**
	>Rs. 5000	1	7.7%	8	61.5%	4	30.8%	13		1	7.7%	8	61.5%	4	30.8%	13	
Food habits	Vegetarian	3	37.5%	2	25.0%	3	37.5%	8	**χ^2=8.77P=0.01** * DF=2 significant**	4	50.0%	2	25.0%	2	25.0%	8	**χ^2=6.23P=0.04* DF=2 significant**
	Mixed vegetarian	2	9.1%	12	54.5%	8	36.4%	22		2	9.1%	12	54.5%	8	36.4%	22	
Hypertensive drug taking	Regular	5	23.8%	12	57.1%	4	19.1%	21	**χ^2=9.71P=0.01** DF=2 significant**	6	28.6%	11	52.3%	4	19.1%	21	**χ^2=7.34P=0.02* DF=2 significant**
	Irregular	0	0.0%	2	22.2%	7	77.8%	9		0	0.0%	3	33.3%	6	66.7%	9	

The above table reveals that age, income, food habits, hypertensive drug taking are significantly associated with the post test level of blood pressure.

CHAPTER - V

DISCUSSION

Hypertension is one of the most occurring non communicable chronic diseases. Worldwide 50 million of people having an elevated blood pressure.20 % of all death due to hypertension according to World Health Organization 2011. 10 million of people are dying due to hypertension. The research studies have shown the prognosis of hypertension is also associated with high risk of cardiovascular risk factor especially heart attack ,heart failure, kidney failure, stroke complication leading to premature disability and death.

The identification of factor influencing hypertension is really a challenging one in this dynamic world. The area of research aim to find out the factors that affects the clients among in selected rural area treated uncontrolled hypertensive clients. This study is to assess the factors influencing raw garlic clove to treatment modalities among hypertensive clients in selected rural area structured interview schedule was framed based on the demographic data. The aim of the present study was to a study to assess the effectiveness of raw garlic clove onblood pressure level in clients with treated uncontrolled hypertension residing at Samayanallur,Madurai.

OBJECTIVE

- To assess the blood pressure level in clients with treated uncontrolled hypertension among experimental and control group.
- To evaluate the effectiveness of raw garlic clove onblood pressure level in clients with treated uncontrolled hypertension among Experimental group.
- To compare the pretest and post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group.
- To associate the post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group with selected demographic variable.

The sample consist of 30 uncontrolled hypertensive clients from Vaigainagar for experimental group and 30 uncontrolled hypertensive clients from Barmanagar for control group. Simple random sampling techniques were adopted by lottery method. Pretest assessment was done for the experimental and control group and 4gm of raw garlic clove was given to the experimental group than post test assessment was done on level of blood pressure for experimental and control group. The Effectiveness of raw garlic clove on blood pressure level in treated uncontrolled hypertension clients for experimental group. Data analysis and interpretation were done by using mean, standard deviation, Pearson chi-square test and paired‘t’ test. The results of the study were discussed based on the objectives and with the following supportive studies.

Hypertension is the major problem based by the physician and healthcare providers due to urbanization and the associated health risk with a sedentary lifestyle out of every four people at least one of them will be affected by hypertension. Adequate control hypertension is essential and if not done so can culminate into uncontrolled hypertension.

DEMOGRAPHIC FINDINGS

The present study shows that high percentage age 14(46.7%) clients are in between 56 to 65 years in experimental group and 43.3% in control group. Among the clients sex same was in both experimental and control group of female highest value was 60%and 73.3%.The present study reveals 26.7 % in primary education in experimental group were as in control group 23.3% was highest in high school. Another findings express that both experimental and control group highest value in married client was 83.3% and 70% were as in occupation 43.3% was former in experimental group and46.7% unemployed was in controlled group.

The present study shows that highest 53.3% was moderate worker in experimental group and 63.3% was sedentary worker in control group were as hypertension clients monthly income highest value 43.3% was Rs.1001 to 5000

in experimental group and 56.7% in control group. The present study depicts 53.35 was joint family in experimental group and 56.7% was nuclear family in control group were as mixed vegetarian highest value 73.3% in experimental group and 63.3% in control group.

CLNICAL FINDINGS

The present study shows that highest value in both experimental and control group duration of illness was less than one year were as in duration of treatment less than one year 50% in both experimental and control group. Another findings reveals that allopathic medicine taken in experimental and control group highest value 66.7% and 70% were as the hypertension drugs taking clients very regularly in both experimental and control group highest value was 70% and 63.3%.

The present study express that sleeping in both experimental and control group highest value 60% and53.3% were as nap in the afternoon both experimental and control group no was the highest value in 73.3 % and 70%.

THE FIRST OBJECTIVE OF THE STUDY IS TO ASSESS THE BLOOD PRESSURE LEVEL IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION AMONG EXPERIMENTAL AND CONTROL GROUP.

The present study shows that the age groups of 56 to 65 years of females are more affected by uncontrolled hypertensive clients. This study was supported by prince M.J et al (2009)in his study to find out the age, sex; education corelated with systolic blood pressure uncontrolled hypertension is common among people the age group of 56 to 65 years in developing country. The prevalence was higher in urban (Range 52.6; 79.8%) than rural site (range 42.6; 56.9 %) and lower in men than women. The present study females are more affected by uncontrolled hypertension.

The present study is 56-65 years more common .The present study females are more affected by uncontrolled hypertension. This study is correlated to support these findings Ifeoma et al (2011) conducted the study on high prevalence and low awareness of hypertension in marked population in his study the prevalence of hypertension increases with the age from 5.4 % in the age group of less than 20 years to 80 % in the age group > 70 years.

THE SECOND OBEJECTIVE OF THE PRESENT STUDY IS TO EVALUATE THE EFFECTIVENESS OF RAW GARLIC CLOVE ONBLOOD PRESSURE LEVEL IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION AMONG EXPERIMENTAL GROUP

The present study shows that garlic administration given to the experimental group for 21 days treatment period is reducing the systolic blood pressure value (p=0.001) significant. Thislowerindicates effectiveness of raw garlic clove onblood pressure level in experimental group among uncontrolled hypertensive clients. This was supported by this findings Ried K et al (2010) showed with uncontrolled hypertension systolic blood pressure was an average 10.2+_ 4.2 mm/Hg (p=0.03) , lower in the garlic group compared with controls over the 12 week treatment period .It is concluded that garlic extract reducing the systolic blood pressure in patients with treated and uncontrolled hypertension..

The present study reveals that the effectives of raw garlic clove onsystolic blood pressure level among the experimental group of uncontrolled hypertensive client in the pre test systolic blood pressure moderate level is 66.7% were as the post test systolic blood pressure in mild level is 46.7%. (p=0.002) is significant .This lower of blood pressure indicates the effectiveness of raw garlic clove onblood pressure level in experimental group among uncontrolled hypertensive clients. This was supported by Sobenin I.A.at al (2009) reported that time released garlic powder tablets are more effective for the treatment of mild of moderate hypertension than are regular garlic supplements.

THE THIRD OBJECTIVE OF THE PRESENT STUDY IS TO COMPARE THE PRETEST AND POST TEST LEVEL OF BLOOD PRESSURE IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION IN EXPERIMENTAL AND CONTROL GROUP.

The present study is systolic blood pressure reducedin 18.40 mm of hg. This reducingsystolic blood pressure shows the effectiveness of raw garlic clove onblood pressure in uncontrolled hypertensive client. This was supported by Heather (2010) support this study effects of garlic extracts in reducing hypertension. Garlic extracts 3.84 gram (equivalent to 2.5 gm of fresh garlic). The investigator found the drop in systolic blood pressure of 10.2 mm of hg.

The present study is female age 56-65 years raw garlic administration for 21 days reducing the systolic blood pressure value is (p=0.001) highly significant. This study was supported by Duda.G.et.al, (2008) another finding of the study receiving a standard antihypertensive pharmacotherapy they took. 6 capsule of garlic preparation daily for 30 days. Females (mean age 52+/- 8.3 years) and male (mean age 48.6+/- 8.2 years). Garlic preparation used as an adjunct in treatment of uncontrolled hypertension.

The present study lower of systolic blood pressure 18 mm of hg and diastolic blood pressure is 11.47 mm of hg due to raw garlic clove administration of uncontrolled hypertensive client this lower occurs. This study was supported by Zare.et.al, (2008) lower of systolic blood pressure 7.7 mm of hg diastolic blood pressure 5 mm of hg with due to raw garlic clove administration of uncontrolled hypertensive client this lower occurs.

THE FOURTH OBJECTIVE OF THIS STUDY IS TO ASSOCIATE THE POST TEST LEVEL OF BLOOD PRESSURE IN CLIENTS WITH TREATED UNCONTROLLED HYPERTENSION IN EXPERIMENTAL AND CONTROL GROUP WITH SELECTED DEMOGRAPHIC VARIABLE

The present study age factor is associated highly significant in uncontrolled hypertensive client. This study was supported by Prince.M.J.et.al, (2009) age, sex, education is more common in uncontrolled hypertensive clients.

The present study age, drug taking, incomes are significantly associated with their post test level in experimental group of uncontrolled hypertensive client. The study was supported by Romonali R. J et al., (2007) findings includes age, medication, income and sex factors.

CHAPTER - VI

SUMMARY, CONCLUSION AND RECOMMENDATION

Hypertension is one of the common non-communicable diseases. It is a 'silent killer disease'. It is the time that we have to focus on the health care facilities and comprehensive treatment for hypertension at maximum level.

Hypertension is the chronic disease the long term drug regimen often alters the behavioral pattern of the client. The health care providers play vital role to educate the population about the importance of treatment and prevention of its complication. This study was carried out to determine the effectiveness of raw garlic clove onblood pressure level in clients with treated uncontrolled hypertension residing at Samayanallur, Madurai.

OBJECTIVES

- To assess the blood pressure level in clients with treated uncontrolled hypertension among experimental and control group.
- To evaluate the effectiveness of raw garlic clove onblood pressure level in clients with treated uncontrolled hypertension among Experimental group.
- To compare the pretest and post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group.
- To associate the post test level of blood pressure in clients with treated uncontrolled hypertension in experimental and control group with selected demographic variable.

The study was done on sixty treated uncontrolled hypertensive clients based on inclusion criteria and data were collected through interview method. 30 uncontrolled hypertensive clients for experimental group from Vaigainagar and 30 uncontrolled hypertensive control group from Barmanagar. The investigator found out that so many things like cost, health care facilities, family system, and knowledge that can influence the treatment among hypertensive clients.

A formal permission was obtained from the medical officer, Samayanallur to conduct the study. The data was collected with the help of modified questionnaire method for a period of four weeks from 01.09.11 to 13.09.11. The conceptual framework adapted for the study was modified Roy's adaptation model. The model helped the investigator in approaching the uncontrolled hypertensive clients. Review of related research material helped the investigator in the preparation of the conceptual model, tool and methodology of the study. Methodology used for the study was simple random sampling technique by lottery method. The research design pretest posttest control group design. The samples were selected by simple random technique using lottery method based on the inclusion criteria it took about 30 minutes for each sample to collect the data.

A survey was done in selected places like Vaigainagar and Barmanagar to identify the hypertensive clients. The sample consists of sixty hypertensive client's age from 35 years to more than 66 years. The modified questionnaire tool was developed and used for the data collection. Six experts did content validity and the tool was found to be reliable.

The pilot study was conducted at Munichalai, Madurai between 11.07.11 to 17.07.11 at Ismailpuram 9^{th} and 10^{th} street to find out the feasibility to conduct the final study and determine the methods for statistical analysis. The data for final study 60 uncontrolled hypertensive clients (30 clients in experimental group and 30 in control group) was collected over a period of 4

weeks. Pretest blood pressure was measure to experimental and control group the intervention 4gm of raw garlic clove given to experimental group for 21 days after the posttest blood pressure was measured for both group the collected data were enter in a master sheet and interpreted in turn of the objectives using descriptive and inferential statistics.

MAJOR FINDINGS OF THE STUDY

- The mean pretest measures of systolic blood pressure were 173.20 and 172.40 in controlled and experimental group. The‘t’ test for the mean difference of systolic blood pressure was 0.26 at different (58) which was not significant.
- The mean posttest measure of systolic blood pressure was 171,154 in controlled and experimental group respectively. The‘t’ test for the mean difference between systolic blood pressure was 6.16 at different (58) which was highly significant at 0.001 level.
- The mean pretest measure of diastolic blood pressure was 106.40 and 106 in controlled and experimental group. The‘t’ test for the mean difference of diastolic blood pressure was 0.29at different (58) which was not significant.
- The mean posttest measure of diastolic blood pressure was 105 and 94.60 in controlled and experimental group respectively. The‘t’ test for the mean difference between diastolic blood pressure was 11.44 at different (58) which was highly significant at 0.001 level.
- Paired‘t’ test showed that there was no significant difference in pretest and post test level in control group.
- Paired‘t’ test showed that there was a significant difference in pretest and post test blood pressure level in experimental group.
- Independent’s’ test showed that there was no significant difference in pretest and post test level between control and experimental group.
- Independent’s’ test showed that there was very highly significant difference in post blood pressure level in experimental group.
- There was significant association found in post test measure of blood pressure level and selected demographic variables and clinical variables in experimental group.

IMPLICATIONS

Nurse can incorporate the garlic as one of the excellent alternative herbal therapies for effective management of treated uncontrolled hypertension clients. The present study findings have several implications in Nursing Practice, Nursing Education, Nursing Research and Nursing Administration.

NURSING PRACTICE

- The nurses working in the community setting should practice the one of low cost, effective, acceptant therapy as an internal part of their profession.
- Nurses should take initiative in introducing the practice of cost effectiveness of raw garlic clove in the community setting.
- The study enabled to gain knowledge in assessment of blood pressure level in Treated uncontrolled hypertension Clients..

NURSING EDUCATION

- The Nursing education can provide education to the nursing personnel to update their knowledge on the alternative methods of treatment like raw garlic clove and its valuable benefits to the clients.
- The nurse educator can create awareness about the therapeutic benefits of raw garlic clove.
- The nurse educator may include garlic therapy as a means of Alternative remedy in the curriculum, its effect in health and illness which can be adopted by the students and the nursing personnel too.

NURSING ADMINISTRATION

- Leaders in nursing practice should take active part in recommending the low cost complementary and alternative medicine and illuminate the effectiveness of it to the policy makers to introduce in the community at large scale.
- Public health policy-makers to assign sufficient priority and resources to hypertension management and prevention.
- The nurse administrators have to undertake the health needs of the most vulnerably by effective organization and management.

NURSING RESEARCH

- Study will serve as a valuable reference and pathway for further researches.
- The findings of the study would help to expand the scientific body of professional knowledge from which further research can be conducted.
- Administration of raw garlic clove may be studied highly significant and used as specific nursing intervention.

RECOMMENDATIONS

- A similar study can be replicated with larger sample.
- A similar study can be conducted by using true experimental design.
- A similar study can be conducted with different dose and different way of Supplement to reduce the blood pressure level.
- The same study can be conducted as a comparative study between medicated and no medicated hypertensive patients.
- A study can be done to assess the knowledge on Alternative and complementary therapy among clients with treated uncontrolled hypertension.

CONCLUSION

Consuming raw garlic clove is effective and feasible. It is a low cost method to decrease the blood pressure level. Blood pressure of clients with treated uncontrolled hypertension is influenced by the demographic variables. Based on the method of sample selection, the findings may be generalized to individual with uncontrolled hypertension. The study findings provides the statistical evidence which early indicates that raw garlic is one of the best alternative therapy which may be used to lower Blood pressure level.

Blood pressure level reduced is highly significant among clients who received raw garlic clove. The results suggested that there is a association between post test measures of blood pressure level and in demographic variables.

LIMITATIONS

- Some clients are not willing to take raw garlic clove in the empty stomach.
- Since the study was in the community setup it is not possible to get the answers from the client continuously due to domestic work.

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