Shendi University
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Effect of Self Care Life Style Modification Progam on Self Efficacy for Hypertensive Patients in ElmekNimirUniversity Hospital

Athesis submitted for fulfillment of the requirement for Ph. –D in nursing science

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2018

الآيـــــة

بسم الله الرحمن الرحيم

قال تعالى:

﴿اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ ۝ خَلَقَ الْإِنسَانَ مِنْ عَلَقٍ ۝ اقْرَأْ وَرَبُّكَ الْأَكْرَمُ ۝ الَّذِي عَلَّمَ بِالْقَلَمِ ۝ عَلَّمَ الْإِنسَانَ مَا لَمْ يَعْلَمْ﴾

صدق الله العظيم

Dedication

To my unique source of success, the person who always supports me, encourage me; drive me to be a better through my life.

My mother, father

For helping to make me who I am , for teaching me to be proud of my self , for showing me how to be strong , for giving me the courage not to be weak , & giving me the strength to always strive for better , no matter what ...

My sisters…

To who help me with patience

all participant patients…

***To** anyone who one day inspired me and drew a smile on my face, those who pleased my life with giveness and happiness*

My colleges

My students

Acknowledgement

It is not easy for me to do this work in this form without the kind, experienced and confident guidance ***my supervisor***

Dr. : Yousif Mohammed Yousif

I can't find satisfactory words to express my gratefulness to him for his encouragement, patience and valuable supervision.

Dr. Higazi Mohammed Ahmed

For guidance and encouragement to produce a perfect work

I would like to thanks a lot: DR,Ibrahim mohammed sid ahmed for helping with patience throughout this study

I would like to draw great thanks all my colleges in faculty of nursing sciences – and colleges faculty of medicine in university of Shendi for their great efforts and support in accomplish of the teaching program

I would like to draw great thanks Altayeb , husam,Ragda, Soad,Khattab,ahmed ,ayaat for their support and cooperation during doing my research.

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Abbreviation	Term
ACe	Angiotensin-converting enzyme inhibitors
ArBs	Angiotensin II receptor blockers
BB	Beta-blockers
CO	Cardiac output
BMI	Body mass index
BP	Blood pressure
BUN	Blood urea nitrogen
CCB	Calcium channel blockers
CDC	Centre of Disease Control
CHD	Coronary heart disease
CHF	Chronic heart failure
CKD	Chronic Kidney Disease
DASH	Dietary Approaches to Stop Hypertension
DBP	Diastolic blood pressure
DM	Diabetes mellitus
ECG	Electrocardiogram
HBM	Health believe modal
HRQOL	Health-related quality of life
HTN	Hypertension
ISH	Isolated systolic hypertension
JNC	Joint national Committee
MED	Mediterranean diet
LDL	low density lipoprotein cholesterol
TG	Triglycerides
TM	Transcendental meditation
PVR	Peripheral vascular resistance
P v	P value
QOL	Quality of life
RAAS	Renin-angiotensin- aldesterone system
SBP	Systolic blood pressure
TIA	Transient ischemic attack
WHO	World health organization

ملخص البحث

الخلفية:

يعد ارتفاع ضغط الدم في جميع أنحاء العالم ثالث عامل خطر رئيسي يسهم في الموت ، ويجب أن تكون التدابير الوقائية ومراقبة ضغط الدم ذات أولوية عالية ، ويبقى نمط الحياة الصحي حجر الزاوية في معالجة ارتفاع ضغط الدم ، التحكم غير السليم في الرعاية الذاتية لمرضى ارتفاع ضغط الدم يفرض الكثير من العبء المالي على نظام الرعاية الصحية ، من ناحية أخرى ، تم تأكيد أهمية الرعاية والمشاركة بفعالية عالية في برامج الرعاية الذاتية.

الأهداف :

هدفت هذه الدراسة لتقييم تأثير تغيير نمط الحياة على الكفاءة الذاتية للمرضى المصابين بارتفاع ضغط الدم باستخدام نموذج الاعتقاد الصحي.

منهجية البحث:

هذه الدراسة شبه التجريبية التداخلية المستعرضة ، لمرضى ارتفاع ضغط الدم (عددهم 101مريض) الذين حضروا للعيادة المحولة بمستشفى الملك نمر الجامعي ، تم اختيارهم بأخذ عينة متيسرة، وقد تم متابعة مجموعة الدراسة خلال برنامج الرعاية الخاصة خلال 7 أشهر باستخدام استبانة جمع البيانات المنظمة ، واستخدمت طرق الإحصاء الوصفية والإحصائية لتحليل البيانات.

النتائج:

عكست هذه الدراسة أن أغلبية 81 (80.2٪) مجموعة الدراسة تزيد أعمارهم عن 50 سنة وكان متوسط عمرهم 57 ± 9.9 (المدى 30-83) ، كما أظهرت الدراسة أن معرفة مجموعة الدراسة حول ارتفاع ضغط الدم تحسنت في اختبار ما بعد البرنامج ، ورفع مستواها في مرحلة المتابعة للبرنامج بنتائج مؤكدة ، كان لدى مجموعة الدراسة مستوى مقبول من تغيير نمط الحياة الذي تمت ترقيته في الثلاثة مراحل ($P<0.05$) .

أوضحت الدراسة أن موانع ممارسة نمط الحياة تمثل أكثر من الثلث 35 (34.7 ٪) ذكروا عدم فعالية الدواء لاستقرار ضغط الدم لديهم كمانع شخصي ،أيضا أقل من الثلث 30 (29.7 ٪) لديهم فعالية ذاتية كمانع نفسي ، أكثر من الثلث79 (78.2 ٪) ذكروا عدم وجود الدعم الاجتماعي كمانع اجتماعي ، أكثر من النصف 54 (53.5 ٪) ذكروا أن الثقة لتنفيذ الاستراتيجية كمانع من مقدم الخدمة، أكثر من الثلث 68 (67.3 ٪) ذكروا أن نظام العلاج معقد ، أغلبية مجموعة الدراسة 88 (87.1 ٪) ذكروا عدم وجود وسائل النقل كمانع للوصول إلى

الرعاية الصحية ،وايضا أغلبية مجموعة الدراسة 84 (83.2 ٪) ذكروا قلة دعم مراكز الرعاية الصحية كمانع خدمي .

الخاتمة :

خلصت الدراسة إلى أن البرامج التعليمية كانت فعالة في زيادة المعرفة ، وتحسين الرعاية الذاتية ، والتحكم في عادات أسلوب الحياة للمرضى المصابين بارتفاع ضغط الدم ، وأشارت إلى قدرة نموذج الاعتقاد الصحي في التنظيم الذاتي وخفض مستوى ضغط الدم .

التوصيات :

أوصت الدراسة أن المرضى الذين يعانون من ارتفاع ضغط الدم يحتاجون إلى النصائح والدعم والمعلومات من المهنيين الصحيين حتى يكونوا قادرين على فهم أهمية استخدام تغيير نمط الحياة ، وينبغي تقديم المشورة لهم في كل زيارة للخدمة الصحية لتحسين إمتثالهم لتغيير نمط الحياة .

Abstract

Background

Worldwide hypertension is the third leading risk factor contributing to death, preventive measures and control of blood pressure should of high priority, a healthy lifestyle remains the cornerstone of the management of blood pressure(BP) for severities of hypertension , the improper control of self-care in hypertension imposes a lot of financial burden on the health-care system, on the other hand , the importance of participatory care and high effectiveness of self-management programs have been confirmed.

Objectives

The aims of this study is to evaluate the effect of self - care life style modification program on self efficacy for hypertensive patients with using the Health Belief Model.

Methods

This quasi-experimental prospective interventional study, done for hypertensive Patients (N=101), whom they were selected from patients were attended the refer clinic of elmek nimir university Hospital The study was carried out at Shendi town which is lies on the eastern bank of the River Nile with a total area of about 14596 Km2,The total population of Shendi 'locality ' is estimated at about 197589 of whom 116713 live in rural areas and 80876 in urban area, most of them afroarab . ,selection was done via convenience sampling,they were followed during a 7 month, data was achieved by administering questionnaire , descriptive and inferential statistical methods were employed to analyze data .

Results

This study reflected that majority 81(80.2%) of study group their age were ≥ 50 year the mean age of them was 57 ± 9.9 (range 30–83) , also the study showed that study group knowledge about hypertension improved in post test phase ,and upgraded in follow up phase with highly significant results , the study group had acceptable level of life style modification upgraded in post test and follow up test ($P < 0.05$).

The study reflected that barriers to practice life style presented that more than one third 35(34.7%) of study group reported ineffective of medicine to stabilize their blood pressure as a personal barrier, less than one third 30(29.7%) had self efficacy as a psychological barrier, more than two third 79(78.2%) reported lack of social support as a Sociocultural barrier , more than half 54(53.5%) reported confidence to implement strategy as a provider barrier, more than two third 68(67.3%) reported complicity of the regimen as a therapy related barrier, majority 88(87.1%) reported lack of transport as barrier to access to care, majority of them 84(83.2%) reported lack of office support was a barrier as a feature of practice setting .

Conclusion

From finding the study showed that the educational programs were effective in increasing knowledge, improving self-care, and controlling lifestyle habits of patients with hypertension, and indicated the ability of Health Belief Model in self-regulation and reducing the blood pressure.

The researcher found that there was (25) of participant had diabetes associate hypertension and to know the effect of program on them

because of interchange in life style of diabetes, results showed that there is no significant results and they not affected by the program hypertension life style modification and they showed good response to life style adherence in spite of diabetes , the other (76) participant showed also good response to life style modification program with significant results.

Recommendation

The recommendation are hypertensive patients need advices, support and information from health professionals in order to be able to understand the importance of using life style modification , and should be counseled every time whenever they visit the health clinic to improve their compliance with life style modification.

1. Introduction

1.1 Background

Hypertension (HTN) is the main risk factor for cardiovascular diseases and stroke. However, it is not taken seriously and is often deficiently controlled Lowering the Blood Pressure (BP) reduces the associated risks, therefore, an effective strategy for reducing HTN complications is increasing the number of patients who control BP. **(Vegaet al, 2007)**

Hypertension is a highly prevalent disease in most countries, 15% to 30% of the adult population and more than 50% of the elderly population suffer from high blood pressure, making it a clear general public health problem as with smoking, diabetes, and Dyslipidemia, hypertension is an important risk factor for cardiovascular diseases, which are responsible for roughly 30% of deaths worldwide.(Hame**,2010)**

Hypertension is the leading preventable cause of premature death worldwide. Studies that examined global disparities of hypertension prevalence, awareness, treatment, and control in 2010 and compared secular changes from 2000 to 2010, searchedmidline from 1995 through 2014 and supplemented with manual searches of retrieved article references.Study included 135 population-based studies of 968,419 adults from 90 countries. Sex-age-specific hypertension prevalence from each country were applied to population data to calculate regional and global numbers of hypertensive adults. Proportions of awareness, treatment, and control from each country were applied to hypertensive populations to obtain regional and global estimates, in 2010, 31.1% of the world's adults had hypertension; 28.5% (27.3-29.7%) in high-income countries and 31.5% (30.2-32.9%) in low- and middle-income countries. An estimated 1.39 (1.34-1.44) billion people had hypertension in 2010; 349 (337-361) million in high-income and 1.04 (0.99-1.09) billion in low- and middle-income countries. From 2000 to 2010, the age-

standardized prevalence of hypertension decreased by 2.6% in high-income countries but increased by 7.7% in low- and middle-income countries. During the same period, the proportions of awareness (58.2% vs 67.0%), treatment (44.5% vs 55.6%), and control (17.9% vs. 28.4%) increased substantially in high-income countries, whereas awareness (32.3% vs 37.9%) and treatment (24.9% vs 29.0%) increased less, and control (8.4% vs 7.7%) even slightly decreased in low- and middle-income countries, Global hypertension disparities are large and increasing. Collaborative efforts are urgently needed to combat the emerging hypertension burden in low- and middle-income countries.**(Millset al,2016)**

Global burden of hypertension projected that the number of adults with hypertension will increase by 60% to a total of 1·56 billion (1·54 billion–1·58 billion) in 2025. **(Angelina Alphonce,2012)**

The World Health Organization during a report has announced that almost half of people with hypertension have no knowledge of their disease, and only 25 percent of them are treated and less than 12.5 percent of them are controlling their disease.**(World Health Organization, 1996)**

An important aspect in the treatment of hypertension that must be considered is that treatment should not interfere with patient's quality of life. **(Bocaliniet al, 2008)**

1.1.1 .Quality of life

Quality of life (QOL) is a broad multidimensional concept that usually includes subjective evaluations of both positive and negative aspects of life, what makes it challenging to measure is that, Aspects of culture, values, and spirituality are also key aspects of overall quality of life that add to the complexity of its measurement.**(Martinelli et al, 2008)**

1. 1.2 .health-related quality of life

The concept of health-related quality of life (HRQOL) and its determinants have evolved since the 1980s toencompass those aspects of overall quality of life that

can be clearly shown to affect health either physical or mental.On the individual level, this includes physical and mental health perceptions and their correlates including health risks and conditions, functional status, social support, and socioeconomic status. **(Bocalini, 2008)**

HRQOL questions Self-assessed health status also proved to be more powerful predictor of mortality and morbidity than many objective measures of health.HRQOL measures make it possible to demonstrate scientifically the impact of health on quality of life, going well beyond the old paradigm that was limited to what can be seen under a microscope.**(Aoyagi,Shephard, 2014)**

2. Problem statement

Hypertension is described as a silent killer, and it is noted to be one of the mostsignificant health problems, lackofparticipation in traditional risk reduction programs,and the need for accessiblehealth promotion and disease prevention programs that take into consideration thecultural perspective of the population.

Motivating patients to implement lifestyle changes is probably one of the most difficult aspects of managing hypertension. According to areviewof literature,in Sudan the studies appear to be control of hypertensionnot fullyunderstood,also patients knowledge, attitudes and perceptionsabout importance of lifestyle modification in controlling hypertension.

Good lifestyle changes are further complicated by varying socioeconomic conditions, education levels and poor healthcare delivery. This study inform health care workers on possible education and lifestyle modification emphasis for hypertensive patients;this could augment already existing methods of treatment in the management of hypertension.

However, educational programs that address hypertension prevention and management specific to hypertensive patient, it was critical to develop a lifestyle modification tips to help address the statedproblems .

3. Justification

Life style modification is the first line of intervention for treatment of patient with hypertension and major contribution to science of nurses.

Teaching patient self-care willhelpto identify the education needs of the patient and family members because the diagnosis of hypertension overwhelms the patient and family.

So managing life style permit early identification of complication and initiation of management measures prevent and decrease complication and have numerous psychological benefits for the patients.

The purpose of this study was to determine the knowledge of patients towards lifestyle modification and its importance in the management of hypertension, this included determining the attitudes and perceptions that patients had with respect to adopting healthy lifestyle change,also aim to determine The patient's perceptions about being counseled on lifestyle modification by nurse professionals ,this information may help shape health care policy, Education and research aimed at reducing the adverse consequences of hypertension .

The study was conducted to fill the gap in knowledge about hypertension and life style modification , and this program can improve quality of life of hypertensive patients regarding self - care and independence, The results from this study will be used to increase the scientific knowledge base to the scientific world , also the results will be used to inform the practice and policy makers (Ministry of health and social welfare) with the aim of planning interventions to improve patient compliance to life style modification to reduce the impact of hypertension and its complications and improve the quality of life of the patients and the health cost burden.

4. Research Questions

- Is there was there is decrease level of knowledge about quality of life among hypertensivepatients?
- Had Patients who exposed to life style modification program will improve knowledge, self care activity and self efficacy?

5.Objectives of the study

1.5.1Main objective

To evaluate the effect ofself carelife style modificationprogram onself efficacyof hypertensive patientsin ElmekNimir university hospital.

1.5.2 Specific objectives

1- To evaluate hypertensive patients knowledge regarding hypertension.

2- To evaluate level of perception of practice of life style modification among hypertensive patient in controlling blood pressure.

3- To determine barrier to practice life style.

4- To evaluate Quality of life for hypertensive patients after educational program intervention.

5. Literature review

2.1Background

Hypertension is an important public-health challenge worldwide, prevention, detection, treatment, and control of this condition should receive high priority.

Hypertension was defined as sustained high blood pressure (systolic BP ≥140 or diastolic BP ≥90 mmHg) or reported regular use of antihypertensive medication**(van de Vijver et al, 2013)**

Hypertensionwas defined as an average systolic blood pressure 120-129 mm Hg, diastolic blood pressure Below 80 mm Hg.**(Wheltonet al, 2017)**

One third of adults in most communities in the developed and developing world have hypertension, is the most common chronic condition dealt with by primary care physicians and other health practitioners. **(Michael ,Weber, 2014)**

2.2 Blood Pressure

Blood pressure is the product of cardiac output multiplied by peripheral resistance. Cardiac output is the product of the heart rate multiplied by the stroke volume. In normal circulation, pressure is exerted by the flow of blood through the heart and blood vessels. High blood pressure, known as hypertension, can result from a change in cardiac output, a change in peripheral resistance, or both. The medications used for treating hypertension decrease peripheral resistance, blood volume, or the strength and rate of myocardial contraction.

Blood flow is maintained by pulsatile ejection of blood from the heart and pressure differences between the blood vessels. Traditionally, blood pressure is measured from the arteries in the general circulation at the maximum value during systole and the minimum value occurring during diastole. The exact mechanism is unknown, but it has been proposed that increased vascular muscle stretch and/or

metabolites and decreased oxygen levels are detected and cells release substances such as adenosine.

These substances result in rapid vasodilation and increased perfusion. The vascular endothelium actively secretes prostacyclin and endothelial derived relaxing factor (nitric oxide), both vasoactive agents, There are three main regulatory mechanisms of blood pressure control:

- Short-term autonomic control
- Medium-term hormonal control
- Long-term renal system control .

2.2.1Autonomic control of blood pressure:

The cardiovascular control centre connects with the hypothalamus to control temperature, the cerebral cortex and the autonomic system to control cardiac activity and peripheral vascular tone. Information about blood pressure and resistance is sensed by neural receptors (baroreceptors) in the aortic arch and the carotid sinuses, which detect changes in blood supply to the body and the brain. Impulses from these receptors initiate a blood-pressure regulating reflex in the cardiovascular centre, which activates the parasympathetic system and sympathetic system to alter cardiac activity and dilation or constriction of arterioles and veins to lower or raise blood pressure.

2.2.2 Hormonal control

Changes in blood pressure are also detected by the adrenal medulla, which secretes catecholamines as cardiac output declines. The two main catecholamines, norepinephrine (noradrenaline) and epinephrine (adrenaline) mimic the action of the sympathetic system. Noradrenaline directly stimulates the alphaadrenergic receptors of the autonomic system, causing vasoconstriction and raising blood pressure, while adrenaline has a wider range of effects, including stimulating β1-adrenergic receptors, resulting in increased cardiac contractility and heart rate and thereby also raising blood pressure.

2.2.3 Renal control

Renal control of blood pressure in the long-term occurs via control of blood volume. Generally, as blood pressure or volume rises, the kidneys produce more urine; conversely, as blood pressure or volume falls, the kidneys produce less urine. In addition to longer term fluid regulation, during acute illness or time of acute hypotension, the renin-angiotensin- aldesterone system (RAAS) plays an important role in maintaining blood pressure. **(Paulinepaul,Beverly William 2009)**

2.3 Pathos physiology of hypertension

The pressure exerted by blood on the walls of the blood vessels is measured as blood pressure. Blood pressure is determined by cardiac output (CO), peripheral vascular resistance (PVR); the ability of the vessels to stretch), the viscosity (thickness) of the blood, and the amount of circulating blood volume. Decreased stretching ability of blood vessels, increased blood viscosity, and/or increased fluid volume may cause an increase in blood pressure. PVR also influence blood pressure, it is the opposition that blood encounters as it flows through vessel s. Anything causing blood vessels to become narrower causes an increased PVR. Any time PVR is increased, more pressure is needed to push the blood through the vessel, so blood pressure increases as a result. If PVR is decreased, less pressure is needed Increased arteriolar PVR is the main mechanism that elevates blood pressure in hypertension.**(Linda, 2012)**

Factors that impair normal regulation of blood pressure may lead to hypertension. Many of these factors are not well understood. Sympathetic nervous system overstimulation, which causes vasoconstriction, can contribute to hypertension. Alterations in baroreceptors and chemoreceptors mayfluence also in the development of hypertension.Additionally, increases in hormones that cause sodium retention, such as aldosterone, lead to increased fluid retention Changes in kidney function that alter the excretion of fluid also result in an increase in overall body fluid that may contribute to hypertension. **(Linda, 2012)**

2.4 Blood pressure chart: What reading means

The blood pressure chart can help you figure out if your blood pressure is at a healthy level or if you'll need to take some steps to improve your numbers.

Your total blood pressure reading is determined by measuring your systolic and diastolic blood pressures. Systolic blood pressure, the top number, measures the force your heart exerts on the walls of your arteries each time it beats. Diastolic blood pressure, the bottom number, measures the force your heart exerts on the walls of your arteries in between Blood pressure readings fall into four general categories, ranging from normal to stage 2 high blood pressure (hypertension). The level of your blood pressure determines what kind of treatment you may need. To get an accurate blood pressure measurement, your doctor should evaluate your readings based on the average of two or more blood pressure readings.**(Wheltonet al,2017)**

2.4.1 Blood pressure categories

Systolic mm Hg	**And/or**	**diastolic mm Hg**	**category**	**Life style practices**
Below 120	and	Below 80	Normal blood pressure	Maintain or adopt a healthy lifestyle.
120-129	and	Below 80	Elevated blood pressure	Maintain or adopt a healthy lifestyle.
130-139	or	80-89	Stage 1 high blood pressure (hypertension)	Maintain or adopt a healthy lifestyle. Talk to your doctor about taking one or more medications.
140 or higher	or	90 or higher	Stage 2 high blood pressure (hypertension)	Maintain or adopt a healthy lifestyle. Talk to your doctor about taking more than one medication

(Cifu et al, 2017)

2.4.2 Blood pressure goals

Blood Pressure Goals		
(Systolic/Diastolic)	Systolic mmHg	Diastolic mmHg
> 60 years old	<150	90
Chronic Kidney Disease (CKD)	<140	90
Diabetes	<140	90

(American Heart Association National Center,2012)

2.4.3 Target BP Levels for Hypertension

Setting	**Location or Condition**	**Target (SBP/DBP mmHg)**
Home	Home blood pressure and daytime **ABPM**	<135/85
Office	systolic ± diastolic hypertension	<140/90
Isolated systolic hypertension		<140
Very elderly (age≥ 80 y) with isolated systolic		<150
Diabetes		<130/80
Non-DM Chronic kidney disease		<140/90

(American Society of Hypertension,2009)

2.5 Blood pressure classification

2.5.1 Primary Hypertension

Meaning that the reason for the elevation in blood pressure cannot identified.

2.5.2 Secondary hypertension

Is the term used to signify high blood pressure from a medical cause.

Hypertension is sometimes called “the silent killer” because people who have it are often symptom free. Hypertension often accompanies risk factors for atherosclerotic heart disease, such as dyslipidemia and diabetes mellitus **(Brunner &Suddarth’s, 2010)**

High blood pressure can be viewed in three ways: as a sign, a risk factor for atherosclerotic cardiovascular disease, or a disease As a sign, nurses and other health care professionals use blood pressure to monitor a patient’s clinical status. Elevated pressure may indicate an excessive dose of vasoconstrictive medication or other problems. As a risk factor, hypertension contributes to the rate at which atherosclerotic plaque accumulates within arterial walls. As a disease. **(Brunner &Suddarth’s,2010)**

2.5.3 Isolated systolic hypertension

Isolated systolic hypertension (ISH) is a systolic pressure of 140 mm Hg or greater and a diastolic pressure of 90 mm Hg or less. This type of hypertension occurs mainly in the elderly, although it can occur at any age For people with a systolic pressure higher than 140 mm Hg and a diastolic pressure under 90 mm Hg found on two separate readings. **(Lindaet al, 2012)**

2.5.4 Hypertensive emergency

Hypertensive emergencyis a situation in which blood pressure must be lowered immediately (not necessarily to less than140/90 mm Hg) to halt or prevent damage to the target organs,because of the serious target organdamage that may occur. **(Brunner &Suddarth’s, 2010)**

2.5.5 Hypertensive urgency

Hypertensive urgencyis a situation in which blood pressure mustbe lowered within a few hours. Severe perioperative hypertensionis considered a hypertensive urgency.**(Brunner &Suddarth's, 2010)**

2.5.6 Hypertensive Crisis

Hypertensive crisis is an acute elevation of blood pressure (greater than 180/120 mm Hg) that is associated with acute or imminent target organ damage, Common causes include exacerbations of chronic hypertension, the sudden withdrawal of antihypertensive medications ,The marked, rapid increase in blood pressure initially leads to intense vasoconstriction as the body attempts to protect itself from the elevated pressure. If the blood pressure remains critically high, compensatory vasoconstriction fails, resulting in increased pressure and blood flow throughoutthe vascular system. Potential consequencesoccur over all systems.**(Brunner &Suddarth's, 2010)**

2.6 Risk factors

Various factors increase a person's risk for developing HTN.

2.6.1 Risk Factors that can be controlled

Overweight or obese, Sedentary lifestyle (lack of physical activity, Tobaccousage, Unhealthy diet (high in sodium),Excessive alcohol usage,Stress,Sleepapnea, Diabetes.

2.6.2 Risk Factors that cannot be controlled

Age, Race, Family History**(Mayoclinic: highbloodpressure(HTN)2014)**

2.7 Evaluating the patient

Often, high blood pressure is only one of several cardiovascular risk factors that require attention, Before starting treatment for hypertension, it is useful to evaluate the patient more thoroughly. The three methods are personal history, physical examination. and selective testing.**(Michael A. Weberetal 2016)**

2.7.1 History

Ask about previous cardiovascular events because they often suggest an increased probability of future events that can influence the choice of drugs for treating hypertension and will also require more aggressive treatment of all cardiovascular risk factors, Also ask patients if they have previously been told that they have hypertension and, if relevant, their responses to any drugs they might have been given.

2.7.2 Clinical manifestations

Physical examination may reveal no abnormalities other than highblood pressure.

2.7.2.1 Important previous events include

Stroke or transient ischemic attacks or dementia. (TIA), manifested by alterations in vision or speech, dizziness, weakness, a sudden fall, or temporary paralysis on one side (hemiplegia), Coronary artery disease, including myocardial infarctions, angina pectoris, and coronary revascularizations, Heart failure or symptoms suggesting left ventricular dysfunction (shortness of breath, edema), Chronic kidney disease, Peripheral artery disease, Diabetes, Sleep apnea, ask about other risk factors, ask about concurrent drugs.

2.7.3 Physical examination

At the first visit it is important to perform a complete physical examination because often getting care for hypertension is the only contact that patients have with a medical practitioner, measuring blood pressure, document the patient's weight and height and calculate body mass index, this helps to set targets for weight loss and,, knowing whether a patient is obese or not obese might affect the choice of hypertension treatment. It should be noted that the risk of cardiovascular events, including stroke, paradoxically may be higher in lean hypertensive patients than in obese patients. Waist circumference. Independent of weight, this helps determine whether a patient has the metabolic syndrome or is at risk for type 2 diabetes. Risk is high when the measurement is >102 cm in men or >88 cm in

women, Signs of heart failure, Neurologic examination. This may reveal signs of previous stroke and affect treatment selection, Eyes: If possible, the optic funds should be checked for hypertensive Pulse: It is important to check peripheral pulse rates; if they are diminished or absent, this can indicate peripheral artery disease.(**Michael A. Weber etal 2016**)

2.7.4 Diagnostic Evaluation

Laboratory studies are performed to assess possible target organ damage. Routine laboratory tests include. **(Hypertension Canada Guidelines 2017)**

2.7.4.1 Preliminary Investigations of patients with hypertension

Urinalysis, Blood chemistry (potassium, sodium and creatinine), Fasting blood glucose and/or glycated hemoglobin (A1c), Fasting total cholesterol and high density lipoprotein cholesterol (HDL), low density lipoprotein cholesterol (LDL), triglycerides. Standard 12-lead ECG,echocardiography.,BUN and creatinine levels,clearance, renin level, urine tests ,24-hour urine protein, may be performed. Currently there is insufficient evidence, for or against, to recommend routine testing of microalbuminuriamacroalbuminuriain patients with hypertension but without diabetes or renal disease.**(Hypertension Canada Guidelines 2017)**

2.7.4.2 Followup investigations of patients with hypertension

During the maintenance phase of hypertension management, tests (including electrolytes, creatinine, glucose/A1c, and fasting lipids) should be repeated with a frequency reflecting the clinical situation, Screen hypertensive with annual fasting plasma glucose testing and follow the screening recommendations. **(2020 hypertension highlights)**

2.8 Complications

On sequences of HTNthe world Health organization rates HTN as one of the most important causes of premature death worldwide.

The excessive high pressure on artery walls caused by HTNcan damage blood vessels along with organ function. This increases the risk for developing several

dangerous health, Conditions including heart attack, stroke, chronic heart failure (CHF), and kidney disease.Approximately 70% of people who have their first heart attack already have HTN, About 80% of people who have their first stroke have high blood pressure. **(CDC,2015)**

High blood pressure causes hardening and thickening of arteries (atherosclerosis), which decreases blood flow and oxygen to the heart. This can also cause chest pain, heart failure, or even a heart attack. **(Saseen, 2013)**

High blood pressure can also have damaging effects to the brain, specifically it can cause an aneurysm or stoke. increased blood pressure may cause blood vessels to weaken and bulge, leading to the formation of an aneurysm. and all can be life threatening.**(Mayo clinic,2015)**

2.9 Medical Management

The goal of hypertension treatment is to prevent death and complications by achieving and maintaining the arterial blood pressureat 140/90 mm Hg or lower.

2.9.1 First-linetreatment

Treatment for hypertensive patients includes both nonpharmacologic (lifestyle changes) and pharmacologic (medication) therapy to lower blood pressure and prevent cardiovascular (heart) events, implementation of lifestyle interventions should be used throughout the management of all patients with high blood pressure.According to theupdated 2014 eighth Joint national Committee (JnC-8) guidelines on HTN, evidence from clinical trials indicate that antihypertensive medications (blood pressure medication) should be initiated in patients less than 60 years old if the systolic blood pressure is persistently >140 mmHg and the diastolic blood pressure is persistently >90 mmHg despite nonpharmacologic therapy., If a patient is 60 years old and older, antihypertensive therapy should be initiated if the systolic blood pressure is >150 mmHg and the diastolic blood pressure is >90 mmHg.

If nonpharmacologic treatment is ineffective in managing high blood pressure,pharmacological therapy is initiated. initial pharmacological therapy for HTNincludes thiazide diuretics, long-acting calcium channel blockers (CCB), angiotensin-converting enzyme (ACe) inhibitors, and angiotensin iireceptor blockers (ArBs). Blood pressure goals for HTN are specific for a patient's age and co morbiddiseases .

Past HTN guidelines (JnC-7 guidelines) recommended five medication classes for HTN treatment in the general population with thiazide type diuretics being first line therapy. The five medication classes recommended for HTN were thiazide type diuretics, calcium channelblockers, angiotensin-covering enzyme inhibitors, angiotensin receptor blockers, and beta-blockers. However, the updated JnC-8 guidelines do not include betablockers as initial treatment and treatment is addressed separately based on ethnicity.

The objectives of initiating drug therapy are to reach and maintain the goal blood pressure. I f a patient's goal blood pressure is not reached after a monthof therapy, the initial drug'sdose can be increased or a second drug can be added from one of the classes recommended. Combination therapy (with two different classes of medications) can be used as initial therapy if the SBP BP >160 mmHg and/or the DBP is >100 mmHg or the SBP is >20 mmHg above goal and/or the DBP is >10 mmHg above goal.if two medications are not sufficient to meet the blood pressure goal, a third medication can be added. Alternative agents can be utilized for HTN if the blood pressure goal is not achieved with first-line agents (thiazides, CCB, ACei, ArBs).**(Kayce Bell, June Twiggs Bernie 2018)**

2.9.2 Second-line treatment

Other medications utilized for the treatment of HTN include beta-blockers, aldosterone antagonists, alpha-blockers, and direct renin inhibitors. Beta-blockers used for HTN treatment include atenolol, bisoprolol, metoprolol tartrate, metoprolol succinate extended release, carvedilol, labetalol . Beta-blockers stop the

beta-receptors on the heart from being activated. normally, stimulation of these receptors will cause the heart rate to increase and put pressure on the heart. By blocking these receptors, there is less stress on the heart and blood pressure is reduced.Beta-blockers (BB) were not indicated for initial treatment of HTN . The reason beta-blockers are second-line therapy is based on studies showing that beta-blockers had a higher incidence of heart attack or stroke when used for HTN in patients without a specific indication for use (example: recent heart attack or stroke). According to the JnC-8 guidelines, beta-blockers should be initiated if first-line therapy is not effective in lowering blood pressure. However, beta-blockers should be used as primary therapy if a patient has a compelling indication (recent stroke or heart attack),blockers remain first choice in the treatment of primary hypertension.**(Kayce Bell, June Twiggs Bernie 2018)**

2.10 Nursing process for patient with hypertension

2.10.1 Assessment

When hypertension is initially detected, nursing assessment involvescarefully monitoring the blood pressure at frequent intervals andthen, after diagnosis, at routinely scheduled intervals. The American Heart Association and the American Society of Hypertensionhave defined the standards for blood pressure measurement, including conditions required before measurements are made, equipment specifications, and techniques for measuring blood pressure toobtain accurate and reliable readings. **(Perloff et al, 1993)** .When the patientbegins an antihypertensive treatment regimen, blood pressure assessments are needed to determine the effectiveness of medicationtherapy and to detect any changes in blood pressure that indicatethe need for a change in the treatment plan.A complete history is obtained to assess for symptoms that indicate target organ damage (whether other body systems have beenaffected by the elevated blood pressure). Such symptoms may include anginal pain; shortness of breath; alterations in

speech, vision,or balance; nosebleeds; headaches; dizziness; or nocturia.**(Suzanne O'Connell Smeltzer2010)**

During the physical examination, the nurse must also payspecific attention to the rate, rhythm, and character of the apical and peripheral pulses to detect effects of hypertension on theheart and blood vessels. A thorough assessment can yield valuable information about the extent to which the hypertensionhas affected the body and about any other personal, social, orfinancial factors related to the condition.

2.10 .2Nursing diagnoses

Based on the assessment data, nursing diagnoses for the patientmay include the following:

- Deficient knowledge regarding the relation between thetreatment regimen and control of the disease process
- Noncompliance with therapeutic regimen related to sideeffects of prescribed therapy

2.10.3Collaborative problems/potential complications

Based on the assessment data, potential complications that maydevelop include the following:

Left ventricular hypertrophy, Myocardial infarction, Heart failure,TIAs Cerebrovascular accident (stroke or brain attack), renal insufficiency and failureRetinal hemorrhage.

2.10.4Planning and goals

The major goals for the patient include understanding of the disease process and its treatment, participation in a self-care program, and absence of complications.

2.10.5Nursing interventions

The objective of nursing care for hypertensive patients focuses onlowering and controlling the blood pressure without adverse effectsand without undue cost. To achieve these goals, the nurse mustsupport and teach the patient to adhere to the

treatment regimenby implementing necessary lifestyle changes, taking medications asprescribed, and scheduling regular follow-up appointments withthe health care provider to monitor progress or identify and treatany complications of disease or therapyincreasingknowledge

The patient needs to understand the disease process and howlifestyle changes and medications can control hypertension. Thenurse needs to emphasize the concept of controlling hypertensionrather than curing it. The nurse can encourage the patient to consult a dietitian to help develop a plan for weight loss. The programusually consists of restricting sodium and fat intake, increasingintake of fruits and vegetables, and implementing regular physicalactivity. Explaining that it takes 2 to 3 months for the taste buds toadapt to changes in salt intake may help the patient adjust to reduced salt intake. The patient should be advised to limit alcohol intake, and tobaccoshould be avoided not because smoking is related to hypertension, but because anyone with high blood pressure is alreadyat increased risk for heart disease, and smoking amplifies this risk.Support groups for weight control, smoking cessation, and stressreduction may be beneficial for some patients; others can benefitfrom the support of family and friends. The nurse assists the patient to develop and adhere to an appropriate exercise regimen,because regular activity is a significant factor in weight reductionand a blood pressure reducing intervention in the absence of anyloss in weight.

2.10.6Promoting home and community-based care

Blood pressure screenings with the sole purpose of case finding arenot recommended by the National High Blood Pressure EducationProgram because approximately 70% of persons with hypertensionare already aware of their blood pressure levels.**(JNC VI, 1997)**.Ifasked to participate in a blood pressure screening, the nurseshould be sure that proper blood pressure measurement technique is being used ,that the manometers usedare calibrated and that provision has beenmade to provide follow-up for any person identified as having anelevated blood pressure.

Adequate time should also be allowed toteach people what the blood pressure numbers mean. Each personshould be given a written record of his or her blood pressure at thescreening.

2.10.7Teaching Patients Self-Care

The therapeutic regimen is the responsibility of the patient incollaboration with the health care provider. Education abouthigh blood pressure and how to manage it, including medications, lifestyle changes of diet, weight control, and exercise, setting goal blood pressures, and assistance withsocial support, can help the patient achieve blood pressure control. Involving family members in education programs enablesthem to support the patient's efforts to control hypertension.

Written information about the expected effects and side effectsof medications is important. When side effects occur, patients needto understand the importance of reporting them and to whom theyshould be reported. Patients need to be informed that Reboundhypertensioncan occur if antihypertensive medications are suddenly stopped. Female and male patients should be informed that some medications, such as betablockers, may cause sexual dysfunction and that, if a problem with sexual function or satisfactionoccurs, other medications are available. The nurse can encourageand teach patients to measure their blood pressure at home. Thispractice involves patients in their own care and emphasizes the factthat failing to take medications may result in an identifiable rise inblood pressure. Patients need to know that blood pressure variescontinuously and that the range within which their pressure variesshould be monitored.

2.10.8Continuing Care

Regular follow-up care is imperative so that the disease processcan be assessed and treated, depending on whether control orprogression is found. A history and physical examination shouldbe completed at each clinic visit. The history should include alldata that pertain to any potential problem, specifically medication related problems such as postural (orthostatic) hypotension.Deviation from the

therapeutic program is a significant problem for people with hypertension and other chronic conditionsrequiring lifetime management.

However, when patients actively participate in self-care, includingself-monitoring of blood pressure and diet, compliance increasespossibly because patients receive immediate feedback and have greater sense of control.Considerable effort is required by patients with hypertensionto adhere to recommended lifestyle modifications and to take regularly prescribed medications. The effort needed to follow thetherapeutic plan may seem unreasonable to some, particularlywhen they have no symptoms without medications but do have side effects with medications.

Continued education and encouragement are usually needed to enable patients to formulate an acceptable plan that helps them live with their hypertension andadhere to the treatment plan. Compromises may have to be madeabout some aspects of therapy to achieve success in higher-prioritygoals. The nurse can assist with behavior change by supportingpatients in making small changes with each visit that move themtoward their goals. Another important factor is following up ateach visit to see how the patient has progressed with the plansmade at the prior visit. If the patient has had difficulty with a particular aspect of the plan, the patient and nurse can work togetherto develop an alternative or modification to the plan that the patientbelieves will be more successful.

2.10.9Monitoring and managing potential complications

Symptoms suggesting that hypertension is progressing to the extentthat target organ damage is occurring must be detected early so thatappropriate treatment can be initiated accordingly. When the patient returns for follow-up care, all body systems must be assessed todetect any evidence of vascular damage. Examining the eyes with anophthalmoscope is particularly important because retinal blood vessel damage indicates similar damage elsewhere in the vascular system. The patient is questioned about blurred vision, spots in frontof the eyes, and diminished visual acuity. The heart, nervous system,and kidneys are also

carefully assessed and examined. Any significant findings are promptly reported to determine whether additional diagnostic studies are required. Based on the findings, medications may be changed to improve blood pressure control

Compliance with the therapeutic program may be more difficultfor elderly people. The medication regimen can be difficult toremember, and the expense can be a problem.

Monotherapy(treatment with a single agent),if appropriate, may simplify themedication regimen and make it less expensive. Special care mustbe taken to ensure that the elderly patient understands the regimen and can see and read instructions, open the medication container, and get the prescription refilled. The elderly person'sfamily or caregivers should be included in the teaching programso that they can understand the patient's needs, encourage adherence to the treatment plan, and know when and whom to callif problems arise or information is needed.**(Suzanne O'Connell Smeltzer2010)**

2.10.10 expected patient outcomes may include the following

1. Maintains adequate tissue perfusion

- Maintains blood pressure at less than 140/90 mm Hg(or less than 130/85 mm Hg for persons with diabetesmellitus or proteinuria greater than 1 g per 24 hours)with lifestyle modifications, medications, or both
- Demonstrates no symptoms of angina, palpitations, or vision changes
- Has stable BUN and serum creatinine levels
- Has a palpable peripheral pulse.

6. Complies with the self-care program

- Adheres to the dietary regimen as prescribed: reduces calorie, sodium, and fat intake; increases fruit and vegetableintake
- Exercises regularly
- Takes medications as prescribed and reports any sideeffects
- Measures blood pressure routinely

- Abstains from tobacco and excessive alcohol intake
- Keeps follow-up appointments

3. Has no complications

- Reports no changes in vision
- Exhibits no retinal damage on vision testing
- Maintains pulse rate and rhythm and respiratory rate

Within normal ranges

- Reports no dyspnea or edema
- Maintains urine output consistent with intake
- Has renal function test results within normal range
- Demonstrates no motor, speech, or sensory deficits
- Reports no headaches, dizziness, weakness, changes ingait, or falls

(Suzanne O'Connell Smeltzer2010)

2.11 Lifestyle modifications

Lifestyle modifications are health promoting behaviors that can enhance onesquality of life and aid in the prevention of diseases such as hypertension. Appropriate use of lifestyle modification is the primary means of prevention and earlytreatment of hypertension. Guidelines by the National Heart Foundation of Australia recommend that doctors caring for patients with hypertension should routinely provide advice on smoking, nutrition, alcohol use, physical activity and body weight. Lifestyle modification is indicated for all patients with hypertension, regardless of drug therapy, because it may reduce or even abolish the need for antihypertensive drugs,In addition to the immediate goal of lowering blood pressure, the recommended lifestyle changes confer a range of health benefits, including better outcomes of common chronic diseases. Effective approaches to promoting lifestyle changes in primary care.**(National Heart Foundation, 2010)**

2.11.1 Nutrition Determining the influence of various nutrients on blood pressure and cardiovascular risk is a complex and evolving research area. While some

relationships between food and cardiovascular health have not yet been clearly quantified, there is sufficient evidence to recommend that people with hypertension should avoid salty foods and aim for a healthy eating pattern.**(NancyHuang, , Melbourne; Karen Duggan, et al 2008)**

2.11.1.1 Restricting salt intake High dietary sodium intake is associated with an increased incidence of stroke, and withincreased risk of death due to coronary heart disease or cardiovascular disease. **(National Heart Foundation, 2010)**

Reducing dietary sodium by approximately 1700 mg (75 mmol) per day can lower systolic blood pressure by 4–5 mmHg in hypertensive individuals and 2 mmHg in normotensive individuals.

There is weak evidence suggesting that weight loss combined with reduced dietary sodium may be more effective at lowering blood pressure than salt avoidance alone. .**(Nancy Huang, , Melbourne; Karen Duggan, et al 2008)**

2.11.1.2 Dietary potassium Some clinical trials suggest that increasing dietary potassium by approximately 2100 mg (54 mmol) per day can reduce systolic blood pressure by 4–8 mmHg in hypertensive individuals and 2 mmHg in normotensive individuals. Potassium-rich whole foods, such as bananas, kiwi fruit, avocado, potatoes , nuts and yoghurt, are more effective in reducing blood pressure than potassium supplements, which are potentially toxic.**(Nancy Huang, , Melbourne; Karen Duggan, et al 2008)**

High potassium intake can produce hyperkalaemia in people with impaired renal function. It should be recommended only for those with known normal renal function.**(DietaryElectrolytes, 2010)**

2.11.1.3 Healthy eating Blood pressure reductions in people with and without hypertension can be achieved by a healthy eating pattern based on the Dietary Approach to Stop Hypertension (DASH) diet, DASH diet emphasizes fruits, vegetables, whole grains, low-fat dairy products and dietary fibre, while being low in dietary sodium, cholesterol and saturated fat.

High-dose (at least 3 g/day) omega-3 polyunsaturated fatty acid supplement (fish oil) may also lower blood pressure in hypertensive individuals.

Advise patients to limit salt intake to 4 g/day (65 mmol/day sodium) or less by choosing foods normally processed without salt, foods labeled 'no added salt' or 'low salt' (or 'reduced salt' products when other options are unavailable). High-salt processed foods (ham, bacon, sausages, canned or packet soups, stock cubes), salty snacks, takeaway foods high in salt, or salt added during cooking or at the table should be avoided. Advise patients to eat a diet that includes mainly plant-based foods (e.g. fruits, vegetables, pulses and a wide selection of wholegrain foods, moderate amounts of low-fat or reduced-fat dairy products), moderate amounts of lean unprocessed meats, poultry and fish, moderate amounts of polyunsaturated and monounsaturated fats (e.g. olive oil, canola oil, reduced-salt margarines)Patients with hypertension who are not taking potassium-sparing hypertensive individuals Evidence is insufficient to recommend calcium and magnesium supplements or increasing dietary fiber intake alone (for example, taking supplemental fiber rather than increasing fruit and vegetable intake) to reduce blood pressure.**(Nancy Huang, , Melbourne; Karen Duggan, et al 2008)**

2.11.1.4 Dietary Patterns

1.11.1.4.1 MED Pattern

MED pattern description There is no uniform definition of the MED diet that were: higher in fruits (particularly fresh), vegetables (emphasizing root and green varieties), whole grains (cereals, breads, rice, or pasta), and fatty fish (rich in omega–3 fatty acids); lower in red meat (and emphasizing lean meats); substituted lower-fat or fat-free dairy products for higher-fat dairy foods; and used oils (olive or canola), nuts (walnuts, almonds, or hazelnuts) or margarines blended with rapeseed or flaxseed oils in lieu of butter and other fats. The MED patterns examined tended to be moderate in total fat (32% to 35% of total calories), relatively low in saturated fat (9% to 10% of total calories), high in fiber (27 to 37

g/day), and high in polyunsaturated fatty acids (particularly omega–3s).**(Robert Eckel, john, et al 2013)**

2.11.1.4.2 DASH Dietary Pattern

DASH dietary pattern description The DASH dietary pattern is high in vegetables, fruits, low-fat dairy products, whole grains, poultry, fish, and nuts; and low in sweets, sugar-sweetened beverages, and red meats. The DASH dietary pattern is low in saturated fat, total fat, and cholesterol. It is rich in potassium, magnesium, and calcium, as well as protein and fiber.**(Eckel, john, 2013)**

2.11.2 Physical activity It is clear that physical activity lowers resting and daytime ambulatory blood pressure, Advise patients to become physically active. Aim for 30 minutes of moderate intensity physical activity on most, if not all, days of the week. The daily dose can be accumulated in shorter bouts (e.g. three 10-minute walks). Advise against isometric exercise routines that may raise blood pressure (e.g. weightlifting), except within professionally supervised programs.**(NancyHuang, Melbourne; Karen Duggan, et al 2008)**

In clinical trials of people with hypertension, regular aerobic activity reduced systolic blood pressure by an average of 6.9 mmHg and diastolic blood pressure by 4.9 mmHg.**(Fagard, 2012)**

Regular physical activity has an independent cardioprotective effect. Regular exercise is associated with an increase in high-ensity lipoprotein cholesterol and with reductions in body weight, waist circumference, percentage body fat, insulin resistance, systemic vascular resistance, plasma noradrenaline and plasma renin activity.**(Fagard, 2012)**

2.11.2.1 Being More Physically Active

An accumulation of 30-60 minutes of dynamic exercise of moderate intensity (such as walking, cycling, and swimming) four to seven days per week in addition to the routine activities of daily living. Higher intensities of exercise are

no more effective at BP lowering but may produce other cardiovascular benefits.**(Hypertension Canada Guidelines 2017)**

2.11.3 Body weight

There is a direct association between blood pressure and body weight and/or abdominal adiposity. Weight loss studies show that clinically significant blood pressure reductions can be achieved by modest weight loss in people with and without hypertension and that blood pressure reduction is proportional to weight loss. Every 1% reduction in body weight lowers systolic blood pressure by an average of 1 mmHg.**(NancyHuang, Melbourne; Karen Duggan, et al 2008)**

Losing 4.5 kg reduces blood pressure or prevents hypertension in a large proportion of overweight people, while losing 10 kg can reduce systolic blood pressure by 6–10 mmHg..In overweight patients with hypertension, weight-reducing diets can achieve a 3–9% decrease in body weight and may reduce systolic and diastolic blood pressure by approximately3 mmHg. Weight reduction confers a range of other cardiovascular health benefits including reducedinsulin resistance and hyperlipidaemia, and reduced risk of left ventricular hypertrophy and obstructive sleep apnoea.**(NancyHuang, Melbourne; Karen Duggan, et al 2008)**

Advise patients with hypertension how to achieve and maintain a healthy body weight target waist circumference less than 94 cm (men) or less than 80 cm (women) and body mass index (BMI) less than 25 kg/m2.**(NancyHuang, Melbourne; Karen Duggan, et al 2008)**

2.11.4 Smoking

Smoking is a strong independent risk factor for cardiovascular disease. Quitting is acknowledged to be one of the most effective lifestyle interventions for preventing cardiovascular disease and premature deaths. Smoking causes an immediate increase in blood pressure and heart rate that persists for more than 15 minutes after one cigarette. People who smoke show higher ambulatory blood pressure levels than non-smokers.**(NancyHuang, Melbourne; Karen Duggan, et al 2008)**

Give all patients clear, unambiguous advice to stop smoking. Assess for nicotine dependence (e.g. time of last cigarette, withdrawal symptoms) and offer counselling, support services and pharmacotherapy as appropriate[(NancyHuang, Melbourne; Karen Duggan, et al 2008)]

Smoking cessation markedly reduces overall cardiovascular risk, including the risk of coronary heart disease and stroke, compared with continued smoking. In patients with coronary heart disease, smoking cessation is associated with a 36% reduction in the risk of all cause mortality.[(CritchleyCapewell, 2010)]

2.11.5 Alcohol Evidence for cardiovascular benefits of light drinking has been evidence is emerging that all levels of alcohol intake increase blood pressure. Moderate drinking can increase blood pressure, while binge drinking appears to increase the risk of hypertension.[(NancyHuang, Melbourne; Karen Duggan, et al 2008)]

2.12 Relaxation therapies

Individualized cognitive behavior interventions are more likely to be effective when relaxation techniques are employed.

2.12.1 Stress management

It is generally believed that the achievement of a state of psychological relaxation may induce a blood pressure reduction in subjects with high blood pressure. Indeed,stress reduction has often been regarded as an important component of the lifestyle changes that might be beneficial in reducing an elevated blood pressure inhypertensive patients.[(Gianfranco Paratia,b and Andrew Steptoe2004)]

The notion that people can control their blood pressure voluntarily emerged in the 1960s, with great hope for techniques such as biofeedback,autogenic training, meditation and relaxation training. It was anticipated that self-control methods could reduce the need for hypertensive medication.[(Patel, North, 1975)]

One of the available approaches for stress reduction, namely transcendental meditation (TM), in lowering blood pressure Nonetheless, there is continued

interest in the effects of psychological methods of reducing blood pressure and controlling hypertension. TM is one such method that has gained some popularity because of its promotion by a number of religious institutions, or by institutions of the TM organization. There are many forms of meditation, some of which involve posturalchanges, bodily movements, changes in respiration patterns and muscle relaxation. TM is more cognitive in orientation, with passive mental focusing in conjunction with slow breathing.**(Canter , Ernst2004)**

Mechanisms involved in blood pressure reduction by transcendental meditationThe observation that TM elicits blood pressure reduction of a similar magnitude to that produced by relaxation training or stress management suggests that common mechanisms may be operative. Amongst these, a reduction in sympathetic activity has been advocated to play a role, and the association of TM with slow anddeep breathing appears to be of particular relevance. **(GottlieTirala,1936)**

Slow breathing associated with a mantra (i.e. the rhythmic recitation characteristic of TM) is accompanied by low frequency oscillations inblood pressure and heart rate synchronized at the low respiratory frequency , and has been shown to induce a reduction in chemo reflex sensitivity and an increase in arterial baroreflexsensi-tivity, coupled with an increased parasympathetic and adecreased sympathetic cardiovascular modulation Concerning the factors involved in determining the blood pressure effects of respiration, cyclic changes in ventilation due to phasic breathing have mechanical effects through changes inintrathoracic pressure, and thus in venous return and in the after load to the left ventricle, leading to regular rises and falls in blood pressure through changes instroke volume. Itshould be emphasized that respiratory-induced reflex modulation of sympathetic activity and peripheral resis-tance is importantly affected by breathing rate. (**Eckberg, Orshan, 1977)**

Reducing breathing rate from 15 to 10 or even 6 b.p.m implies an increase in tidal volume, leading to a greater cardiopulmonary stretch receptor stimulation, which in turn determines a reduction in sympathetic efferent discharge and vasodilatation. Moreover, arterial baroreflex sensitivity at breathing rates of 3–12 b.p.m.is

enhanced during expiration compared to inspiration, which may contribute to explain why slow breathing with prolonged expiration may sensitize the arterial baroreflex. These fluctuations may play an important role in controlling peripheral vascular resistance.**(Parati,Izzo et al 2003)**

Previous study (1) The Effect of Educational Programs on Hypertension Management

Highlight: The results of the current study indicated that the educational programs were effective in increasing knowledge, improving self-management, and controlling detrimental lifestyle habits of the patients with hypertension.**(Mohammad Ali BabaeeBeigi, 2014)**

Previous study (2) Health-Related Quality of Life and Blood Pressure Control in Hypertensive Patients with and without Complications

Highlight: Special care programs with multidisciplinary activities, individualized and personalized assistance, , frequent meetings, and active telephone calls for hypertensive patients However, significantly increase blood pressure control but do not interfere with the HRQL .**(Hamet,2008)**

Previous study(3) Comparative assessment of determinants of health-related quality of life in hypertensive patients and normal population in south-west Nigeria.

HighlightThe presence of hypertension and antihypertensive medication reduced HRQOL of hypertensive patients, although BP control surprisingly did not impact HRQOL. However, lower symptom count and higher income improved quality of life. **(National library of medicine, 2015)**

Previous study (4) the effect of self-management program on self- efficacy among hypertensive patients

Highlight: The results showed significant differences among experimental and control group regarding the rate of self-efficacy after the intervention (P=0.000). In fact self-management program increased the patients' level of self-efficacy. Conclusion: Self-management program which results in higher level of self-efficacy could motivate the patients to change their behaviors.**(KavehSavadkooh,etal, 2012)**

Previous study (5)

Highlight: This study was aimed to examine the effect of an educational intervention on self-efficacy, self-care behaviors and blood pressure (BP) of hypertensive obese or overweight women ,Participatory method of education could help us to convince patients to have better self-care to control disease.**(SeyedehShahrbanooDaniali,et al, 2017)**

Previous study (6)

Prevalence of Hypertension Stages and the Main Risk Factors in Khartoum Locality, Sudan, 2014

Conclusion: Prevalence of different stages of HTN in Khartoum locality was high. Overweight contributes to all stages of HTN. Age and male sex were not contributing to pre-HTN and ISHTN respectively. **(AsmaAbdelaal l, Hind Behairyet al, 2014)**

Previous study (7)

Prevalence of Hypertension among Sudanese Rural Population, Sinnar State-Sudan

Conclusion: The prevalence of hypertension among the population was relatively high, with higher significant prevalence among the participants in the age group of 55-64 year, married and those who were resident in the study area for ten years or more. **(Mustafa Khidir, MustafaElnimeiri ,BadriaElfaki, 2017)**

Previous study (8)

Assessment of blood pressure control in adult hypertensive patients in eastern Sudan

Conclusions: Almost half of hypertensive patients in follow-up have uncontrolled BP, mainly due to non-adherence to medicine. We recommend further research on drug adherence to improve the rate of BP control in this setting (Gadarif) of the Sudan.**(Saeedmomer, osamaalnour, gamaladametal, 2018)**

3. Methodology

3.1Study design

This study was Quasi experimental,prospective hospital based study; carried out to evaluate the effect of life style modification program on self-efficacyfor hypertensivepatients for theperiod from October 2015 to June 2018.

3.2 Study area

The study was carried out at Shendicity which is 176km north to Khartoum and 110 km south to Elddamer, the capital of River Nile State; Shendi town is lies on the eastern bank of the River Nile with a total area of about 14596 Km2,The total population of Shendi 'locality ' is estimated to be 197589 of whom 116713 live in rural areas and 80876 in urban area, most of them are farmersand most of them afroarab .

3.3 Setting

This study was carried out at Elmek Nimer University hospital, this hospital was established in 2002, The hospital provides most types of medical services in (medicine, surgery, Obs/Gyne, and pediatric, Beside these there are cardiac, renal, and oncology centers, the refer clinic department involved multidisciplinary of hospital ,there is five internal medicine consultant, five nurses and laboratory staff to deliver care to the patient admitted to outpatient clinic , refer clinic received (30 -40) Patient on Monday , Tuesday , Thursday .

3.4 Study population

Patients with hypertension, who attendedthe refer clinicduring the time of the study (June – December 2017).

3.4.1 Inclusion criteria

- Patients diagnosed ashypertension on antihypertensive medications for at least one month with or without other co-existing medical conditions, who agreed to participate.

3.4.2Exclusion criteria

-Patients who had newly discovered hypertensionpatients ,who could not agree to participate and patient drawback after study .

3.5 Sampling

3.5.1 Sampling techniques

Apurposive convenience sample from patient`s were visited theoutpatient clinic from 8:00am through 11:00am on Monday, Tuesday, Thursday in the selected hospitals, who met the inclusion criteria.

3.5.2 Sample equation

Sample size calculations were made based on the following formula

$n= Z^2 p q/ d^2$

Where by

n = therequired minimum sample size

d = margin of error (5%)

p = estimated proportion of compliance 9%

z = standard normal deviate corresponding to 95% confidence level=1.96

N=$(1.96)^2$ (0.5) (0.5)/0.00873 = 110

q =p-1

Considering a margin of error of 5% and a 95% confidence level, then the minimum required sample size 110.101 patients who agreed to participate were included in the study, and however ten participants refused to participate

3.5.3 Sample size

(101) patients were visited the outpatient clinic and agreed to participate.

3.6 Dependent variable

Life style modification related for hypertensive patient.

3.7 Independent variables

Social demographic characteristics are age, sex, marital status, level of education and occupation. Psychosocial, perceived severity of hypertension, perceived susceptibility to complications of hypertension, perceived benefit of complying with treatment , perceived barriers to comply with treatment, and cues to action for life style modification.

3.8.1Data collection

Data was collected by researcher and other traineesSemi-final medical students from the Faculty of Medicine inshendi University, and nurses from elmeknimir university hospital , structured data collection instrument consisting of closed ended questions was used during the interviews, the structured data collection instrument permitted the researcher to ask the same questions to all participants and mark their responses using predetermined response options data was collected within a period of (7) monthes .

3.8.2Data collection tool

Data was collected using structured data collection instrument, questions were developed by the researcher according to the research objectives, the literature review, as well as the theoretical framework of the study using Health belief model .

Part one include:

Sociodemographic characteristics and historical background of study group.

Part two include:

(A) Study group knowledge about hypertension

(B) Study group Awareness of lifestyle modification:

- Awareness of Medication regimen
- Body weight

- Physical activity
- Smoking ,alcohol and stress management
- Follow up
- Awareness of Benefits to mange life style
- Awareness complications you develop
- Awareness of Severity of hypertension
- Cues to Action

Part three include:

- Barrier to practice life style

3.9 Operational Design

Operational design includes pilot study and data collection technique.

3.10Validityand reliability

Structured data collection instrument was examined by view of two assistant professor working at Shendi University; discussion was held together with the researcher to look into issues of clarity, specificity of variables to be measured and relevance of the contents of the questionnaire.

3.10.1 Pilot Study

The structured data collection instrument was pilot tested using (10) hypertensive patients at hospital by the researcher to find out unclear or ambiguous questions, Ambiguous questions were reworked or removed, the pilottesting of the structured data collection instrument helped to estimate the time that could be taken to respond to the questionnaire which was an average of 20 minute, and to determine whether or not the items were understood by the patients, Patients involved in pilot were not included in the main study.

- Cronbach's alpha =0.76 - Degree of confidence=$\sqrt{0.76}$=0.87

- Patients understand the method used to fulfill each tool, Some items needed to be modified; rephrasing, omission, whether these items stay as they were or by adding some words.
- Based on pilot results the modification was done and further the researcher refined tool, Finally, making assurance that tool as a whole achieved the aim of the study.

3.11 Data collection technique

Data collected in three phases before implementation of education program (pretest phase), in which the structured data collection instrument was distributed for patients and each one of traineeswas allowed sufficient time to fill it with patient in (June July August 2017) , after collection of pretest data the patients were received the training program, the training was continued, questionnaire was filled after explanation verbally the purpose of the study ,verbal consent was taken, then the researcher and trainees filled the structured data collection instrument , after that the trainees implement the program in the outpatient clinic at the hospital and in Shendi university , three months later for the identified group the same tools used in pretest was used to collect mid test (post test phase) in September October November 2017) and then after another one month (December 2017) for the same identified group post test (follow up phase) data was collected.

- Patients were trained how to measure blood pressure at home and what the reading indicates.
- Patients considered eligible for participation was approached by the researcher, a (book) is initially given together with verbal information describing the study and implications for the patient in details, the patient was given sample time to read the information and if necessary involve a relative in the decision making, The researcher returned within 2–3 week (next appointment) or at a planned time to answer any questions the patients or their relative might have (learning session).

The researcher found that there was (25) of participant had diabetes associate hypertension and to know the effect of program on them because of interchange in life style of diabetes, statistical analysis was done by using paired sample test for two group separately (25) diabetes ← hypertension which showed that there is no significant results and they not affected by the program hypertension life style modification and they showed good response to life style adherence in spite of diabetes , the other (76) participant showed also good response to life style modification program with significant results

3.12 Inspiration Guide for Nurse Researcher Consultation

The patients can consult the nurse researcher in person or by phone; the frequency is based on clinical experience, follow up visits, where transportation to the hospital and the need for educational support are considered, Relatives are invited to participate if needed, the educational program intervention was performed by the researcher himself and trained assistant in groups (checking for blood pressure, consultation for medication and health education by researcher using media (videos contain live television program about nutrition and stress management) .

3.13 Ethical consideration

Ethical clearance was sought and granted from the Research and Publication Ethical Committee of the Shendi University the permission to conduct the study was obtained from Elmek Nimir university hospital, confidentiality was guaranteed by storing data and only the researcher was having the data, Participation in this study was voluntary and details about the aim and objectives of the study was explained to the participants, verbal consent was obtained, the participants were free to withdraw at any stage without incurring any consequences.

Program

Developing a Lifestyle Modification book to Prevent and Manage Hypertension Among hypertensive patients

This is to certify that the doctoral study by Sondos Abd Almekikm Eltayeb has been found to be complete and satisfactory in all respects, and that any and all revisions required by the review supervisor had been made.

Reviewer

Dr: Higazi Mohamed Ahmed Awad

Dr: Yousif Mohamed Yousif

Dr: MetwakelEmamAwadAlkareem

Modules

- Real objects (weight scale,sphagomanometer,stathscope, measuring tape).
- The researcher used different media showing.

Duration of the program

The program was done in period of seven month (June – December 2017).

Steps of conducting the program:

1) **Pretest**

   This include structured data collection instrument which was developed by the researcher, to evaluate patient knowledge, about hypertension and life style modification.

2) **Information (Educational Program)**

This section includes pictures of the slides, talking points, videos.

The intervention was implemented to small groups (2-5),the program were implemented in two sessions one time a week for three months(June July August

2017) , Each session took about one hour and at the end of each session each patient understood the instructions.

3.14 Data management (Statistical design)

The following statistical measures were used

Descriptive Statisticswas used frequency and percentage distributions then crosstab analysis using chi-square and Pearson correlation between HBM variables. Paired sample T-test was done between time period of the program (p1, p2,p3) ,and patient data wasrecordedwith life style modification as the outcome variable (behavior) and the remaining of HBM variables as predictors of the behavior .

3.15Data entry and analysis

Data was entered into the computer using SPSS software program, Data was cleaned before being subjected to analysis, Data analysis was performed using SPSS(vertion11.5) software program, Information was summarized using frequency tables, The chi-square test was used to compare proportions, correlation (Pearson correlation) analysis was done, analysis was done to obtain the strongest predictor variable between variables of HBM. A P-value of equal or less than 0.05 was considered a statistically significant .

4. Results

The results of the current study were presented as the following sequence:

PART ONE: Demographic characteristics of study group

Table (1) which was found that majority (80.2%) of study group were above fifty years old their mean age was 57 ± 9.9 (range 30–83year),more than two third (75.2%) of them were female, also it was found that most (93.1%) of them were married, more than two third (73.3 %) of them were house wives, half of them 53(52.5%) were illiterate. **(Page 51)**

PART TWO*:* Historical background of study group

Table (2) which was found that half (52.5%) of study group had been hypertensive for 0-5 years, most (91.1%) of them had blood pressure 140/90 (stage one) at the time of data collection, one third (35.6%) of them had normal body mass index,(24.8%) had diabetes mellitus and few (12.9%) reported CVS problems, more than two third (72.3%) had received one type of antihypertensive medications, majority (80.2%) of them used anticoagulant, most (95.0%) of them had never smoke and all study group never use alcohol, two third(65.3%) of them had unknown risk factorsto develop hypertension.**(Page52-54)**

PART THREE: **Knowledge of the study group about hypertension.**

Table (3) which was found that more than half of study group53(52.5%)had satisfied knowledge about definition hypertension , risk factors, signs and symptoms, investigations done to evaluate blood pressure, importance to decrease body weight, importance of physical activity, importance to stop smoking and alcohol consumption and awareness of complication, with highly significant variation (**PV**= 0.000) between **p1**and **p2** and **p3**.**(Page55-57)**

PART FOUR: Adherence to life style modification among study groupand health believes model

Table **(4)** which was found that more than one third of study group had acceptable level with adherence to life style modification 34(33.7%) had blood pressure measured diary record monthly,most 98(97.0%) adapted on dose and time, less than one third 28(27.7%) had decrease body weight program, less than half 44(34.6%) had regular exercise program,most (97.0%)of them had never smoke ,and all(100.0%) of them never used alcohol,most 98(97.0%) cope with stress, and 63(62.4%) had blood pressure measured diary record, with highly significant variation (**PV**= 0.000) between **p1**and **p2** and **p3**, also there was high perception of benefits to manage life style, Awareness of complications, Awareness of severity of hypertension as each patient self-efficacy appear with highly significant variation (**PV**= 0.000) between **p1**and **p2** and **p3**.**(Page 58-61)**

Table (4-1) Adherence to life style modification among hypertensive patients and health believes model

which was found that more than one third of study group had acceptable level with adherence to life style modification 34(28%) had blood pressure measured diary record often ,most 68 (89.5%) adapted on dose and time, less than one third 21(27%) had decrease body weight program, less than third 31 (40.8%) had regular exercise program, all76(100%)of them had never smoke ,and all(100.0%) of them never used alcohol,most 74(98%) cope with stress, , with highly significant variation (**PV**= < 0.05) between **p1**and **p2** and **p3**, also there was high perception of benefits to manage life style, Awareness of complications, Awareness of severity of hypertension as each patient self efficacy appear with highly significant variation (**PV**= < 0.05) between **p1**and **p2** and **p3**.**(Page 62-65)**

Table (4-2) Adherence to life style modification among hypertensive patientsassociated diabetes and health believes model

which was found that more than one third of study group had acceptable level with adherence to life style modification 7(28%) had blood pressure measured diary record monthly ,all of them 25 (100 %) adapted on dose and time, less than one third 8(32%) had desire to loss body weight program, more than half 13(52%) had regular exercise program,all2(8%)of themtry to stop smoking ,and all(100.0%) of them never used alcohol,most of them 42 (96%) cope with stress, , with no significant variation (**PV**=1.000) between **p1**and **p2** and **p3**, also there was high perception of benefits to manage life style, Awareness of complications, Awareness of severity of hypertension as each patient self efficacy appear with no significant variation (**PV**=1.000) between **p1**and **p2** and **p3**.**(Page 66-69)**

Nutrition usually used among study group

Table **(4-3)**which was found that use of Salt and salt resources, Fats and resources, Oils, Beverages, fruits and vegetables improved throughout three phases of test with highly significant variation (**PV**= 0.000) between **p1**and **p2** and **p3**.**(page 71)**

comparison between pre test and post test (p1) ,post test and follow up test (p2) pre test and follow up test (p3) in patient usual use of nutrition

Figure (4.3.1) which clarified comparison between pre test and post test (**p1**) in patient usual use of salt and salt resources,Less than one third (31%) of study group used salt and salt recourses freely, (28%) of them used salt and salt resources with caution, (12%) used salt and salt resource with limitation (29%) of them had never use salt.**(Page 73)**

Figure (4.3.2) which clarifiedcomparison between post test and follow up test (**p2**) in patient usual use of salt and salt resources**,** Few (15%) of study group used salt and salt recourses freely,(54%)of them used salt and salt resources with caution ,(31%) used salt and salt resource with limitation.**(Page 73)**

Figure (4.3.3)which clarifiedcomparison between pre test and follow up test (**p3**) in patient usual use of salts and salt resources, Few (10%) of study group used salt

and salt recourses freely, (35%) of them used salt and salt resources with caution, (34%) used salt and salt resource with limitation (21%) of them had never use salt.**(Page73)**

Figure (4.3.4)which clarifiedcomparison between pre test and post test (**p1**) in patient usual use of fats and fats resources, few (17%) of study group used fats and fats recourses freely, (29%) of them used fats and fats resources with caution, (20%) used fats and fats resource with limitation (34%) of them had never use fats.**(Page 74)**

Figure (4.3.5)which clarifiedcomparison between post test and follow up test (**p2**) in patient usual use of fats and fats resources**,**few (13%) of study group used fats and fat recourses freely, (36%) of them used fast and fat resources with caution, (30%) used fats and fats resource with limitation 21%) of them had never use fats. **(Page75)**

Figure (4.3.6) which clarified comparison between pre test and follow up test**(p3)** in patient usual use of fats and fats resources**,**few (15%) of study group used fats and fat recourses freely, (36%) of them used fast and fat resources with caution, (34%) used fats and fats resource with limitation (15%) of them had never use fats.(**Page75**)

Practices within life style modification among study group

Table (4-4) which found that (58.4%) walking was the type of exercise that they did**,** 68(67.3%) early morning was the timing of exercise they did, 32(31.7%) had daily regular exercise regimen.(**Page76**)

Table (4-4-1) Practices within Life Style Modification among hypertensivepatientswhich found that 42 (53%) walking was the type of exercise that they did**,**16(64%) early morning was the timing of exercise they did, 10(40%) had daily regular exercise regimen.(**Page77**)

Table (4-4-2) Practices within Life Style Modification among hypertensivepatients associate diabeteswhich found that 17 (68%) walking was the type of exercise that they did**,**52(68%) early morning was the timing of exercise they did, 22(28.9%) had daily regular exercise regimen.(**Page78**)

Part Five:Correlation between study variables

Correlation between patients awareness of benefit to adapt life style and adherence to life style modification

Table (5-1) which was found that patients adherence to medication significant (**PV**=.040) in post test phase, adherence to physical activity with significant (**PV**= .089,.018)in post test and follow up phase respectively, and regarding follow up statistical significant (**PV**=.022, .000, .000) in pre test phase, post test phase and follow up phase respectively.**(Page 79)**

Correlation between patient awareness of complication develop and adherence to life style modification

Table (5-2) which was found that patient adherence to medication significant (**PV**=.001) in follow up phase, adherence to body weight reduction in follow up phase (**PV**=.010), adherence to physical activity with significant (**PV**=.036, .009, .000)in pre test phase, post test phase and follow up phase respectively, in stress statistical significant (**PV**=.013) in follow up phase, and regarding follow up with statistical significant in post test phase and follow up phase (**PV**=. 001, .094)respectively.**(Page79)**

Correlation between patient awareness of severity of hypertension and adherence to life style modification

Table (5-3) which was found that adherence to body weight reduction with no statistical significant in pretest phase and follow up phase(**PV**=.910, .911) respectively and significant in post test phase (p=.061), adherence to physical activity with significant (**PV**= .036, .083)in per test phase post test respectively, in

stress and statistical significant (**PV**=.051, .009) in pre test phase post test phase respectively, and regarding follow up statistical significant (**PV**=.023, .000,) in post test phase and follow up phase respectively .**(page 80)**

Part Six: correlation between study variables and adherence to life style modification among study group

Correlation of study group age and adherence to life style modification

Table (6-1) which was found thatno statistical significant between age and adherence to life style modification (**PV** = .886, .223.292) in adherence to medication, body weight reduction and physical activity respectively, with statistical significant (**PV**=.049, .023, .028) in smoking stress and follow up respectively**.(Page81)**

Correlation of study group sex and adherence to life style modification

Table (6-2) which was found that no statistical significant between sex and adherence to life style modification (**PV** =.692, .267, .379) in adherence to medication, body weight reduction and stress, respectively, with significant (**PV**=.023, .035.) in adherence to physical activity and follow up respectively.**(Page 81)**

Correlation of study group marital status and adherence to life style modification

Table (6-3) which was found that no statistical significant between marital status and adherence to life style modification (**PV** = .926, .322, .304, .652, .494) in adherence to medication, body weight reduction, physicalactivity, stress and follow up consecutively.**(Page 82)**

Correlation of study group educational level and adherence to life style modification

Table (6-4) which was found that no statistical significant between educational level and adherence to life style modification (**PV** =.899, .853, .636, .905) in adherence to medication, weight reduction , physical activity and follow up consecutively with significant (**PV**=.040) in stress.**(Page82)**

Part Seven: Barrier to practice life style.

Barrier to practice life style among study group

Table (7) which was found that there were more than one third 35(34.7%) reported ineffective of medicine to stabilize their blood pressure as a personal barrier, less than one third30(29.7%) had self efficacy as a psychological barrier, more than two third 79(78.2%) reported lack of social support as a Sociocultural barrier , more than half 54(53.5%) reported confidence to implement strategy as a provider barrier, more than two third 68(67.3%) reported complicity of the regimen as a therapy related Perrier, majority 88(87.1%) reported lack of transport as Perrier to access to care ,majority of them84(83.2%) reported that lack of office support is Perrier as a feature of practice setting, And most of them 100(99.0%)reported providence of educational hand book as cues to action to practice life style.**(Page83-84)**

PART ONE

Table (1) demographic characteristics of study group

N=101	Frequency	Percent
Age		
31-40 year	7	6.9%
41-50 year	13	12.9
>50 year	81	80.2%
Sex		
Female	76	75.2%
Male	25	24.8%
Marital Status		
Married	94	93.1%
Divorced	1	1.0%
Widowed	1	1.0%
Single	5	5.0%
Educational Level		
Illiterate	53	52.5%
Khalwa	10	9.9%
primary school	21	20.8%
secondary school	10	9.9%
Graduate	7	6.9%
Occupation		
government employee	5	5.0%
non government employee	3	3.0%
free worker	19	18.8%
house wife	74	73.3%
Residence		
Shendi	17	16.8%
Rural	53	52.5%
Village	31	30.7%
Health Insurance		
Have	75	74.3%
have not	26	25.7%

PART TWO

Table (2) historical background of study group

N=101	Frequency	Percent
Duration of disease when discovered		
0-5 years	53	52.5%
6-10 years	33	32.7%
11-15 years	4	4.0%
>15 years	11	10.9%
Blood pressure classification stage		
Stage 1 (140-159 or 90-99 mm/hg)	92	91.1%
Stage 2 (160-179 or100-109 mm/hg)	9	8.9%
Body mass index		
Normal	36	35.6%
Under weight	16	15.8%
Over weight	28	27.7%
Obese	21	20.8%
Health compliant other than high blood pressure		
CVS problems	13	12.9%
Renal problems	5	5.0%
Diabetes mellitus	25	24.8%
Rohmatoid arthritis	9	8.9%
GIT problems	11	10.9%
Vision problem	1	1.0%
I have not health problems	37	36.6%
Number of medication did you taking for high blood pressure		
One type	73	72.3%
Two types	20	19.8%
Three types	8	7.9%

N=101	Frequency	Percent
Category of antihypertensive did you take		
Ca channel blocker	36	35.6%
Diuretics	1	1.0%
ACE inhibitor	14	13.9%
beta blocker	22	21.8%
ACE+BETA	10	9.9%
BETA+DURETIC	6	5.9%
ACE+CA+DURETIC	8	7.9%
ACE+DURETIC	4	4.0%
Other drugs which respondent used		
Non steroidal anti-inflammatory medications	1	1.0%
Antiarythmicmedications	6	5.9%
Antidiabetic	13	12.9%
Anticoagulant	81	80.2%
Habit (smoke)		
Smoker	2	2.0%
Used before	3	3.0%
Never smoke	96	95.0%
Number of segregate smoking per day		
10 sig/day	2	2.0%
20 sig/day	1	1.0%
None	98	97.0%
Habit (alcohol)		
Never alcoholic	101	100.0%
Causes of high blood pressure related to the respondent		
Unknown	66	65.3%
Family history	1	1.0%
Diabetes mellitus	7	6.9%
Polycystic kidney disease	2	2.0%
Menuposed	4	4.0%
Increased blood lipids	19	18.8%
Side effect of medication	1	1.0%
Lake of physical activity	1	1.0%

N=101	Frequency	Percent
Blood pressure measured diary record		
Monthly	2	2.0%
During illness	9	8.9%
Often	6	5.9%
Never	84	83.2%
Time when you start medical treatment from first high reading to gain normal blood pressure		
One month	72	71.3%
6 month	10	9.9%
One year	6	5.9%
> One year	13	12.9%
Know your medication by		
Name	16	15.8%
Color	4	4.0%
Backed	81	80.2%

PART THREE

Table (3) knowledge of study group about hypertension

knowledge		Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Definition of high blood pressure	Increased Bp more than it is normal range120/80	3	3.0%	9	8.9%	4	4.0%
	Increased Bp more than 140/90	5	5.0%	56	55.4%	71	70.3%
	High blood pressure is disease for life	3	3.0%	10	9.9%	5	5.0%
	Chronic disease	1	1.0%	-	-	-	-
	Increased blood	89	88.1%	26	25.7%	20	19.8%
	P1=0.000	**P2=0.000**		**P3=0.000**			
Risk factor to develop high blood pressure	**Patient knowledge**	**Pre test**		**Post test**		**Follow up**	
		Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
	Satisfied knowledge	20	19.8%	39	38.6%	66	65.3%
	Poor knowledge	79	78.2%	44	43.%6	25	24.8%
	P1=0.0 09	**P2=0.000**		**P3=0.000**			
Signs and symptoms of increased blood pressure	Good knowledge	1	1.0%	7	6.9%	7	6.9%
	Satisfied knowledge	32	31.7%	60	59.4%	74	73.3%
	Poor knowledge	68	67.3%	34	33.7%	19	18.8%
	P1=0.000	**P2=0.000**		**P3=0.000**			

Investigation that you do to evaluate your blood pressure	Good knowledge	1	1.0	6	5.9	5	5.0
	Satisfied knowledge	31	30.7%	48	47.5%	65	64.4%
	Poor knowledge	69	68.3%	47	46.5%	30	29.7%
P1=0.021 P2=0.031 P3=0.03							
Importance to lose body wt	Help reduce blood pressure	19	18.8%	36	35.6%	63	62.4%
	Help reduce health problems	69	68.3%	59	58.4% %	35	34.7%
	Does not effect	13	12.9%	6	5.9	2	2.0%
P1=0.000 P2=0.000 P3=0.000							

Importance of physical activity	**Patient knowledge**	**Pre test**		**Post test**		**Follow up**	
		Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
	Treat obesity	57	56.4%	40	39.6%	31	30.7%
	Reduce blood pressure	18	17.8%	44	43.6%	49	48.5%
	Dose not effect cause	10	9.9%	2	2.0%		
P1=0.000 P2=0.000P3=0.000							
Importance to stop smoking	Help reduce blood pressure	7	6.9%	31	30.7%	55	54.5%
	Help reduce health problem	92	91.1%	66	65.3%	43	42.6%
P1=0.000 P2=0.042 P3=0.359							
Importance to stop alcohol consuming	Help reduce blood pressure	3	3.0%	15	14.9%	42	41.6%
	Help reduce health problems	93	92.1%	83	82.2%	56	55.4%
	Dose not effect	5	5.0%	3	3.0%	2	2.0%
P1=0.000 P2=0.011P3=0.041							
Awareness of complication you develop	Good knowledge			6	5.9%	9	8.9%
	Satisfied knowledge	45	44.6%	71	70.3%	86	85.1%
	Poor knowledge	56	55.4%	24	23.8%	5	5.0%
P1=0.000 P2=0.000 P3=0.000							

Key:

P1: comparison of knowledge between pre test phase and post test phase
P2: comparison of knowledge between post test phase and follow up phase
P3: comparison of knowledge between pre test phase and follow up phase

PART FOUR

Table (4) Adherence to life style modification among study group and health believes model

Life style	Patient adherence	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Blood pressure measured diary	During illness	9	8.9%	16	15.8%	21	20.8%
	Often	6	5.9%	44	43.6%	41	40.6%
	Never	84	83.2%	15	14.9%	4	4.0%
		P1=0.000		P2=0.000		P3=0.000	
Regarding medication adherence	Adapt on dose and time	55	54.5%	91	90.1%	98	97.0%
	Doubl dose if forget it	12	11.9%	6	5.9%	1	1.0%
	Neglect use dose	30	29.7%	4	4.0%	1	1.0%
	Forget to take medication	3	3.0%				
	Stop taking medication because believe they are ineffective	1	1.0%				
		P1=0.000		P2=0.000		P3=0.000	
Method of cooking	Cook with little oil and fats	101	100.0%	89	88.1%	76	75.2%
	Broiled cooking			11	10.9%	18	17.8%
	Boiled cooking			1	1.0%	6	5.9%
		P1=0.000		P2=0.000		P3=0.000	

Life style	Patient adherence	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Regarding body weight reduction	No trial to lose weight	40	39.6%	22	21.8%	19	18.8%
	Desire to lose body weight	21	20.8%	19	18.8%	11	10.9%
	No trial to lose body eight	30	29.7%	36	35.6%	35	34.7%
	Lose body weight program	-	-	16	15.8%	28	27.7%
P1=0.000		**P2=0.002 P3=0.000**					
Regarding physical activity (exercise)	Engaged in physical exercise	10	9.9%	11	10.9%	7	6.9%
	Not engage	35	34.7%	10	9.9%	9	8.9%
	Desire to exercise	32	31.7%	12	11.9%	10	9.9%
	No desire to exercise			33	32.7%	30	29.7%
	Regular exercise program	24	23.8%	35	34.7%	44	43.6%
P1=0.000		**P2=0.003 P3=0.000**					
Regarding smoking cessation trials	Try to stop	2	2.0%	2	2.0%	3	3.0%
	Desire to stop	1	1.0%	2	2.0%	-	-
	Never smoke	98	97.0%	97	96.0%	97	96.0%
P1=0.006		**P2=0.012 P3=0.006**					
Regarding alcohol cessation trails	Never alcoholic	101	100.0%	101	100.0%	100	99.0%
P1=0.1		**P2=0.1 P3=0.1**					

Life style	Patient adherence	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Regarding stress	Being irritable	22	21.8%				
	Being confused	6	5.9%	2	2.0%		
	Cope with stress	62	61.4%	98	97.0%	98	97.0%
		P1=0.000		**P2=0.000**		**P3=0.000**	
Regarding follow up	Blood pressure measured diary record			58	57.4%	63	62.4%
	On regular follow up	54	53.5%	35	34.7%	29	28.7%
	Follow when you have a symptoms	26	25.7%	7	6.9%	7	6.9%
	Don't follow	21	20.8%	1	1.0%	1	1.0%
		P1=0.000		**P2=0.000**		**P3=0.000**	
Awareness of benefit to manage life style	Keeping my blood pressure under control	25	24.8%	36	35.6%	29	28.7%
	Increase my quality of life	43	42.6%	11	10.9%	10	9.9%
	Increase my sense of well-being	6	5.9%	2	2.0%	6	5.9%
	Protecting me from complication	14	13.9%	19	18.8%	21	20.8%
	Decrease my chance of dying	1	1.0%	1	1.0%	1	1.0%
	Good choice to life well	1	1.0%	5	5.0%	9	8.9%
	Thing that I will cope	10	9.9%	27	26.7%	24	23.8%
	Dose not effect	1	1.0%				
	P1=0.000	**P2=0.000**		**P3=0.000**			

Life style	Patient adherence	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Awareness of complication develop	Satisfied knowledge	45	44.6%	71	70.3%	86	85.1%
	Poor knowledge	56	55.4%	24	23.8%	5	5.0%
P1=0.000		**P2=0.000**		**P3=0.000**			
Awareness of severity of hypertension	My blood pressure condition is serious	48	47.5%	6	5.9%	1	1.0%
	I am worried about my blood pressure condition	10	9.9%				
	Getting hypertension would be so serious	36	35.6%	5	5.0%	3	3.0%
	Getting hypertension complication would be so dangerous	7	6.9%	1	1.0%		
	You ever experience trouble with anxiety, irritability, being			9	8.9%	5	5.0%
	You ever been abused			80	79.2	91	90.1%
		P1=0.000		**P2=0.000**		**P3=0.000**	

Key:

P1: comparison of knowledge between pre test phase and post test phase

P2: comparison of knowledge between post test phase and follow up phase

P3: comparison of knowledge between pre test phase and follow up phase

Table (4-1) Adherence to life style modification among hypertensive patients and health believes model

Life style	N=76	Patient adherence	Pre test		Post test		Follow up	
			Frequency	Percent	Frequency	Percent	Frequency	Percent
Blood pressure measured diary		During illness	1	1.3%	13	1.17%	17	22.4%
		Often	5	6.6%	34	44.7%	28	36.8%
		Never	63	82.9%	8	10.5%	3	3.9%
P1=.035P2=.078P3=0.036								
Regarding medication adherence		Adapt on dose and time	41	53.9%	68	89.5%	73	96.1%
		Double dose if forget it	7	2.9%	4	5.3%	1	1.3%
		Neglect use dose	24	31.6%	4	5.3%	1	1.3%
		Forget to take medication	3	3.9%				
		Stop taking medication because believe they are ineffective	1	1.3%				
P1=0.054					P2=0.057		P3=0.017	

Life style	Patient adherence	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Regarding body weight reduction	No trial to lose weight	30	39.5%	14	18.4%	16	21.1%
	Desire to lose body weight	9	11.8%	5	6.6%	14	18.4%
	No trial to lose body eight	22	28.9%	28	36.8%	28	36.8%
	Lose body weight program	-	-	21	27.6%	10	13.2%
P1=0.084P2=0.074 P3=0.054							
Regarding physical activity (exercise)	Engaged in physical exercise	8	10.5%	8	10.5%	7	9.2%
	Not engage	24	31.6%	7	9.2%	6	7.9%
	Desire to exercise	24	31.6%	9	11.8%	7	9.2%
	No desire to exercise			27	35.5%	24	41.6%
	Regular exercise program	20	26.3%	25	32.9%	31	40.8%
P1=0.075P2=0.079 P3=0.001							
Regarding smoking cessation trials	Try to stop	2	2.6%	-	-	1	1.3%
	Desire to stop	-	-	-	-	-	-
	Never smoke	74	97.4%	-	-	74	97.4%
P1=0.1 P2=0.1 P3=0.1							
Regarding alcohol cessation trails	Never alcoholic	76	100.0%	76	100.0%	75	98.7%
P1=0.1 P2=0.1 P3=0.1							

Life style	Patient adherence	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Regarding stress	being anxious	10	13.2%	-	-	1	1.3%
	being irritable	15	19.7%	-	-	-	-
	being confused	2	2.6%	1	1.3%	98	97.0%
	cope with stress	49	64.5%	75	98.7%	74	97.4%
		P1=0.01		**P2=0.02**		**P3=0.05**	
Regarding follow up	have blood pressure measured diary	-	-	43	56.6%	46	60.5%
	on regular follow up	36	47.4%	26	34.2%	22	28.9%
	follow when you have a symptoms	20	26.3%	6	7.9%	6	7.9%
	i don't follow	20	26.3%	1	1.3%	1	1.3%
				P1=.008**P2=**.053**P3=0.063**			
Awareness of benefit to manage life style	keeping my blood pressure under control	23	30.3	29	38.2%	24	31.6
	increase my quality of life	30	39.5	10	13.2%	8	10.5
	increase my sense of well-being	4	5.3	2	2.6%	5	6.6
	protecting me from complication	9	11.8	14	18.4%	16	21.1
	decrease my chance of dying	-	-	1	1.3%	1	1.3
	good chice to life well	1	1.3	2	2.6%	5	6.6
	thing that iwill cope	8	10.5	18	23.7%	16	21.1
	dose not effect	1	1.3	-	-		

		P1=0.054		**P2=0.008**		**P3=0.056**	
Life style	**Patient adherence**	**Pre test**		**Post test**		**Follow up**	
		Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
	Good knowledge			5	6.6%	6	7.9%
Awareness of complication develop	Satisfied knowledge	34	44.7%	53	69.7%	65	85.5%
	Poor knowledge	42	55.3%	18	23.7%	4	5.3%
		P1=0.062		**P2=0.007**		**P3=0.054**	
Awareness of severity of hypertension	My blood pressure condition is serious	42	55.3%	6	7.9%	1	1.3%
	I am worried about my blood pressure condition	7	9.2%	-	-	-	-
	Getting hypertension would be so serious	24	31.6%	2	2.6%	3	3.9%
	Getting hypertension complication would be so dangerous	3	3.9%	1	1.3%	-	-
	You ever experience trouble with anxiety, irritability, being	-	-	5	6.6%	4	5.3%
	You ever been abused			62	81.6	67	88.2%
			P1=.026**P2=0.046**			**P3=0.002**	

Key:

P1: comparison of knowledge between pre test phase and post test phase

P2: comparison of knowledge between post test phase and follow up phase

P3: comparison of knowledge between pre test phase and follow up phase

Table (4-2) Adherence to life style modification among hypertension associate diabetic patients and health believes model

Life style	N=25	Patient adherence	Pre test		Post test		Follow up	
			Frequency	Percent	Frequency	Percent	Frequency	Percent
Blood pressure measured diary		monthly	1	4.0%	5	20.0%	7	28.0%
		During illness	2	8.0%	3	12.0%	4	16.0%
		Often	1	4.0%	10	40.0%	13	52.0%
		Never	21	84.0%	7	28.0%	1	4.0%
P1=1.000			**P2=1.000**		**P3=1.000**			
Regarding medication adherence		Adapt on dose and time	14	56.0%	23	92.0%	25	100.0
		Doubl dose if forget it	5	20.0%	2	8.0%	-	-
		Neglect use dose	6	24.0%	-	-	-	-
		Forget to take medication	-	-	-	-	-	-
		Stop taking medication because believe they are ineffective	-	-	-	-	-	-
P1=1.000P2=1.000P3=1.000								

Life style	Patient adherence	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Regarding body weight reduction	try to lose body weight	1	4.0%	5	20.0%	6	24.0%
	Dosenot hat trial to lose weight	10	40.0%	6	24.0%	5	20.0%
	have desire to lose body weight	6	24.0%	7	28.0%	8	32.0%
	Dosenot has trialto lose body eight	8	32.0%	7	28.0%	6	24.0%
P1=1.000				**P2=1.000**		**P3=1.000**	
Regarding physical activity (exercise)	you engaged in physical excecise	2	8.0%	3	12.0%		
	you didnot engage	11	44.0%	3	12.0%	3	12.0%
	you have desire to exercise	8	32.0%	3	12.0%	3	12.0%
	you have no desire to exercise	4	16.0%	6	24.0%	6	24.0%
	Ihave regular exercise program	-	-	10	40.0%	13	52.0%
P1=1.000 P2=1.000P3=1.000							
Regarding smoking cessation trials	Try to stop	1	4.0%	2	8.0%	-	-
	Never smoke	24	96.0%	23	92.0%	-	-
P1=1.000P2=1.000P3=1.000							
Regarding alcohol cessation trails	Never alcoholic	25	100.0%	25	100.0%	25	100.0%
P1=0.1 P2=0.1 P3=0.1							

Life style	Patient adherence	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Regarding stress	being anxious	1	4.0%	1	4.0%	-	-
	being irritable	7	28.0%	-	-	-	-
	being confused	4	16.0%	1	4.0%	1	4.0%
	cope with stress	13	52.0%	23	92.0%	24	96.0%
P1=1.000 **P2=1.000P3=1.000**							
Regarding follow up	Blood pressure measured diary record	-	-	15	60.0%	17	68.0%
	On regular follow up	18	72.0%	9	36.0%	7	28.0%
	Follow when you have a symptoms	6	24.0%	1	4.0%	1	4.0%
	Don't follow	1	4.0%	-	-	-	-
P1=1.000**P2**=1.000**P3**=1.000							
Awareness of benefit to manage life style	Keeping my blood pressure under control	2	8.0%	7	28.0%	5	20.0%
	Increase my quality of life	13	52.0%	1	4.0%	2	8.0%
	Increase my sense of well-being	2	8.0%	-	-	1	4.0%
	Protecting me from complication	5	20.0%	5	20.0%	5	20.0%
	Decrease my chance of dying	1	4.0%	-	-	-	-
	Good choice to life well	-	-	3	12.0%	4	16.0%
	Thing that I will cope	2	8.0%	9	36.0%	8	32.0%
P1=1.000P2=1.000 **P3=1.000**							

Life style	Patient adherence	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Awareness of complication develop	Satisfied knowledge						
	Poor knowledge						
P1=.560P2=1.000P3=1.000							
Awareness of severity of hypertension	My blood pressure condition is serious	6	24.0%	-	-	-	-
	I am worried about my blood pressure condition	3	12.0%	-	-	-	-
	Getting hypertension would be so serious	12	48.0%	3	12.0%	-	-
	Getting hypertension complication would be so dangerous	4	16.0%	-	-	-	-
	You ever experience trouble with anxiety, irritability, being	-	-	18	72.0%	1	4.0%
	You ever been abused	-	-	-	-	24	96.0%
P1=.658P2=1.000P3=.896							

Key:

P1: comparison of knowledge between pre test phase and post test phase

P2: comparison of knowledge between post test phase and follow up phase

P3: comparison of knowledge between pre test phase and follow up phase

Table (4-3) Nutrition usually used among Study Group

Patient usual use of nutrition	P1	P2	P3
Salts and salt resources	**0.000**	**0.001**	**0.021**
Fats and resources	**0.021**	**0.021**	**0.018**
Oils	**0.000**	**0.000**	**0.000**
Beverages	**0.000**	**0.000**	**0.000**
Carbohydrates	**0.000**	**0.000**	**0.000**
Vegetables	**0.1**	**0.1**	**0.1**
Fruits	**0.000**	**0.000**	**0.000**

Key:

P1: comparison of nutrition between pre test phase and post test phase

P2: comparison of nutrition between post test phase and follow up phase

P3: comparison of nutrition between pre test phase and follow up phase

Comparison between pre test and post test (p1) ,post test and follow up test (p2) pre test and follow up test (p3) in patient usual use of nutrition

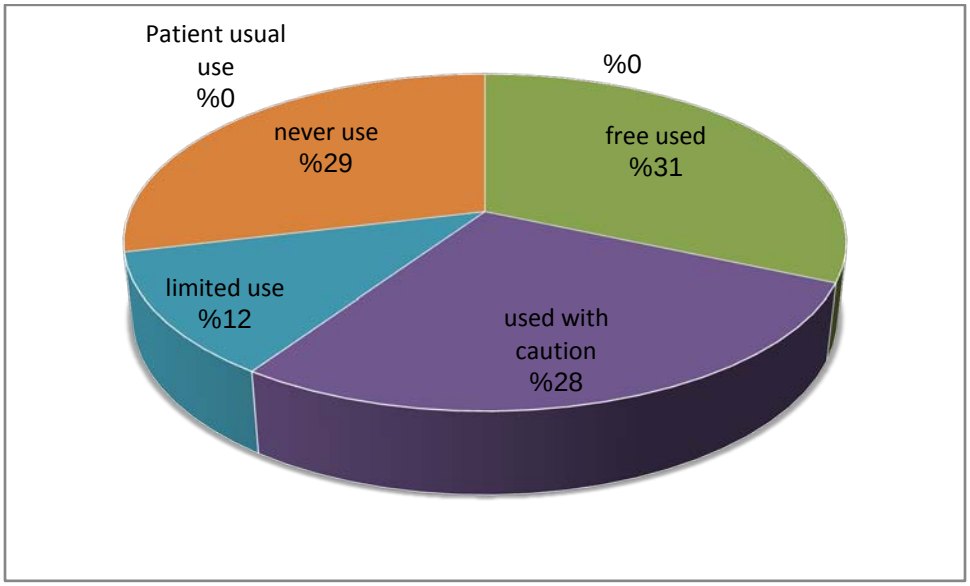

Figure (4.3.1) comparison between pre test and post test (p1) in patient usual use of salt and salt resources

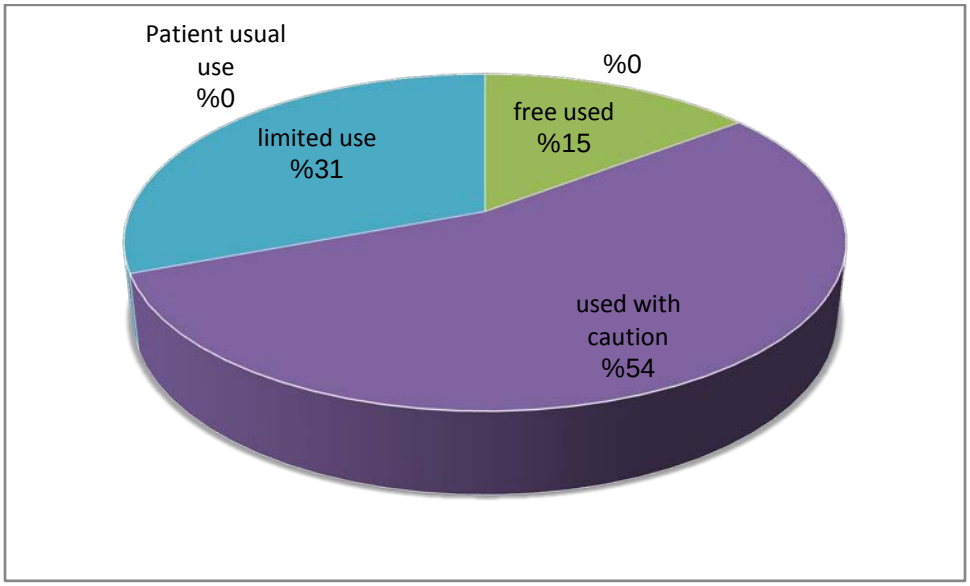

Figure (4.3.2) comparison between posttest and follow up test (p2) in patient usual use of salt and salt resources

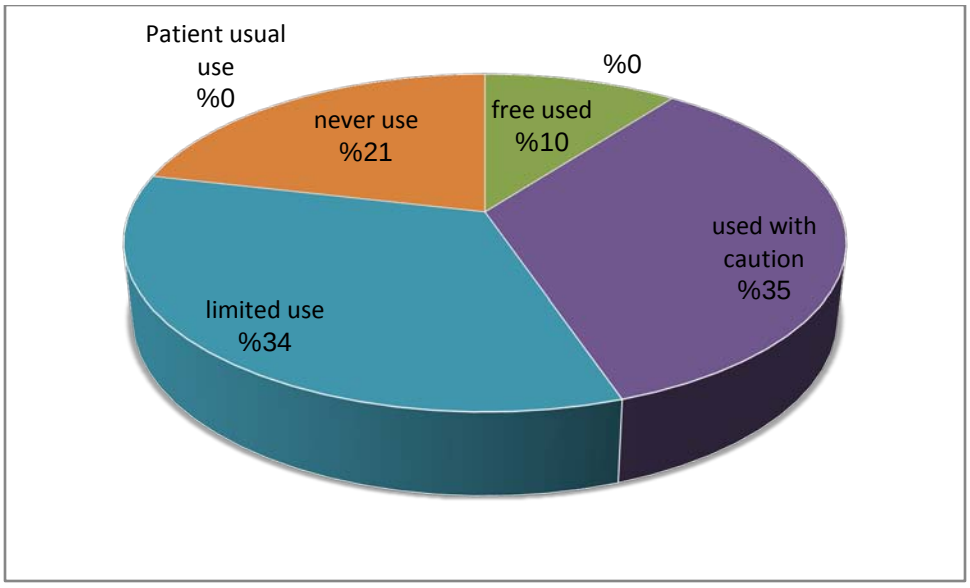

Figure (4.3.3) comparison between pre test and follow up test (p3) in patient usual use of salts and salt resources

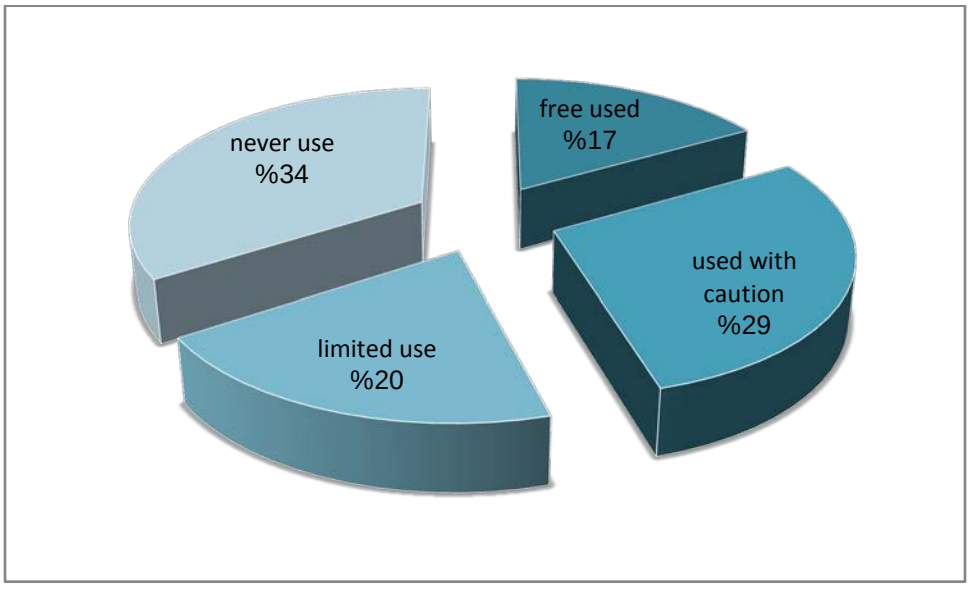

Figure (4.3.4) comparison between pre test and post test (p1) in patient usual use of fats and fats resources

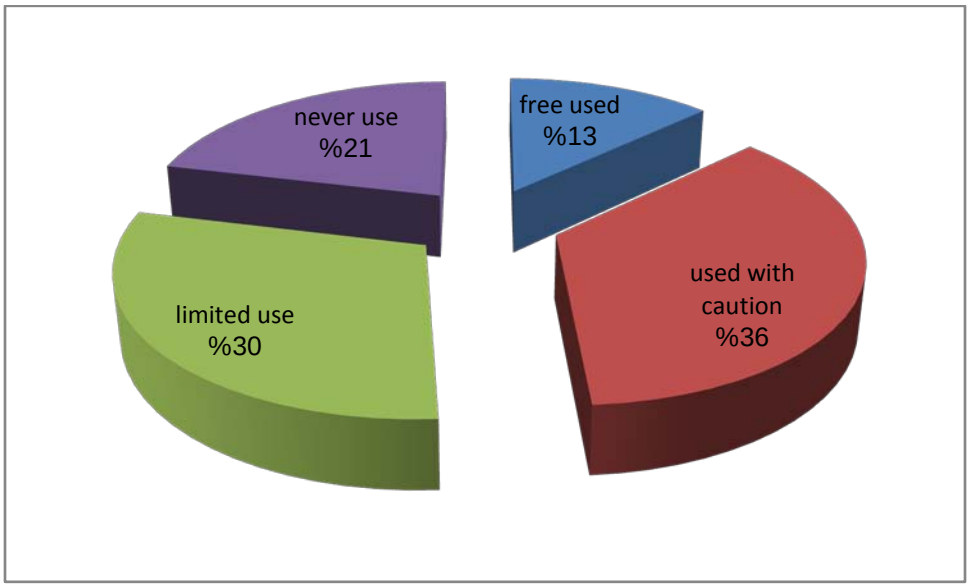

Figure (4.3.5) comparison between post test and follow up test (p2) in patient usual use of fats and fats resources

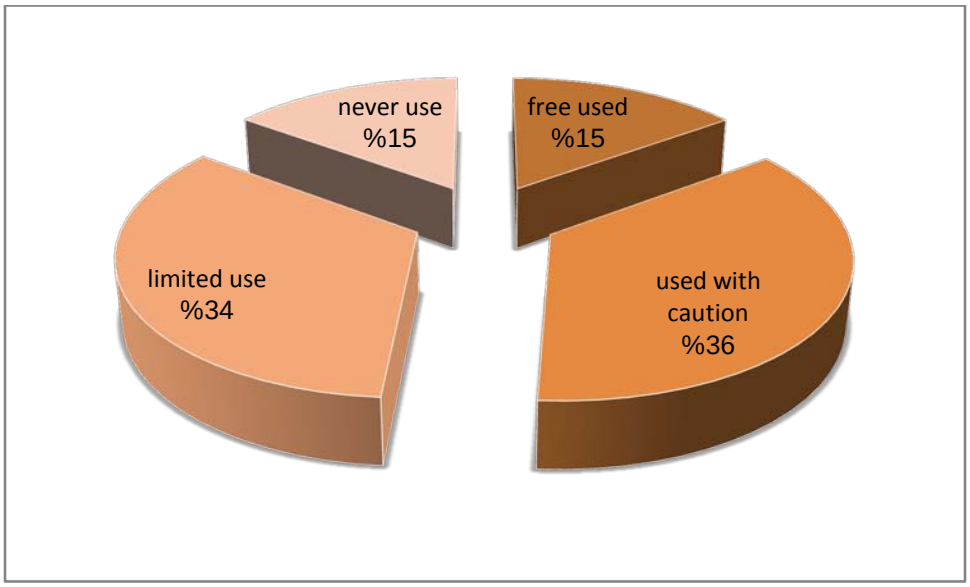

Figure (4.3.6) comparison betweenpre test and follow up test (p3) in patient usual use of fats and fats resources

Table (4-4) Practices within Life Style Modification among Study Group

Life style		Level of practice					
		Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Type of exercise	Walking	35	34.7%	59	58.4%	59	58.4%
	Usual home activities	66	65.3%	42	41.6%	41	40.6%
Timing of exercise	Early morning	88	87.1%	63	62.4%	68	67.3%
	Afternoon	2	2.0%	12	11.9%	8	7.9%
	Late afternoon	11	10.9%	26	25.7%	24	23.8%
Exercise regimen	Daily regular	23	22.8%	31	30.7%	32	31.7%
	Sometimes	22	21.8%	58	57.4%	53	52.5%
	Neglect	56	55.4%	12	11.9%	15	14.9%
Sites of follow up	Hospital	29	28.7%	32	31.7%	37	36.6%
	Health center	30	29.7%	35	34.7%	32	31.7%
	Outpatient clinic	9	8.9%	1	1.0%	2	2.0%
	Privet	16	15.8%	6	5.9%	6	5.9%
	Home	17	16.8%	27	26.7%	23	22.8%

Table (4-4-1) Practices within Life Style Modification among hypertensivepatients

Life style		Level of practice					
		Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Type of exercise	walking	24	31.6 %	42	55.3 %	42	55.3 %
	Usual home activities	52	68.4 %	34	44.7 %	34	44.7 %
Timing of exercise	Early morning	69	90.8 %	48	63.2 %	52	68.4 %
	Afternoon	1	1.3%	8	10.5 %	5	6.6%
	Late afternoon	6	7.9%	20	26.3 %	18	23.7 %
Exercise regimen	Daily regular	20	26.3 %	24	31.6 %	22	28.9 %
	Sometimes	16	21.1 %	43	56.6 %	42	55.3 %
	Neglect	40	52.6 %	9	11.8 %	11	14.5 %
Sites of follow up	Hospital	19	25.0 %	21	27.6 %	26	34.2 %
	Health center	21	27.6 %	26	34.2 %	24	31.6 %
	Outpatient clinic	7	9.2%	1	1.3%	2	2.6%
	Privet	13	17.1 %	6	7.9%	6	7.9%
	Home	16	21.1 %	22	28.9 %	17	22.4 %

Table (4-4-2) Practices within Life Style Modification amonghypertensive associatediabetes patients

Life style		Level of practice					
		Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Type of exercise	walking	11	44.0%	17	68.0%	17	68.0%
	Usual home activities	14	56.0%	8	32.0%	8	32.0%
Timing of exercise	Early morning	19	76.0%	15	60.0%	16	64.0%
	Afternoon	1	4.0%	4	16.0%	3	12.0%
	Late afternoon	5	20.0%	6	24.0%	6	24.0%
Exercise regimen	Daily regular	3	12.0%	7	28.0%	10	40.0%
	Sometimes	6	24.0%	15	60.0%	11	44.0%
	Neglect	16	64.0%	3	12.0%	4	16.0%
Sites of follow up	Hospital	10	40.0%	11	44.0%	11	44.0%
	Health center	9	36.0%	9	36.0%	8	32.0%
	Home	1	4.0%	5	20.0%	6	24.0%

Part Five
Relation between Studies Variables

Table no (5-1) correlation between patients awareness of benefit to adapt life style and adherence to life style modification

Life style	Pre test (sig)	Post test (sig)	Follow up (sig)
Medication adherence	.895	.040	.394
Body weight reduction	.494	.374	.178
Physical activity (exercise)	.213	.089	.018
Alcohol cessation trails	0.1	0.1	0.1
Smoking cessation trials	.173	.516	0.04
Stress	.003	.817	.567
Follow up	.022	.000	.000

Table no(5-2) correlation between patientawareness of complication develop and adherence to life style modification:

Life style	Pre test (sig)	Post test (sig)	Follow up (sig)
Medication adherence	.503	.243	.001
Body weight reduction	.100	.234	.010
Physical activity (exercise)	.036	.009	.000
Alcohol cessation trails	0.1	0.1	0.1
Smoking cessation trials	.191	.129	.313
Stress	.105	.240	.013
Follow up	.485	. 001	.094

Table no (5-3) correlation between patient awareness of severity of hypertension and adherence to life style modification:-

Life style	Pre test (sig)	Post test (sig)	Follow up (sig)
Medication adherence	.441	.836	1.000
Body weight reduction	.910	.061	.911
Physical activity (exercise)	.036	.083	.825
Alcohol cessation trails	.1	.1	.1
Smoking cessation trials	.755	.596	.959
Stress	.051	.009	.977
Follow up	.117	.023	.000

Part Six

Table No (6-1) Correlationof Study Group age and adherence to life style modification:-

Life style	P value
Medication adherence	.886
Body weight reduction	.223
Physical activity (exercise)	.292
Alcohol cessation trails	0.1
Smoking cessation trials	.049
Stress	.023
Follow up	.028

Table no (6-2) correlation of studygroup sex and adherence to life style modification:-

Life style	P value
Medication adherence	.692
Body weight reduction	.267
Physical activity (exercise)	.07
Alcohol cessation trails	0.1
Smoking cessation trials	.009
Stress	.379
Follow up	.035

Table no (6-3) correlation of study group marital status and adherence to life style modification:-

Life style	P value
Medication adherence	.926
Body weight reduction	.322
Physical activity (exercise)	.304
Alcohol cessation trails	0.1
Smoking cessation trials	1.000
Stress	.652
Follow up	.494

Table no (6-4) correlation of study group educational level and adherence to life style modification:-

Life style	P value
Medication adherence	.899
Body weight reduction	.853
Physical activity (exercise)	.636
Alcohol cessation trails	0.1
Smoking cessation trials	.758
Stress	.040
Follow up	.905

Part Seven

Table (7) Barrier to Practice Life Style among Study Group

N=101	Frequency	Percent
Personal barrier to practice life style		
Ineffective of medicine to stabilize my blood pressure	35	34.7%
Lack of motivation because cannot be cured	23	22.8%
Not having enough time to exercise	23	22.8%
Lack of discipline to comply with dietary restrictions	18	17.8%
Lack of motivation to stop smoking	1	1.0%
Dose not effect change	1	1.0%
Psychological barrier		
Health believes	13	12.9%
Health literacy	58	57.4%
Self efficacy	30	29.7%
Sociocultural factors		
Socioeconomic status	18	17.8%
Lack of social support	79	78.2%
Cultural values	4	4.0%
Provider barrier		
Lake of agreement with clinical guidance	47	46.5%
Confidence to implement strategy	54	53.5%
Therapy related barrier		
Adverse effect	3	3.0%
Cost	30	29.7%

Complicity of the regimen	68	67.3%
N=101	**Frequency**	**Percent**
Access to care		
Lack of insurance	13	12.9%
Lack of transports	88	87.1%
Feature of practice setting		
Lack of visit	17	16.8%
Lack of office support	84	83.2%
Cues to action		
Would be see chaplain ,priest, or other type of healer	1	1.0%
Provide educational hand book	100	99.0%

5.1 Discussion

This study was conducted to evaluate the effect of implementing education program on self efficacy for patients with hypertension , it was designed using the health belief model, total number of (101) hypertensive patients who were attendedthe outpatient clinics in Elmek Nimir university hospital.

The study showed that patient knowledge about hypertension had been improved in the post test and follow up phase with highly significant result (**pv**= 0.000) , also the study grouphad satisfied knowledge about risk factorsto develop high blood pressure.signs and symptoms of increased blood pressure,investigations that done to evaluate blood pressure.hypertension complication , in pre test phase, their knowledge had been improved in the post test and follow up phasewith highly significant results, these finding can justify that the study group had background knowledge about hypertension in pre test phase , these finding has been changed in post test phase and there was increased in knowledge and this due to follow up during the time of the study,And this agreed with study Mohammad**(Mohammad Ali Babaee Beigi, 2014**).

Moreover the study showed that regarding life style modification study group were adapted on dose and time regarding medication adherence in the pre test phase,post test ,and follow up phase with significantresults,so the finding indicate that patient responded to the program and indicated that patient had self efficacy to comply with their medication and should not develop complication and they may been well controlled blood pressure**,**one third of study group had blood pressure measured diary record monthlyin follow up phase,also these evidence had been changed in post test phase and represented fortunately increased in follow up phase , also few of study group used better method of cooking and this indicate that some of study group were respond .

The study represented that the knowledge about importance of adherence to life style modification had been improved throughout three phases of test and reflected that the study group had lose body weight program , regular exercise program in the pre test phase, and follow up phase with significant results ,other of study group reported that they engaged in little or no activity at all, and some of them enough engaged in occasional activity only,the most common reason was inactive andnot being familiar with exercise and reported they perceived the house hold think asenough exercise, and this same to study conducted in south Africa by rakumakoe**(rakumakoe, 2011) .**also patient knowledge about importance to prevent smoking and alcohol consumption had been improved through all phases of test.

The study reflected that Regarding stress the study group were cope with stress during the pre test phase, post test phase, and follow up phase with highly significant results , regarding follow up they had blood pressure measured diary in post test phase, and follow up phase with highly significant results. These findings showed that, there was great variation in study group adhered and practiced of life style modification and reflected an increased in their self efficacy through excellent behavior change and they can reduce the risk of hypertension complication and this goes withHamet**(Hamet, 2008)**.

The study reflected that high perception of benefitsto adapt to life style modification and awareness of severity of hypertension as a self efficacy so they reported they had nver been abused in post test and follow up phase, and this indicate patient have self efficacy in their care and subsequent self-care practices.And this agree with study KavehSavadkooh et al**(KavehSavadkooh etal 2012)**.

The study represented that there was significant relation between the study group awareness of complicationsof hypertension and their adherencetolife style modification, adherence to medication with no statistical significant (**pv** = .503,243) in pre and post test phase and significant (**pv** =.001) in follow up phase , also study clarified that there is adherence to body weight reduction program in follow up phase (**pv** =.010)with no significant in pre and post test phase, adherence to physical activity with significant (**pv** =.036,.009,.000)in pre test phase, post test phase and follow up phase respectively, regarding follow up no statistical significant in pre (**pv** =.485)with statistical significant in post test phase and follow up phase (**pv** =. 001,.094)respectivelyto bethe study group awareness of complication is strongest predictor to their adherence to life style modification and this agree with study SeyedehShahrbanooDanialiet et al **(SeyedehShahrbanooDanialiet al, 2017)**.

The study illustratedthatno statistical significant p value = .895,.394 in pre test and follow up phase and significant (**pv** =.040) in post phase In relation between study group awareness of benefits to adapt life style and adherence to modification , also it clarified that there was no statistical significant in pre and post test phase and follow up phase(**pv** =.494.374.178) respectively in adherence to body weight reduction , adherence to physical activity with significant (**pv** = .089,.018)inpost test and follow up phase respectively with no statistical significant in pre test phase (**pv** =.213) , no statistical significant in alcohol cessation and smoking in all three phases ,in stress statistical significant (**pv** =0.003)in pre test phase with no statistical significant in post test phase and follow up phase (p=.817.567,)respectively, regarding follow up statistical significant (**pv** =.022,.000,.000)pre test phase, post test phase and follow up phase respectively**,** and this correlate with to study in IranRahimi and colleagues in Kermanshah, and Piezad and colleagues in Isfahan, And also, Vazini and colleagues**(Rahimi and**

colleagues in Kermanshah, and Piezad and colleagues in Isfahan, And also, Vazini and colleagues, 2013).

Thestudy illustrated that In relation between the study group awareness of severity of hypertension and adherence to life style modification no statistical significant (**pv** = .441,.836,1.000) in pre test phase post test and follow up phaseinadherence to medication , Also it clarified that there was no statistical significant in pre and phase and follow up phase(**pv** =.910,.911) respectively and significant in post test phase (**pv** =.061) in adherence of body weight reduction, adherence to physical activity with significant (**pv** = .036,.083)in per test phase post test respectively with no statistical significant in follow up phase (**pv** =.825) , ,in stress statistical significant (**pv** =.051,.009)in pre test phasepost test phase,respectively and with no statistical significant in and follow up phase (**pv** =.977), regarding follow up statistical significant (**pv** =.023,.000)in post test phase and follow up phase respectively, with no statistical significant in.(**pv** =.117)in pre test phase.This finding is consistent with results Shamsi and cooperation**(Shamsi and cooperation, 2010).**

As regard to Nutrition the study reflected that the study group used of Salts and salt resources,Fats and resources,Oils,Beverages,showed highly statistical significance (**pv** =0.000) in pre test phase and improved throughout three phases of test.

The study clarified that regarding demographic characteristicsof study group no statistical significant between their age and adherence to life style modification (**pv** = .886,.223.292) in adherence to medication, body weight reduction ,physical activityrespectively, with significant (**pv** =.049,.023,.028)in stress and follow up respectively and this incompatible with study Alireza Sharifi, Ali KhaniJeihooni, Shaqayeq Vahdat Study in Iran**(AlirezaSharifi, Ali KhaniJeihooni, ShaqayeqVahdat Study in Iran 2016)**, also the study illustrated that no statistical

significant between sex and adherence to life style modification (**pv** = .692,.267,.379) in adherence to medication , body weight reduction andstress, respectively, with significant (**pv** =.023,.035.) in adherence to physical activity and follow up respectively and this correlate with studyangalinaAlphonce**(angalinaAlphonce, 2012),** no statistical significant between marital status and adherence to life style modification (**pv** = .926,.322,.304,.652,.494) in adherence to medication, body weight reduction ,physical activity,stress ,and follow up consecutively **,** and this incompatible with studyangalinaAlphonce

(anglinaAlphonce, 2012), and this result was comparable with result of study **(Cooper et al 2005), ,**no statistical significant between educational level and adherence to life style modification (**pv** =.899,.853,.636,.905) in adherence to medication, body weight reduction physical activityand follow up consecutively with significant (**pv** =.040) in stress and this incompatiblewith studySadeghi and colleagues, in Rafsanjan and DstjanyFarahani et al**(Sadeghi and colleagues, in Rafsanjan and DstjanyFarahani et al 2015) ,** and which consistent and compatiblewith study in NigeriaangalinaAlphonce **(angalinaAlphonce, 2012)**.

The study clarified that barriers to practice lifestyle presented that there were more than one third 35(34.7%) reported ineffective of medicine to stabilize their blood pressure as a personal barrier,less than one third30(29.7%) had self efficacy as a psychological barrier, more than two third 79(78.2%) reported lack of social support as a Sociocultural barrier , more than half54(53.5%) reported confidence to implement strategy as a provider barrier, more than two third 68(67.3%) reported complicity of the regimen as a therapy related Perrier, majority 88(87.1%) reported lack of transport as barrier to access to care,(and this was reported for the cause that they were just sent their health insurance medical prescription record without their attendance by themselves),majority of them84(83.2%) reported lack of

office support wasbarrier as a feature of practice setting,And most of them 100(99.0%)reported provide educational hand book as cues to action to practice life style, the present result corresponds closely with studyangalinaAlphonce**(angalinaAlphonce, 2012)**in somebarriers**.**

We believes that the medical practitioners and nurses at hospitalemphasized the importance of life style modification in the control of hypertension, , It may also be that the doctors were equipped to provide more information regarding life style modification as it form part of their medical training.

Health believes model which focuses on the individuals attitudes and believes is trying for to explain the effect health believes modelof their behaviorsThe model is as a means operational for develop intervention strategies, aswell as, helping to perception the behavior and educational needs of individuals is extra-understandable to the attitude of people with intellectual understanding and to the extent that the situation is serious for the individual, as well as, person′s social and psychological status were common. The research finding correlated and supported by other studies which had been conducted in Iran Compared with study **(AlirezaSharifi, Ali KhaniJeihooni, ShaqayeqVahdat, 2013)**.

Limitation of study

Hypertensive patients in the study may differ from the general hypertensive population in terms ofaccess to medical care, socio-economic status, general health comorbidity status and other factors.

There is no standardized instrument available to assess hypertension and lifestyle modificationknowledge, attitudes and perceptions. The researcher used the existing literature to design a datacollection instrument that would be comprehensive and detailed. Furthermore, the sample size wassmall. The researcher does not claim that theresults of this study are representative of the ElmekNimirpopulation.

5.2 Conclusion

The study group knowledge about hypertensionimproved in the phases of the program

The study group had acceptance level of life style modification upgraded in posttest and follow up phases.

The researcher found that there was (25) of participant had diabetes associate hypertension and to know the effect of program on them because of interchange in life style of diabetes, results showed that there is no significant results and they not affected by the program hypertension life style modification and they showed good response to life style adherence in spite of diabetes , the other (76) participant showed also good response to life style modification program with significant results.

Barrier to practice life style reported as in effective of medicine to stabilize their blood pressure as a personal barrier, self efficacy as a psychological barrier, lack of social support as a Sociocultural barrier, confidence to implement strategy as a provider barrier, complicity of the regimen as a therapy related barrier, lack of transport as barrier to access to care, lack of office support wasbarrier as a feature of practice setting.

The current study indicated that the educational programs were effective in increasing knowledge, improving self-management, and controlling lifestyle habits of the patients with hypertension, and indicated the ability of Health Belief Model in self-regulation and reducing the blood pressure.

5.3 Recommendation

- Hypertensive patients need advice, support and information from health professionals in order to be able to understand the importance of using life style modification, and should be counseled every time whenever they visit to physician to improve the compliance with life style modification
- Special care must be taken to ensure that the elderly patient understands the regimen and can see and read instructions, the elderly person's family should be included in the teaching program so that they can understand the patient's needs, encourage adherence to life style modification, and know when and whom to call if problems arise or information is needed.
- Regular conferences between nurse's staff with hypertensive patients to discuss their problems, exchange knowledge, and find ways to improve services provide to them.

  - In view of the prevalence of hypertension, it is essential to apply this program in Naher EL Neel state and to be generalized by federal ministry of health throughout the country.
  - The findings of this study would generate important information life style modification, The copy of the study will be disseminated to the Elmek Nimir university hospitals and university Library, further the research findings will be sent to the Ministry of Health and Social Welfare, the research findings will be published in Nursing Journal and presented in scientific workshops and conferences both local and international.

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Glossary

Definition of terms

Hypertension is a systolic blood pressure 140 mm Hg or greater, diastolic blood pressure 90 mm Hg or greater.**(WHO 2003)**

Hypertensive patient in this study, hypertensive patient is patient with high blood pressure and has already starting antihypertensive medication.

Compliance is defined as "the extent to which a person's behavior (taking medicines, or executing lifestyle changes) coincides with medical or health advice".**(Bloom 2001)** , compliance as an act of adhering to the regimen of care recommended by the clinician and persisting with it over time. Adherence as "the extent to which a person's behavior - taking medications, following a diet and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider" For the purpose of this study compliance and adherence are used interchangeably.**(WHO 2003)**

Compliance with lifestyle modifications

Compliance with lifestyle modifications aimed at lowering blood pressure includes regular exercise (at least 30 minutes thrice per week), eating salt and fat free diets, cessation of smoking, and a reduction in the daily alcohol consumption to less than 20g of ethanol for men and less than 10g of ethanol for women.**(Svetkey et al, 2005)**

Modification In this study modification refers to a change (adjustment) in lifestyle, namely attitudes, habits and behaviors necessary for controlling hypertension.**(Angelina Alphonce2012)**

Self- efficacy Also referred as personal efficacy, is confidence in one's own ability to achieve intended result.**(Bandura (1977)**

Self-efficacyis a primary concept in the theory that reveals the individual's beliefs about their ability to achieve a task successfully. As an individual's own cognitive process has an effect on their environment, self-efficacy plays an important role in

this triadic reciprocal causation model. The actions taken may be positive, negative, or neutral. An alteration of one factor affects another factor .**(Bandura1977)**

As the foundation of human motivation, self-efficacy consists of the mastery of experiences, social modeling, social persuasion, and the ability to read their own physical and emotional states to modify their behavior toresult in the attainment of goals and influences personal choices.**(Bandura2001)**

Outcome expectancies Outcome expectancies are the belief that a behavior will lead to a specific outcome. **(Bandura 2001)**

Body Mass Index: BMIa measure of someone`s weight in relation to their height. It is measured by dividing the subject`s weight by the square of the height. It is the most widely used measurement for obesity. A BMI from 21-25 is considered normal, 25-29 is considered overweight and a BMI over 30 is considered obese.A body mass index (BMI) is the ratio for weight to height. This is a simple calculation and creates a standardized measurement by which obesity can be measured .**(CDC, 2014a)**

Nutrition:

Nutrition is the process in which one consumes food or nourishing liquids, digests and absorbs them and use them for health and growth.A healthy diet is defined as eating more fruits, vegetables, whole grains, seafood, and choosing fat-free and low-fat dairy while decreasing salt and foods high in sodium, saturated fats, trans-saturated fats, cholesterol, added sugar, and refined grains.**(CDC, 2011a)**

Physical activity

Moderate exercise such as brisk walking spread over at least five days each week, or on three days a week or more.**(CDC, 2014d)**,Moderate physical activity is defined as target heart rate 50 to 70% above the individual's maximum heart rate.**(CDC, 2014d)**. Examples of moderate activity include brisk walking and water aerobics**(CDC, 2014d)**

Health

For this study, the WHO definition is used to define health: “a state of complete physical, social, and mental well-being, and not merely the absence of disease or infirmity” .**(WHO2003, para. 1)**

Lifestyle modification

adopting a healthy lifestyle.This includes losing weight if overweight or obese, limiting alcohol intake, increasing physical activity, reducing salt intake, and stop smoking .**(rakumakoe 2011)**

If you have a good control on the disease process, nothing can cause other diseases and reduce the effectiveness and ability of the person with that each of these factors can be a person's quality of life affect the patient so that the patient's person of the various aspects of physical, mental-psychological, such as social, economic, health and work be impaired .**(Kearney, Whelton et al 2004)**Health belief model has six, the perceived intensity of the perceived sensitivity, perceived benefits, perceived obstacles, perceived self- efficacy and practice guide. This model is designed for people who expect a certain behavior. In structure the perceived sensitivity we want to feel the danger of the person the subject of the structure desired, perceived severity the severity of the risk and seriousness of the side effects of a person's own opinion, after having perceived interests believe useful and applicable preventive behavior, then the perceived barriers to preventive factors of preventive behaviour, positive symptoms in later action guide that they receive from the environment in structure of self- efficacy and its ability of the individual towards the preventive behaviours have been changed to finally take the necessary measures.**(Biderafsh, Karami, et al 2014)**

Basic Components of the Health Belief Model :

The Health Believe Modal is an approach that is used to describe social behavior as well as individual's cognition. It was introduced in 1950s by Social psychologists so as to facilitate in reasoning individuals participation in health programmes such as health check up and immunization. The HBM was also widely used to explain a range of health behavior. The Model also bases on studying compliances with lifestyle modification and antihypertensive medication. It also bases on understanding that high blood pressure involves both drug treatment and lifestyle changes.**(Rosenstock et al, 1994)**

The HBM to an extent was applied in areas that included tuberculosis**);** dental problems.**(Kegeles, 1963);** contraceptive practices.**(Fisher, 1978)**alcohol use and driving .**(Beck, 1981)****;** dietary behavior.**(Becker et al, 1977)****;** smoking.**(Winberger et al, 1981)****;** exercises and physical activities **(O'Connel et al, 1985)**. However the application of this Model had widely based on developed countries. While, there is little research evidenced of the implications in health behavior from low income countries such as Tanzania. Likewise, a person may take a preventive action when he or she has a positive expectation that by taking a recommended action, he or she will avoid a negative health condition (for instance, a belief that using antihypertensive is effective in preventing complications). Furthermore, to perform a healthy action, one has to believe that there are fewer barriers to successfully take a recommended health action. Moreover, verbal and nonverbal signals (such as seeing a person died due to complications of hypertension) may act as reminders to individual's performance of a healthy behavior .The model has strength such as a patient diagnosed with hypertension will have to consider his or her severity and vulnerability to hypertension and its consequences before making decision as to whether the benefit to be gained from a particular (compliance) behavior is worth the cost. **(Angelina_Alphonce2012)**

The variables of the Health Belief Model

Perceived susceptibility to uncontrolled hypertension

Perceived susceptibility refers to patients risk awareness of diseases like hypertension or the complications of uncontrolled hypertension like heart attack, kidney failure, or stroke.**(Glanz et al, 2002)**. However the Health Belief Model believed that a patient who feels susceptible to hypertension and its complication is more likely to abide to treatment rather than the one who does not belief this concept .

Perceived severity of hypertension

Perceived severity is the concept by which a disease can cause morbidity, disability or mortality. The Health Belief Model however believes that persons who accept hypertension to be a serious disease will be more compliant with medication and lifestyle modifications than the ones who do not feel this perception. **(Glanz, et al2002)**

Perceived barriers to life style modification

It refers to the outstanding hindrances towards the way of accessing to the required health behavior like compliances health behavior. However some of the p Perceived barriers ever observed in ant hypertension medication in literatures are like problems associated with frequent changes of medications, high costs involved, medication side effects and complex dosing. It is further assumed that patients with greater perception of barriers are less likely to reveal compliance behavior than those who believe that the benefits outweigh the barriers. **(Angelina Alphonce2012)**

Perceived benefits to life style modification

The perceived benefits correspond to the belief that, patients hold that a proposed course of action will be effective only in get rid of the potential risks. The Health Belief Model hypothesizes that patients who perceive benefits from adopting particular health behavior are more likely to demonstrate the required

health behavior than those who do not For example persons who perceive that changing lifestyle and taking antihypertensive medications is required health behavior, will be more compliant than those who do not perceive that.**(Angelina Alphonce2012)**

Cues to action

The Cues to action (reminders) are factors that can initiate an individual to take action. They refer to cues as a "precipitating force that makes the person feels the need to take action'' cue to action can be internal or external factors. Internal factors may be the appearance of the signs and symptoms of a disease.(**Glanz et al, 2002)**. External factors can be mass media advertising or effective health education directed at a target group Cues to action are things such as radio, television programmes, and advice from relatives, friends and health providers. These are important cues that can play an important role in compliance behavior by reminding patients to take their medications an overview of hypertension.**(Glanz et al, 2002)**

Research educationalProgram

Educational hand book Summary

The book was developed to provide educational information and resources tomanage hypertension, the book was designedas a reference guide to address the gaps identified in care of hypertensive patient, it aims to establish evidence-based strategies to help the targetPopulations to prevent and manage hypertension.

An intense educational program designed by the researcher based on actual assessment of patient needs to improve self care practice in the light of the available researches and literature, the intervention developed in a simple Arabic language to cover the relevant aspects of self-care of patients as usual life style routine , the impact of the program based on the improvement of the quality of self care , patient will be more compliant to hypertension treatment regimen, life style modification and decrease the occurrence complications and acceptance of normal blood pressure.

General objective: To provide the patient with and educational tools necessary to provide basic education to patients with hypertension

Specific objectives: By the end of this book any client should be able to :-

1. Explain definition of blood pressure and high blood pressure
2. Explain types and staging of high blood pressure
3. Explain normal reading and follow up periods
4. Explain signs and symptoms of high blood pressure
5. Diagnostic investigation accomplished with high blood pressure
6. Describe complication of high blood pressure
7. Explain method of measuring blood pressure at home
8. Explain life style modification measures
9. Explain medication regimen and instruction regarding medication.

Program (patient +co patient)

Section one

Introduction about hypertension

Objectives	Teaching methods &media	contains	Evaluation
By the end of this section any client should be able to 1-define hypertension	Lecture +discussion +slides show	Definitions of hypertension	Patient define hypertension
2-explaine types of hypertension	Lecture +discussion +slides show	1-type of hypertension Stage of hypertension Normal and abnormal reading Duration for follow up	Patient understand
3-describe sign and symptoms of hypertension and factor affect to cause hypertension	Lecture +discussion +slides show	Obtains information about symptoms of hypertension	Patient understand

Section two:

Introduction about hypertension continue

Objectives	Method & media	Contains	Evaluation
By the end of this section any client should be able to : 1-numerate complication of hypertension	Lecture +discussion +slide show		Know complication of hypertension
2-numerate investigation	Lecture +slide show +discussion +booklet	Discussion about types of investigation done to assess blood pressure	Know about investigation

Section three

Blood pressure measuring and monitoring

Objectives	Method & media	Contains	Evaluation
By the end of this section any client should be able to : 1-know how to measure blood pressure and document in diary	demonstration		Patient understand

Section four:

Life style modification

Objectives	Method &media	Contains	Evaluation
By the end of this section any client should be able to : 1- understand life style measure and it is affect on blood pressure	Videos	Stop smoking Daily exercise Weight reduction Mange stress Importance of follow up Family role	Patient on trail to accept modification

Section five:

Life style modification

Objectives	Method & media	Contains	Evaluation
By the end of this section any client should be able to : 1-numerate type of nutrition	Lecture +discussion +slide show	Nutrition guide (DASH) recommended and not recommended type of diet diet rich resources	Know about nutrition

Section six:

Life style modification

Objectives	Method & media	Contains	Evaluation
By the end of this section any client should be able to : 1-understand medication	Lecture +discussion +slide show	Medication Instruction regarding adherence and compliance regimen	Pt understand

بسم الله الرحمن الرحيم

Shendi University

Faculty of post graduate and scientific research

Study to evaluate the effect ofself carelife style modificationprogram on self efficacy for patient with hypertension

Part one: **Demographic information and health history**

Participant identification code: .....

Contact number……

1) Age: a. (20 -30 Year) ☐ b. (31-40Year) ☐ c. (41- 50Year) ☐ d. (>50Year) ☐

2)Sex: a. Female ☐ b. Male ☐

3)Marital status

a. Married ☐ b. Divorced ☐ c. Widowed ☐ d.Single ☐

4)Level of education:

a. Illiterate☐ alwac. Prima☐ schoold.Seconda☐ school e.Graduate ☐

5)Occupatio☐

a. Government employee ☐ b Non- government employee ☐ Free worker ☐

d. Student ☐ e. House wife ☐

6) Residence: a.shendib☐ alc.villedge ☐ ☐

7) Health insurance? a. haveb☐ e not ☐

8) Duration of the disease when discovered?

a. 0-5 years ☐ b.6-10 years ☐ c.11-15 yea ☐ . d.> than 15 year ☐

9)**Bpclassification(stage)**

a.Stage 1(140–159 or 90–99 mm\hg) ☐

b.stage 2 (160–179 or 100–109mm\hg) ☐

c.stage 3(≥180 or ≥110mm\hg) ☐

a. Weight …….. b.hight…… BMI……☐

10)**Body mass index**

a. normal ☐ b. Under weight ☐ c. Over weight ☐ d. obese ☐

11) **health complaints other than high blood pressure?**

a. CVS proplems ☐

b. RENAL problems ☐

c. CNS problems ☐

d. kidney problem ☐

e. diabetes mellitus ☐

f.Vision problems ☐

g. Rohmatoid Arthritis ☐

H. GIT problems ☐

I. I have not health Problem ☐

12) numberof medication are you taking for high blood pressure

a.one type ☐ b.twotypes ☐ c .three types ☐ d. Four types e.>4 ☐

13) Category of hypertensive medication did you take:

a.ca channel blocker ☐ b.dureticsc.A ☐inhibier d. Beta ☐ocker ☐

e. Others ☐

14. Drugs used:

a) a.nonsteroidal anti inflamatory ☐
b) b. Tricyclic and other types of antidepressants ☐
c) c. Older high-dose oral contraceptives ☐
d) d. Migraine medications ☐
e) e. Cold remedies (eg, pseudoephedrine) ☐
f) f. Herbal medications Folk remedies ☐
g) G. Recreational drugs (eg, cocaine) ☐
h) h. Steroids ☐
i) I.anticoagulant ☐

15)smokink habits?

a. Smoker ☐ b.used before ☐ c.never smoke ☐

16)Number of cigarette smoke per day?

a-10sig\day ☐ b.20sig\day ☐ c.30 sig\day ☐ d.>30sig\day ☐

17) alcoholconsumption ?

a.alcoholicb.☐d before c.☐r alcoholic ☐

Part two: knowledge about hypertension

18)Definition of high blood pressure is:

a. Increased blood pressure more than it is normal range 120\80mm\hg ☐
b. increased blood pressure more than 140\90mm\hg ☐
c. High blood pressure is disease for life ☐
d. Disease that treated for lifewithout medication ☐
e. increased blood. ☐

19)Risk factor to develop high blood pressure are:

b. Knowing about age ☐
c. Family history of hypertension ☐
d. Increased salt intake ☐
e. Diabetes mellitus ☐
f. Dyslipidemia ☐
g.Cigarette smoking ☐
h. Alcohol ☐

i.Microalbuminuria ☐

j.Environment ☐

k.Gout ☐

20)Causes of high blood pressure related to the patient:

a. Frequent kidney inflammation ☐

b. polycystic kidney disease ☐

c. Endocrine disorders ☐

d.Hypercalcemia ☐

e. Arteries stenosis ☐

f. Menupuse ☐

g. Increased blood lipids ☐

h. Lake of physical activity ☐

i. Diabetes ☐

j. Unknown ☐

K. .side effect of medication ☐

21)Signs and symptoms of increased blood pressure?

a. headache \at morning ☐

b. epistaxis. ☐

c.blurred vision. ☐

d.Sudden Change of consciousness ☐

e.tinntus ☐

f.vertigo ☐

g.vomitting ☐

22)Investigations thatdone to assess blood pressure status

a.Urinalysis ☐

b. Blood chemistry (potassium, sodium, calcium, and creatinine) ☐

c. Fasting blood glucose and/or glycated hemoglobin (A1c) ☐

d. Fasting total cholesterol and triglycerides ☐

e. Standard 12-lead ECG ☐

f. Hemoglobin ☐

g. Chest x.ray for heart size ☐

h. echocardiography ☐

i. Renal function test ☐

23) Bloodpressuremeasured diary record:

a.daily☐eeklyc.during☐nessd.oftene.Never ☐ ☐ ☐

24)Time when you start medical treatment from first high reading to gain normal BP pressure

a.one month ☐ b.6month ☐ c. One year ☐ d .>one year ☐

Part three : Awareness of life style:

Part A: awareness of Medication regimen:

25)Medication adherence:

a.Forget to take your medication

b.Stop taking your medication because you feelbetter

c.Stop taking your medication because you feelworse

d.Stop taking the medication because you believe that they are ineffective

e.Stop taking your medication because you fear side effects

f.Stop taking medication because you try to avoid addiction

g. Stop medication because you are using traditional medicine (healer) or Religions belief

h.Stop medication because of high cost of medication

i. Adapt on dose and time

j. Doubled dose if you forget

k.neglect use dose

26)know medication by:

a.name b.color c. baket

part B:Awareness of Lifestyle Modification regimen:

A) Diet:

28)

Diet	Salts and sourse of salts			
	free used	used with caution	limited use	never use
ملح إضافى				
بسكويت مملح				
شيبس				
مكسرات مملحة				
الجبنة				
الزيتون				
المخلل				
مرق الدجاج				
الكاتشب				
الحساء المحفوظ المجفف				
السجك				
السردين				
الخبز				
الوجبات السريعة				
الاغذية المحفوظة				
الاطعمة الجاهزة				

تسالي				
فول سوداني الحاجات				
ملوحة				
الكجيك				
النعيمية				
Fats and fats sources(high cholesterol diet)				
لحم البقر				
لحم الضان				
المخ ,الكبدة , الكلاوى				
سجك				
هامبيرقر				
بيتزا				
صفار البيض				
لحم الحمام				
الزبدة				
القشدة				
الجبن الدسم				
السمن				
اللبن الدسم				
الايسكريم				
الاسماك الدهنية				
البشاميل				
المكرونة المجهزة بالبيض او اللبن				
oils				
زيت الزيتون				
زيت عباد الشمس				
زيت الذرة				
زيوت الاسماك				
pevarages				
المياه الغازية				
الشاى				
القهوة				
النسكافيه				
الكاكاو				
Carbohydrates and strches				
الحلويات				

الباسطة				
الخبائز				
الارز				
الشعيرية				
المعكرونة				
السميد				
الطحينية				
Vegetables(k +)				
سلطة الخضار				
البطاطس				
الجزر				
الملفوف				
الكسبرة				
الفول				
البقدونس				
النعناع				
الشبت				
التوم				
fruits(k +)				
الجوافة				
الموز				
الشمام				
المنقة				
الفواكه المجففة				
عصير الفواكه				

27) Method of coking:

a. Cook with little oils and fate ☐
b. Broiled cooking ☐
c. boiled cooking ☐
d. Seethed cooking ☐

B)Body weight:

1. **importance to lose body weight:**
   a.Help reduce blood pressure ☐
   b. help reduce risk of health problem ☐
   c. does not affect ☐

2. Body weight reduction:

a. Try to lose weight ☐
b. Doesn't' has trial ☐
c. Have desire to lose weight ☐
d. Doesn't have desire to lose body weight ☐

e. I am engaged to lose body wt program ☐

C) Physical activity:

1. Importance of physical activity:

a. Reduce blood lipid ☐

b. Treat obesity ☐

c. Reduce blood pressure ☐

d. Does not affect ☐

2. Exercise:

a.You engage in physical exercise ☐

b. You not engaged ☐

c.Have desire to exercise ☐

d. Haven't desire to exercise ☐

e.I have regular exercise program ☐

3. Type of exercise you do:

a. Walking ☐ b. Swimming ☐ c.palyfoot ball☐ual home ☐ activitiesotheres……..

4. Timing of exercise:

a. early morning ☐.afternoonc.la☐fternoon d.ev☐ng ☐

5.Exercise regimen:

a. dialy regular ☐sometimesc.neg☐td.when you feel your weight increased ☐

D)Bad habits (smoking):

1. Importance to stop smoking:

a.help reduce blood pressure ☐

b.help reduce risk of health problem ☐

c.does not affect ☐

2 .Smoking cessation trails:

a. try to stop ☐

b. doesn't try to stop ☐

c. have desire to stop ☐

d. Doesn't have desire to stop ☐

e.never smoke ☐

3. **Alcohol**:

1.importance to stop alcohol consuming:

a.help reduce blood pressure ☐

b.help reduce risk of health problem ☐

c.does not affect ☐

2.Alcohol cessation trails:

a.try to stop ☐

b.doesn't try to stop ☐

c.have desire to stop ☐

d. Doesn't have desire to stop ☐

e.never alcoholic

E) stress :

a. Being anxious

b . Being irritable

c. Being confused

d. Being mood swings

e.suicide attempts

f.cope with stress

F) Follow up:

a. have blood pressure diary

b.on regular flow up

c.follow when have symptoms

d. Idont follow

1)Sites of folow up?

a.hospital

b.Health center

c.out patient clinic

d.privit

e. home

Part four :

28) (A)Awareness of Benefits to mange life style(patients hold that a proposed course of action will be effective only in get rid of the potential risks)

a.Keeping my blood pressure under control

b. Increasing my quality of life

c**.** Increasing my sense of well-being

d.Protecting me from complications

e. Decrease my chance of dying

f.dosenot effect

g.possitive wellbeing

h.good choice to life well

i.thing that i will cope

29)(B) Awareness complication you develop (patients risk awareness of diseases)**:**

a. Having stroke

b.Developing visual impairment

c.Developing heart problems

d.Developing kidney problem

f. Becoming a burden for my family

g. Career being negatively affected

30) (C)Awareness of Severity of hypertension :(the concept by which a disease can cause morbidity, disability)

a**.**My blood pressure condition is serious ☐

b.I am worried about my blood Pressure condition ☐

c.Getting hypertension would be so serious ☐

e.Getting hypertension complication would be so dangerous ☐

f.Being permanently disabled due to hypertension would be so dangerous ☐

g. You ever experienced trouble with anxiety, irritability, being confused, mood swings, or suicide attempts ☐

h.Dying due to hypertension complications would be so dangerous ☐

i. You ever been abused ☐

Part five: ☐

31) Barriers to practice life style(outstanding hindrances towards the way of accessing to the required health behavior like compliances health behavior)

1.**Personal barrier**:

a. ineffective of the medicine to stabilize my blood pressure ☐
b. Lack of motivation because I cannot be cured ☐
c. Not having enough time to exercise ☐
d. Lack of discipline to comply with the dietary restrictions ☐
e. Lack of motivation to stop smoking ☐
f. f.does not effect change ☐
g. g.dificult to adapt ☐
h. h.does not affect wellbing ☐

2. Psychological factors:

a. Health believes ☐ b.Health literacy ☐ c.Self efficacy ☐

d.lake of motivation ☐

e.fail to cope ☐

F.dificult choice ☐

3.**Sociocultural barrier:**

a.Socioeconomic status ☐ b.Lake of social support ☐ c.Cultural values ☐

4.**Provider berrier:**

a.Lack of agreement with clinical guidance ☐ b.Confidence to implement strategy ☐

5.**Therapy related Perrier:**

a.Adverse effects ☐ b.Cost ☐ c.Complicity of regimen ☐

6.**Environment:**

1. Access to care:

a.Lack of insurance ☐ b.Lack of transports ☐

2.**Feature of practice setting:**

a. Lack of visit ☐ b.Lack of office support ☐

32) Cues to Action (comply with your blood pressure Treatment):

a. Advice from my doctor ☐
b. Advice from friends ☐
c. Advice from health care workers other than my Doctor ☐

d. Advice from family member ☐
e. Need information repeated several times and/or require information in advance of teaching sessions ☐
f. Do faith or spiritual preference ☐
g. Do practices help you heal or deal with stress ☐
h. Would you like to see a chaplain, priest, or other type of healer ☐
i. Provide educational hand book ☐