

**Lifestyle and Hypertension among Women in
Lunglei, Mizoram**

Abstract

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May 2017

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C. LALREMTLUANGI
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*Submitted in partial fulfilment of the requirement of the
Degree of Master of Philosophy to the Department of social Work*

MIZORAM UNIVERSITY

AIZAWL

2017

Mizoram University

May, 2017

Declaration

I, C. Lalremtluangi, hereby declare that the subject matter of this dissertation is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, that the thesis has not been submitted by me for any research degree in any other University/Institute.

This is being submitted to the Mizoram University for the degree of Master of Philosophy in Social Work.

Date : 12th May 2017
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CERTIFICATE

This is to certify that the dissertation "*Lifestyle and Hypertension among Women in Lunglei, Mizoram*" submitted by C. Lalremtluangi, Reg.no. **MZU/M.Phil./274 of 22.04.2016** for the award of Master of Philosophy in Social Work is carried out under my guidance and incorporates the student's bonafied research and this has not been submitted for award of any degree in this or any other university or institute of learning.

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LIST OF ABBREVIATIONS

AAY	:	Antodaya Anna Yojana
APL	:	Above Poverty Line
BPL	:	Below Poverty Line
BP	:	Blood Pressure
BMI	:	Body Mass Index
COPD	:	Chronic Obstructive Pulmonary Disease
CVD	:	Cardiovascular Disease
CHD	:	Coronary Heart Disease
DBP	:	Diastolic Blood Pressure
ESRD	:	End-Stage Renal Disease
EME	:	Established Market Economies
GBD	:	Global Burden Disease
HTN	:	Hypertension
IDF	:	International Diabetes Federation
IDSP	:	Integrated Disease Surveillance Project
KAP	:	Knowledge, Attitude and Practice
LUMHS	:	University of Medical and Health Sciences
MI	:	Myocardial Infarction
MOHFW	:	Ministry of Health & Family Welfare
NCD	:	Non-Communicable Disease
NGO	:	Non-Governmental Organization
OPD	:	Out-Patient Department
PAD	:	Peripheral Artery disease
SHS	:	Second-hand Smoke
SPSS	:	Statistical Package for the Social Sciences
SBP	:	Systolic Blood Pressure
WHO	:	World Health Organization

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Lifestyle and Hypertension of Women in Lunglei, Mizoram

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Interview Schedule

(Confidential and research purpose only)

I. Demographic Profile

Sl/no.	Characteristics	Hypertension	
		No	Yes
I	Age of the respondent		
	30-39		
	40-49		
	50-59		
II	Marital status		
	Married		
	Unmarried		
	Widow		
	Divorcee		
III	Educational Qualification		
	Illiterate		
	High School		
	Higher Secondary		
	Graduate		

II. Family Particulars

Sl/no.	Characteristics	Hypertension	
		No	Yes
I	Size of the family		
	1-4		
	5-10		
	11 and above		
II	Types of family		
	Nuclear		
	Joint		
	Extended		

III	Forms of family		
	Stable		
	Reconstituted		
IV	Head of the family		
	Father		
	Mother		

III. Economic Particulars

Sl/no.	Characteristics	Hypertension	
		No	Yes
I	Occupation		
	Home maker		
	Self employed		
	Government Servant		
	Petty Business		
II	Annual personal income (Rs.)		
	Below 50,000		
	50,000 – 1 lakh		
	1 lakh – 2lakhs		
	2 lakhs – 3 lakhs		
III	Socio-economic category		
	Very Poor (AAY)		
	Poor (BPL)		
	Non Poor (APL)		

IV. Knowledge towards hypertension

Sl/no.	Characteristics	Hypertension	
		No	Yes
I	Hypertension is a disease		
	A disease		
	Curable		
	Communicable		
II	Gender more prone to HTN		
	Male		
	Female		
	Equally both		
IV	Normal blood pressure		
	Less than of equals 120/80		
	Greater than 120/80 but less than or equals 139/89		
	I don't know		
V	Aware of the risk factor for HTN		
	Yes		
	No		
VI	Aware of the symptoms of HTN		
	Yes		
	No		

V. Attitude on hypertension

Sl/no.	Characteristics	Hypertension	
		No	Yes
I	HTN lifestyle disease		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
II	Overeating leads to HTN		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
III	Green leafy vegetables important for HTN patient		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
IV	Avoid additional sodium intake		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
V	Healthy excess cooking oil		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
VI	Alcohol worsens BP level		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
VII	Regular exercise control increase BP		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		

Contd.

VIII	Regular BP checking is important		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
IX	Regular medication important for HTN		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
X	Lifestyle modification helps in controlling HTN		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
XI	HTN during pregnancy is dangerous		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
XII	Hereditary risk factor for HTN		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
XIII	Excessive worries and stress led to HTN		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
XIV	Smoking increase risk for HTN		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		
XV	Obesity risk factor for HTN		
	Strongly disagree		
	Disagree		
	Neither agree nor disagree		
	Agree		
	Strongly agree		

V. Practice towards hypertension

Sl/no.	Particulars	HTN	
		No	Yes
I	Regular in taking prescribed medicine		
	Always		
	Sometimes		
	Never		
II	Particular on suggested diets		
	Always		
	Sometimes		
	Never		
III	Intake of normal diet		
	Always		
	Sometimes		
	Never		
IV	Intake of low salt diet		
	Always		
	Sometimes		
	Never		
V	Intake of low fat diet only		
	Always		
	Sometimes		
	Never		
VI	Physical exercise		
	Rarely		
	Regularly		
	Sometimes		
VII	Intake of table salt on daily diet		
	Rarely		
	Regularly		
	Sometimes		
VII	Tobacco products consumption		
	Yes		
	No		
VIII.a.	If yes, which form		
	Smoke form		
	Smokeless form		
	Dual users		
	Do not take		

Contd.

IX	Amount of cigarette in a day		
	less than 5 rolls		
	1 Packed		
	3 Packed		
	Do not take		
XI	Amount of smokeless form consumed a day		
	one packed		
	3 packed		
	Do not take		
X	Frequency of checking BP level		
	Once in 15 days		
	Once in 1 month		
	Once in 3 months		
	Once in a week		
	Never		
XI	Intake of fruits and vegetables		
	Always		
	Sometimes		
	Never		
XII	Consultation of dietician		
	Always		
	Sometimes		
	Never		
XIII	Subscribe health related magazine		
	Always		
	Sometimes		
	Never		
XIV	HTN affected community participation		
	Always		
	Sometimes		
	Never		
XV	HTN affected occupation		
	Always		
	Sometimes		
	Never		

VII. Suggestions by respondents

Sl/no.	Suggestions	HTN	
		No	Yes
1	Regular health checkup and BP checking		
2	Awareness on HTN		
3	Importance of health check-up to diagnose HTN		
4	Awareness on healthy dietary practices		
5	HTN health care services at free or affordable cost		
6	Dissemination of information on the available services		
7	Distribution of IEC materials of HTN patients		
8	Counseling services		

Particulars of the Candidate

Name of the candidate	: C. Lalremtluangi
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Department	: Social Work
Title of Dissertation	: Lifestyle and Hypertension Among Women in Lunglei, Mizoram
Date of admission	: 13 th August 2015
Commencement of second semester	: 22 nd February 2016
Approval of Research Proposal	
1. Bpgs	: 13 th April 2017
2. School Board	: 22 nd April 2017
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Due date of submission	: 12 th May 2017

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Bio - Data

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EDucational Qualification :

Board/University	Qualification	Year of passing
Mizoram Board of School Education	High School Living Certificate	2001
Mizoram Board of School Education	Higher Secondary School Living Certificate	2003
Mizoram University	Bachelor of Arts	2006
Pune University	Master of Social Work	2008

Other Qualification :

Board/University	Qualification	Year of Passing
National Eligibility Test (NET)	University Grants Commission (UGC)	2012

Work experience:

The candidate has also experienced in certain fields of social work in which the following are some of the experiences of the candidates :

- She had been working in the BCM, Relief and Development Department, Ramzotlang, Lunglei as Project Coordinator for one and a half year from 2009 – 2010.
- She is recently working in Higher and Technical Institute, Mizoram (HATIM), Chanmari, Lunglei as Assistant Professor from 2010.
- Has actively participated as one of the Resource person in the Workshop on “Disaster Risk Reduction” held at Lunglei
- Presented a paper on “Carrier guidance in Social Work Education” at Zotlaing High School, Lunglei
- Participated in one day National Seminar on “Research on Child Protection in North East India” organized by the Department of Social Work, Mizoram University
- Participated in the workshop on “Capacity building of women managers in higher education” organized by Department of Education, Mizoram University.
- Participated in UGC sponsored national seminar on “Health and development in Rural North East India” organized by Department of Political Science, Govt. J.Buana College, Lunglei, Mizoram.
- Attended the National level seminar on “Rural Development without Panchayati Raj Institutions in North East India” organized by J.Buana College in collaboration with District Rural Development Agency, Lunglei.

Chapter – I

Introduction

Chapter – II

Review of Literature

Chapter – III

Methodology

Chapter - IV

Results and Discussion

Chapter – V

Conclusion and Suggestions

APPENDICES

Chapter I

Introduction

The present study attempts to explore the relationship between lifestyle and hypertension among the women. The lifestyle practice plays a crucial role in the development of hypertension. To the cause of exploration on the relationship between knowledge and attitudes towards hypertension by women with hypertension (HTN) and also by women without hypertension is examined since ones knowledge and attitude greatly influence one's lifestyle practice. Therefore, a cross sectional study on the knowledge, attitude and practice by women with hypertension and by the women without hypertension from Lunglei, Mizoram is conducted.

It is the study of the occurrence and distribution of health-related states or events in specified populations, including the study of the determinants influencing such states, and the application of this knowledge to control the health problems. Therefore, it is a research among people into the frequency of occurrence of phenomena of public health, clinical, social, or biological relevance, with measures of frequency and causal assessments related to the determinants of such phenomena" (Miettinen, 2010).

1.1. Overview of Concepts

The term "**hypertension**" is another name for **high blood pressure**. Blood pressure measures the pressure of blood on the walls of your blood vessels as your blood circulates through your body. When someone has high blood pressure over a long time, the body's blood vessels may get damaged (National Aboriginal Health Organization, 2010). It is the force of blood pushing against blood vessel walls. It means the pressure in the arteries is higher than it should be. **Blood pressure (BP)** is written as two numbers, such as 112/78 mmHg. The top, 'systolic', number is the pressure when the heart beats and the bottom, 'diastolic number' is the pressure when the heart rests between beats. Normal blood pressure is below 120/80 mmHg. If an adult systolic pressure is 120/139, or diastolic pressure is 80 to 89 (or both), an adult have "pre-hypertension". **High blood pressure is a pressure** of 140 systolic or higher and 90 diastolic or higher that stays high over time (American Heart Association, 2016).

The World Health Organization's on the World Health Report 2002 identified the most important risk factors for non-communicable diseases (NCD) wherein hypertension is also included as one of the high risk factors.

According to WHO, hypertension also known as high or raised blood pressure is a condition in which the blood vessels have persistently raised pressure. Blood is carried from the heart to all parts of the body in the vessels. Each time the heart beats, it pumps blood into the vessels. Blood pressure is created by the force of blood pushing against the walls of blood vessels (arteries) as it is pumped by the heart. Finally, the higher the pressure the harder the heart has to pump. So, high blood pressure is the primary risk factor for cardiovascular diseases (CVD) and if uncontrolled can lead to large number of complications with consequent death. It is known as the “silent killer”, as it often has no symptoms.

A **non-communicable diseases (NCD)** which are sometimes known as **lifestyle diseases** are those diseases which may develop in a person due to faulty eating and living habits. Lifestyle or non-communicable diseases are chronic (long term) in nature and do not result from an acute (short term) infection nor do they spread from one person to the other. These conditions cause dysfunctioning in the body and impair the quality of life. They may also lead to death. As these are chronic conditions they are a financial burden for lifetime. Therefore, there is an increasing concern these days about lifestyle diseases that can be easily prevented but not cured (Home Science in Daily Life).

The largest proportion of NCD deaths (48%) is caused by **cardiovascular diseases (CVD)**. As per the World Health Statistics 2012, it is estimated that out of 57 million global deaths in 2008, 36 million (63%) were due to non-communicable diseases (NCDs). In terms of attributable deaths, raised blood pressure it is one of the leading behavioral and physiological risk factor of which 13% of global deaths are attributed. Hypertension is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries. Recent reports indicated that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000, and this is projected to increase to 1.56 billion by 2025. Earlier reports also suggest that the prevalence of hypertension is rapidly increasing in developing countries and it is one

of the leading causes of death and disability. While, mean blood pressure has decreased in nearly all high-income countries (Supplement to Japi, 2013).

Thus, hypertension remains as one of the most important public health challenges worldwide because of the associated morbidity, mortality, and the cost to the society. It is one of the most significant risk factors for cardiovascular (CV) morbidity and mortality resulting from target-organ damage to blood vessels in the heart, brain, kidney, and eyes. Hypertension causes 7.1 million premature deaths each year worldwide and accounts for 13% of all deaths, globally (Tesema, 2016).

According to World Health Report 2002, cardiovascular diseases (CVDs) will be the largest cause of death and disability by 2020 in India. Hypertension is an important risk factor for cardiovascular complications accounting for 60% of heart failure deaths, 40% end stage renal, 75% of myocardial infarction deaths (Biritwumet al,2005) and 41%of stroke deaths in an autopsy report (Anim, 1990). High blood pressure is the blood pressure that is raised to such an extent that clinical benefit is imperative if it is lowered with medication or other therapeutic interventions. Thus, blood pressure measurement consists of diastolic and systolic components which are both important in the determination of one's cardiovascular risk (Edwards &Walker, 2001).

In a meta-analysis of 61 studies involving more than a million patients with hypertension and 12.7 million years of follow up it was observed that reducing systolic as well as diastolic BP reduced cardiovascular events. At ages 40-69 yr, each difference of 20 mmHg systolic BP or 10 mm Hg diastolic BP was associated with more than a two-fold difference in the stroke death rate, and with two-fold differences in the death rates from coronary heart disease and other vascular causes(Gupta, 2010). He further added that, reducing systolic and diastolic BP can decrease cardiovascular risk and this can be achieved by non-pharmacological (lifestyle measures) as well as pharmacological means. Lifestyle changes should be the initial approach to hypertension management and include dietary interventions (reducing salt, increasing potassium, alcohol avoidance, and multi-factorial diet control), weight reduction, tobacco cessation, physical exercise, and stress management.

The non-communicable diseases and especially cardiovascular diseases (CVD) represent the major health burden in the industrialized countries and a rapidly growing

problem in the developing countries. At the same time they are an area where major health gains can be achieved. In most of the developed world three out of four deaths are due to CVD, cancer, accidents and other violent causes. Globally CVD is responsible for every third death and coronary heart disease (CHD) is already the number one killer in the world (Puska, 2002). Women with high blood pressure have a substantially increased risk of developing hypertension or a major cardiovascular event compared with women with normal blood pressure (Conen et al., 2007).

In India, according to World Health Report 2002, cardiovascular diseases (CVDs) will be the largest cause of death and disability by 2020 in India. In 2020 AD, 2.6 million Indians are predicted to die due to coronary heart disease which constitutes 54.1 % of all CVD deaths and nearly half of these deaths are likely to occur in young and middle aged individuals (30-69 years). At present, Indians experience CVD deaths at least a decade earlier than their counterparts in countries with established market economies (EME). The Global Burden of Disease (GBD) study estimates that 52% of CVD deaths occur below the age of 70 years in India as compared to 23% in EME, resulting in a profound adverse impact on its economy. The contributing factors for the growing burden of CVDs are increasing prevalence of cardiovascular risk factors especially hypertension, dyslipidemia, diabetes, overweight or obesity, physical inactivity and tobacco use. It is an area where major health gains can be made through the implementation of primary care interventions and basic public health measures targeting diet, lifestyles and the environment.

In addition, hypertension is labeled as ‘silent killer’ because it progressively and permanently damages organs before occurrence of any diagnosable external presentation. Therefore, it can also be described as the ‘Sleeping snake’ which bites when it wakes up. In this context, hypertension presents a major area of intervention because it is a frequent condition and is amenable to control through both non-pharmacological lifestyle factors and pharmacological treatment (Bollampally et al., 2016).

Lifestyle can be simply mentioned as the way in which a person lives. A way of living of individuals, families (households), and societies, which they manifest in coping with their physical, psychological, social and economic environments on a day-to-day basis. It is expressed in both work and leisure behavior patterns and (on an individual

basis) in activities, attitudes, interests, opinions, values and allocation of income. It also reflects people's self-image or self-concept; the way they see themselves and believe they are seen by the others. Lifestyle is a composite of motivations, needs and wants and is influenced by factors such as culture, family, reference groups, and social class (Business Dictionary). Also, hypertension is an enormous public health issue, because it is a reversible risk factor for stroke, ischemic heart disease, congestive heart failure, renal failure and peripheral vascular disease. There is now general agreement that cardiovascular disease (CVD) can be prevented by altering diet and lifestyle and by reducing risk factors such as hypertension (Campbell et al., 1999).

Dustan (1987) states that obesity is a major associate of hypertension and are clearly related to maturity onset diabetes; these two conditions are among the most important risks for atherosclerosis. There is likelihood that prevention of obesity in industrialized nations would substantially reduce the occurrence of hypertension and atherosclerosis leading to a decreased mortality from these vascular diseases. According to Vaesa (2016) when there is extra weight; more blood is needed to supply oxygen to the body and creates more pressure on the artery walls. Blood pressure is determined by two numbers, the first called systolic how much blood your heart pumps and the second number called diastolic the amount of resistance the blood encounters in the arteries.

Obesity is the increase in the body fat and occurs in both the sexes and can affect any age group. There are several factors which are associated with increasing the amount of body fat that results in obesity. Body weight gain occurs when one eats more calories than your body uses. If food you eat provides more calories than body needs, the excess is converted to fat (Perry, 2017). He further brings to our notice on the fact that obesity is also considered as one of the causes of hypertension which has been proved in by number of research studies. According to the population studies, it has been indicated that almost two-thirds of the people suffering from obesity are at risk of hypertension, there are also risks associated to sleep apnea, coronary heart disease and congestive cardiac failure.

Soriguer et al. (2003) states that hypertension is strongly associated with obesity and was influenced by sex, diabetes, and age. The presence of excess polar compounds in the cooking oil and the use of sunflower oil were related to the risk of hypertension, whereas the concentration of monounsaturated fatty acids in the serum phospholipids is

negatively related to this risk. These associations remained after inclusion in the models of age, sex, obesity and the presence of carbohydrate metabolism disorder. The risk of hypertension is positively and independently associated with the intake of cooking oil polar compounds and inversely related to blood concentrations of monounsaturated fatty acids. The other aspect of hypertension in women that is worthy of emphasis is obesity. **Obesity** is significantly more common in middle-aged women than men, and there is evidence that body weight has a greater impact on blood pressure in females than in male (August & Oparil, 1999).

Another important modifiable risk factor common to major non communicable diseases (NCDs) includes - cancers, cardiovascular diseases, chronic respiratory diseases and diabetes and causing 1 in 6 of all NCD deaths is tobacco use. Almost 6 million people die from tobacco use each year, both from direct tobacco use and second hand smoke. By 2020, this number will increase to 7.5 million, accounting for 10 million deaths. Data from several studies indicated that tobacco smokers have 2-3 fold higher relative risk of coronary heart disease (CHD), 1.5 times for stroke, 1.4 times for chronic obstructive pulmonary disease (COPD) and 12 fold risks for lung cancer. These risks have an age-gradient with higher relative risk (5-6 times) in the younger age groups, and are similar for men and women and decreases rapidly after quitting smoking. Even exposure to second-hand smoke (SHS) increases the risk of developing and progression of atherosclerosis. Tobacco smoke has synergistic action with other risk factors (Thakur, 2011).

Hypertension is strongly associated with diabetes which is a major cause of morbidity and mortality worldwide. Bild (1987) states that hypertension occurs approximately twice as frequently in persons with diabetes as without and contributes to most of the chronic complications of diabetes, including coronary artery disease, stroke, lower extremity amputations, renal failure and, perhaps, to diabetic retinopathy and blindness. The proportions of complications in the diabetic population attributable to hypertension range from 35 to 75 percent. Hypertension in the diabetic population increases with age and is particularly associated with obesity and nephropathy. Limited data suggest the control of hypertension in the diabetic population may be better than in

the general population, perhaps due to greater contact that persons with diabetes have with the health care system. Yet, in approximately half, hypertension is not controlled.

According to the Diabetes Atlas of the International Diabetes Federation (IDF), India is home to the largest number of people with diabetes in the world. Physical inactivity has been consistently shown to be a risk factor for diabetes. An earlier population-based study in Chennai, India showed that prevalence of diabetes was higher among subjects with light grade activity compared to heavy grade activity. In the present study, subjects with sedentary activity had 2.2 times higher risk for diabetes compared to those with vigorous activity (Mohan, 2008).

Lifestyle modification, previously termed **non-pharmacologic therapy**, has important roles in hypertensive as well as non-hypertensive individuals. In hypertensive individuals, lifestyle modifications can serve as initial treatment before the start of drug therapy and as an adjunct to medication in persons already on drug therapy. In hypertensive individuals with medication-controlled the BP and therapies can facilitate drug step-down and drug withdrawal in highly motivated individuals who achieve and sustain lifestyle changes. In non-hypertensive, lifestyle modifications have the potential to prevent hypertension, and more broadly to reduce BP and thereby lower the risk of BP-related clinical complications in the whole populations (Appel, 2003).

1.2. Hypertension scenario

Hypertension is a significant public health problem in many developing countries experiencing epidemiological transition from communicable to non-communicable chronic diseases. According to the estimation of the WHO 2000 out of 600 million people, a minimum of 3 million people die annually as a result of hypertension. Hypertension has been also identified as the 3rd ranked condition that reduces life expectancy. Therefore, it is estimated that high blood pressure is responsible for every eighth death, making hypertension responsible for nearly 20% of all deaths world-wide (Kaur et. al. 2007). In the year 2000, there were 972 million people living with hypertension worldwide, and it is estimated that this number will escalate to more than 1.56 billion by the year 2025 (Zungu, 2013).

The global scenario on hypertension as per the World Health Statistics 2012, of the estimated 57 million global deaths in 2008, 36 million (63%) were due to non-

communicable diseases (NCDs) of which the largest proportion is caused by cardiovascular diseases (48%). In terms of attributable deaths, raised blood pressure is one of the leading behavioral and physiological risk factor to which 13% of global deaths are attributed.

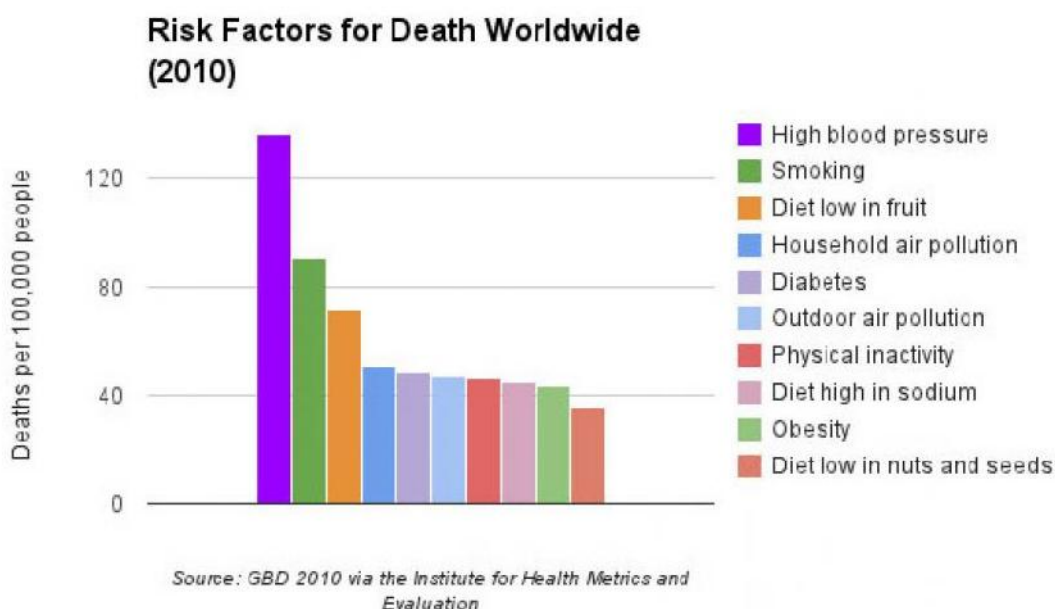


Figure 1.1. Risk factors of death worldwide

Recent reports indicate that nearly 1 billion adults (more than a quarter of the world’s population) had hypertension in the year 2000, and this is predicted to increase to 1.56 billion by 2025. Earlier reports also suggested that the prevalence of hypertension is rapidly increasing in developing countries and it is one of the leading causes of death and disability. Meanwhile, blood pressure has decreased in nearly all high-income countries; it has been stable or increasing in most African countries. The prevalence of raised blood pressure in 2008 was highest in the African Region at 36.8% (WHO, 2002). The Global Burden of Diseases; Chronic Disease Risk Factors Collaborating Group has reported 35-year (1980-2005) trends in mean levels of body mass index (BMI), systolic BP and cholesterol in 199 high-income, middle-income and low-income countries. The mean systolic BP declined in high and middle-income countries but increased in low-income countries and is now more than in high-income countries. Also, the India specific data are similar to the overall trends in low-income countries.

Cardiovascular diseases (CVD) account for a large proportion of all deaths and disability worldwide. According to the Global Burden of Disease Study 1990, there were 5.2 million deaths from cardiovascular diseases in economically developed countries and 9.1 million deaths from the same causes in developing countries. However, whereas about one-quarter of all cardiovascular disease deaths occurred in persons who were less than 70 years of age in the developed world, more than about half of these deaths occurred in those less than 70 years in the developing world. It has been predicted that by the year 2020, there will be an increase by almost 75% in the global cardiovascular disease burden likely to occur in developing countries (Gupta, 2004).

In India, hypertension (HTN) exerts a substantial public health burden on cardiovascular health status and healthcare systems. HTN is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India. In an analysis of worldwide data for the global burden of HTN, 20.6% of Indian men and 20.9% of Indian women were suffering from HTN in 2005. The rates for HTN in percentage are projected to go up to 22.9 and 23.6 for Indian men and women, respectively by 2025 (Anchala, 2014). The assessment on the risk factors for hypertension in the densely populated countries of China and India shows that several risk factors contribute to the prevalence of hypertension such as increasing age, unhealthy diet (especially salt intake > 5gms doubles the risk of hypertension), obesity, alcohol and tobacco consumption, less physical inactivity and urban residence were some of the key influencers (Wang et al. 2014).

The prevalence of hypertension in the late nineties and early twentieth century varied among different studies in India, ranging from 2-15% in Urban India and 2-8% in Rural India (World Health Organization). Cardiovascular diseases caused 2.3 million deaths in India in the year 1990; this is projected to double by the year 2020. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India.

Among the nations, China and India are the two populous developing countries showing an increasing trend in the prevalence of hypertension. Therefore, prevention and control of hypertension is a significant challenge. The number of the hypertension population in India and China are 118 million and 160 million in 2000 respectively

(Wang, Tiwari & Wang, 2014). The epidemiological studies show that hypertension is present in 25 % urban and 10 % rural subjects in India. There are 31.5 million hypertensive in the rural and 34 million in the urban population. According to the recent review on the global burden of hypertension, the estimated prevalence of hypertension (in people aged 20 years and older) in India in the year 2000 was 20.6 % among males and 20.9 % among females and is projected to increase to 22.9 % and 23.6 % respectively by 2025. The estimated total number of people with hypertension in India in 2000 was 60.4 million males and 57.8 million females and projected to increase to 107.3 million and 106.2 million respectively in 2025 (Chaturvedi, 2009).

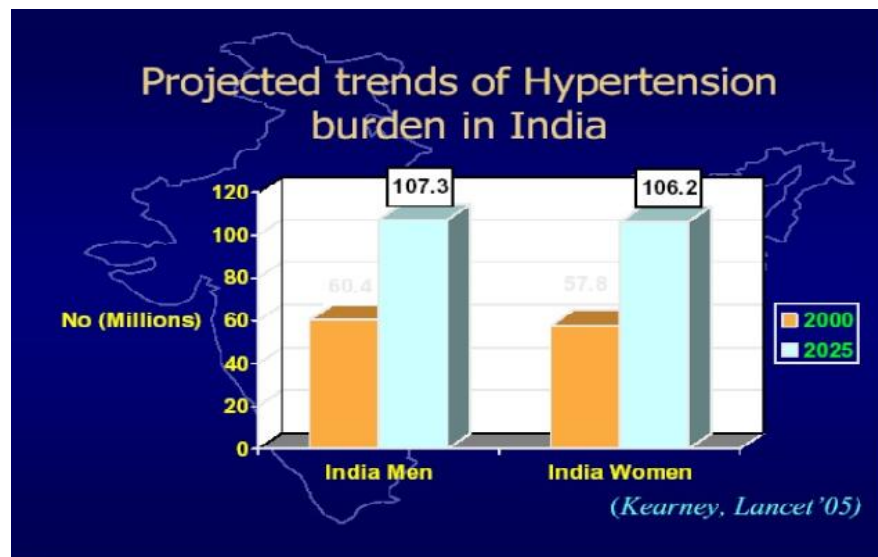


Figure 1.2. Projected trends of Hypertension burden in India

It was reported that of a total of 9.4 million deaths in India in 1990, cardiovascular diseases (CVD) accounted for 2.3 million deaths (25%). Further, a total of 1.2 million deaths were due to coronary heart disease and 0.5 million due to stroke. It has been predicted that by 2020, there would be a 11% increase in cardiovascular deaths in India. Blood pressure (BP) is directly associated with risks of several types of cardiovascular disease, and the associations of BP with disease risk are continuous, indicating that large proportions of populations having non-optimal hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India. This fact is important because hypertension is a controllable disease and a

2mmHg population-wide decrease in BP can prevent 151,000 stroke and 153,000 coronary heart disease deaths in India (Gupta, 2004).

The Government of India through the Ministry of Health & Family Welfare (MOHFW) initiated a decentralized; state based Integrated Disease Surveillance Project (IDSP) in the country with the assistance of the World Bank in the year 2004, in which the current statistical analysis of the present scenario of Mizoram in regard to hypertension and its related risk factor is highlighted.

Table1.1. Trends in hypertension, Mizoram, 2007- 2008

Sl/No.	Hypertension	Residence						Combined		
		Urban			Rural			Male	Female	Total
		Male	Female	Total	Male	Female	Total			
I	HTN diagnosed by health professional	8.5	6.4	7.4	5.6	6.1	5.8	7.1	6.2	6.7
II	Diagnosed HTN									
a)	Currently taking drugs	49.1	57.1	52.4	37.4	37.9	37.6	44.5	48.2	46.2
b)	Advised dietary modifications	54.3	34.9	46.2	38.3	23.0	30.7	48.1	29.4	39.7
c)	Advised to lose weight	32.3	16.4	25.7	22.4	11.2	16.8	28.4	14.0	22.0
d)	Advised to quit smoking	29.4	13.0	22.5	41.5	17.1	29.4	34.1	14.9	25.4
e)	Advised to increase physical activity	37.7	23.8	31.9	31.9	14.2	23.1	35.4	19.3	28.2
f)	Consulted AYUSH practitioner	4.2	9.0	6.2	8.1	3.7	5.9	5.7	6.6	6.1
g)	Taking treatment from AYUSH practitioner	76.2	29.5	44.0	29.9	60.1	39.2	51.3	35.3	42.3

Source: Integrated Disease Surveillance Project (IDSP)

Hence, hypertension is also commonly known as lifestyle disease due to the fact that sedentary lifestyle leads to the risk of developing hypertension in individual human beings. Therefore, lifestyle modification including eating healthy food, decrease salt intake, maintain healthy weight, increase physical etc. greatly helps in avoiding or in the management of hypertension in an individual.

In hypertensive individuals, lifestyle modifications can serve as initial treatment before the start of drug therapy and as an adjunct to medication in persons already on drug therapy. In hypertensive individuals with medication-controlled BP, these therapies can facilitate drug step-down and drug withdrawal in highly motivated individuals who achieve and sustain lifestyle changes. In non-hypertensive, lifestyle modifications have the potential to prevent hypertension, and more broadly to reduce full form of BP (Blood Pressure) and thereby lower the risk of BP-related clinical complications in whole populations. Indeed, even an apparently small reduction in BP, if applied to an entire population, could have an enormous beneficial effect on cardiovascular events.

Women with high normal blood pressure have a substantially increased risk of developing hypertension or a major cardiovascular event compared with women with normal blood pressure. These people need close follow-up and lifestyle modifications. Once hypertension has developed, the cardiovascular event rate is increased shortly after the diagnosis of hypertension has been made, especially among women with high normal blood pressure at baseline (Conen et al., 2007).

In addition, newly research studies mentioned that women with high blood pressure are at higher risk than their male counterparts of vascular disease, prompting researchers to recommend different treatments in women (Ellis, 2014) and cardiovascular disease (CVD) claims more women's lives than any other disease, but is often underestimated and undiagnosed and there is an on-going misperception that women are at a lower risk of cardiovascular disease than men (Gudmundsdottir, 2012). In 2007, CVD caused about one death per minute among women in the United States, more women's lives than were claimed by cancer, chronic lower respiratory disease, Alzheimer's disease and accidents combined (Roger et al. 2011).

1.3. Statement of the problem

Hypertension is one of major risk factors for cardiovascular disease (CVD) and the outcomes in women even cause pre-mature death and morbidity. In addition, hypertension is a chronic but preventable disease, and thus lifestyle modification is one of the important components for effective control and management of hypertension. Therefore, the researcher feel it important to understand on why, when and how hypertension including the socio cultural aspects that have rooted in women's life by

assessing the knowledge, attitudes, and practices (KAP) of the women hypertensive patient in regards to their lifestyle modification. Further, the study aim to explore the lifestyle factors that are responsible for hypertension; and attempt to develop strategies to control hypertension towards the promotion of public health.

The purpose of this study is to describe the knowledge, attitude and practice level that HTN and non - HTN women in Lunglei in regards to hypertension, their health promoting behaviors, and examine the relationship between their personal factors, information resources, knowledge of hypertension, and their health promoting behaviors (diet and exercise).

1.4. Conclusion

Hypertension is a lifestyle disease which is modifiable contributing risk factor of cardiovascular diseases by adopting healthy lifestyle and practice. Further, (Karpman, 2009) states that hypertension is associated with more deaths in women than any other preventable risk factor. Pharmacological treatment of established hypertension has proven benefits, yet blood pressure control is achieved in only 57 % of patients with pharmacological intervention, and, therefore, primary prevention of hypertension (lifestyle modification, i.e. non – pharmacological treatment) could have major positive public health ramification by reaching more women and would have the proven benefit of avoiding drug therapy with its potentially adverse effects.

Schlant, 2000 rightly quote that “We cannot change our genes or sex, but we can definitely modify our life style thereby protecting our self from hypertension”.

Hypertension has been studied by various scholars from different angles, the contributing factor and its prevalence across the gender as well. Therefore, to reduce the contributing factors and hypertension mortality rates various literatures has been reviewed in the following chapter.

Chapter II

Review of Literature

In this chapter various literatures which will help the present study to have a solid background for investigation is reviewed. Reviewing of literature plays a critical role in analyzing the existing literature and giving justification as to how the present study fits into the existing body of knowledge. Literature is reviewed from different angles and on different aspects viz. hypertension and demographic, social and economic characteristics, relationship between knowledge, attitude and practice on hypertension, hypertension and lifestyle and lastly hypertension and women.

2.1. Studies on hypertension and demographic, social and economic characteristics

As per the World Health Statistics 2012, of the estimated 57million global deaths in 2008, 36 million (63%) were due to non-communicable diseases (NCDs). The largest proportion of NCD deaths is caused by cardiovascular diseases (48%). In terms of attributable deaths, raised blood pressure is one of the leading behavioral and physiological risk factor to which 13% of global deaths are attributed. Hypertension is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries. Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025. Earlier reports also suggest that the prevalence of hypertension is rapidly increasing in developing countries and is one of the leading causes of death and disability. While mean blood pressure has decreased in nearly all high-income countries. The prevalence of hypertension in the late nineties and early twentieth century varied among different studies in India, ranging from 2-15% in Urban India and 2-8% in Rural India (World Health Organization).

The prevalence of a variety of health behaviors and health conditions on an American Indian reservation in the Plains region of the western United States was studied by Cheadle et al. (1994) by collecting data from two non-Indian comparison groups to examine the extent to which differences in health status and health behaviors related to differences in the socioeconomic status. He further concluded that, the higher prevalence of risk-taking behavior among Indians and their poorer self-reported health status remained after adjustment for socioeconomic status. Also, among Indians, higher levels

of income and education were not associated with improved self-reported health status and lower prevalence of tobacco use, as was the case with the comparison groups.

Dubhey et al.(2013) carried out a population-based survey in eastern U.P., India in rural and non-industrialized villages to determine the prevalence of hypertension and its associated risk factors especially with reference to contemporary lifestyle and socioeconomic status. A total of 1967 individuals in the 30-70 year age group were interviewed using a screening form and pre-tested structured questionnaire. BP readings were recorded with a random zero sphygmomanometer. The analysis showed that advancing age, sedentary lifestyle, low education, stress is the risk factors for hypertension in rural un-industrialized population and further added that rates of hypertension in the rural community under study are similar to those seen in high-income countries and in urban India. He had concluded that, higher socio-economic group has 1.6 times more risk than middle class.

The World Health Organization (WHO) report on the non-communicable disease (NCD) for India (2014) shows that cardiovascular (CV) disease accounts for 26% of all deaths in India. Blood vessels serve the large “Battle Grounds” to Blood pressure (BP) which bears a continuous relationship with the occurrence of several CV events such as stroke, myocardial infarction (MI), sudden death, heart failure and peripheral artery disease (PAD) as well as of end-stage renal disease (ESRD). This association begins with even low values of BP such as 110–115 mmHg for systolic BP (SBP) and 70–75 mmHg for diastolic BP (DBP). According to 2008 estimates, hypertension affects more than 1 out of every 5 adults in India. Hypertension prevalence has been increasing in both rural and urban India over the last 6 decades. Nearly 25% of urban and 10-15% of rural adults are hypertensive which correlates with a 12-fold and 7-fold increase in urban and rural hypertensive population respectively. It is estimated that 159.46/1000 Indians will be hypertensive by the year 2020 (Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India). Every year, 1.1 million lives are lost due to hypertension in India and nearly 10.8% of all deaths in India can be ascribed to hypertension. Also hypertension complications contribute to the morbidity associated with hypertension. It is estimated show that 16% of ischaemic heart disease, 21% of

peripheral vascular disease, 24% of acute MI and 29% of strokes in India are attributable to hypertension (Tiwaskar, 2016).

Surveillance of risk factors is important to plan suitable control measures for non-communicable diseases (NCDs). Therefore, to assess the behavioural, physical and biochemical risk factors for NCDs, Oommen et al. (2016) conducted a study in Vellore Corporation and Kaniyambadi, a rural block in Vellore district, Tamil Nadu, India using cross-sectional study among 6196 adults aged 30-64 yr, with 3799 participants from rural and 2397 from urban areas. The World Health Organization-STEPS method was used to record behavioural risk factors, anthropometry, blood pressure, fasting blood glucose and lipid profile and find out that diabetes, hypertension, dyslipidaemia, physical inactivity and overweight were higher in the urban area as compared to the rural area which had higher rates of smokeless tobacco use and alcohol consumption. Smoking and inadequate consumption of fruits and vegetables were equally prevalent in both the urban and rural samples. There is an urgent need to address behavioural risk factors such as smoking, alcohol consumption, physical inactivity and inadequate intake of fruits and vegetables through primary prevention.

Hatzaw, E. (2014) the study conducted in Mizoram among 350 women on the forms of tobacco use shows that the use of smoke forms of tobacco is much higher in the rural areas as compared to urban communities with a mean value of 10.4. The smoke forms of tobacco commonly used by the respondents are *cigarrete*, *zozial*, Bidi and pipe tobacco. Meanwhile, the use of smokeless tobacco is largely prevalent in both rural and urban communities and the practice is observed to be more among urban respondents as compared to rural respondents. Thus, 89.6% of the respondents were using smokeless tobacco like paan (betel quit with tobacco), paan with zarda, *sahdah*, khaini, *tuibur* and other gutkha products.

In women below the age of 50 years, the majority of CHD is attributable to smoking and the risk increase with the number of cigarette smoked and the duration of smoking. Therefore, the social ingredients of tobacco consumption in India, which characterized by higher consumption patterns among the poor is relevant to the social dimensions of CVD (Gramenzi A, et al, 1989).

Kishore, J. (2016) conducted a study in rural areas of Delhi with the objective of finding prevalence of hypertension and its risk factors. The community based cross-sectional study was conducted among 1005 subjects selected using systematic random sampling method. WHO STEPS approach was used to collect data. Blood pressure, body mass index, and blood sugar were measured. Data analysis was done using SPSS version 16. Odds of hypertension among subjects with risk factors were calculated. p value less than 0.05 was considered significant. It was concluded that there is significant burden of hypertension in rural areas in Delhi and the age, education, and cholesterol levels were independent risk factors of hypertension in the present study. Education level of people should be raised to reduce the prevalence of hypertension. Cholesterol levels should be cut down using approaches of behaviour change communication (BCC) in the community. Immediate measures should be taken for the prevention and control of hypertension in Delhi.

Mayo Foundation for Medical Education and Research (2015) identified the risk factors of hypertension including high blood pressure such as increases on aging that is more common among men and among women who are 65 years and above are likely to develop hypertension. Also, high blood pressure tends to run in families. People who are inactive tend to have higher heart rates simply because of smoking or chewing tobacco that immediately raise blood pressure and the chemicals in nicotine can damage the lining of artery walls. Finally, it cause to narrow arteries, and increasing blood pressure. Further, second-hand smoke (SHS) as well as passive smoking (PS) can also increase blood pressure. In addition, high level of sodium intake can cause body to retain fluid, which increases blood pressure. Moreover, heavy drinking gradually damage heart which affects the blood pressure and the high levels of stress is another risk to high blood pressure inclusive of chronic conditions such as kidney disease, diabetes and sleep apnea.

Zungu (2013) studied the lifestyle practices of patients with hypertension who were attending a primary health clinic in Botswana. The author uses a quantitative cross-sectional descriptive survey and use a self-administered questionnaire. The existing relationship between the knowledge of hypertension, demographic factors and lifestyle practices among participants were found. Hypertension is a chronic but preventable disease; and thus adequate knowledge of the disease and lifestyle modification are

important features in its effective control and management. The study suggested family intervention models or packages are necessarily as some hypertension may be related to family social construction than the actual genetic imprint as hypertension is related to lifestyle practices to a greater percentage. This study discloses the need of a comprehensive health education including general knowledge of hypertension, signs and symptoms of hypertension and knowledge of the recommended lifestyle practices and health promotion programme targeting patients who are at risk and the community in general.

2.2. Studies on the relationship between knowledge, attitude and practice on HTN

Patil et al. (2015) assessed knowledge and awareness of patients towards hypertension along with what doctor advice the patients regarding drug treatment, adverse effects and important drug interactions and when to see doctors apart from routine visits using structured questionnaires, a descriptive study which was conducted in hypertensive patients to obtain information on patient's knowledge and awareness of Hypertension (Questionnaire A). A knowledge score was calculated from the correct responses to the questionnaire. Questionnaire B was regarding doctors counseling to patients for what kind of information doctor gives to the patient when the patient is diagnosed as hypertensive and is put on antihypertensive therapy and concluded that, the awareness in Indian hypertensive patients is still found to be low. There is need for encouraging health services including health education targeting various risk factors for hypertension and promotion of health lifestyle practices like regular physical exercise. Newer ideas in hypertension education like involvement of mass media may be tried as in case of vaccines. The health workers have to play part by educating the people and also themselves being an example in avoiding the risk factors for hypertension like consumption of fatty food, alcohol and smoking.

Aubert et al. (1998) examined KAP (Knowledge, attitudes and practices) on hypertension among the adults in the Seychelles Islands (Indian Ocean) assessed through administration of structured questionnaire. The cross-sectional study among the general adult population identified that most persons, whether non - hypertensive, unaware hypertensive, or aware hypertensive, had good basic knowledge related to hypertension determinants and consequences, possibly an effect of a nationwide cardiovascular disease

prevention program over the previous years. However, favorable outcome expectation, positive attitudes, and appropriate practices for hypertension and relevant healthy lifestyles were found in smaller proportions of participants, with little difference between aware hypertensive, unaware hypertensive, and non-hypertensive groups. Furthermore, hypertensive persons with other concurrent cardiovascular risk factors affecting the overall heart risk knew well the detrimental effects of these other factors but reported making little actual change to control them (particularly regarding overweight and sedentary habits). Therefore, the study effective hypertension prevention and control programs so that delay in achieving effective hypertension control is minimized in countries experiencing recent emergence of hypertension as a major public health problem.

Sabouhi (2011) studied the knowledge, awareness, attitudes and practice about hypertension in hypertensive patients referring to public health care centers in Khor&Biabanak in Isfahan province, IRAN using a cross-sectional, correlation-descriptive; two hundred and thirty four (234) patients were recruited by random sampling. It was found that, in spite of patients relatively had high awareness, knowledge, attitude and practice about the disease their hypertension was not still under control. Several barriers are associated with uncontrolled hypertension particularly treatment-related barriers.

Tesema (2016) studied about the knowledge, attitude and practice regarding lifestyle modification of hypertensive patients among 130 patients with hypertension at Jimma University Specialized Hospital, Ethiopia using a prospective cross sectional descriptive study design. The result shows that there was inadequate levels of knowledge and practice of non-drug control of hypertension and also states that the desired level of changes in the attitude of patients was not attained merely because of inadequate level of advice provided to them by the physicians. The study suggested that patients should be educated on the components and application of life style modification for better control and prevention of their BP. Therefore, the health care providers should motivate and enable the patients to control their BP by giving consistent advices on the life style modification. The public authority, NGOs and other interested bodies in health services

should promote and where necessary enforce the implementation of life style modification to control patient's BP.

Anowie (2015) studied the knowledge, attitudes and lifestyle practices of hypertensive patients in the Cape Coast Metropolis-Ghana using a cross-sectional descriptive survey and come to the conclusion, that more than 95% (n=383) of the study participants showed a poor level of knowledge in the causes, signs and symptoms, risk factors, prevention and treatment of hypertension. Participants' who had occupations and worked were more knowledgeable about the condition than those who had no occupation and no regular jobs. Hypertension's association with low levels of awareness, drug treatment, and blood pressure control identified in past studies still exist within current hypertension populations. Thus, population-based prevention strategies, such as reduction in salt intake and integration of hypertension care into primary care need to be reviewed.

A study to determine hypertensive patients' knowledge, perceptions, attitudes and life-style practices so as to optimize their health and treatment needs was conducted by Godfrey & Sarah (2010). The structured questionnaire and interview had found the relevance of psychosocial factors like depression and anxiety, fear of addiction and intolerable drug and the adverse effects impacted negatively on patients' attitude to treatment. So, the study concluded that most of the patients' knowledge is low and their attitudes towards medical treatment is negative and also patient education, motivation and public enlightenment are imperative.

Kumar (2016) assess the knowledge, attitudes, and practices (KAP) on hypertension in a random sample of 500 adults aged above 20 years from Ambala, Haryana. A suitably designed and validated KAP questionnaire was administered and responses were coded and analyzed that (42.4 %) of the respondents were aged 31-40 years and 98% of the participants knew that hypertension is the disease state. Poor score is observed in the attitude and practice. It concludes that the responders had good knowledge but poor attitude and practice towards hypertension. Therefore, repeated reinforcement and motivation along with health education will definitely bring about a positive change in attitude and practices.

Shaikh, M.A., et al. (2012) studied the knowledge; attitude and practice about hypertension in adult hypertensive patients at Liaquat University of Medical and Health

Sciences (LUMHS). The prospective and descriptive study was carried out on 1000 diagnosed hypertensive patients from January to September, 2010 through assessment on various factors like lifestyle and risk factors. The case sheets were containing special questionnaire to study the knowledge about hypertension, its control and the complications. The study found that a significant proportion of hypertensive patients have poor knowledge about hypertension.

2.3. Studies on Hypertension and lifestyle

Hypertension is a clear risk factor for cardiovascular diseases which affect nearly one billion people worldwide. In addition to it, recent statistics have reported increasing mortality due to hypertension which reveals the importance of prophylactic strategies in controlling blood pressure and therefore, suggested that lifestyle changes as one of the most effective ways to prevent and control hypertension (Ghezelbash&Ghorbani, 2012). According to them, lifestyle factors such as dietary behaviors and physical activity are associated with hypertension and several studies have indicated direct and indirect associations between overweight and increased risk of hypertension. Further, they suggested increasing in consumption of grains, fruits, vegetables, and milk and reduced consumption of sodium, fat, and alcohol as effective measures for preventing and controlling hypertension. In addition, some studies have reported a 35% reduction in risk of developing hypertension among individuals who engage in regular physical activity compared to sedentary people.

Sanwari, R. (2008) states that hypertension is more often a lifestyle disease and afflicts those who tend to ignore their mental and physical health. Fortunately, this can be controlled and in the long term may not even require medications if one get their life in order and avoid stress of all kinds. People have known to take medications and yet not found any change in their condition because their lifestyle has continued to stay the same. But medication is not the only to manage hypertension.

Mercola, Dr. (2016) mentioned that one of the best parts of leading a healthy lifestyle is that it doesn't only affect one or two aspects of your health; it makes you healthier overall. Vegetables contain many different antioxidants and other disease-fighting compounds that are very difficult to get anywhere else. Plant chemicals called phytochemicals may reduce inflammation and eliminate carcinogens, while others

regulate the rate at which your cells reproduce, get rid of old cells and maintain DNA. Green leafy vegetables are an excellent source of nitrates, which are converted into nitric oxide in your body. Nitric oxide, in turn, helps to relax and dilate your blood vessels, improving blood flow and lowering blood pressure, i.e. it helps controlling hypertension.

Sheps, S.G. (2016) identified that drinking too much of alcohol can raise blood pressure to unhealthy levels. Having more than three drinks in one sitting temporarily increases your blood pressure, but repeated binge drinking can lead to long-term increases. Heavy drinkers who cut back to moderate drinking can lower their systolic blood pressure (the top number in a blood pressure reading) by 2 to 4 millimeters of mercury (mm Hg) and their diastolic blood pressure (the bottom number in a blood pressure reading) by 1 to 2 mm Hg.

Keister, G. (2015) states that consuming lots of salt, because of its high sodium content, raises blood pressure and can increase your risk of other problems such as heart disease and atherosclerosis. Guidelines from the American Heart Association state describe the link between eating high-salt food or using too much table salt and developing high blood pressure, or hypertension. Some people are at especially high risk of salt-related disorders, either because of their genetic background or ethnicity.

Whitcomb, C. (2008) mentioned the relationship between high blood pressure and salt intake for over two thousand years. Further, the Chinese physicians described, “Hardening of the pulse” after excessive salt ingestion in their writings before the time of Christ. Salt restriction has been a cornerstone of hypertension management for a century, and diuretics (which increase sodium excretion through the kidney) remain a mainstay in the treatment of hypertension and comment that sodium as the primary determinant of blood volume. Salt restriction (or diuretic treatment) reduces blood volume – this is one way to lower pressure. In the last decade another mechanism by which sodium increases blood pressure has been described. A family of compounds called glycosides is produced by the brain and the adrenal gland in response to increased sodium. These compounds stimulate the smooth muscle cells in the walls of blood vessels to contract and thereby increase vascular resistance. So salt gets your blood pressure up both by increasing blood volume (and cardiac output) and increasing vascular resistance.

Hillman, G.C. & Kravitz, L. (2006) rightly mentioned that exercise as a lifestyle modification is beneficial to a wide variety of health conditions. The encouragement of regular exercise is not only useful as a treatment method for individuals with hypertension, but should also be advocated as a means for prevention. Predictors that may be examined to evaluate the risk of developing hypertension include resting BP, family history, and physical activity levels. Higher physical activity levels have shown an inverse relationship to the development of hypertension. As well, Barengo and associates (2005) presented evidence that European men doing equal to and greater than 4 hours per week of leisure – time physical activities had reduced risk of hypertension. Thus, physical activity and regular exercise can protect against hypertension.

Mehmet (2000) emphasized on the importance of regular monitoring of blood pressure (BP). Blood pressure should be checked regularly because high blood pressure is a silent killer. There are often no symptoms of this potentially deadly condition. So while you are going about your day, high blood pressure could be damaging arteries, your heart, and other organs. The nasty consequences of leaving high blood pressure untreated include stroke, kidney damage, and even erectile dysfunction.

Oommen et al. (2016) to assess the prevalence of NCD risk factors among Mishing tribes in Assam using the WHO STEPs approach among a total of 332 individuals (men 54%) aged 25-64 year from Tinsukia district by multistage cluster sampling. Using the WHO STEPs approach information collected on demographics, STEP 1 variables (tobacco, alcohol, physical activity, diet) and measured STEP 2 variables (weight, height, waist circumference and blood pressure) and multivariate analysis was used to find the relation between STEP 1 and STEP 2 variables. Further, come to the conclusion that tobacco use, alcohol use and unhealthy diet habits were high among men and women in this population and were major NCD risk factors. In addition to it, an integrated approach of culturally appropriate population level and high risk strategies are warranted to reduce these risk factors and to enhance adequate control of hypertension.

The National Aboriginal Health Organization (2010) reported that hypertension is another name for high blood pressure. Blood pressure measures the pressure of blood on the walls of your blood vessels as your blood circulates through your body. When

someone has high blood pressure over a long time, the body's blood vessels may get damaged. Often high blood pressure can lead to serious health problems such as: strokes; heart attacks; heart and kidney failure. Something that raises your blood pressure include too much salt or sodium in the diet, stress, lack of exercise, being overweight and having an unhealthy diet. These are risk factors you can change.

According to Beilin, L., et al. (1999) variety of lifestyle of dietary constituents including salt, potassium, and a complex of fruits, vegetables, and saturated fat as well as fatty acids. Moderate changes in combinations of some of these factors have additive effects on blood pressure reduction in all grades of hypertension. Effects are often as large as those seen with antihypertensive drug therapy, but with a greater potential to simultaneously reduce the risk of cardiovascular disease by mechanisms other than blood pressure reduction. The role of stress in long-term blood pressure elevation remains enigmatic other than through possible influences of unhealthy coping mechanisms that determine dietary, drinking, exercise, and smoking habits. Lifestyle changes have a major role to play in the prevention and management of high blood pressure and associated cardiovascular disease and in the reduction of requirements for antihypertensive drug therapy. Cook et, al.(1985)using data from observational studies and randomized controlled trials, estimated that reducing the average diastolic pressure in a population by as little as 2 mm Hg through lifestyle changes would decrease the prevalence of hypertension by 17%, with a 6% reduction in the risk of coronary heart disease and a 15% reduction in the risk of stroke and transient ischemic attacks. So, improved methods of achieving changes towards a healthier lifestyle remain a high medical and social priority.

The contemporary approach to the epidemic of elevated BP and its complications involves pharmacologic treatment of hypertensive individuals and "lifestyle modification," which is beneficial for both non - hypertensive and hypertensive persons (Appel, 2003). He further identified that a substantial body of evidence strongly supports the concept that lifestyle modification i.e. increased physical activity, a reduced salt intake, weight loss, moderation of alcohol intake, increased potassium intake, and an overall healthy dietary pattern, termed the Dietary Approaches to Stop Hypertension (DASH) diet, effectively lower BP. Therefore, the current challenge to healthcare

providers, researchers, government officials, and the general public is developing and implementing effective clinical and public health strategies that lead to sustained lifestyle modification.

Hypertension is a lifestyle disease, therefore it can be developed in an individual by the way how a person lives his life. In line to it, Kaur, K., et. al. (2007) assesses the practices of hypertensive patients visiting O.P.D at D.M.C & H, Ludhiana. The data was collected through interview schedule that comprised of different aspects of hypertensive person like identification data, socio-demographic data and life style practices. The results have shown the varied practices among hypertensive patients regarding control of hypertension and the shortcomings of the participants includes irregular maintenance of logbook, avoidance of yoga, meditation and physical exercises. Based on findings it was recommended that a nursing personnel should be appointed in cardiology Out Patient Department (O.P.D) to motivate the patients to adopt healthy lifestyle practices for controlling blood pressure.

Bollampally et al. (2016) investigate Knowledge, Attitude and Practice (KAP) among the general population which helps in the future development programs for effective health education. The main aim of this study was to assess the patients knowledge, attitude and practice regarding hypertension. The investigation was done among the In-patient at the departments of Gandhi hospital, Secunderabad for a period of 6 months (August 2015 - January 2016) which was approved by institutional ethics committee. A total of 160 hypertensive patients with or without co-morbid condition were included. Adults of age less than 30 years, paediatrics, pregnant and lactating women were excluded. Patients were selected by simple random sampling method. A suitably designed and validated KAP questionnaire was administered to hypertensive patients. This questionnaire was filled in at face to face interview along with informed consent and the statistical analysis was performed using graph pad prism software version-5. The study signifies that there is a good score towards knowledge, attitude and poor score towards practice and concluded that patients require support and guidance for practicing better disease management. Clinical activities such as patient counseling, home medication review, pharmaceutical care program help to increase the patients practice in disease management.

Mahajan, et. al. (2012) had conducted an epidemiological study to assess knowledge, attitude, practices, and risk factors and associated co-morbidities in hypertensive patients in an urban slum of Mumbai. The cross-sectional study using semi-structured proforma found out that, hypertensive patients in the area had very poor awareness, attitude and practices toward hypertension. Poor practices were responsible for higher Blood pressure and Body mass Index. So, they suggested for health education targeting various risk factors and promotion of regular physical exercise. And also people have to be educated through mass media on hypertension and its risk factors. In addition, they further suggested that, the health workers have to play part by educating the people and also they being an example in avoiding the risk factors for hypertension like consumption of fatty food, alcohol and smoking and people have to be educated on the importance of physical exercises and have to be encouraged to do them.

According to New Health Guide (2016) hypertension can be hereditary considering the fact that family members share behaviors, genes, environments and lifestyle that make them more susceptible to developing hypertension. Experts believe that genetics have a role to play in the development of hypertension, and the risk increases even more when heredity combines with some unhealthy lifestyle choices, such as eating unbalanced diet and smoking cigarettes.

Bailey (2013) states that the rise in blood pressure out of anxiety is normally short-lived. Once you are no longer anxious, your blood pressure returns to normal. According to experts, periodic rises in your blood pressure aren't necessarily dangerous and "There is no evidence that high anxiety and stress can cause long-term high blood pressure," according to Dr. Melinda Stanley, a professor in the Psychiatric and Behavioral Sciences Department at Baylor College of Medicine. Periodic spikes in your blood pressure may not be dangerous but if these occur on a regular basis, it may have long lasting effects. "If you have a lot of episodes of anxiety and increased blood pressure, these can cause physical damage that is comparable to chronic high blood pressure," Stanley explains. This can lead to heart disease, stroke, kidney damage, vision loss and other health issues.

While, Virdis (2010) found that Cigarette smoking is a powerful cardiovascular risk factor and smoking cessation is the single most effective lifestyle measure for the

prevention of a large number of cardiovascular diseases. Impairment of endothelial function, arterial stiffness, inflammation, lipid modification as well as an alteration of antithrombotic and prothrombotic factors are smoking-related major determinants of initiation, and acceleration of the atherothrombotic process, leading to cardiovascular events. Cigarette smoking acutely exerts an hypertensive effect, mainly through the stimulation of the sympathetic nervous system. As concern the impact of chronic smoking on blood pressure, available data do not put clearly in evidence a direct causal relationship between these two cardiovascular risk factors, a concept supported by the evidence that no lower blood pressure values have been observed after chronic smoking cessation. Nevertheless, smoking, affecting arterial stiffness and wave reflection might have greater detrimental effect on central blood pressure, which is more closely related to target organ damage than brachial blood pressure. Hypertensive smokers are more likely to develop severe forms of hypertension, including malignant and renovascular hypertension, an effect likely due to an accelerated atherosclerosis.

To provide updated, evidence-based recommendations for health care professionals on lifestyle changes to prevent and control hypertension in otherwise healthy adults (Campbell, 1999) conducted MEDLINE (January 1966 to September 1996) for each of the interventions studied. Reference lists were scanned, experts were polled, and the personal files of the authors were used to identify other studies. All relevant articles were reviewed, classified according to study design and graded according to level of evidence. Further concluded that individualized multi-component cognitive behavioural interventions are effective in reducing blood pressure; single-component interventions such as biofeedback, relaxation therapy and transcendental meditation are less likely to be effective.

Appel, L. (2003) states that high BP is one of the most important and common risk factors for atherosclerotic cardiovascular disease and renal disease. The contemporary approach to the epidemic of elevated BP and its complications involves pharmacologic treatment of hypertensive individuals and “lifestyle modification,” which is beneficial for both non-hypertensive and hypertensive persons. A substantial body of evidence strongly supports the concept that lifestyle modification can have powerful effects on BP. Increased physical activity, a reduced salt intake, weight loss, moderation

of alcohol intake, increased potassium intake, and an overall healthy dietary pattern, termed the Dietary Approaches to Stop Hypertension (DASH) diet, effectively lower BP. The DASH diet emphasizes fruits, vegetables, and low-fat dairy products and is reduced in fat and cholesterol. Other dietary factors, such as a greater intake of protein or monounsaturated fatty acids, may also reduce BP but available evidence is inconsistent. The current challenge to health care providers, researchers, government officials, and the general public is developing and implementing effective clinical and public health strategies that lead to sustained lifestyle modification.

Stein, J.D., et. al. (2002) evaluated the self-reported quality of life (QOL) among patients with systemic arterial hypertension and assessed whether clinicians and normotensive respondents from the general public appreciate the impact that hypertension has on health related quality of life. They conclude that clinicians and normotensive individuals tend to overemphasize the impact that hypertension has on quality of life, as compared to affected patients. The relatively low impact that hypertensive individuals indicate high blood pressure has on their quality of life may contribute to their lack of compliance with treatment regimes.

According to Gupta & Guptha (2010) high blood pressure (BP) is a major public health problem in India and its prevalence is rapidly increasing among urban and rural populations. Therefore, non-pharmacological means like lifestyle changes should be the initial approach to hypertension management and include dietary interventions (reducing salt, increasing potassium, alcohol avoidance, and control), weight reduction, tobacco cessation, physical exercise, and stress management. In addition, comprehensive hypertension management focuses on reducing overall cardiovascular risk by lifestyle measures, BP lowering and lipid management and should be the preferred and multi-factorial diet initial treatment approach.

Castro & Coutinho (2011) had conducted a field study of a quantitative exploratory, descriptive and not experimental to assess the quality of life and risk factors to patients with hypertension. In which they identified that most employees with chronic diseases such as rating their quality of life satisfactory in many respects, but there is still a significant proportion of subjects who indicated dissatisfaction with their full quality of life. Driven often by family and friends through the knowledge acquired in the common

sense, many of them have doubts about the pathology and even taboos related to treatment, thus hindering the adherence to it. Although the developers claim to know the disease and assume that it does not interfere with their quality of life there is still a very large deficit of knowledge about the disease and ways to prevent complications during the course of chronic disease.

Bollu, M. et al (2015) studied the demographic details of hypertensive and diabetic patients and their knowledge, attitude and practices (KAP) regarding their illness, and observed poor score in attitude and concludes that the respondents had good knowledge but poor attitude and practice toward the disease. Therefore, motivation and counseling that is stressing on the importance of lifestyle modifications and self-management is required for the patients suffering from hypertension. In addition, patient counseling by the clinical pharmacist can play a vital role in imparting education to the diabetic and hypertensive patients.

2.4. Literature on Hypertension and Women

Kumar, P. (2016) states that a new study reveals that women who suffer high BP when pregnant may also have high chance of developing cardiovascular issues and even diabetes in their later years. Also, women who have hypertension during pregnancy may have 6 times higher chances of developing health issues like metabolic syndrome later on.

Ellis (2014) states that high blood pressure as the "silent killer," as it often has no symptoms and new research suggests that women with high blood pressure are at higher risk than their male counterparts of vascular disease, prompting researchers to recommend different treatments in women. According to the study, during the past 20 to 30 years, there has been a significant decline in cardiovascular disease-related mortality in men, while the same statistic does not apply to women. Heart disease is now the leading cause of death in women.

Therese & Stephen (2013) identified that cardiovascular disease (CVD) is the most common cause of death in women in the United States, and hypertension is a major contributor to cardiovascular mortality, at the same time blood pressure control rates among women are suboptimal, even when secondary causes are identified and treated and also there are few high quality data describing specific hypertension-related outcomes in

women. Some data comparing hypertensive women to age-matched men suggest advantages to sex specific strategies, but further study is needed to determine optimal regimes for women throughout their lives. Pregnancy and menopause present unique, complex challenges in hypertension management.

Wilson, B., et al. (2003) examine the association between hypertensive diseases of pregnancy (gestational hypertension and pre-eclampsia) and the development of circulatory diseases in later life on women selected from the Aberdeen maternity and neonatal databank who were resident in Aberdeen. A cohort study design was used among women who had pre-eclampsia during their first singleton pregnancy. Two comparison groups were matched for age and year of delivery, one with gestational hypertension and one with no history of raised blood pressure. It is concluded that, hypertensive diseases of pregnancy seem to be associated in later life with diseases related to hypertension. If greater awareness of this association leads to earlier diagnosis and improved management, there may be scope for reducing a proportion of the morbidity and mortality from such diseases.

The connectivity between hypertension and cardiovascular disease (CDV) among women states that premenopausal women have lower blood pressures than age-matched men, population blood pressure rises with age, and the prevalence of hypertension is higher in older women. Oral contraceptive use increases the risk of hypertension in women, and women using this therapy should have blood pressure monitored at least twice a year. The risk of hypertension is low in normotensive (having normal blood pressure) women receiving HRT (Hormone replacement therapy).

August, P. & Oparil, S. (1999) states that hypertension is particularly important in women because it is a modifiable risk factor that is extremely prevalent in older women. One aspect of hypertension in women that is worthy of emphasis is obesity. Obesity is significantly more common in middle-aged women than men, and there is evidence that body weight has a greater impact on blood pressure in females than in males. Hypertension is 2–3 times more common in women taking oral contraceptives than in age-matched women not taking these medications. The risk of hypertension increases with age, duration of use, and increased body mass. The Treatment of Mild Hypertension Study demonstrated that women are less likely than men to have their blood pressure

controlled with lifestyle interventions alone, perhaps because they are less successful in losing weight. Weight reduction is of particular importance for blood pressure control in women, given the high prevalence of obesity.

From the literature reviewed the following research gaps could be notice.

1. Hypertension that is present across the gender but few studies available on women and hypertension in a wider scale.
2. Research studies in India on KAP and lifestyle modification among women with hypertension are very rare.
3. Studies supporting social work education and social work intervention in public health promotion through lifestyle modification in the control of hypertension are limited.

The present study tries to fill the above research gaps. In the next chapter the methodology of the study is presented to address these research gaps.

2.5. Conclusion

From the literature reviewed it is observed that hypertension is a modifiable dreadful disease and a contributing factor to various cardiovascular diseases. Adopting healthy lifestyle practices helps in order to get rid of the disease, therefore, to have a healthy lifestyle one needs to have a clear-cut knowledge and attitude towards hypertension. Even socio-demographic characteristics of an individual found to play an important role in developing hypertension in a person and also create problems within the women's health. Therefore, in order to carry out an effective study of hypertension among women in Lunglei a methodology to conduct the study is presented in the next chapter.

Chapter III

Methodology

In this chapter a systematic study of defining a problem is being framed. Research method for conducting the study is clearly addressed, it explains how the necessary data and information to focus the research objectives and hypotheses was collected, presented and analyzed. The reasons and justifications for the research design, research instruments, data sources, data collection techniques, data presentation techniques and analytical techniques used are given.

3.1. Profile of the study area: Lunglei District

The study area Lunglei district is the biggest district in Mizoram bounded on the north by Mamit and Serchhip districts, on the south by Lawngtlai and Saiha districts, on the east by Myanmar and on the west by Bangladesh (International boundary). It has area of 4,538 Sq.kms with a population of 161,428 (2011 census) of which male and female were 82,891 and 78,537 respectively. There are three Civil Sub-Divisions namely – Lunglei sadar sub-division, Tlabung and Hnahthial civil sub-divisions. The district is also divided into four rural development blocks – Lunglei, Hnahthial, Lungsen and Bungmun. The district is named after its headquarters Lunglei. Lunglei, sometimes spelled Lungleh, in [Mizo](#) means a bridge of rock. It derived its name from a bridge like rock found in the riverine area around the Nghasih, a small tributary of the river Tlawng.



Figure 1.3. Map of Mizoram (pointing Lunglei)

3.2. Objectives

1. To understand into the differences in the demographic, social and economic characteristics of women with HTN and women without HTN.
2. To assess the differences in knowledge, attitude and practice of women on hypertension between women with HTN and women without HTN.
3. To enquire into the differential patterns of lifestyle of HTN women with HTN and women without HTN.
4. To assess the association between knowledge, attitude and practice of lifestyle across the gender.
5. To suggest measures for social work intervention.

3.2.1. Hypotheses

1. There is a relationship between knowledge and attitude of women with HTN.
2. There is a relationship between knowledge and practice of women with HTN.
3. The higher the knowledge and attitude better the lifestyle practices by women.

The first two hypotheses were drawn intuitively while the last hypothesis draws inspiration from an earlier study by Iyalomhe, G. (2010)

3.2.2. Chapter Scheme

The present study is presented into the following five (5) chapters:

1. Introduction
2. Review of Literature
3. Methodology
4. Results and Discussions
5. Conclusion and Suggestions

3.3 Research Design

The study is descriptive and cross-sectional in nature and ex-post facto in design. Mixed methods approach is applied. Qualitative and quantitative data were collected.

3.3.1 Sampling

The unit of the study will be individual. Hundred (100) women between the age group of 30 to 60 years from Lunglei district, Mizoram will constitute the population of the study.

The study adopted a multi – stage sampling technique. Lunglei was chosen using purposive sampling since Lunglei district is the biggest district in Mizoram in terms of population. Also, hypertension is one of the most common diseases faced by women in the area. Secondly, Lunglei town is selected purposefully chosen for the study area since Lunglei block have the largest population of women with HTN among the other block of the district according to NCD Cell Record (June 2015 – June 2016). Thirdly, two localities from Lunglei which constitute the highest and lowest women with HTN population, i.e. Ramtharveng and Theiriat locality are selected. Lastly, the study had equal number respondents of women with HTN and without HTN so as to find out the relationship as well as to draw differences in their knowledge, attitudes and practices. Therefore, the study consists of a total of 100 respondents which is equally distributed between women with HTN and women without HTN and also equally distributed between the two selected villages.

a) The respondents of the Key Informant Interviews (KIIs) include the medical officer of NCD and other health staff at Lunglei NCD cell and the community key leaders.

b) A focus group discussion (FGD) was conducted among women with HTN in order to find out their real life situation and to have an in depth understanding of HTN and its relationship with the knowledge, attitude and practices at individual and societal level by and large.

c) Two case studies were conducted with women with HTN and women without HTN in order to find out the differences as well as similarities in the lifestyle.

3.3.2. Data Collection

Primary and Secondary data were collected. The quantitative information on socio - demographic profile, knowledge, attitude and practice of the women with HTN and without HTN and their suggestions for prevention and rehabilitation for HTN was collected through structured interview schedule.

Focus Group Discussions conducted among women with HTN and Key Informant Interviews (KIIs) was held with the health care professionals. The study employed 2 case studies (1 case with women with HTN and the other case with women without HTN).

Secondary data is collected through the statistical record of NCD Cell Lunglei, list of women population in Lunglei district from the community based women organization, government documents and official reports, available literature survey pertaining to the incidence at the regional, national and international level.

3.3.2.1. Tools of Data Collection

The following tools were used to collect data from different groups of people in order to arrive at an understanding of the topic.

Data was collected through administration of structured interview schedule. The structured interview schedule comprises of socio-demographic profile of the respondents; knowledge about hypertension, attitude towards hypertension and lifestyle practice of the respondents.

The qualitative information was collected through conducting KIIs, FGD and case studies based on the guidelines given by Eliot & Associates.

3.3.2.2. Pilot Study

A pilot study was conducted among the key informants (health care personnel) who are working in Non-Communicable Disease (NCD) Cell, Civil Hospital, Lunglei. The pilot study help in understanding of the ground reality, the prevalence of the disease among the women, their knowledge , attitudes and practices (KAP), and also on the issues and challenges faced by women with HTN.

Therefore, the pilot study helps in the formulation and designing of the present study. Secondary data was collected through the record of the Non-Communicable Disease (NCD) cell which shows the statistics on the prevalence of women with HTN in Lunglei district. In addition, information on qualitative dimensions was elicited through key informant interviews (KIIs), focus group discussions (FGDs) and case studies.

3.3.2.3. Data Processing and Analysis

The quantitative data collected through structured interview schedule was processed with the help of Microsoft Excel and analyzed with SPSS package. Data from qualitative sources was processed and reflected through KIIs (2 Key Informant Interviews) case studies (two case studies were presented) and FGD (1 Focus Group Discussion was presented).

A pilot study was conducted among the key informants (health care personnel) who are working in Non-Communicable Disease (NCD) Cell, Civil Hospital, Lunglei. The pilot study help in understanding of the ground reality, the prevalence of the disease among the women, their knowledge , attitudes and practices (KAP), and also on the issues and challenges faced by women with HTN.

Therefore, the pilot study helps in formulation and designing of the present study. Secondary data was collected through the record of the Non-Communicable Disease (NCD) cell which shows the statistics on women with HTN in Lunglei district. In addition, information on qualitative dimensions was elicited through key informant interviews (KIIs) and focus group discussions (FGDs).

3.4. Conclusion

In this chapter, an attempt has been made to present the setting and methodology of the present study. In the next chapter, results of analysis of primary and secondary data will be presented and discussed.

Chapter IV

Results and Discussions

This chapter describes the analysis, presentation and interpretation of the findings resulting from the qualitative and quantitative data collected through primary and secondary sources. The purpose of this chapter is to summarize the collected data and the statistical treatment of analysis.

The present study attempts to understand into the lifestyle relating to hypertension among women in Lunglei, Mizoram. For this purpose two localities which constitute the maximum and minimum population of women with hypertension and women without hypertension, viz. Ramthar locality and Theiriat locality based on the record of Non – Communicable Disease (NCD) Cell, Lunglei (June 2015 – June 2016). The total sample unit comprises of 100 women respondents between the age group 30 – 60 years; out of which 50 women with hypertension and 50 women without hypertension from both the localities were selected purposefully for the study.

In addition, the study is based on primary and secondary data collected through qualitative and quantitative methods. The quantitative data is collected through administration of Structured Interview Schedule.

4.1. Profile of the respondents

Knowing the background of an individual helps in understanding the nature of a person. Therefore, the demographic profile, social particulars, family and economic background information is collected.

4.1.1. Demographic Profile of the respondents

The following data shows the sample diverse response to structured interview schedule employed during the course of data collection. The tables are tabulated on the basis of the nature of the group of respondents, i.e. women without hypertension (non-HTN) and women with hypertension (HTN). The information on the respondents presented in table no. 1 demographic profile is classified into three (3) different categories viz. age of the respondent, marital status, and the educational qualification of the respondents.

Table 4.1. Demographic Profile

Sl.No	Characteristics	HTN		Total N = 100
		No n = 50	Yes n = 50	
I	Age of the Respondent			
	30 – 39	24 (48)	12 (24)	36 (36)
	40 – 49	10 (20)	13 (26)	23 (23)
	50 – 59	16 (32)	25 (50)	41 (41)
II	Marital Status			
	Married	31 (62)	35 (70)	66 (66)
	Unmarried	11 (22)	4 (8)	15 (15)
	Widow	6 (12)	10 (20)	16 (16)
	Divorcee	2 (4)	1 (2)	3 (3)
III	Educational qualification			
	Illiterate	0 (0)	4 (8)	4 (4)
	High School	32 (64)	33 (66)	65 (65)
	Secondary	9 (18)	5 (10)	14 (14)
	Graduate	7 (14)	6 (12)	13 (13)
	Post Graduate	2 (4)	2 (4)	4 (4)

Source: Computed**Figures in parentheses are percentages**

The age of the respondents is divided into three categories as (30 – 39) years, (40 – 49) years and (50 – 60) years. The data shows that two-fifth of the total respondents are belonging to the age group of 50-60 years out of which nearly one-third of the total respondents without HTN belong to the age group 50-60 years as against to 50% of the respondents with HTN. More than one third of the total respondents belonged to the age group 30-39 years. Comparatively, respondents without HTN and respondents with HTN belonged to the age group between 30-39 years constitutes 48% and 24% respectively. However, nearly one-fourth of the total respondents belong to the age group 40-49 years

that comprises of 20% and 26% of the respondents without HTN and respondents with HTN respectively.

The marital status of the respondents is classified into four sub – categories, i.e. married, unmarried, widow and divorcee. A maximum of 66% of the total respondents were married, comprises of 62% and 70% of married respondents without HTN and HTN. The study consisted of one-sixth (16%) of the respondents who are widow. Of which more than one-sixth (17%) of the respondents without HTN are widow. Also, 15% of the total respondents are unmarried constituted by 22% and 8% of unmarried respondents without HTN and with HTN respectively. Further, the study comprises of 3% divorcee respondents in both the group.

The educational qualification of the respondents is classified into illiterate, high school, higher secondary, graduate and post-graduation. A maximum of nearly two-third of the total respondent are studying up till high school education with 64% and 66% respondents with HTN and without HTN respectively. However, more than one-tenth of the total respondents are attaining HSSLC educational qualification. Nearly two-fifth and one-tenth of respondents without HTN and with HTN had HSSLC educational qualification. A total 13% of the respondents of are graduated and amongst which and more respondents are with HTN and without HTN respectively. There is an equal distribution of 4% of respondents who are illiterate as well as respondents who are post graduated. Also, there is an equal distribution of 4% of post graduated respondents among the women HTN and without HTN respectively. The data shows that there are another 4% of the respondents who are illiterate among the respondents with HTN.

4.1.2. Family Background Information

Family is one of the important elements to mold and shape the behavioral pattern of an individual. Therefore, to have a deep understanding of one's personal characteristics having a knowledge about the family background is very important .

Table 4.2. Family Particulars

Sl.No	Characteristic	HTN		Total N = 100
		No	Yes	
		n = 50	n = 50	
I	Size of the family			
	1—4	14 (28)	10 (20)	24 (24)
	5—10	34 (68)	38 (76)	72 (72)
	11 and above	2 (4)	2 (4)	4 (4)
II	Types of Family			
	Nuclear	33 (66)	35 (70)	68 (68)
	Joint	16 (32)	14 (28)	30 (30)
	Extended	1 (2)	1 (2)	2 (2)
III	Forms of Family			
	Stable	48 (96)	50 (100)	98 (98)
	Reconstituted	2 (4)	0 (0)	2 (2)
IV	Head of the Family			
	Father	40 (80)	37 (74)	77 (77)
	Mother	10 (20)	13 (26)	23 (23)

Source : Computed

Figures in parentheses are percentages

The size of the family of the respondents is categories into three as (1-4), (5-10), (11 and above) family members. The table on the family particulars shows that a maximum of 2/3 of the total respondents belong to family having members between (5-10), comparatively respondents without HTN and respondents with HTN constituted more than two-third and more than three-fourth respectively. However, 24% of the total respondents belong to family having (1-4) members. Further, 4% of the total respondents belong to family having above 11 members and above the comparative examination shows that both respondents without HTN and respondents with HTN have an equal distribution of 4% of family having 11 and above members.

The type of the family where the respondents belonged to is divided into 3 sub-categories viz., nuclear family, joint family and extended family as presented in table 4.2. The data shows that nearly more than (68%) of the total respondents belong to nuclear family. Of which, nearly two-third (66%) and more than two third (70%) of respondents without HTN and respondents with HTN respectively belong to nuclear family. Meanwhile, joint family comprises of nearly one-third (30%) of the total respondents where, respondents without HTN comprise of less than one-third (32%) of the respondents belonging to joint family and more than one-fifth (28%) of the respondents belong to joint family. Further, extended type of family constituted 2% of the total respondents. Of which, extended family equally constituted 2% of the respondents without HTN and respondents with HTN.

The forms of family where the respondents belonging to are categorized into two sub categories: stable family and reconstituted family. Majority (98%) of the total respondents is belonging to stable family where a maximum 96% of the respondents without HTN belonged to stable family all of the respondents with HTN are belonging to a stable family. However and also the remaining 2% of the total respondents belong to reconstituted family. Of which 4% of respondents without HTN belonged to reconstituted whereas, none of the respondents with HTN belong to reconstituted family.

In regards to the head of the household, the head of the family of the respondents is categorized into father and mother. The data shows that more than two-third (77%) of the entire respondent's family is headed by the father, where 80% of the respondents without HTN is headed by the father and 74% of the respondent with HTN is headed by the father. Meanwhile, 23% of the respondent's family is headed by the mother. Of which, less than one-fourth (20%) of the respondents without HTN is headed by the mother and more than one-fourth (26%) of the respondents with HTN is headed by the mother.

4.1.3. Economic background

Economy is something that has a great impact in the way a person lives. Therefore, to have a deeper understanding of an individual it is crucial to have a knowledge on the economic background of the respondents.

Table 4.3. Economic Particulars

Sl.No	Characteristic	HTN		Total N = 100
		No	Yes	
		n = 50	n = 50	
I	Occupation			
	Home maker	29 (58)	30 (60)	59 (59)
	Self employed	7 (14)	4 (8)	11 (11)
	Govt. Servant	7 (14)	8 (16)	15 (15)
	Business	7 (14)	8 (16)	15 (15)
II	Annual personal income			
	Below 50,000	15 (30)	11 (22)	26 (26)
	50,000 - 1 lakh	19 (38)	16 (32)	35 (35)
	1 lakhs - 2 lakhs	7 (14)	9 (18)	16 (16)
	2 lakhs - 3 lakhs	4 (8)	8 (16)	12 (12)
	3 lakhs and above	5 (10)	6 (12)	11 (11)
III	Socio economic category			
	Very Poor(AAY)	1 (2)	1 (2)	2 (2)
	Poor (BPL)	12 (24)	10 (20)	22 (22)
	Non-Poor(APL)	37 (74)	39 (78)	76 (76)

Source : Computed**Figures and parentheses are percentages**

The occupational status of the respondents was classified into home maker, self-employed, government servant and petty business as presented in the table 4.3. This was based on the prevailing occupation of the study area. A maximum of nearly three-fifth (59%) of the respondents was home maker, of which 58% of the respondents without HTN and 60% of the respondents with HTN are homemaker. Also there is an equal distribution of 15% of the respondents' occupation between the government servant and petty business owning. Comparative examination signifies, govt. servant and petty business owing constituted one-seventh (14%) and one-sixth (16%) of the respondents without HTN and respondents with HTN respectively. However, nearly one-tenth (11%)

of the total respondents are self-employed where, 14% and 8% of respondents without HTN and respondents with HTN respectively are self-employed.

The data on the annual personal income of the respondents is considered due to the fact that the health status and accessibility to healthcare is largely depends upon the income of the respondents. The personnel income of the respondents is classified into 5 categories. They are below Rs. 50,000, Rs. (50,000 – 1 lakh), (1 lakh-2 lakhs), (2 lakhs – 3 lakhs), and (3 lakhs and above). A maximum of nearly one-third (35%) of the total respondents had annual personal income between Rs.(50,000-1lakh) where, 38% and 32% of the respondents without HTN and respondents with HTN have annual personal income between (50,000 – 1 lakh). However, more than one-fourth (26%) of the total respondents have annual personal income below Rs. 50,000 of which, nearly one-third (30%) of respondents without HTN and nearly one-fourth (22%) of the respondents with HTN have annual personal income below Rs. 50,000. Also, the total respondents having an annual personal income between Rs.(1-2) lakhs comprised of one-sixth (16%). A comparative examination reveals that 14% of the respondents without HTN and 18% of the respondents with HTN have an annual personal income between Rs.(1-2)lakhs. However, 12% of the total respondents have annual personal income between Rs.(2-3)lakhs. Comparatively, only 8% and one-sixth (16%) of the respondents without HTN and respondents with HTN has annual personal income between Rs. (2-3) lakhs. Lastly, 11% of the total respondents had an annual personal income between Rs. 3lakhs and above. The distribution shows that 10% and 12% of the respondents without HTN and respondents with HTN respectively have an annual personal income between Rs. 3lakhs and above.

The socio-economic background of the respondents is divided into 3 categories as BPL (Below Poverty Line), AAY (Antodaya Anna Yojana) and APL (Above Poverty Line). A maximum number of the respondents belonged to APL of which, 74% and 78% of the respondents without HTN and respondents with HTN belonged to APL family. Nearly one-fifth (22%) of the total respondents belong to BPL family. Comparatively, nearly half of both the respondents without HTN and the respondents with HTN belong to BPL family. However, only 2% of the total respondents belonged to AAY family

where, 1% of the respondents without HTN and with HTN respondents belong to AAY family.

4.1.4. Social background

Social characteristics of an individual play an important role in shaping the life of an individual. Therefore, it is important to look into it.

Table 4.4. Social Particulars

Sl/No.	Characteristic	HTN		Total n = 100
		No	Yes	
		n = 50	n = 50	
I	Religion			
	Christian	50 (100)	50 (100)	100 (100)
II	Ethnicity			
	Mizo	49 (98)	50 (100)	99 (99)
	Non-Mizo	1 (2)	0 (0)	1 (1)

Source : Computed

Figures and parentheses are percentages

The information on the social particulars of the respondents is classified into two (2) different sub -categories viz. Religion and ethnicity.

Exploration on the religion of the respondents shows the entire respondents both without HTN and the respondents with HTN are Christian.

The ethnicity of the respondents is divided into two sub-categories – Mizo and Non Mizo. The data shows that majority of 99% of the total respondents are Mizo of which 98% of the respondents without HTN are Mizo and all the respondents with HTN are Mizo. However, the remaining 1% of the total respondents are non-mizo comparatively 2% of the respondents without HTN are non-mizo and there is no non-mizo respondents with HTN.

4.2. Knowledge on hypertension

Health status of an individual is closely linking to the knowledge possesses towards a particular disease. Therefore, the table on the knowledge on hypertension signifies the study on the level of knowledge possessed by the respondents. The table 4.5 (a) consists of nine (9) different categories, i.e. nature of HTN, sex more prone to HTN, consumption of tobacco products, tobacco items consumed, normal range of blood pressure, risk factors of hypertension, symptoms of hypertension, impact on health of an

individual including the knowledge of the respondents on the impact of hypertension on individual's health and the contact with literatures in this regards.

Table 4.5. Knowledge on hypertension (a)

Sl/no	Particulars	HTN		(%)
		No	Yes	
I	Hypertension is			
	A disease	32	28	60.0
	Curable	14	16	30.0
	Communicable	3	3	6.0
	All of the above	1	2	3.0
II	Gender prone to HTN			
	Male	20	22	42.0
	Female	5	4	9.0
	Equally both	25	24	49.0
III	Normal blood pressure			
	Less than or equals 120/80	19	26	45.0
	Greater than 120/80 but less than or equals 139/89	7	6	13.0
	I don't know	24	18	42.0
IV	Risk factor for HTN			
	Yes	50	47	97.0
	No	-	3	3.0
V	Symptoms of HTN			
	Yes	50	50	100
	No	-	-	-

Source : Computed

Table 4.5.1 Knowledge on hypertension (b)

Sl.No	Characteristic	HTN				Total	
		No		Yes		Mean	%
		N	%	N	%		
1.	Symptoms of HTN	50	100	50	100	100	100
2.	Risk factors for HTN	50	100	47	94	97	97
3.	Hypertension is	46	92	44	88	90	90
4.	Normal high blood pressure	19	38	26	52	45	45
5.	More prone to HTN	20	40	22	44	42	42

Source: Computed

The exploration on the knowledge of the respondents shows that more than half of the respondents (60%) affirmed on the fact that hypertension as a disease (Kaur, K.,et. al. 2007). While the other 40% of the respondents have different opinion as reflected in the data out of which 30% of the respondent's knowledge is that hypertension is curable with

medical treatment. It is important to note that 6% of the respondents believed that hypertension is a communicable disease. Overall, 3% of the respondent comply that hypertension is a communicable diseases that is curable with timely diagnosis and immediate treatment. Further, the recovery depends upon the regularity of treatment. Nature-wise study shows that 92% of the respondents without HTN has rightly say that hypertension is a disease whereas only 88% of the respondents with HTN rightly quote that hypertension is a disease.

The investigation on the gender means the more prone of gender to hypertension. This is significant because the study is confined on women population as the number of registered women patient outgrowth that of male patient. The data shows that nearly half of the total respondents believed on the fact that male are more prone to hypertension than female. Comparatively, 40% of the respondents without HTN against 44% of the respondents with HTN have the correct knowledge that men are more prone to HTN.

It is important to know the range of normal blood pressure of human beings. It is also important to understand the health status in regards to hypertension. The data shows that nearly half of the total respondents knew the range normal blood pressure as 120/180. It is important to note that, 38% and 52% of the respondents without HTN and with HTN know the exact normal range of human blood pressure

The knowledge of the respondents on the risk factors of hypertension is explored and it is found that majority of the total respondents are well-versed with the risk factors of hypertension. Comparative examination reveals that all the respondents without HTN have the knowledge about the risk factors to hypertension whereas 94% of the respondents with HTN have the knowledge on the risk factors to hypertension.

The knowledge of the respondents on the symptoms of hypertension is studied and the study shows that 100% of both the respondents without HTN and the respondents without HTN have the knowledge on the symptoms of hypertension. And 100% and 94% of the respondents without HTN and respondents with HTN who know the risk factor of HTN. However, 92% and 88% of the respondents without HTN and the respondents with HTN know the fact that HTN is a lifestyle disease. Among the 38% and 52% of the respondents without HTN and the respondents with HTN know the normal range of

blood pressure. Lastly, 40% and 42% of the respondents correctly point out that male is more prone to HTN across the gender.

4.1.2. Attitude towards hypertension

The attitude towards hypertension greatly affects the lifestyle of an individual adversely lead to an individual having a problem with hypertension. The table 4.4(a) shows the respondents attitude towards hypertension by classifying into ten (10) categories – Hypertension as a lifestyle disease, taking green leafy vegetables important for HTN patient, avoidance additional sodium intake, unhealthy to use excess cooking oil, alcohol worsens blood pressure, regular exercise control blood pressure, regular medication important to control hypertension, regular checking of blood pressure is important, lifestyle modification helps in controlling blood pressure, hypertension during pregnancy is dangerous, hereditary risk factor for hypertension, excessive worries and stress leads to hypertension, smoking increase risk for hypertension, obesity increase risk for hypertension. The attitude of the respondent is studied using Likert Test Scale.

Table 4.6 Attitude on hypertension (a)

Sl/no.	Particulars	Nature		(%)
		HTN		
		No	Yes	
I	HTN is a lifestyle disease			
	Strongly disagree	2	1	3.0
	Disagree	13	17	30.0
	Neither agree nor disagree	0	0	0
	Agree	27	27	54.0
	Strongly agree	8	5	13.0
II	Overeating leads to HTN			
	Strongly disagree	0	0	0
	Disagree	5	6	11.0
	Neither agree nor disagree	1	0	1.0
	Agree	27	31	58.0
	Strongly agree	17	13	30.0
III.	Green leafy vegetables important for HTN patient			
	Strongly disagree	1	0	1.0
	Disagree	2	3	5.0
	Neither disagree nor agree	0	1	1.0
	Strongly Agree	30	32	62.0
	Agree	17	14	31.0

Source : Computed

The respondent's attitude on hypertension as a lifestyle disease is examined. The data shows that more than half (54%) of the respondents agree that hypertension is a

lifestyle disease. In addition, nearly one-third (30%) of the respondents disagreed on the fact that hypertension is lifestyle disease, followed by the 13% of the respondents who strongly agreed that hypertension as a disease induced out of lifestyle and the remaining 3% strongly disagreed on the fact that hypertension is a lifestyle disease (Sanwari, 2008).

The attitude on overeating leading to hypertension is explored. The study shows that more than half of the entire respondents agree that overeating leads to hypertension, 30% of the respondents strongly agree that eating too much could cause to hypertension while 11% of the entire respondent disagree on the fact that overeating leads to hypertension (Vaesa, 2016). Thus 1% respondents does not disclose opinion on whether overeating leads to hypertension.

Eating of green leafy vegetables regularly is one of an important element for controlling hypertension (Mercola, 2016), so it is imperative to know the attitude of the respondents on regular taking of green leafy vegetables helps the management of HTN hypertensive patient. The data shows that, 60 % of the entire respondents strongly agree that the importance on taking more of green leafy vegetables to control hypertension for hypertensive patient, followed by 31% of the respondents who agree that green leafy vegetables is good for hypertensive patient. In spite of the fact, 5% of the respondents have disagreement on the statement. There is an equal distribution of 1% respondents each on who strongly disagree and respondents who are having neutral opinion in this regards.

Contd.

Sl/no.	Particulars	Nature		(%)
		No	Yes	
IV	Avoid additional sodium intake controls HTN			
	Strongly Disagree	0	0	0
	Disagree	8	4	12.0
	Neither agree nor disagree	0	1	1.0
	Agree	40	42	82.0
	Strongly agree	2	3	5.0
V	Healthy to use excess cooking oil			
	Strongly Disagree	4	4	8.0
	Disagree	32	40	72.0
	Neither agree nor disagree	0	0	0
	Agree	10	3	13.0
	Strongly agree	4	3	7.0
VI	Alcohol worsens BP level			
	Strongly disagree	2	0	2.0
	Disagree	3	1	4.0
	Neither agree nor disagree	1	3	4.0
	Agree	23	24	47.0
	Strongly Agree	21	22	43.0
VII	Regular exercise control increase BP			
	Strongly disagree	1	0	1.0
	Disagree	1	0	1.0
	Neither agree nor disagree	0	0	0
	Agree	29	29	58.0
	Strongly agree	19	21	40.0
VIII	Regular BP checking is important			
	Strongly disagree	1	0	1.0
	Disagree	3	3	6.0
	Neither agree nor disagree	0	0	0
	Agree	37	39	76.0
	Strongly agree	9	8	17.0
IX	Regular medication important for HTN			
	Strongly disagree	0	1	1.0
	Disagree	3	4	7.0
	Neither agree nor disagree	0	1	1.0
	Agree	37	32	69.0
	Strongly agree	10	12	22.0
X	Lifestyle modification in controlling HTN			
	Strongly disagree	0	0	0
	Disagree	0	0	0
	Neither agree nor disagree	1	1	2.0
	Agree	34	34	68.0
	Strongly agree	15	15	30.0

Source : Computed

Respondent's attitude on the necessity to avoid additional sodium intake is explored. The data shows that 82% of the respondents agree on the fact that additional sodium intake is to be avoided (Whitcomb, C. 2008) contrary to 12% of the respondents who disagree with the statement. However, 5% of the respondents strongly agree on the opinion and the remaining 1% of the respondents does not disclose the opinion. The data reveals that none of the respondents were strongly disagree additional sodium intake.

Another eating habit relevant to hypertension is the quantity of intake of cooking oils. The attitude of the respondents was explored on the statement and the data shows that 72% of the respondents were disagree with the need for restriction on the amount of cooking oil consumed by hypertensive patient. This group of respondents does not find the connection between cooking oil consumption and hypertension in which there is to some extent have influence on developing hypertension in an individual (Soriguer, F. et, al. 2003). On the other hand, less than one fifth of the respondents agree on the statement that is responsible for hypertension. Thus, 7 % of the respondents strongly agree on the quantity of intake of cooking oil as control measures of hypertension while 8 % of the respondents strongly disagree on the statement.

Several explorations on the contribution of lifestyle to hypertension including alcohol intake is attempted. The fact that taking of alcohol worsens the blood pressure level is being studied (Sheps, S.G. 2016). The data shows that nearly half of the respondents agreed on that taking of alcohol could worsen the health condition of hypertensive patient; followed by a little less of 47% of the respondent who strongly agree on the statement that alcohol worsens blood pressure level. Majority of the entire respondents agree and also strongly agree that taking of alcohol is unhealthy lifestyle for hypertensive patient. Meanwhile, there is an equal distribution of the respondent who disagree on the statement and the respondents who does not reveal their opinion on the matter covering 4% and 2% of the respondents respectively.

The importance of taking regular physical exercise is healthy habit of every person and is also a commonly known important element in controlling hypertension (Hillman, G.C. & Kravitz, L. 2006). Therefore, an opinion of the respondents on the fact that regular exercise controls the blood pressure is examined. The data depicts that 58% of the respondents agreed on this particular statement and another 40% of the respondents

strongly agreeing on the statement. Majority of the entire respondents are having the attitude that taking regular exercise helps in controlling the blood pressure. On the other hand, that there is an equal distribution of 1.0% of the respondents who strongly disagree and disagree on the fact that blood pressure can be controlled through regular physical exercise.

Another important component in understanding the attitude of the respondents on the importance of regular checking of blood pressure is examined. The study shows that, 76% of the respondents agree on the fact that that regular checking of blood pressure as a means for controlling high blood pressure (Mehmet, 2000), followed by 17% of the respondents who strongly agreeing with the importance on regularly monitoring of blood pressure. The data shows that remaining 6% of the respondents disagree with the statement and a few of 1% of the respondents strongly disagree with the statement. According to them, constant checking of blood would not help them to reduce the blood pressure count and do not help in the controlling of blood pressure

It is important to know the respondent's attitude's on the regular intake of medication for controlling hypertension since regular medication greatly helps in controlling hypertension (American College of Cardiology, 2013). The shows that 69% of the respondents agree on the importance of regular medication in controlling blood pressure, that is strongly agreed by 22% of the respondents. Meanwhile, 7% of the respondents disagree on the statement. There is an equal distribution of 1% respondents between who totally disagree and respondents who does not reveal their attitude in this regard.

The respondent's perception on the felt needs of changing of lifestyle is explored since modifying to healthy lifestyle helps in preventing and controlling hypertension (Appel, L.J. 2003). The data shows that 68% agree that changing of lifestyle helps in controlling blood pressure and another 30% of the respondents strongly agree on the changing of lifestyle. Thus, 2% of the entire respondent disagrees on the need of changing of lifestyle to reduce the incidence of hypertension.

Contd.

Sl/no.	Particulars	HTN		(%)
		No	Yes	
XI	HTN during pregnancy is dangerous			
	Disagree	4	7	11.0
	Agree	35	32	67.0
	Strongly agree	11	11	22.0
XII	Hereditary risk factor for HTN			
	Strongly disagree	1	0	1.0
	Disagree	18	20	38.0
	Agree	26	28	54.0
	Strongly agree	5	2	7.0
XIII	Excessive worries and stress led to HTN			
	Strongly disagree	0	1	1.0
	Disagree	4	4	8.0
	Neither agree nor disagree	0	1	1.0
	Agree	33	37	70.0
	Strongly agree	13	7	20.0
XIV	Smoking increase risk for HTN			
	Strongly disagree	0	1	1.0
	Disagree	0	3	3.0
	Agree	36	35	71.0
	Strongly agree	14	11	25.0
XV	Obesity risk for HTN			
	Disagree	4	4	8.0
	Agree	35	39	74.0
	Strongly agree	11	7	18.0

Source : Computed

It is significant to observe the attitude of the respondents on the risk of hypertension during pregnancy since hypertension during pregnancy is found to be quiet dangerous (Kumar, P. 2016).The data shows that 67% of the respondents agree that hypertension during pregnancy could lead to pregnancy related complications and another 22% of the respondents strongly agree that hypertension during pregnancy is dangerous. However, and the remaining 11% of the respondents disagreed on the fact that hypertension is dangerous during pregnancy.

Hereditary is another important determining factor to hypertension (New Health Guide 2016). The attitude of the respondent on hereditary as a risk factor of hypertension is explored. The data shows that more than half (54%) of the respondents agreed that hereditary is one of the risk factor of hypertension and another 7% of the respondents

strongly agree on the statement. While, in contrary to the opinion, 38% of the respondents disagree and 1% of the respondents strongly disagree on the shared statement.

Another commonly known risk to increase of hypertension is on excessive worries and stress (Bailey, E. 2013). The data showed that 70 % of the respondents agree that excessive worries and stress could shoot-up the blood pressure and increase the chance of hypertension and also another 20% of the respondents strongly agree on the statement. While, 8% of the respondents were disagreeing with such statement and also 1% of the respondents strongly disagree and does not have any idea in relation to the subject mentioned.

The relationship between hypertension and smoking is examined as smoking is considered as a contributing factor to hypertension (Viridis, A. 2010). The data shows that 71% of the respondents agree that smoking is harmful for hypertension and is strongly agreed by 25% of the respondents. While 3% of the respondents do not perceived the connection between smoking and hypertension and the remaining 1% of the respondents strongly oppose the statement.

Obesity is one of the common risk factor of hypertension (Perry, M. 2017) therefore attitude on whether obesity hypertension as a risk factor is examined. The data shows that 74% and 18 % of the total respondents agree and strongly agree on that obesity increases the chance of hypertension. Overall, 92% of the respondent's attitude reveals that obesity is another risk factor to hypertension. On the other hand, 8% of the respondents disagree with the statement that just being obese could not increase the chance of hypertension.

Table 4.6.1: Attitude on hypertension (b)

Sl/ no.	Attitudes	Hypertension				Total	
		No		Yes			
		Mean	SD	Mean	SD	Mean	SD
1	Regular exercise component to control increase BP	4.3	0.8	4.4	0.5	4.4	0.6
2	Lifestyle modification helps in controlling HTN	4.3	0.6	4.3	0.6	4.3	0.6
3	Alcohol worsens blood pressure level	4.2	1.0	4.3	0.7	4.3	0.9
4	Green leafy vegetables important for HTN patient	4.2	0.8	4.1	0.7	4.2	0.8
5	Smoking increase risk for HTN	4.3	0.5	4.0	0.8	4.2	0.7
6	Sedentary common risk factor for HTN	4.1	0.8	4.1	0.5	4.1	0.7
7	Overeating leads to HTN	4.1	0.9	4.0	0.9	4.1	0.9
8	Regular medication important for HTN	4.1	0.7	4.0	0.9	4.0	0.8
9	Regular checking of BP level is important	4.0	0.8	4.0	0.6	4.0	0.7
10	Obesity risk for HTN	4.1	0.7	4.0	0.7	4.0	0.7
11	HTN during pregnancy is dangerous	4.1	0.7	3.9	0.9	4.0	0.8
12	Excessive worries and stress led to HTN	4.1	0.8	3.9	0.8	4.0	0.8
13	Avoid additional sodium intake	3.7	0.8	3.9	0.6	3.8	0.7
14	HTN lifestyle disease	3.5	1.2	3.4	1.1	3.4	1.1
15	Hereditary risk factor for HTN	3.3	1.1	3.2	1.0	3.3	1.1
16	Healthy to use excess cooking oil	2.6	1.1	2.2	0.9	2.4	1.0

Source: Computed

Hence, in regards to the attitude of the respondents on hypertension the regular exercise, lifestyle modification and smoking has the highest mean score of 4.3, alcohol and green leafy with a mean value of 4.2 followed by sedentary common risk factor for HTN, overeating leads to HTN, regular medication important for HTN, obesity risk factor for HTN, HTN during pregnancy is dangerous, excessive worries and stress led to HTN with a mean score of 4.1, regular checking of BP level is important with a mean value of 4.0. The others avoid additional sodium intake, HTN lifestyle disease, and hereditary risk factor for HTN and healthy to use excess cooking oil has a mean value ranging between 3.7 and 2.6

4.1.3 Practice towards hypertension

The regular practice of a person greatly influences the health status of an individual including the hypertensive patient. Therefore, it is crucial to know the lifestyle practice of an individual in order to have an in-depth understanding of the disease. The

medicine for the management of their ailment. The entire respondent which comprises of 16% is regular and give importance in regular intake of medicine prescribed.

It studied whether the respondent is particular in taking suggested healthy diets in order to take care of their health. The data shows that 44% of the respondents never pay heed on the diet suggested by an expert in order to stay healthy, followed with 40% of the respondents sometimes cared and give importance on the their diet intake when their health condition degrade and the remaining 16% of the respondents really used to take diet according to the suggestions given by an expert.

Study on the number of respondents taking normal diet is conducted out of which maximum (38%) number of respondents practice normal diet, followed by respondents who never take normal diet covering 35% of the total number of respondents and the remaining 27% of respondents take normal diet.

Since taking of too much salt can sometimes be included in one of the factor that leads one to become a hypertensive patient. Therefore, study in order to probe deep into the amount of salt take intake of the respondents is conducted. The data signifies that 57% of the respondents never practice taking low salt diet which is one of the significant controlling factors of hypertension, 25% of the respondents sometimes by chance take low salt diet and a very less number of respondents give importance in taking low salt diet covering 18% of the total number of respondents.

One of the factors that lead to hypertension is taking of fatty foods and the data shows that 57% of the respondents never take low fat diet, followed by 25% of the respondents who sometimes take low fat diet and the remaining 18% of the respondents always take low fat diet only.

Regular physical exercise helps in the management of hypertension therefore; study is conducted to find out the respondents who practice physical exercise for the management of health. The data shows that 59% of the respondents rarely take physical exercise, 22% of the respondents used to take physical exercise when the need arises. The least number of 19% of the respondents is the one who has taken physical exercise regularly.

Contd.

Sl/no.	Particulars	HTN		(%)
		No	Yes	
VII	Intake table salt daily diet			
	Rarely	29	35	64.0
	Regularly	17	12	29.0
	Sometimes	4	3	7.0
VIII	Tobacco products consumption			
	Yes	36	36	72.0
	No	14	14	28.0
VIII (a)	If yes, which form			
	Smoke form	6	10	16.0
	Smokeless form	19	18	37.0
	Dual users	10	9	19.0
	Do not take	15	13	28.0
IX	Amount of cigarette in a day			
	less than 5 rolls	7	6	13.0
	1 Packed	5	12	17.0
	3 Packed	1	2	3.0
	Do not take	37	30	67.0
XI	Amount of smokeless form consumed a day			
	one packed	22	17	39.0
	3 packed	1	1	2.0
	Do not take	27	32	59.0
X	Frequency of checking BP level			
	Once in 15 days	1	2	3
	Once in 1 month	4	7	11
	Once in 3 months	8	22	30
	Once in a week	0	1	1
	Never	37	18	55

Source: Computed

It is commonly known that taking of table salt is one of the factors that increase the risk of hypertension. Therefore, the exploration on the respondents who have the habits of taking table salt/additional salt in their daily diet shows that 64% of the respondents are the one who rarely take table salt, followed by 29% of the respondents who regularly take table salt in their diet and the remaining 1% of the entire respondents sometimes take table salt in their meals.

Smoking and consumption of tobacco products has great impact on the health status of an individual. The option consists of whether the respondents consume tobacco products or not. The respondents are classified into four (4) sub-categories as smoke form

users, smokeless form users, dual users and not all taken tobacco products. Further, majority of the respondents taking tobacco products indulge in smokeless form of tobacco forming 37% of the total population, followed by 19% of the respondents who are dual users, 16% of the respondents are smoke form users and 28% of the respondents are the respondents are not taking tobacco products.

In order to have clear understanding about the tobacco consumption pattern of the respondents and the study shows that 67% of the respondents do not take smoke form, whereas 17% of the entire respondents smoke 1 packed of cigarette daily, followed by 13% of the respondents who smoke less than 5 rolls a day and 3% of the respondents who smoke 3 packed of cigarette a day.

The smokeless tobacco users among the respondents are also asked the amount of consumption daily. The data shows that 59% of the respondents do not have the habit of taking smokeless form of tobacco, which is followed by 39% of the respondents who consumed 1 packed of smokeless tobacco products and the other 2% of the respondents consumed 3 packed of smokeless form tobacco products in a day.

It is impetus to know the level of blood pressure to take have care of the health status. The number of respondents who are aware of the frequency of blood pressure is explored. The data shows that, out of the entire respondents 55 % of the respondents never checked their blood pressure, followed by 30% of the respondents who used to check their blood pressure once in three months, 11% of the respondents checked their blood pressure once in 1 month and the remaining 3% of the respondents regularly check their blood pressure, i.e. once in 15 days.

Contd.

Sl/no.	Particulars	HTN		(%)
		No	Yes	
XI	Intake of fruits and vegetables			
	Always	10	13	23.0
	Sometimes	22	28	50.0
	Never	18	9	27.0
XII	Consultation of dietician			
	Always	1	0	1.0
	Sometimes	4	6	10.0
	Never	45	44	89.0
XIII	Subscription health related magazine			
	Always	6	5	11.0
	Sometimes	35	25	60.0
	Never	9	20	29.0
XIV	HTN affected community participation			
	Always	2	2	4.0
	Sometimes	4	20	24.0
	Never	44	28	72.0
XV	HTN affected occupation			
	Always	2	2	4.0
	Sometimes	5	18	23.0
	Never	43	30	73.0

Source : Computed

Figures and parentheses are percentages

Taking of fruits and vegetables is a healthy practice to balance diet habits. So, the level of fruits and vegetables intake was explored. The data shows that, half (50%) of the respondents are the one who sometimes take fruits and vegetables in their diet, it is followed by 27% of the respondents who never take fruits and vegetables and the remaining 23% of the respondents regularly include fruits and vegetables in their daily diet.

It is advisable to consult dietician for maintaining healthy status. Therefore, the number of respondents who consult dietician is explored. The data diet that a maximum of 89% of the respondents never consult dietician, 10% of the respondents consult dietician when the need arises and a very few of 1% of the entire respondents always consult dietician.

The knowledge about hypertension helps in controlling and preventing the disease. Study in regards to number of respondents who subscribe or read HTN related magazine is conducted. The data shows that 60% of the respondents sometimes used to

subscribe or read HTN related magazine, followed by 29% of the respondents who never happen to read or subscribe health related magazine till date and the remaining 11% always read magazine that is related to hypertension and health.

The exploration of the respondents whose participation in community activities is affected because of hypertension shows that 72% of the respondents are never disturbed because of hypertension in their participation in community activities, 24% of the respondents are the one who are sometimes disturb for active participation in the community activities and 4% of the respondents cannot always participate in community activities because of their ill-health. Further, the respondents occupation was affected because of hypertension shows that 73% of the respondents are never disturbed by hypertension in their concentration and contribution in their daily occupation, followed by respondents who are sometimes disturb in their occupation because of hypertension and the remaining 4% of the entire respondents are the one who are always disturbed in their occupation because of hypertension.

Table 4.7.1: Practice (In mean & Standard deviation)

Sl.No	Practice	Hypertension				Total	
		No		Yes		M	SD
		M	SD	M	SD		
1	Regular in taking prescribed medicine	2.8	0.5	2.0	0.8	2.4	0.8
2	Particular on suggested diets	2.4	0.7	2.1	0.7	2.3	0.7
3	Intake of normal diet	2.3	0.8	1.9	0.7	2.1	0.8
4	Intake of low salt diet	2.4	0.8	2.4	0.8	2.4	0.8
5	Intake of low fat diet only	2.3	0.8	2.0	0.8	2.1	0.8
6	Physical exercise for management of HTN	1.4	0.8	1.8	0.8	1.6	0.8
7	Taking of table salt daily diet	1.5	0.6	1.4	0.6	1.4	0.6
8	Take tobacco products	1.9	0.7	2.0	0.7	2.0	0.7
9	Smoke/chew tobacco every after food	1.7	0.9	1.6	0.9	1.7	0.9
10	Amount of cigarette in a day	4.1	1.6	3.7	1.6	3.9	1.6
11	Amount of smokeless form consumed a day	2.6	1.5	2.9	1.4	2.8	1.5
12	Frequency of checking BP level	4.4	1.1	3.5	1.2	3.9	1.3
13	Increase intake of fruits and vegis	2.2	0.7	1.9	0.7	2.0	0.7
14	Consultation of dietician	2.9	0.4	2.9	0.3	2.9	0.4
15	Subscribe health related magazine	2.1	0.6	2.3	0.6	2.2	0.6
16	HTN affect community participation	2.8	0.5	2.5	0.6	2.7	0.5

Source: Computed**Figures and parentheses are percentages**

Hence, in regards to the practice of the respondents related to hypertension, the amount of cigarette and smokeless form consume in a day has a mean score value of 3.9, followed by respondents consulting dietician with a mean value of 2.9, respondents who consume smokeless form tobacco products have mean score value of 2.8, respondents whose participation in the community is affected by HTN with a mean value of 2.7, respondents who are regular in taking medicine and who take only low salt diet have 2.4 mean score value, respondents who are particular on suggested diet having mean score value of 2.3, respondents who subscribe health related magazine covers mean score value 2.2, respondents who take normal diet and low fat diet only have mean score of 2.1. However, respondents who take fruits and vegetables and who consume tobacco products have similar mean score of 2.0, respondents who have the habits of smoking and chewing tobacco products have mean score value of 1.7, followed by respondents who used to

take physical exercise for hypertension management having a mean score value of 1.6 and lastly having 1.4 mean score value are the respondents who have the habit of taking table salt regularly.

Table 4.8. Difference in knowledge, attitude and practice

Sl.No	Particulars	Hypertension				Total		t'
		No		Yes				
		Mean	SD	Mean	SD	Mean	SD	
1	Knowledge	0.9	0.1	0.8	0.2	0.8	0.2	1.55
2	Attitude	3.9	0.3	3.9	0.3	3.9	0.3	1.01
3	Practice	2.7	0.3	2.5	0.2	2.6	0.3	3.813**

Source: Computed

*p<0.05 **P<0.01

The differences in knowledge, attitude and practice among the respondents were explored. Table 4.8 shows that there is significance difference between the practice of respondents without HTN and respondents with HTN. In contrary no significance difference was found between respondents without HTN and respondents with HTN in terms of knowledge. Similarly, it is statistically proved that there is no significant difference in the attitude of respondents without HTN and respondents with HTN in relation with hypertension disease.

Table 4.9 Relationship between knowledge, attitude and practice

S/n	Particulars	Knowledge	Attitude	Practice
1	Knowledge	1	.213*	0.075
2	Attitude	.213*	1	-0.076
3	Practice	0.08	-0.076	1

Source : Computed

*p<0.05 **P<0.01

The relationship between knowledge, attitude and practice was generated using Pearson Correlation matrix. Table 4.9 shows that there is positive correlation between knowledge and attitude among the respondents towards hypertension which means the higher the knowledge, the attitude of the respondents is increasing. However, there is no correlation between knowledge and practice which means even though respondents are well versed with hypertension disease they are not stepping out to manage or control it. Similarly, the respondents are having positive attitude towards hypertension control statistically it is proved that it is not followed with practice.

4.10 Suggestions given by respondents

Respondents make various suggestions various preventive and rehabilitative measures. The table consists of eight variables – awareness on hypertension, importance of health check-up to diagnose hypertension, awareness on healthy dietary practice, dissemination of information on the available services, regular health checkup and BP checking, counseling services, distribution of IEC materials of HTN patients, HTN health care services at free or affordable cost.

Table 4.10. Suggestions given by Respondents

Sl/No.	Suggestions	Hypertension				Total	
		No		Yes		Mean	N
		N	%	Mean	N		
1	Regular health checkup and BP checking	50	100	50	100	100	100
2	Awareness on HTN	50	100	49	98	99	99
3	Importance of health check-up to diagnose HTN	50	100	49	98	99	99
4	Awareness on healthy dietary practices	49	98	49	98	98	98
5	HTN health care services at free or affordable cost	49	98	49	98	98	98
6	Dissemination of information on the available services	49	98	48	96	97	97
7	Distribution of IEC materials of HTN patients	48	96	48	96	96	96
8	Counseling services	40	80	38	76	78	78

Source : Computed

The respondents have given suggestions for the control and management of hypertension. The data shows that majority 99% of the respondents suggest to give awareness to the general population to prevent hypertension and the remaining 1% of the respondents don't find it necessary to conduct awareness campaign to prevention hypertension. While, majority (99%) of the respondents suggests that giving awareness on the importance of health check-up to diagnose hypertension is necessary to prevention hypertension, followed by 1% of the respondents who don't find the need for giving awareness on the importance of medical check-up in order to diagnose hypertension. Further, awareness on healthy dietary practice helps to a great extent to avoid hypertension and 98% of the respondents suggest on enlightening the whole population

about the importance of healthy dietary practice and the remaining 2% does not find the need to suggest on giving awareness on the importance of healthy dietary practice.

Meanwhile, 97% of the respondents suggest taking preventive measures of hypertension by dissemination of information (IEC) on the available of services and 3% of the entire respondents do not find the need to suggest it. Thus, 96% of the respondents suggests on distribution of IEC materials of hypertensive patient and the remaining 4% of the entire respondents does not find the need to suggest on distribution of IEC materials of hypertensive patient in order to rehabilitative hypertensive patient.

The regular health checkup and BP checking as rehabilitative measures is suggested by the entire respondents.

The provision of counseling services provided to hypertensive patient is suggested by 78% of the respondents, followed by 22% of the entire respondents does not find the need to suggest giving counseling services as rehabilitative measures of hypertension.

Finally, hypertensive health care service at free or affordable cost was suggested by 98% of the total respondents, whereas 2% of the respondents does not need for giving suggestion to provide hypertensive health care services at free or affordable cost as rehabilitative measures.

4.2 Qualitative Informations

The qualitative dimension is explored through Key Informant Interviews (KIIs), Focus Group Discussion (FGD) and Case Studies were employed.

4.2.1 Key Informant Interviews (KIIs)

A study is conducted among the health care personnel who are working in Non-Communicable Disease (NCD) Cell, Civil Hospital, Lunglei. It helps in understanding of the ground reality, the prevalence of the disease among the women, knowledge, attitudes and practices (KAP) with hypertension, and also on the issues and challenges faced by women with HTN.

i) Interview with Programme Coordinator, NCD Lunglei District Lunglei

Date : 14th October 2015, Wednesday

Time : 11 : 00 Am

Place : Non-Communicable Disease Cell, Office

It has been found that hypertension is the most common non communicable disease among women in Lunglei District; out of which majority of the registered patients reside inside Lunglei town area.

In regards to the knowledge on hypertension, the informant believes that majority of the population are not fully educated on the fact that high blood pressure over a time damage the body and cause related health complications including aneurysms (which develop and grow for years without causing signs or symptoms until they rupture, grow large enough to pressure on nearby body parts, or block blood flow), chronic kidney disease (when blood vessels narrow in the kidneys, possibly, causing kidney failure) (National Heart, Lung and Blood Institute, 2015). Therefore, it was observed that the public in general were less afraid of becoming a hypertensive patient unlike HIV/AIDS, Hepatitis C, etc.

The attitude of the informant towards hypertension revealed that most of the hypertensive cases among the women within the area were preventable and the lifestyle responsible for it. The incidences could be reduced by modifying lifestyle practice and adoption of healthy lifestyles. Therefore, the relevance of prevention intervention to reduce the harm was emphasized.

Further, there were only a few people who would like to adopt the healthy lifestyle even after aware of the harmful consequences of hypertension. However, the incidence could not be reducing without lifestyle modification. Thus, majority of hypertensive patients enjoy their choice of lifestyle and satisfied with medical treatment.

The suggestions provided by the informant were to conduct public awareness generation, assessment on the knowledge on hypertension, study on accessibility of the services, and utilization pattern.

ii) Interview with Medical Officer, NCD Lunglei District Lunglei

Date : 20th November 2016,

Time : 11 : 00 Am

Place : Non-Communicable Disease Cell, Office

The informant mentioned that of all the Non Communicable disease hypertension is projected to be the leading cause of major health related issues and she confirms that even though awareness campaign is already done it needs to be done in a wider scale and

further states that the current awareness program reached only some selected few group of people while the other group are left out in the dark.

Therefore, the general population still finds is fine to live with hypertension despite of the dreadful impact it have in an individual and still doesn't have any concern to adopt healthy lifestyle and practices to be free from hypertension disease.

4.12 Focus Group Discussion (FGD)

To have a deeper understanding about hypertension and its related complications focused group discussion (FGD) is conducted among the respondents without HTN and respondents with HTN .

Table 4.12 Group Profile

Client no	Health status	Age	Marital status	Family member	Educational qualification	Occupation	Socio-economic category
1	NHTN	50	Married	4	HSLC	Teacher	APL
2.	HTN	56	Widow	8	HSLC	Home Maker	APL
3.	NHTN	32	Married	6	Graduate	Petty Business	APL
4.	HTN	46	Married	5	School Dropout	Home maker	BPL
5.	HTN	47	Married	7	HSLC	Home maker	APL
6.	NHTN	54	Married	9	HSLC	Govt. Servant	APL

The group member thought that hypertension is a modifiable disease which one suffers because of sedentary lifestyle and can be controlled by adopting healthy lifestyle and practices. They have a strong opinion that, an individual develops hypertension in many cases is due to ignorance about the harmful impact it can cause. Contrary to it, there is also number of cases where the disease developed is due to carelessness in the way of taking foods a as well as the way he lives. In regards to the know - how, of the harmful effect it has in an individual, it is important to note that, of many complications and harmful impact it can cause in an individual they figured out the harm it can cause in a pregnant women. However, next is about the damage alcohol can worsens blood pressure level and they even mentioned that hypertension can even damage the memory

of a person who develop hypertension for a longer period of time. Further, mentioned that enough rest/sleep will help in controlling HTN. The members without hypertension are not clear with the normal range of blood pressure against the member with hypertension.

They totally admit that HTN is a lifestyle disease. majority of the participants don't think HTN is caused by hereditary and excessive worries is the main cause of HTN and further believe that medicinal plants are best means for controlling high blood pressure. According to them HTN leads to insomnia, stroke, physically and mentally impairment, etc. Among the members, some of the group member thought HTN can be cured.

They controlled their diet only when HTN arises and when comes down continues to take normal diet, they are conscious about their health only when problem arises. It is important to note that, most of them usually like to take oily foods stuff and doesn't have the habits of taking exercise. In practice related to hypertension majority of them have the habits of taking tobacco and cigarette. Before becoming HTN patient most of them does not have concern about their diet and take preventive measures in order to avoid of becoming hypertension victim even though they know that the disease can come to them anytime.

Suggestions out of Focus Group Discussion (FGD)

The group makes further preventive suggestion and suggested on conducting a wider scale awareness campaign in relation to HTN, to enlighten the general population about the dreadful harm it can cause in a person and encourage to control in intake habits. They further added that, one needs to go for a regular check up of Blood Pressure and therefore will prevent from a long-term effect.

Rehabilitative suggestion includes modifying of sedentary lifestyle and adopting healthy lifestyle practice and to ensure continuity in checking BP, the testing kit should be made available to every member and also taking medicine regularly without fail

4.2.3 CASE – Studies

Case study helps in having a clear understanding and knowledge about hypertension at an individual and personal level. Therefore, two (2) case studies is conducted separately among the respondents without HTN and the respondents with HTN.

Client I (HTN)

Personal Information

Age	: 46 years
Marital status	: Married
Educational qualification	: HSLC
Occupation	: Business (Medical Shop)
Age when 1 st child born	: 21 years
Duration as HTN	: around 10 years back
Medication	: Regular, but stopped for 1 month
Severe HTN case	: 4 yrs back, need help from others
Highest BP count	: 150/100

Family Information

Husband's Job	: J.E
Children	: 2 Male, 1 female (Total – 3)
Father	: Hypertensive patient

The client is certain about the normal range of high blood pressure (ie, 120/80). She thought that HTN comes mostly when she was physically tired and mentally stressed out.

She thought that hypertension doesn't disturb her in her normal functioning. According to her, HTN can be cured under a careful observation and control. She does not have negative feelings of living with HTN.

From the interaction it has been found that the client is fond of oily food stuff, she don't like to take boiled foods/vegis. She loves to taste Mizo bai. She never consult dietician. She hardly take physical exercises in her lifetime. She went to her shop which is 15 minutes walking distance mostly with motor because she hate sweating. She doesn't change her eating neither habits nor her intake of being HTN patient. She preferred to take food as that of her other family members take. She still continues to take pork which is harmful for a person with HTN when her case subside and control herself when it becomes severe.

Client No. 2 (Non – HTN)

(2) Personal Information

Age : 41 years
Marital status : Married
Children : 4
Occupation : Farmer
Educational qualification : PU

Family Information

No. of family : 5
Head of the family : Father
Husband occupation : Farmer
Father : HTN patient

HTN patient are weak and have dizziness, and when the case is becoming high they are hot headed. She is well-versed with the normal blood pressure range. Hypertension is a disease which cannot be cured but can be controlled and prevented. She firmly believes that, old age is associated with HTN, among the young people who develop HTN she thought that, it is common a fat person. She further added that alcohol strongly contributed to developing HTN and further concludes that HTN is a disease which can even cause death.

Generally fat people are HTN patient and sedentary lifestyle leads to hypertension. Doing manual work helps to be safe from the disease. According to her, she rightly quoted that HTN is more common with male.

She usually takes exercise, taking table salt, like oily food, sweet, fruits, intake water. She is never disturbed because of health in community service and occupation. Not particular with her diet. Low sodium salt. She really likes sweets.

4.13 Conclusion

From the information collected through questionnaire, KIIs interview, FGD and Case Study, it had been the general opinion that the Mizo population is enlightened with the know-how of the term hypertension but is still not fully aware of the dreadful impact it have in the health condition. Therefore, it adversely impacts the poor adoption of healthy lifestyle and practices.

Chapter V

Conclusion and Suggestions

This chapter will give information on the general findings of the study and suggestions given by the respondents which is collected through interview schedule, Key Informant Interviews (KIIs), Focus Group Discussion (FGD) and Case Study.

5.1. Findings

The present study attempts to understand how lifestyle can be a factor leading to hypertension among women in Mizo Society. Mizoram is a state which is highly influenced by the sedentary lifestyle of people in developed countries. In addition, majority of the people are still ignorant about the effect of sedentary lifestyle. Therefore, various lifestyle diseases such as hypertension, diabetes, cardiovascular disease, etc. became one of the factors that develop chronic illness in an individual and later even cause mortality across the gender. The present study is based on the perceptions on knowledge, attitude and practice, the relationship between knowledge and attitude, knowledge and practice of women without HTN and women with HTN.

The design for the study is descriptive in nature and is a cross-sectional study. Women between the age group 30 – 60 in Lunglei, formed the universe of the study. The study is based on primary and secondary data collected through mixed methods. The quantitative data was collected through structured interview schedule. Qualitative methods like Key Informant Interviews (KIIs), Focus Group Discussion (FGD), Case studies are employed. Multi – stage sampling technique is used to contact women respondents without hypertension and women with hypertension. The sample consists of 100 respondents, 50 with HTN and 50 without after obtained informed consent. Data collected through structured interview schedule was processed with the help of Microsoft Excel and analyzed with SPSS (Statistical Package for the Social Sciences).

The objective of the study is to understand into the differences in the demographic, social and economic characteristics of women with HTN and women without HTN. To assess the differences in knowledge, attitude and practice of women with HTN and women without HTN, to enquire into the differential patterns of lifestyle of HTN women with HTN and women without HTN, to assess the association between knowledge, attitude and practice of lifestyle across the gender, to suggest measures for

social work intervention. The study also has the following hypotheses: There is a relationship between knowledge and attitude of women with HTN. There is a relationship between knowledge and practice of women with HTN. The higher the knowledge and attitude better the lifestyle practices by women.

The first two hypotheses were drawn intuitively while the last hypothesis draws inspiration from an earlier study by Iyalomhe, G. (2010).

The research observed the following findings:-

* Majority of the hypertensive respondents are in their early adulthood (30-39) whereas, non hypertensive respondents are in their late adulthood (50-59) and most of the both respondents are married with equal educational qualification. Both the respondents shared common family background in regards to types and forms of family which is nuclear and stable. No much difference is found in regards to economic status of both the respondents where majority of both the respondents are homemaker, having similar annual personal income which is between 50,000 to 1 lakh and belong to AAY category. Similarities is seen in both the respondents in regards to social status where majority are Christian and they are belongs to Mizo tribe.

* Findings also reveal that majority of both the respondents are well aware of the symptoms of hypertension and its risk factors. Whereas, significance difference is seen in the knowledge on the range of normal blood pressure between hypertensive and non hypertensive respondents. In addition, both the respondents are enlightened with the fact that male are more prone to hypertension as compared with their female counterparts.

* Both group of the respondents are having similar attitude and mutually agree that regular exercise as a component to control hypertension, lifestyle modification helps in controlling hypertension, alcohol worsens blood pressure level, green leafy vegetables important for hypertensive patient, smoking increase risk for hypertension, sedentary lifestyle common risk factor for hypertension, overeating leads to hypertension, regular medication important for hypertensive patient, regular checking of blood pressure level is important, obesity risk factor for hypertension, hypertension during pregnancy is dangerous and excessive worries and stress lead to hypertension.

* Women with and without hypertension equally does not have any idea in regards to saying on hypertension as lifestyle disease and are doubtful of the fact that hereditary as one of the risk factor for hypertension.

* The finding proves that there is no much differences between hypertensive and non hypertensive respondents in attitude towards using excess cooking oil as a healthy practice in relation with hypertension as majority of the both the respondents disagree with the statement.

* The findings also reveal that there is significance difference between non hypertensive and hypertensive respondents in terms of their lifestyle practice. In contrary, there is no significance difference between non hypertensive and hypertensive respondents in terms of knowledge and attitude.

* The study proves that there is positive correlation between knowledge and attitude which means increase in knowledge leads to increase in attitude. However, there is no correlation between knowledge and practice, attitude and practice which means which means knowledge about hypertension does not affect the lifestyle practice by the respondents and also their attitude does not make any difference in the way they conduct themselves.

5.2. Suggestions

The suggestive measures evolved out of the research study are :-

5.2.1. Preventive measures:

a) Regular health check up and BP checking – Unless and until one knows the health status of oneself it is not possible to work for it. In order to know the health condition it is felt that regularity in checking health status and blood pressure is important.

b) Awareness on hypertension – Hypertension is common in general but, sensitizing the community the whole population is still felt by the respondents.

c) Awareness on healthy dietary practices – The respondents felt that general population of the still not yet aware about the healthy dietary practices by which one can avoid hypertension.

5.2.2. Promotion measures:

a) Individuals – Each and individuals are the direct victims of any disease developed in oneself. Taking proper health care of oneself is an individual's responsibility. Therefore,

practicing healthy lifestyle which is already known is needed. Unless and until one step out and make practical use of the knowledge he had towards hypertension and the right attitude towards hypertension.

b) Societal level:

- Community based intervention – like conducting awareness campaign on wider scale among the general population.
- Promotion of social work research on public health since there are lot of measures which have been taken out which is not utilized.
- Mass media campaign can be utilized for giving awareness about the harmful impact that hypertension can have in an individual.
- Further research study on why not the knowledge and attitude enhance the practice.

5.2.3. Rehabilitative measures:

a) Health care services at free or affordable cost – It is important to have regular Bp checking especially when one already develop hypertension. But, checking cost and the cost of instrument for Bp check gives burden to the general population. Therefore, the respondents suggest taking measures to provide health care services at free or affordable cost.

b) Dissemination of information on the available services – There are times when services are rendered for a specific illnesses in such cases the respondents suggested publicizing the available services in a wider scale.

c) Counseling services – Once a person developed hypertension it is likely to think it as a chronic illness which cannot be healed. So, in order to help dealing with the illness developed it is felt counseling services will be of great help with an individual living with hypertension.

5.2.4. Suggestions for Social Work Intervention

The suggestions for social work intervention are drawn as:-

i) Case study

Conducting case study among people with hypertension will be helpful to have a deeper understanding of the case. Since, it is found from the study that people have positive knowledge and attitude towards hypertension it is still not followed with the

adoption of healthy practice which is of must importance in order to be free from hypertension.

ii) Key Informant Interviews (KIIs)

From the information collected it has been proved that number of measures has been taken to get rid of non-communicable diseases like HTN, etc. Still the rate of people suffering from hypertension is still very high. In order to find out the real cause of the increasing rate of hypertension among the general population and to work together for promoting the health status conducting KIIs will be of great help for further works.

iii) Social work research

The method of social work research is extremely relevant to understand the trends, pattern, and causes and impact of hypertension on the individual as well as on the society. Therefore, the study found that social work research on any aspect of hypertension across the gender is necessary for public health promotion in Lunglei, Mizoram.

Introduction

The present study attempts to explore the relationship between lifestyle and hypertension among the women. The lifestyle practice plays a crucial role in the development of hypertension. To the cause of exploration on the relationship between knowledge and attitudes towards hypertension by women with hypertension (HTN) and also by women without hypertension is examined since one's knowledge and attitude greatly influence one's lifestyle practice. Therefore, a cross sectional study on the knowledge, attitude and practice by women with hypertension and by the women without hypertension from Lunglei, Mizoram is conducted.

It is the study of the occurrence and distribution of health-related states or events in specified populations, including the study of the determinants influencing such states, and the application of this knowledge to control the health problems. Therefore, it is a research among people into the frequency of occurrence of phenomena of public health, clinical, social, or biological relevance, with measures of frequency and causal assessments related to the determinants of such phenomena" (Miettinen, 2010).

Overview of Concepts

The term "**hypertension**" is another name for **high blood pressure**. Blood pressure measures the pressure of blood on the walls of your blood vessels as your blood circulates through your body. When someone has high blood pressure over a long time, the body's blood vessels may get damaged (National Aboriginal Health Organization, 2010). It is the force of blood pushing against blood vessel walls. It means the pressure in the arteries is higher than it should be. **Blood pressure (BP)** is written as two numbers, such as 112/78 mmHg. The top, 'systolic', number is the pressure when the heart beats and the bottom, 'diastolic number' is the pressure when the heart rests between beats. Normal blood pressure is below 120/80 mmHg. If an adult systolic pressure is 120/139, or diastolic pressure is 80 to 89 (or both), an adult have "pre-hypertension". **High blood pressure is a pressure** of 140 systolic or higher and 90 diastolic or higher that stays high over time (American Heart Association, 2016).

The World Health Organization's on the World Health Report 2002 identified the most important risk factors for non-communicable diseases (NCD) wherein hypertension is also included as one of the high risk factors.

According to WHO, hypertension also known as high or raised blood pressure is a condition in which the blood vessels have persistently raised pressure. Blood is carried from the

heart to all parts of the body in the vessels. Each time the heart beats, it pumps blood into the vessels. Blood pressure is created by the force of blood pushing against the walls of blood vessels (arteries) as it is pumped by the heart. Finally, the higher the pressure the harder the heart has to pump. So, high blood pressure is the primary risk factor for cardiovascular diseases (CVD) and if uncontrolled can lead to large number of complications with consequent death. It is known as the “silent killer”, as it often has no symptoms.

A **non-communicable diseases (NCD)** which are sometimes known as **lifestyle diseases** are those diseases which may develop in a person due to faulty eating and living habits. Lifestyle or non-communicable diseases are chronic (long term) in nature and do not result from an acute (short term) infection nor do they spread from one person to the other. These conditions cause dysfunctioning in the body and impair the quality of life. They may also lead to death. As these are chronic conditions they are a financial burden for lifetime. Therefore, there is an increasing concern these days about lifestyle diseases that can be easily prevented but not cured (Home Science in Daily Life).

The largest proportion of NCD deaths (48%) is caused by **cardiovascular diseases (CVD)**. As per the World Health Statistics 2012, it is estimated that out of 57 million global deaths in 2008, 36 million (63%) were due to non-communicable diseases (NCDs). In terms of attributable deaths, raised blood pressure it is one of the leading behavioral and physiological risk factor of which 13% of global deaths are attributed. Hypertension is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries. Recent reports indicated that nearly 1 billion adults (more than a quarter of the world’s population) had hypertension in 2000, and this is projected to increase to 1.56 billion by 2025. Earlier reports also suggest that the prevalence of hypertension is rapidly increasing in developing countries and it is one of the leading causes of death and disability. While, mean blood pressure has decreased in nearly all high-income countries (Supplement to Japi, 2013).

Thus, hypertension remains as one of the most important public health challenges worldwide because of the associated morbidity, mortality, and the cost to the society. It is one of the most significant risk factors for cardiovascular (CV) morbidity and mortality resulting from target-organ damage to blood vessels in the heart, brain, kidney, and eyes. Hypertension causes 7.1 million premature deaths each year worldwide and accounts for 13% of all deaths, globally (Tesema, 2016).

According to World Health Report 2002, cardiovascular diseases (CVDs) will be the largest cause of death and disability by 2020 in India. Hypertension is an important risk factor for cardiovascular complications accounting for 60% of heart failure deaths, 40% end stage renal, 75% of myocardial infarction deaths (Biritwumet al,2005) and 41%of stroke deaths in an autopsy report (Anim, 1990). High blood pressure is the blood pressure that is raised to such an extent that clinical benefit is imperative if it is lowered with medication or other therapeutic interventions. Thus, blood pressure measurement consists of diastolic and systolic components which are both important in the determination of one's cardiovascular risk (Edwards &Walker, 2001).

In a meta-analysis of 61 studies involving more than a million patients with hypertension and 12.7 million years of follow up it was observed that reducing systolic as well as diastolic BP reduced cardiovascular events. At ages 40-69 yr, each difference of 20 mmHg systolic BP or 10 mm Hg diastolic BP was associated with more than a two-fold difference in the stroke death rate, and with two-fold differences in the death rates from coronary heart disease and other vascular causes(Gupta, 2010). He further added that, reducing systolic and diastolic BP can decrease cardiovascular risk and this can be achieved by non-pharmacological (lifestyle measures) as well as pharmacological means. Lifestyle changes should be the initial approach to hypertension management and include dietary interventions (reducing salt, increasing potassium, alcohol avoidance, and multi-factorial diet control), weight reduction, tobacco cessation, physical exercise, and stress management.

The non-communicable diseases and especially cardiovascular diseases (CVD) represent the major health burden in the industrialized countries and a rapidly growing problem in the developing countries. At the same time they are an area where major health gains can be achieved. In most of the developed world three out of four deaths are due to CVD, cancer, accidents and other violent causes. Globally CVD is responsible for every third death and coronary heart disease (CHD) is already the number one killer in the world (Puska, 2002). Women with high blood pressure have a substantially increased risk of developing hypertension or a major cardiovascular event compared with women with normal blood pressure (Conen et al., 2007).

In India, according to World Health Report 2002, cardiovascular diseases (CVDs) will be the largest cause of death and disability by 2020 in India. In 2020 AD, 2.6 million Indians are

predicted to die due to coronary heart disease which constitutes 54.1 % of all CVD deaths and nearly half of these deaths are likely to occur in young and middle aged individuals (30-69 years). At present, Indians experience CVD deaths at least a decade earlier than their counterparts in countries with established market economies (EME). The Global Burden of Disease (GBD) study estimates that 52% of CVD deaths occur below the age of 70 years in India as compared to 23% in EME, resulting in a profound adverse impact on its economy. The contributing factors for the growing burden of CVDs are increasing prevalence of cardiovascular risk factors especially hypertension, dyslipidemia, diabetes, overweight or obesity, physical inactivity and tobacco use. It is an area where major health gains can be made through the implementation of primary care interventions and basic public health measures targeting diet, lifestyles and the environment.

In addition, hypertension is labeled as ‘silent killer’ because it progressively and permanently damages organs before occurrence of any diagnosable external presentation. Therefore, it can also be described as the ‘Sleeping snake’ which bites when it wakes up. In this context, hypertension presents a major area of intervention because it is a frequent condition and is amenable to control through both non-pharmacological lifestyle factors and pharmacological treatment (Bollampally et al., 2016).

Lifestyle can be simply mentioned as the way in which a person lives. A way of living of individuals, families (households), and societies, which they manifest in coping with their physical, psychological, social and economic environments on a day-to-day basis. It is expressed in both work and leisure behavior patterns and (on an individual basis) in activities, attitudes, interests, opinions, values and allocation of income. It also reflects people’s self-image or self-concept; the way they see themselves and believe they are seen by the others. Lifestyle is a composite of motivations, needs and wants and is influenced by factors such as culture, family, reference groups, and social class (Business Dictionary). Also, hypertension is an enormous public health issue, because it is a reversible risk factor for stroke, ischemic heart disease, congestive heart failure, renal failure and peripheral vascular disease. There is now general agreement that cardiovascular disease (CVD) can be prevented by altering diet and lifestyle and by reducing risk factors such as hypertension (Campbell et al., 1999).

Dustan (1987) states that obesity is a major associate of hypertension and are clearly related to maturity onset diabetes; these two conditions are among the most important risks for

atherosclerosis. There is likelihood that prevention of obesity in industrialized nations would substantially reduce the occurrence of hypertension and atherosclerosis leading to a decreased mortality from these vascular diseases. According to Vaesa (2016) when there is extra weight; more blood is needed to supply oxygen to the body and creates more pressure on the artery walls. Blood pressure is determined by two numbers, the first called systolic how much blood your heart pumps and the second number called diastolic the amount of resistance the blood encounters in the arteries.

Obesity is the increase in the body fat and occurs in both the sexes and can affect any age group. There are several factors which are associated with increasing the amount of body fat that results in obesity. Body weight gain occurs when one eats more calories than your body uses. If food you eat provides more calories than body needs, the excess is converted to fat (Perry, 2017). He further brings to our notice on the fact that obesity is also considered as one of the causes of hypertension which has been proved in by number of research studies. According to the population studies, it has been indicated that almost two-thirds of the people suffering from obesity are at risk of hypertension, there are also risks associated to sleep apnea, coronary heart disease and congestive cardiac failure.

Soriguer et al. (2003) states that hypertension is strongly associated with obesity and was influenced by sex, diabetes, and age. The presence of excess polar compounds in the cooking oil and the use of sunflower oil were related to the risk of hypertension, whereas the concentration of monounsaturated fatty acids in the serum phospholipids is negatively related to this risk. These associations remained after inclusion in the models of age, sex, obesity and the presence of carbohydrate metabolism disorder. The risk of hypertension is positively and independently associated with the intake of cooking oil polar compounds and inversely related to blood concentrations of monounsaturated fatty acids. The other aspect of hypertension in women that is worthy of emphasis is obesity. **Obesity** is significantly more common in middle-aged women than men, and there is evidence that body weight has a greater impact on blood pressure in females than in male (August & Oparil, 1999).

Another important modifiable risk factor common to major non communicable diseases (NCDs) includes - cancers, cardiovascular diseases, chronic respiratory diseases and diabetes and causing 1 in 6 of all NCD deaths is tobacco use. Almost 6 million people die from tobacco use each year, both from direct tobacco use and second hand smoke. By2020, this number will

increase to 7.5 million, accounting for 10 million deaths. Data from several studies indicated that tobacco smokers have 2-3 fold higher relative risk of coronary heart disease (CHD), 1.5 times for stroke, 1.4 times for chronic obstructive pulmonary disease (COPD) and 12 fold risks for lung cancer. These risks have an age-gradient with higher relative risk (5-6 times) in the younger age groups, and are similar for men and women and decreases rapidly after quitting smoking. Even exposure to second-hand smoke (SHS) increases the risk of developing and progression of atherosclerosis. Tobacco smoke has synergistic action with other risk factors (Thakur, 2011).

Hypertension is strongly associated with diabetes which is a major cause of morbidity and mortality worldwide. Bild (1987) states that hypertension occurs approximately twice as frequently in persons with diabetes as without and contributes to most of the chronic complications of diabetes, including coronary artery disease, stroke, lower extremity amputations, renal failure and, perhaps, to diabetic retinopathy and blindness. The proportions of complications in the diabetic population attributable to hypertension range from 35 to 75 percent. Hypertension in the diabetic population increases with age and is particularly associated with obesity and nephropathy. Limited data suggest the control of hypertension in the diabetic population may be better than in the general population, perhaps due to greater contact that persons with diabetes have with the health care system. Yet, in approximately half, hypertension is not controlled.

According to the Diabetes Atlas of the International Diabetes Federation (IDF), India is home to the largest number of people with diabetes in the world. Physical inactivity has been consistently shown to be a risk factor for diabetes. An earlier population-based study in Chennai, India showed that prevalence of diabetes was higher among subjects with light grade activity compared to heavy grade activity. In the present study, subjects with sedentary activity had 2.2 times higher risk for diabetes compared to those with vigorous activity (Mohan, 2008).

Lifestyle modification, previously termed **non-pharmacologic therapy**, has important roles in hypertensive as well as non-hypertensive individuals. In hypertensive individuals, lifestyle modifications can serve as initial treatment before the start of drug therapy and as an adjunct to medication in persons already on drug therapy. In hypertensive individuals with medication-controlled the BP and therapies can facilitate drug step-down and drug withdrawal in highly motivated individuals who achieve and sustain lifestyle changes. In non-hypertensive, lifestyle modifications have the potential to prevent hypertension, and more broadly to reduce BP

and thereby lower the risk of BP-related clinical complications in the whole populations (Appel, 2003).

Hypertension scenario

Hypertension is a significant public health problem in many developing countries experiencing epidemiological transition from communicable to non-communicable chronic diseases. According to the estimation of the WHO 2000 out of 600 million people, a minimum of 3 million people die annually as a result of hypertension. Hypertension has been also identified as the 3rd ranked condition that reduces life expectancy. Therefore, it is estimated that high blood pressure is responsible for every eighth death, making hypertension responsible for nearly 20% of all deaths world-wide (Kaur et. al. 2007). In the year 2000, there were 972 million people living with hypertension worldwide, and it is estimated that this number will escalate to more than 1.56 billion by the year 2025 (Zungu, 2013).

The global scenario on hypertension as per the World Health Statistics 2012, of the estimated 57 million global deaths in 2008, 36 million (63%) were due to non-communicable diseases (NCDs) of which the largest proportion is caused by cardiovascular diseases (48%). In terms of attributable deaths, raised blood pressure is one of the leading behavioral and physiological risk factor to which 13% of global deaths are attributed.

Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in the year 2000, and this is predicted to increase to 1.56 billion by 2025. Earlier reports also suggested that the prevalence of hypertension is rapidly increasing in developing countries and it is one of the leading causes of death and disability. Meanwhile, blood pressure has decreased in nearly all high-income countries; it has been stable or increasing in most African countries. The prevalence of raised blood pressure in 2008 was highest in the African Region at 36.8% (WHO, 2002). The Global Burden of Diseases; Chronic Disease Risk Factors Collaborating Group has reported 35-year (1980-2005) trends in mean levels of body mass index (BMI), systolic BP and cholesterol in 199 high-income, middle-income and low-income countries. The mean systolic BP declined in high and middle-income countries but increased in low-income countries and is now more than in high-income countries. Also, the India specific data are similar to the overall trends in low-income countries.

Cardiovascular diseases (CVD) account for a large proportion of all deaths and disability worldwide. According to the Global Burden of Disease Study 1990, there were 5.2 million

deaths from cardiovascular diseases in economically developed countries and 9.1million deaths from the same causes in developing countries. However, whereas about one-quarter of all cardiovascular disease deaths occurred in persons who were less than 70 years of age in the developed world, more than about half of these deaths occurred in those less than 70 years in the developing world. It has been predicted that by the year 2020, there will be an increase by almost 75% in the global cardiovascular disease burden likely to occur in developing countries (Gupta, 2004).

In India, hypertension (HTN) exerts a substantial public health burden on cardiovascular health status and healthcare systems. HTN is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India. In an analysis of worldwide data for the global burden of HTN, 20.6% of Indian men and 20.9% of Indian women were suffering from HTN in 2005. The rates for HTN in percentage are projected to go up to 22.9 and 23.6 for Indian men and women, respectively by 2025 (Anchala, 2014). The assessment on the risk factors for hypertension in the densely populated countries of China and India shows that several risk factors contribute to the prevalence of hypertension such as increasing age, unhealthy diet (especially salt intake > 5gms doubles the risk of hypertension), obesity, alcohol and tobacco consumption, less physical inactivity and urban residence were some of the key influencers (Wang et al. 2014).

The prevalence of hypertension in the late nineties and early twentieth century varied among different studies in India, ranging from 2-15% in Urban India and 2-8% in Rural India (World Health Organization). Cardiovascular diseases caused 2.3 million deaths in India in the year 1990; this is projected to double by the year 2020. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India.

Among the nations, China and India are the two populous developing countries showing an increasing trend in the prevalence of hypertension. Therefore, prevention and control of hypertension is a significant challenge. The number of the hypertension population in India and China are 118 million and 160 million in 2000 respectively (Wang, Tiwari& Wang, 2014). The epidemiological studies show that hypertension is present in 25 % urban and 10 % rural subjects in India. There are 31.5 million hypertensive in the rural and 34 million in the urban population. According to the recent review on the global burden of hypertension, the estimated prevalence of hypertension (in people aged 20 years and older) in India in the year 2000 was 20.6 % among

males and 20.9 % among females and is projected to increase to 22.9 % and 23.6 % respectively by 2025. The estimated total number of people with hypertension in India in 2000 was 60.4 million males and 57.8 million females and projected to increase to 107.3 million and 106.2 million respectively in 2025 (Chaturvedi, 2009).

It was reported that of a total of 9.4 million deaths in India in 1990, cardiovascular diseases (CVD) accounted for 2.3 million deaths (25%). Further, a total of 1.2 million deaths were due to coronary heart disease and 0.5 million due to stroke. It has been predicted that by 2020, there would be a 11% increase in cardiovascular deaths in India. Blood pressure (BP) is directly associated with risks of several types of cardiovascular disease, and the associations of BP with disease risk are continuous, indicating that large proportions of populations having non-optimal hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India. This fact is important because hypertension is a controllable disease and a 2mmHg population-wide decrease in BP can prevent 151,000 stroke and 153,000 coronary heart disease deaths in India (Gupta, 2004).

The Government of India through the Ministry of Health & Family Welfare (MOHFW) initiated a decentralized; state based Integrated Disease Surveillance Project (IDSP) in the country with the assistance of the World Bank in the year 2004, in which the current statistical analysis of the present scenario of Mizoram in regard to hypertension and its related risk factor is highlighted.

Hence, hypertension is also commonly known as lifestyle disease due to the fact that sedentary lifestyle leads to the risk of developing hypertension in individual human beings. Therefore, lifestyle modification including eating healthy food, decrease salt intake, maintain healthy weight, increase physical etc. greatly helps in avoiding or in the management of hypertension in an individual.

In hypertensive individuals, lifestyle modifications can serve as initial treatment before the start of drug therapy and as an adjunct to medication in persons already on drug therapy. In hypertensive individuals with medication-controlled BP, these therapies can facilitate drug step-down and drug withdrawal in highly motivated individuals who achieve and sustain lifestyle changes. In non - hypertensive, lifestyle modifications have the potential to prevent hypertension, and more broadly to reduce full form of BP (Blood Pressure) and thereby lower the risk of BP-related clinical complications in whole populations. Indeed, even an apparently small

reduction in BP, if applied to an entire population, could have an enormous beneficial effect on cardiovascular events.

Women with high normal blood pressure have a substantially increased risk of developing hypertension or a major cardiovascular event compared with women with normal blood pressure. These people need close follow-up and lifestyle modifications. Once hypertension has developed, the cardiovascular event rate is increased shortly after the diagnosis of hypertension has been made, especially among women with high normal blood pressure at baseline (Conen et al., 2007).

In addition, newly research studies mentioned that women with high blood pressure are at higher risk than their male counterparts of vascular disease, prompting researchers to recommend different treatments in women (Ellis, 2014) and cardiovascular disease (CVD) claims more women's lives than any other disease, but is often underestimated and undiagnosed and there is an on-going misperception that women are at a lower risk of cardiovascular disease than men (Gudmundsdottir, 2012). In 2007, CVD caused about one death per minute among women in the United States, more women's lives than were claimed by cancer, chronic lower respiratory disease, Alzheimer's disease and accidents combined (Roger et al. 2011).

1.3. Statement of the problem

Hypertension is one of major risk factors for cardiovascular disease (CVD) and the outcomes in women even cause pre-mature death and morbidity. In addition, hypertension is a chronic but preventable disease, and thus lifestyle modification is one of the important components for effective control and management of hypertension. Therefore, the researcher feel it important to understand on why, when and how hypertension including the socio cultural aspects that have rooted in women's life by assessing the knowledge, attitudes, and practices (KAP) of the women hypertensive patient in regards to their lifestyle modification. Further, the study aim to explore the lifestyle factors that are responsible for hypertension; and attempt to develop strategies to control hypertension towards the promotion of public health.

The purpose of this study is to describe the knowledge, attitude and practice level that HTN and non - HTN women in Lunglei in regards to hypertension, their health promoting behaviors, and examine the relationship between their personal factors, information resources, knowledge of hypertension, and their health promoting behaviors (diet and exercise).

Hypertension is a lifestyle disease which is modifiable contributing risk factor of cardiovascular diseases by adopting healthy lifestyle and practice. Further, (Karpman, 2009) states that hypertension is associated with more deaths in women than any other preventable risk factor. Pharmacological treatment of established hypertension has proven benefits, yet blood pressure control is achieved in only 57 % of patients with pharmacological intervention, and, therefore, primary prevention of hypertension (lifestyle modification, i.e. non – pharmacological treatment) could have major positive public health ramification by reaching more women and would have the proven benefit of avoiding drug therapy with its potentially adverse effects.

Schlant, 2000 rightly quote that “We cannot change our genes or sex, but we can definitely modify our life style thereby protecting our self from hypertension”.

Hypertension has been studied by various scholars from different angles, the contributing factor and its prevalence across the gender as well. Therefore, to reduce the contributing factors and hypertension mortality rates various literatures has been reviewed in the following chapter.

Research Gaps

1. Hypertension that is present across the gender but few studies available on women and hypertension in a wider scale.
2. Research studies in India on KAP and lifestyle modification among women with hypertension are very rare.
3. Studies supporting social work education and social work intervention in public health promotion through lifestyle modification in the control of hypertension are limited.

Methodology

Research method for conducting the study is clearly addressed, it explains how the necessary data and information to focus the research objectives and hypotheses was collected, presented and analyzed. The reasons and justifications for the research design, research instruments, data sources, data collection techniques, data presentation techniques and analytical techniques used are given.

Profile of the study area: Lunglei District

The study area Lunglei district is the biggest district in Mizoram bounded on the north by Mamit and Serchhip districts, on the south by Lawngtlai and Saiha districts, on the east by Myanmar and on the west by Bangladesh (International boundary). It has area of 4,538 Sq.kms with a population of 161,428 (2011 census) of which male and female were 82,891 and 78,537

respectively. There are three Civil Sub-Divisions namely – Lunglei sadar sub-division, Tlabung and Hnahthial civil sub-divisions. The district is also divided into four rural development blocks – Lunglei, Hnahthial, Lungsen and Bunghmun. The district is named after its headquarters Lunglei. Lunglei, sometimes spelled Lungleh, in [Mizo](#) means a bridge of rock. It derived its name from a bridge like rock found in the riverine area around the Nghasih, a small tributary of the river Tlawng.

Objectives

1. To understand into the differences in the demographic, social and economic characteristics of women with HTN and women without HTN.
2. To assess the differences in knowledge, attitude and practice of women on hypertension between women with HTN and women without HTN.
3. To enquire into the differential patterns of lifestyle of HTN women with HTN and women without HTN.
4. To assess the association between knowledge, attitude and practice of lifestyle across the gender.
5. To suggest measures for social work intervention.

Hypotheses

1. There is a relationship between knowledge and attitude of women with HTN.
2. There is a relationship between knowledge and practice of women with HTN.
3. The higher the knowledge and attitude better the lifestyle practices by women.

The first two hypotheses were drawn intuitively while the last hypothesis draws inspiration from an earlier study by Iyalomhe, G. (2010)

Chapter Scheme

The present study is presented into the following five (5) chapters:

1. Introduction
2. Review of Literature
3. Methodology
4. Results and Discussions
5. Conclusion and Suggestions

Research Design

The study is descriptive and cross-sectional in nature and ex-post facto in design. Mixed methods approach is applied. Qualitative and quantitative data were collected.

Sampling

The unit of the study will be individual. Hundred (100) women between the age group of 30 to 60 years from Lunglei district, Mizoram will constitute the population of the study.

The study adopted a multi – stage sampling technique. Lunglei was chosen using purposive sampling since Lunglei district is the biggest district in Mizoram in terms of population. Also, hypertension is one of the most common diseases faced by women in the area. Secondly, Lunglei town is selected purposefully chosen for the study area since Lunglei block have the largest population of women with HTN among the other block of the district according to NCD Cell Record (June 2015 – June 2016). Thirdly, two localities from Lunglei which constitute the highest and lowest women with HTN population, i.e. Ramtharveng and Theiriat locality are selected. Lastly, the study had equal number respondents of women with HTN and without HTN so as to find out the relationship as well as to draw differences in their knowledge, attitudes and practices. Therefore, the study consists of a total of 100 respondents which is equally distributed between women with HTN and women without HTN and also equally distributed between the two selected villages.

a) The respondents of the Key Informant Interviews (KIIs) include the medical officer of NCD and other health staff at Lunglei NCD cell and the community key leaders.

b) A focus group discussion (FGD) was conducted among women with HTN in order to find out their real life situation and to have an in depth understanding of HTN and its relationship with the knowledge, attitude and practices at individual and societal level by and large.

c) Two case studies were conducted with women with HTN and women without HTN in order to find out the differences as well as similarities in the lifestyle.

Data Collection

Primary and Secondary data were collected. The quantitative information on socio - demographic profile, knowledge, attitude and practice of the women with HTN and without HTN and their suggestions for prevention and rehabilitation for HTN was collected through structured interview schedule.

Focus Group Discussions conducted among women with HTN and Key Informant Interviews (KIIs) was held with the health care professionals. The study employed 2 case studies (1 case with women with HTN and the other case with women without HTN).

Secondary data is collected through the statistical record of NCD Cell Lunglei, list of women population in Lunglei district from the community based women organization, government documents and official reports, available literature survey pertaining to the incidence at the regional, national and international level.

Tools of Data Collection

The following tools were used to collect data from different groups of people in order to arrive at an understanding of the topic.

Data was collected through administration of structured interview schedule. The structured interview schedule comprises of socio-demographic profile of the respondents; knowledge about hypertension, attitude towards hypertension and lifestyle practice of the respondents.

The qualitative information was collected through conducting KIIs, FGD and case studies based on the guidelines given by Eliot & Associates.

Pilot Study

A pilot study was conducted among the key informants (health care personnel) who are working in Non-Communicable Disease (NCD) Cell, Civil Hospital, Lunglei. The pilot study help in understanding of the ground reality, the prevalence of the disease among the women, their knowledge , attitudes and practices (KAP), and also on the issues and challenges faced by women with HTN.

Therefore, the pilot study helps in the formulation and designing of the present study. Secondary data was collected through the record of the Non-Communicable Disease (NCD) cell which shows the statistics on the prevalence of women with HTN in Lunglei district. In addition, information on qualitative dimensions was elicited through key informant interviews (KIIs), focus group discussions (FGDs) and case studies.

Data Processing and Analysis

The quantitative data collected through structured interview schedule was processed with the help of Microsoft Excel and analyzed with SPSS package. Data from qualitative sources was

processed and reflected through KIIs (2 Key Informant Interviews) case studies (two case studies were presented) and FGD (1 Focus Group Discussion was presented).

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Therefore, the pilot study helps in formulation and designing of the present study. Secondary data was collected through the record of the Non-Communicable Disease (NCD) cell which shows the statistics on women with HTN in Lunglei district. In addition, information on qualitative dimensions was elicited through key informant interviews (KIIs) and focus group discussions (FGDs).

Conclusion and Suggestions

This chapter will give information on the general findings of the study and suggestions given by the respondents which is collected through interview schedule, Key Informant Interviews (KIIs), Focus Group Discussion (FGD) and Case Study.

Findings

The present study attempts to understand how lifestyle can be a factor leading to hypertension among women in Mizo Society. Mizoram is a state which is highly influenced by the sedentary lifestyle of people in developed countries. In addition, majority of the people are still ignorant about the effect of sedentary lifestyle. Therefore, various lifestyle diseases such as hypertension, diabetes, cardiovascular disease, etc. became one of the factors that develop chronic illness in an individual and later even cause mortality across the gender. The present study is based on the perceptions on knowledge, attitude and practice, the relationship between knowledge and attitude, knowledge and practice of women without HTN and women with HTN.

The design for the study is descriptive in nature and is a cross-sectional study. Women between the age group 30 – 60 in Lunglei, formed the universe of the study. The study is based on primary and secondary data collected through mixed methods. The quantitative data was collected through structured interview schedule. Qualitative methods like Key Informant Interviews (KIIs), Focus Group Discussion (FGD), Case studies are employed. Multi – stage sampling technique is used to contact women respondents without hypertension and women with

hypertension. The sample consists of 100 respondents, 50 with HTN and 50 without after obtained informed consent. Data collected through structured interview schedule was processed with the help of Microsoft Excel and analyzed with SPSS (Statistical Package for the Social Sciences).

The objective of the study is to understand into the differences in the demographic, social and economic characteristics of women with HTN and women without HTN. To assess the differences in knowledge, attitude and practice of women with HTN and women without HTN, to enquire into the differential patterns of lifestyle of HTN women with HTN and women without HTN, to assess the association between knowledge, attitude and practice of lifestyle across the gender, to suggest measures for social work intervention. The study also has the following hypotheses: There is a relationship between knowledge and attitude of women with HTN. There is a relationship between knowledge and practice of women with HTN. The higher the knowledge and attitude better the lifestyle practices by women.

The first two hypotheses were drawn intuitively while the last hypothesis draws inspiration from an earlier study by Iyalomhe, G. (2010).

The research observed the following findings:-

- * Majority of the hypertensive respondents are in their early adulthood (30-39) whereas, non hypertensive respondents are in their late adulthood (50-59) and most of the both respondents are married with equal educational qualification. Both the respondents shared common family background in regards to types and forms of family which is nuclear and stable. No much difference is found in regards to economic status of both the respondents where majority of both the respondents are homemaker, having similar annual personal income which is between 50,000 to 1 lakh and belong to AAY category. Similarities is seen in both the respondents in regards to social status where majority are Christian and they are belongs to Mizo tribe.

- * Findings also reveal that majority of both the respondents are well aware of the symptoms of hypertension and its risk factors. Whereas, significance difference is seen in the knowledge on the range of normal blood pressure between hypertensive and non hypertensive respondents. In addition, both the respondents are enlightened with the fact that male are more prone to hypertension as compared with their female counterparts.

- * Both group of the respondents are having similar attitude and mutually agree that regular exercise as a component to control hypertension, lifestyle modification helps in controlling

hypertension, alcohol worsens blood pressure level, green leafy vegetables important for hypertensive patient, smoking increase risk for hypertension, sedentary lifestyle common risk factor for hypertension, overeating leads to hypertension, regular medication important for hypertensive patient, regular checking of blood pressure level is important, obesity risk factor for hypertension, hypertension during pregnancy is dangerous and excessive worries and stress lead to hypertension.

* Women with and without hypertension equally does not have any idea in regards to saying on hypertension as lifestyle disease and are doubtful of the fact that hereditary as one of the risk factor for hypertension.

* The finding proves that there is no much differences between hypertensive and non hypertensive respondents in attitude towards using excess cooking oil as a healthy practice in relation with hypertension as majority of the both the respondents disagree with the statement.

* The findings also reveal that there is significance difference between non hypertensive and hypertensive respondents in terms of their lifestyle practice. In contrary, there is no significance difference between non hypertensive and hypertensive respondents in terms of knowledge and attitude.

* The study proves that there is positive correlation between knowledge and attitude which means increase in knowledge leads to increase in attitude. However, there is no correlation between knowledge and practice, attitude and practice which means which means knowledge about hypertension does not affect the lifestyle practice by the respondents and also their attitude does not make any difference in the way they conduct themselves.

Suggestions

The suggestive measures evolved out of the research study are :-

Preventive measures:

a) Regular health check up and BP checking – Unless and until one knows the health status of oneself it is not possible to work for it. In order to know the health condition it is felt that regularity in checking health status and blood pressure is important.

b) Awareness on hypertension – Hypertension is common in general but, sensitizing the community the whole population is still felt by the respondents.

c) Awareness on healthy dietary practices – The respondents felt that general population of the still not yet aware about the healthy dietary practices by which one can avoid hypertension.

5.2.2. Promotion measures:

a) Individuals – Each and individuals are the direct victims of any disease developed in oneself. Taking proper health care of oneself is an individual's responsibility. Therefore, practicing healthy lifestyle which is already known is needed. Unless and until one step out and make practical use of the knowledge he had towards hypertension and the right attitude towards hypertension.

b) Societal level:

- Community based intervention – like conducting awareness campaign on wider scale among the general population.
- Promotion of social work research on public health since there are lot of measures which have been taken out which is not utilized.
- Mass media campaign can be utilized for giving awareness about the harmful impact that hypertension can have in an individual.
- Further research study on why not the knowledge and attitude enhance the practice.

Rehabilitative measures:

a) Health care services at free or affordable cost – It is important to have regular Bp checking especially when one already develop hypertension. But, checking cost and the cost of instrument for Bp check gives burden to the general population. Therefore, the respondents suggest taking measures to provide health care services at free or affordable cost.

b) Dissemination of information on the available services – There are times when services are rendered for a specific illnesses in such cases the respondents suggested publicizing the available services in a wider scale.

c) Counseling services – Once a person developed hypertension it is likely to think it as a chronic illness which cannot be healed. So, in order to help dealing with the illness developed it is felt counseling services will be of great help with an individual living with hypertension.

Suggestions for Social Work Intervention

The suggestions for social work intervention are drawn as:-

i) Case study

Conducting case study among people with hypertension will be helpful to have a deeper understanding of the case. Since, it is found from the study that people have positive knowledge

and attitude towards hypertension it is still not followed with the adoption of healthy practice which is of most importance in order to be free from hypertension.

ii) Key Informant Interviews (KIIs)

From the information collected it has been proved that number of measures has been taken to get rid of non-communicable diseases like HTN, etc. Still the rate of people suffering from hypertension is still very high. In order to find out the real cause of the increasing rate of hypertension among the general population and to work together for promoting the health status conducting KIIs will be of great help for further works.

iii) Social work research

The method of social work research is extremely relevant to understand the trends, pattern, and causes and impact of hypertension on the individual as well as on the society. Therefore, the study found that social work research on any aspect of hypertension across the gender is necessary for public health promotion in Lunglei, Mizoram.

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