PREVALENCE AND FACTORS ASSOCIATED WITH COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AMONG PATIENTS WITH HYPERTENSION IN TURBO, KENYA.

DEPARTMENT OF EPIDEMIOLOGY AND BIOSTATISTICS

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Thesis submitted in partial fulfilment of the requirement of the degree of Master of Public Health of Moi University

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DECLARATION

This thesis is my original work and has not been presented to any other university. No part of this thesis may be reproduced without the prior written permission of the author and or Moi University.

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DEDICATION

I wish to dedicate this work to my family and friends for the support and encouragement they gave me all the time.

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immuno-Deficiency Syndrome
AMPATH	Academic Model Providing Access to Health Care
CAM	Complementary and Alternative Medicines
CDM	Chronic Disease Management
COM	Capability, Opportunity and Motivation
COM-B	Capability, Opportunity and Motivation- Behavior
CVD	Cardiovascular Disease
DALYs	Disability Adjusted Life Years
HCPs	Health Care Providers
HIV	Human Immunodeficiency Virus
HM	Herbal Medicine
HTN	Hypertension
KESH	Kenyan Shillings
LMIC	Low and Middle Income Countries
NCDs	Non-Communicable Diseases
NIH	National Institute of Health
NPHCPs	Non- Physician Health Care Providers
PPS	Probability Proportional to Size
SSA	Sub Saharan Africa
THM	Traditional Herbal Medicine
TM	Traditional Medicine
UG	Uasin Gishu
UN	United Nations
WHO	World Health Organization

DEFINATION OF TERMS

Alternative Medicine

These are treatments that are used instead of the standard medical treatments, for instance using a special diet to manage high blood pressure instead of antihypertensive drugs that are prescribed by the physician.

Complementary Medicine

These are treatments that are used with standard medical treatments but are not considered to be standard treatments, for instance the use of acupuncture to help lessen some side effects of cancer treatment.

Complementary and Alternative Medicine

This is defined as a group of diverse medical health care systems, practices and products that are not generally considered part of the conventional medicine.

Conventional Medicine

A system in which medical doctors and other healthcare professionals (such as nurses, pharmacists, psychologists and counselors) treat symptoms and diseases using drugs, radiation, or surgery. It is medical model that is evidence-based practice for diagnosing and treating disease. Sometimes also referred as allopathic medicine, biomedicine, main stream medicine, orthodox medicine, and Western medicine.

Herbal Medicines

Herbal medicines include herbs, herbal materials, herbal preparations and finished herbal products that contain active ingredients, parts of plants, or other plant materials, or combinations.

Integrative Medicine

This is a total approach to medical care that combines standard medicine with the CAM practices that have been shown to be safe and effective. They treat the patients mind, body and spirit.

Task Shifting

Task shifting is a process of delegation whereby tasks are moved from highly specialized to less specialized health workers.

Traditional Medicine

Traditional medicine is the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness.

ABSTRACT

Background: The use of Complementary and Alternative Medicine (CAM) is widespread and high utilization rate has been associated with people who have chronic conditions like hypertension in Sub-Saharan Africa. Globally, hypertension is the leading risk factor for mortality and this is attributed to low compliance to recommended conventional treatment due to barriers such as CAM use.

Objectives: This study aimed at establishing the prevalence of Complementary and Alternative Medicine (CAM) use among patients with hypertension in Turbo Sub County in Kenya.

Methods: A descriptive cross sectional study was conducted which utilized a well-structured interviewer administered questionnaire. Data was collected from 233 patients who were randomly selected from the patient register at the public health facilities. Stratified probability proportional to size method was used to obtain the number of patients interviewed per facility. Socio-demographic (age, sex, marital status, occupation, level of income and religion) and clinical profiles of the participants were summarized using descriptive statistics. Categorical variables were summarized as frequencies and percentages. The test for association between categorical variables was conducted using Pearson's Chi Square test. A variable was considered significant if the p-value was less than 0.05

Results: The prevalence of CAM use was 33.5% (78). Herbal treatment was the most prevalent form of CAM at 96.1% (74). Age and alcohol use were significantly associated with use of CAM with P value of 0.015 and 0.012 respectively.

Conclusion: CAM prevalence is high despite increased access to affordable health care at the primary health care facilities. The most common types of CAM herbal medicines. Patients aged 65 years and above, history of alcohol use, friends and family influenced the use of CAM.

Recommendations: CAM practice is common among patients with hypertension, therefore it is important for clinicians to identify ways of discussing CAM with patients during clinical encounters especially among the elderly and those with history of alcohol use. Further studies can explore the effectiveness of herbal therapies used in hypertension management and associated side effects Qualitative research can be done to give insights to why CAM practice is still common.

CHAPTER ONE

1.1 Background

Globally, hypertension is a major public health challenge because of its high prevalence and concomitant risks of cardiovascular disease. It is estimated to cause 7.5 million deaths, about 12.8% of the total deaths per year. This accounts for 57 million Disability Adjusted Life Years (DALYS), World Health Organization (WHO) data published in April 2011 states that hypertension deaths in Kenya reached 2,845 or 0.90% of total deaths with the age adjusted death rate of 21.81 per 100,000 of population (WHO, 2011).

Hypertension is the driver of the Cardiovascular Disease (CVD) epidemic in Africa where it is a major, independent risk factor for heart failure, stroke and kidney failure (Seedat, 2000). The management of these complications is difficult to sustain in Sub-Sahara African (SSA) countries where resource-intensive care is not very feasible. Insufficient diagnosis of hypertension and suboptimal blood pressure control in the diagnosed patients increases morbidity and mortality with an increased burden to health care resources (Gro Halem Brundtland, 2002).

Management and control of hypertension in Kenya especially in rural populations of low socioeconomic status such as western Kenya, face considerable and unique barriers to high-level health care (Rachlis et al., 2016). For many in this region, there is little access to finances to meet their hospital expenses, reliable supplies of medications or laboratory services and the distance to and cost of travel to clinic can be prohibitive. These barriers can result in poor clinic attendance, poor continuity of care and a break down in patient-provider communication (Naanyu et al., 2016).

Task shifting, which is defined as the rational distribution of tasks among health work force teams, is especially useful in low resource settings such as Kenya facing health care human resource shortage (Lekoubou et al., 2010). Task shifting of healthcare duties from physicians to Non- Physician Health Care Providers (NPHCPs) at the primary care level may mitigate the barriers to optimal hypertension control in SSA. This model has been implemented by Academic Model Providing Access to Health care (AMPATH) and the Kenyan ministry of health in the management of Chronic Diseases such as hypertension and diabetes in parts of Uasin Gishu County, Turbo Sub-County (Bloomfield et al., 2011). Nurses at the dispensary which is responsible for provision of basic outpatient health services in the Primary Care Level (MOH, 2011) have been trained to manage uncomplicated hypertension (Vedanthan et al., 2014). There is growing evidence in regard to patient outcomes that patients with hypertension can be cared for by NPHCPs such as nurses, who provide knowledge of the beneficial effects of a healthy lifestyle that translates into positive outcomes for patients, similar to that provided by physicians. (Lekoubou et al., 2010).

Although a variety of conventional treatment for hypertension (HTN) exist, few people comply or adhere to recommended treatment because of, social economic status, side effects, and long distance to the health facility hence the reliance on alternative forms of treatment. Complementary and Alternative Medicines (CAM) are used for the management of hypertension but the prevalence of its use among patients with hypertension globally and those living in sub Saharan Africa is not sufficiently known (Hughes, Aboyade, Clark, & Puoane, 2013).

The terms “complementary medicine” or “alternative medicine” refer to a broad set of health care practices that are not part of that country’s own tradition or conventional medicine and are not fully integrated into the dominant health-care system. They are used interchangeably with traditional medicine in some countries. Whereas complementary medicine is used in conjunction with standard conventional medical practice, alternative medicine is used as a substitute for conventional medicine (Kim, Lichtenstein, & Waalen, 2002) .

The National Institute of Health (NIH) classifies CAM into five major categories: *alternative medical systems* (e.g. traditional oriental medicine, acupuncture, Ayurveda, naturopathy, homeopathy), *mind-body interventions* (meditation, hypnosis, dance, art and music therapy, spiritual healing, and prayer), *biologic – based therapies* (herbal medicine and dietary supplements, special diets, and orthomolecular medicine), *manipulative and body-based methods* (chiropractic, massage, other "body work" systems, and aspects of osteopathic medicine such as craniosacral work), *and energy therapies* (therapeutic touch, and other methods of affecting the "bioelectric field" of the body) (Hughes, Jacobs, & Berman, 2004) .

The boundaries between CAM and conventional medicine are not absolute, and specific CAM practices may, over time, become widely accepted with advancements in research on its effectiveness. However, considering the lack of evidence to support the efficacy of many of these CAM therapies, the potential for adverse effects, cost considerations, and the trend towards making treatment decisions based on evidence, many medical practitioners entreat caution in the use of CAM (Peltzer, 2009).

To improve medication adherence as well as improve health outcomes, it is important to study the trend of CAM use among patients with hypertension in each country

1.2 Problem Statement

The frequency of utilization of CAM is increasing worldwide, and is well documented in both African and global adult populations to be between 20 – 80% (Eddouks, Maghrani, Lemhadri, Ouahidi, & Jouad, 2002). The chronic nature of the disease and the complexities of treatment modalities cause several patients with hypertension to attempt to manage their ailment using a range of complementary and alternative medicine practices in addition to conventional medicine (Asfaw Erku & Basazn Mekuria, 2016). In Africa, the inadequacy of the health care system and the economic impact of high cost of antihypertensive drug treatment have made the use of Traditional Herbal Medicine (THM) common among patients with hypertension (Osamor & Owumi, 2010) .

In Turbo Sub County, Uasin Gishu County, despite the increased access of health care services at the primary health care facilities (dispensaries and health centers) that is affordable, use of complementary and alternative medications has been reported in qualitative studies as one of the key barriers to hypertension care (Naanyu et al., 2016; Rachlis et al., 2016). Similar problem has also been documented in Uganda and Nigeria where the prevalence of CAM use among patients with hypertension has been reported to be 56% (Nuwaha & Musinguzi, 2013) and 19.5% (Kretchy & Owusu-Daaku, 2014) respectively.

There is limited data in Kenya on the prevalence of CAM use among patients with hypertension. However, CAM modalities frequently used among diabetic patients has

been reported to be herbal medicine, dietary supplements, prayers and relaxation techniques (Matheka & Demaio, 2013). A high utilization rate of CAM has been associated with people with chronic conditions in which health outcomes are closely linked to adherence to conventional treatment.

The use of CAM potentially adversely affect outcome of the disease (Mansoor, 2001). Supplements or natural products, containing herbs, cause unpredicted effects, drug interactions and low compliance to medication. This leads to increased complications, high cost of treatment and premature deaths (Chagan et al., 2005)**.**

1.3 Justification

According to WHO data published in April 2011, hypertension deaths in Kenya reached 2,845 or 0.90% of total deaths with the age adjusted Death Rate of 21.81 per 100,000 of population. In Uasin Gishu (UG) County, the prevalence of hypertension is on the increase and it stands out at 13% (CDM report, 2014).

Although a number of antihypertensive therapies are currently available, adherence and compliance are tremendously low. More importantly, hypertension awareness, treatment and control are quite poor in sub- Saharan Africa (Cooper, Mensah, Cooper, & Amoah, 2003). Literature shows that hypertension treatment and control in Kenya stands at 9 % and 2.6% respectively (Hendriks et al., 2012). The use of alternative medicine is common in the management of hypertension which is one of the most common non-communicable diseases worldwide affecting up to 20% of the world's adult population (Osamor & Owumi, 2010). This is a clear indicator that there is need to act and start reverting the situation both at the individual and also at the national level.

General studies on use of CAM in Africa has been associated with perceived compatibility of CAM therapies with patient's cultural and spiritual beliefs, age of patient, duration of the disease, degree of complications, and advice from family and friends. Most notably, the inaccessibility and shortcomings in conventional healthcare provision in Africa contribute to the high use of CAM (Matheka & Demaio, 2013). Therefore, it is important to identify specific factors influencing CAM use for each disease such as hypertension.

Understanding the use of CAM among patients with hypertension is important to the safety of public consumption. Literature from Sub Saharan Africa regarding use of CAM among patients with hypertension is sparse, in addition, the evidence based for using CAM to manage hypertension has not been demonstrated definitively, because studies assessing the influence of CAM on blood Pressure (BP) reduction have been small scale, or uncontrolled (Macklin et al., 2006).

This study therefore will determine the prevalence of CAM use among patients with hypertension, identify the most common CAM methods used among patients with hypertension and reasons associated with their uptake, with the aim of increasing knowledge in management of hypertension in Kenya especially on improving linkage and retention to hypertension care.

The findings of this will inform policy and practice by providing information on use of alternative and complementary medicine for hypertension management. This will facilitate evidence-based decision making while taking into account both integrative and culturally appropriate health care.

1.4 Research Questions

i. What is the prevalence of complementary and alternative medicine use among patients with hypertension in Turbo Sub County?

ii. What are the most commonly used types of complementary and alternative medicine among patients with hypertension in Turbo Sub County?

iii. What are the determinants for uptake of complementary and alternative medicine among patients with hypertension in Turbo Sub County?

1.5 Broad Objective

To determine proportion of patients with hypertension who use complementary and alternative medicine and the factors associated with its uptake in Turbo Sub County.

1.5.1 Specific Objectives

i. To determine the prevalence of complementary and alternative medicine use among patients with hypertension in Turbo Sub-County.

ii. To establish the common complementary and alternative medicine used among patients with hypertension in Turbo Sub-County.

iii. To identify factors associated with the use of complementary and alternative medicine among patients with hypertension in Turbo Sub-County.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Hypertension (HTN) is a major public health challenge worldwide because of its high prevalence (Lawes, Hoorn, & Rodgers, 2008). Globally, the overall prevalence of raised blood pressure in adults aged 25 and above was approximately 40% in 2008 (WHO report, 2008). Raised blood pressure is a major risk factor for coronary heart disease, ischemic and hemorrhagic stroke. Blood pressure levels have been shown to be positively and continuously related to the risk for stroke and coronary heart disease. In some age groups, the risk of cardiovascular disease doubles for each increment of 20/10 mmHg of blood pressure, starting as low as 115/75 mmHg (WHO report, 2008).

Hypertension is a chronic disorder characterized by a persistent elevated blood pressure exceeding 140/90 mmHg or greater. It has been identified as the leading risk factor for mortality worldwide, and is ranked third as a cause of disability-adjusted life-years (Lopez, Mathers, Ezzati, Jamison, & Murray, 2006). Hypertension is categorized according to stages that is stage one is anyone with blood pressure readings ranging from 140-160/90-99 mmHg, while stage two is anyone with blood pressure reading above 161/100mmHg. Conventional drugs are available for management of hypertension at different stages aiming at controlling the blood pressure to normal level that is below 120/80(W H O, 2008).

According to the World Economic Forum, non-communicable diseases (NCD), such as CVD, are a severe threat to global economic development due to the long-term costs of treatment and the negative effects on productivity (Bloom et al., 2012). The burden of NCD is expected to increase substantially in low and middle income countries (LMIC)

and to represent a greater burden of disease compared to communicable diseases by 2030. The Unites Nations (UN) high level meeting on NCD (2011), emphasized the urgent need for greater measures to prevent and control NCDs in LMIC (Bloom et al., 2012).

2.2 Patterns of CAM Use

In spite of the prominence of Western biomedical practice and its distribution around the world in the past century, many people either rely exclusively on complementary, alternative, or traditional systems of medicine and natural products, or combine them with Western biomedicine. Practices that arise from traditions other than Western biomedicine or are practiced outside the domain of conventional medicine have been classified as CAM in the Western world. CAM use includes the adherence to traditional (e.g. Ayurveda) or alternative (e.g., homeopathic) medical systems that include specific healers, therapies, and medications, as well as the use of specific individual therapies, self-help practices, or remedies (Quandt et al., 2009).

Complementary medicines, particularly herbal medicines, have a long history of traditional use. The persuasive appeal of CAM is premised on the fundamental assumptions and principles by which the system operates. These include the presumption that CAM are 'natural', provide the user with a connection to life-supporting forces (vitalism), have a 'scientific basis' and promote 'spirituality'. However, considering the lack of evidence to support the efficacy of many of these CAM therapies, the potential for adverse effects, cost considerations, and the trend towards making treatment decisions based on evidence, many medical practitioners entreat caution in the use of CAM (Mansoor, 2001).

In Africa, commonly used CAM therapies among diabetic patients include herbal medicines, nutritional products, spiritual healing and relaxation techniques. These CAM therapies are widely used by patients as complementary or as replacement treatment to the conventional prescribed drugs (Matheka & Demaio, 2013). CAM use in Africa is intensified by the presence of traditional healers, with estimates of one traditional healer present to every 200 people (Awah, 2006). These traditional healers make selective use of CAM, biomedical knowledge and language to enhance the perceived effectiveness of their treatments (Awah, 2006).

The use of CAM in Africa has been associated with cultural beliefs, age of patient, duration of hypertension, degree of complications, and advice from family and friends. The inaccessibility of health care services and shortcomings in conventional healthcare provision in Africa also contribute to the high use of CAM (Mendis et al., 2007).Reasons for use of alternative medicine may include fear or resentment of modern medicine, ease of access, desire to feel better, being cheap, patients presenting with chronic irritations that are difficult for anyone to treat successfully, curiosity, social influence from friends, relatives and traditional healers as well previous good experience that may be due to placebo or real efficacy (Nuwaha & Musinguzi, 2013).

2.3 Harm Caused by Use of CAM

The evidence from the literature that HM (Herbal Medicine) a form of CAM, have pharmacological effects and may lead to adverse interactions when co-administered with prescription medicines has grown. Pharmacokinetic and pharmacodynamics mechanisms account for herb–drug interactions. Herbal medicine may affect absorption, metabolism, distribution, and excretion mechanisms. A pharmacokinetic interaction occurs in general when drugs (drug–drug; herbal– drug; and herbal–herbal)

are co-administered, and one drug affects the metabolism of the other drug by inhibition or induction of the specific enzymes involved in its metabolism (Ioannides, 2002). Use of herbal medicine and a prescription drug has the potential to decrease or increase the effect of the drug and hence lead to therapeutic failure or toxicity respectively (Boullata, 2005).

In patients who use multiple medications, mostly elderly patients (Kales, Blow, Welsh, & Mellow, 2004), poly-pharmacy and self-medication increase the possibilities of herb–drug interactions (McCabe, 2004). Herbal medicine are often taken by patients with chronic illness, because of their presumed harmlessness, along with added medication prescribed by physicians, and then are taken chronically. Use of both medicines simultaneously has a higher potential for producing adverse events. In some situations, symptoms of disease or treatment are similar to those associated with HM adverse effects, and it is difficult to identify the problem (Gozum & Unsal, 2004). This may have an impact on treatment outcome.

Lastly, some patients use crude forms of CAM; in many developing countries whereas the source and quality of the medicines is unknown. Herbal medicines are in common use and available in street markets. Risks of interaction increase with the variability in packaging and labeling (e.g. information on plant species). The information for commercial herbal products may not always be complete, when HM may often contain a combination of ingredients, some unknown, and of unregulated quality (Skalli, Zaid, & Soulaymani, 2007).

2.4 Challenges in Controlling CAM in Africa

According to a study done in Kenya by Duncan and Alessandro, 2013, it outlined a number of constraints that exist in the control of CAM use in Africa. For instance, there

is lack of integration of CAM therapies into African mainstream health care systems (Matheka & Demaio, 2013). This is common despite the World Health Organization (WHO) recommendation to "integrate traditional and CAM therapies into national health care systems".

Another major concern is the lack of regulation on CAM use in Africa and other developing countries, and therefore exposing the population to potential harm. Limited quality assurance exists with most CAM regulatory processes that are falling outside the scope of most government drug and therapeutic agencies in Africa. For instance, the registration of herbalists in Kenya is done by the Ministry of Social services, but in essence, most of the traditional herbalists are not even aware of this.

There is also limited research on CAM use by people with hypertension in developing countries including Kenya. Some CAM products may also be beneficial and safe; but the lack of randomized controlled trials makes their use controversial (Barnes, 2003).

Health care providers (HCPs) are also not aware that so many of their patients use CAM therapies. HCPs should therefore have this in mind, and routinely take a thorough history to document any such therapies and discuss these practices with their patients in order to safeguard their health. Health care providers should educate their patients on the importance of adherence, controlling blood pressure and avoidance of potentially dangerous CAM practices.

2.5 Theoretical Framework

To explain the individual patient behavior of using complementary and alternative medicine, there is need to adopt a psychological model for explaining human behavior intended to capture the range of mechanisms that may be involved in behavior change. The Capability, Opportunity and Motivation (COM-B) model of behavior hypothesizes

that interaction between three components, Capability, Opportunity and Motivation (COM) causes the performance of Behavior (B) and hence can provide explanations for why a recommended behavior is not engaged in. Each component can influence behavior of complementary and alternative medicine use, directly and, in addition, Opportunity and Capability might influence Motivation and so affect behavior. In addition, it is a dynamic model whereby performance of a behavior can in turn influence Capability, Opportunity and Motivation. This can be well summarized in figure 1 below.

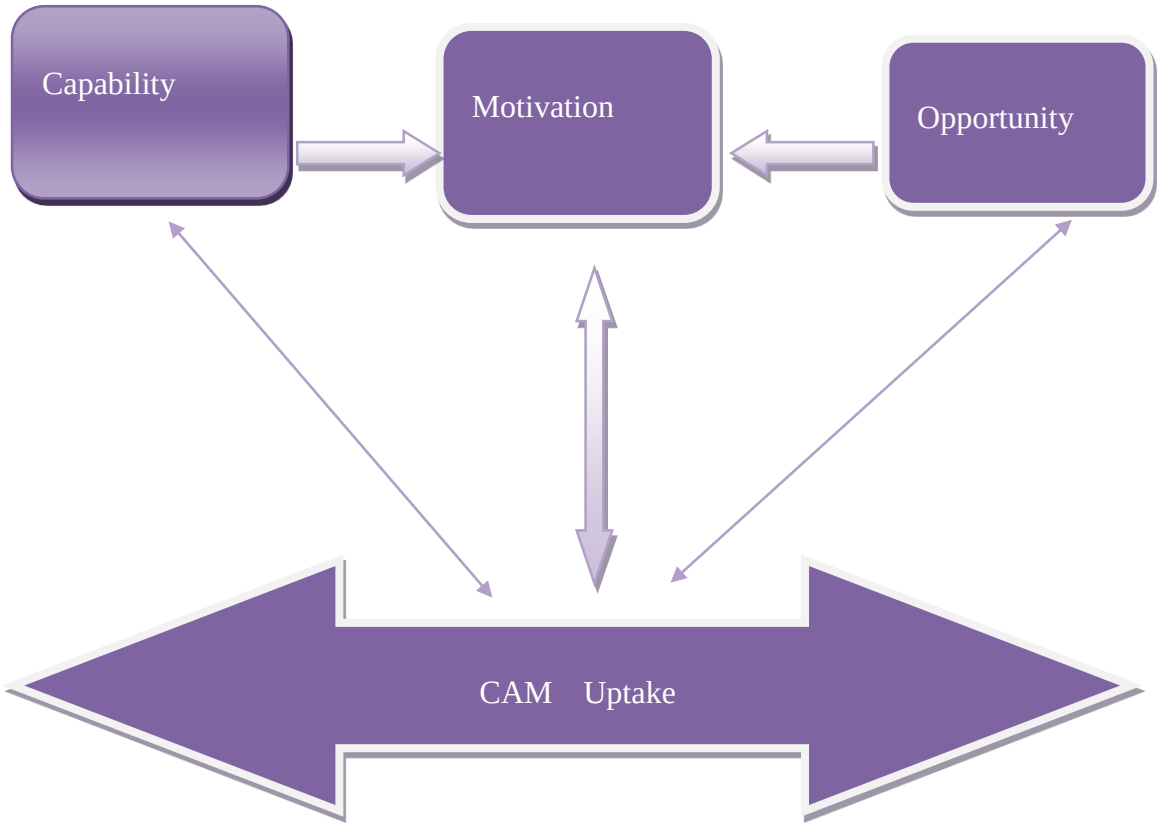


Figure 2. 1:Modified COM-B model

Capability, Motivation and Opportunity are collectively described as "components" influencing behavior. Capability is defined as the 'individual's psychological and physical capacity to engage in the activity concerned'(Michie, van Stralen, & West,

2011). Opportunity covers all those 'factors that lie outside the individual that make the behavior possible or prompt it'. Thus, it includes aspects of the individual's physical capability (capacity to engage in necessary physical processes) (Michie et al., 2011). Opportunity is subdivided into Physical Opportunity (provided by the environment) and Social Opportunity (cultural milieu that dictates the way we think about things) (Michie et al., 2011). Motivation is subdivided into Reflective Motivation (evaluations and plans) and Automatic Motivation (emotions and impulses arising from associative learning and/or innate dispositions) (Michie et al., 2011). Table 1 below summarizes the some of the factors that are associated with use of complementary and alternative medicine among patients.

Table 2. 1:Factors Associated with Use of CM

Capacity		**Motivation**		**Opportunity**	
Psychological	**Physical**	**Reflective**	**Automatic**	**Physical**	**Social**
Comprehension of the disease and treatment	Complexity of conventional treatment regime	Perception of the illness-chronic	Curiosity	CAM medicine being cheap	Social support from friends/family
Cognitive functioning e.g. memory, capacity for judgment and thinking.	Physical capacity to adopt to lifestyle changes e.g. diet/social behaviors	Previous good experience due to placebo/real efficacy	Fear of conventional medicine	Easily accessible	Religious/cultural benefits/demands
		Perception of the treatment		Health care provider-patient relationship/communication	

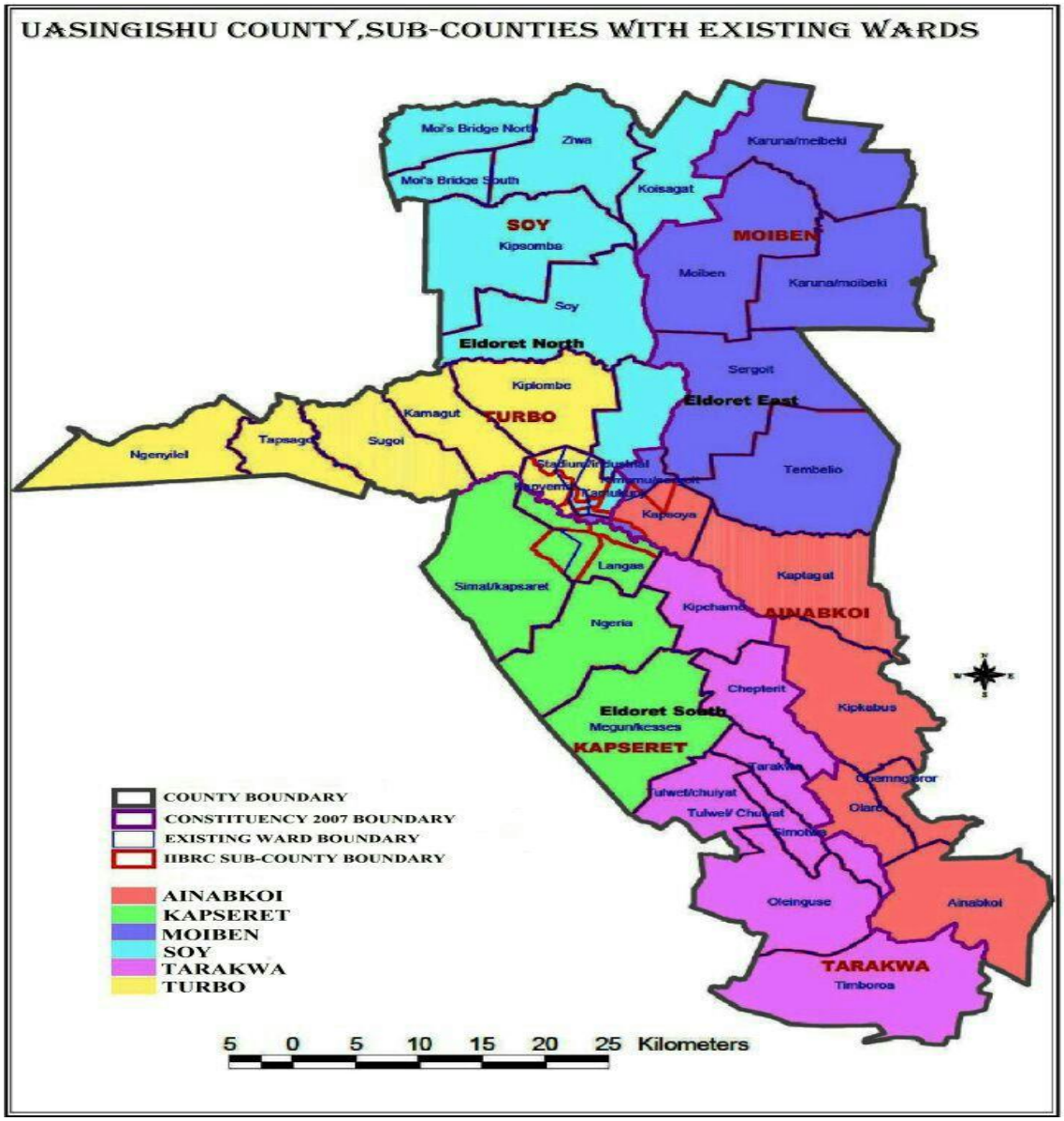
CHAPTER THREE

METHODOLOGY

3.1 Study Site

This study was carried out in Turbo Sub County, which is one of the six sub-counties in Uasin Gishu County. Turbo Sub County has been divided geographically into 15 community units that are linked to 13 public primary healthcare facilities offering hypertension care. During the study period, all these public health facilities were managed by clinical and nursing officers who have been trained to manage hypertension which has led to increased accessibility health care services at the community level. In addition, there is access to affordable and reliable supply of chronic disease drugs such as anti-hypertensives through community revolving fund pharmacy (Manji et al., 2016). The study was done in rural community where most community members depend on farming as the source of livelihood except in area along the Eldoret - Malaba highway where they engaged in small scale business. Most would opt to seek care at the primary health facilities.

3.1.1 Map of Uasin Gishu County



3.2 Study Population

The study population consisted of patients, aged 18 years and above who were on hypertension care program within Turbo Sub-County.

3.3 Study Design

This was a descriptive cross- sectional study design carried out in the period of January to June 2016

3.4 Sample Size Determination

Sample size was computed using the Fisher's formula (fisher's et al 1999) given as,

$$n = \frac{N}{1 + N(e^2)}$$

Where: ***N*** *is the size of the population,* ***n*** *is the size of sample and* ***e*** *is the level of precision.*

According to records from the clinic registers of health facilities in Turbo Sub County, there were a total of 548 patients who were on hypertension care in the past six months at the time of data collection. Substituting this figure of total population (N=548) on the formula, assuming a precision of 5% yields;

$$n = \frac{548}{1 + 548(0.05^2)} = 233$$

3.5 Sampling Procedure

Then proportionate allocation of sample size per facility was done based on the number of patients per facility. This was calculated based on the stratified probability proportional to size (PPS) method. Each facility obtained a sample proportional to its size as shown in table 3.1.

Table 3. 1:Proportionate Participant Sample per Facility

S.No.	Health Facility	No of patients	Proportional number of patients sampled
1.	Osoronagai Dispensary	31	(31/548)x232=13
2.	Chepkemel Dispensary	24	(24/548)x232=10
3.	Ngenyilel Dispensary	20	(20/548)x232=9
4.	Cheramei Dispensary	79	(79/548)x232=33
5.	Sambut Dispensary	42	(42/548)x232=18
6.	Sugoi A Dispensary	45	(45/548)x232=19
7.	Murgor hills Dispensary	33	(33/548)x232=14
8.	Murgusi Dispensary	29	(29/548)x232=12
9.	Sugoi B Dispensary	32	(32/548)x232=14
10.	Kapyemit Dispensary	21	(21/548)x232=9
11.	Sosiani Health Centre	35	(35/548)x232=15
12.	Chepsaita Dispensary	32	(32/548)x232=14
13.	Turbo health Centre	125	(125/548)x232=52
Totals		**548**	**233**

Simple random sampling was then used to select specific patient to be interviewed. In this technique, each member of the population has an equal chance of being selected as a subject. The entire process of sampling is done in a single step with each subject selected independently of the other member of the population that is patients with hypertension. To ensure a simple random sample was obtained from the study population, total number of patients from each facility was created and assigned unique numbers and then a computer randomization programme was used to generate random numbers that represented the patients' assigned numbers. The number generated by the computer programme represented the random sample interviewed. This was done for all patients at each facility.

To locate the individual patient selected, the phone numbers were retrieved from patient files at the facility and if the phone number was not available, the community health workers who are conversant with patients were engaged, they were helpful in introducing the research assistants to patients in the community. The questionnaires we administered to participants in the facility for those who were found during regular clinic day or in their homes for those who did not turn up at the regular clinic. To select the replacing participant, the next number after the sampled number was picked and interviewed.

3.6 Eligibility

3.6.1 Inclusion/Exclusion

All patients who were on hypertension care program within public health facilities in Turbo Sub County were included in this study. The patients who were 18 years and above and were willing to participate in the study were included.

Those patients excluded from this study are the ones who were newly diagnosed that is less than six months in care.

3.7 Data Collection Instruments

Interviewer administered structured questionnaire was used. The questionnaire contained questions on socio-demographics, health status, health care utilization, and CAM modality used, type of CAM used, reasons for use, costs, and complementary and alternative therapy use satisfaction were asked.

3.8 Data Collection

Permission to carry out the study was sought from Uasin Gishu County Department of Health, Turbo Sub-County health service coordinator and facility in charges within the study site. Invitation was send to community liaison office, the community health

extension workers and the local community leadership (chief and assistant chief) with a clear description of the study. This information was then passed to community health care workers whom they were conversant with the participants and were key in introducing the research assistant. The research assistant introduced herself, clearly explained the purpose of the study and went through the consenting process to ensure that it was voluntary participation. Questions were then asked for about 20-30 minutes after which the research assistant took about 5 minutes to cross check the questionnaire to ensure that it was duly filled before ending the interview. The questionnaire was then kept in an envelope inside a bag to ensure confidentiality of the data and handed over to the researcher, all the forms were kept in a lockable cabinet that can only be accessed by authorized individual.

3.9 Data Analysis and Interpretation

Socio-demographic and clinical profiles of the study participants were summarized using descriptive statistics. Categorical variables were summarized as frequencies and percentages. The test for association between categorical variables was conducted using Pearson's Chi Square test or Exact Chi Square test for values whose cell frequency counts were less than 5, and the findings tabulated. Cross tabulation of factors associated with CAM use were also a basis that served primarily to identify useful constructs and variables that led to use of CAM. The cross tabulation was used as a basis to determine association of use of CAM (dependent variable) and determinate variables such as age, income level, religion, cost of treatment, usefulness of the medication, among others. A variable was considered significant if the p-value was less than 0.05.

3.10 Ethical Considerations

Approval from Moi University Institutional Review and Ethics Committee (IREC/2015/98), AMPATH research office, County government, relevant MOH health facilities and AMPATH CDM program were obtained to carry out the study. Informed consent was sought from the participants, clearly explaining to them the purpose of the study, potential benefits/ harms, the confidentiality of the information and also that their participation was voluntary, and if they felt they do not want to be part of the study then they were free to refuse to participate or stop at any time.

The participants were informed that their names and other information were not and will not be visible for third parties and all reasonable efforts were made to keep participants information private and confidential. The results of this study were stored in a database that is password protected and only accessible by those conducting the study. We ensured that no one can be able to identify a participant or the individual responses. We assured participants that confidentiality will be maintained should the data be published.

CHAPTER FOUR

4.0 RESULTS

4.1 Socio-Demographic Analysis

The sample size was selected from medical records for persons who had been diagnosed of hypertension in outpatient public health facilities in Turbo Sub County. A total of 13 facilities that offer hypertension care participated in the study and a total of 233 participants were sampled and interviewed.

The distribution of respondents by gender showed that there were more females 66.5% (155) that visited different public health facilities for hypertension treatment compared to male 33.5% (78). Majority of the respondents 73.4% (171) were married; 22.3% (52) were widowed while the remaining percentage represented singles and divorced/separated. Most respondents 54.1% (126) were over 65 years, 38.6% (90) were between 45-64 years while those between 19-44 years were 7.3% (17). The highest level of education for most respondents 48.1% (112) was primary education while 38.6% (90) received no education at all, other represented secondary and university levels. Their occupational status however showed that majority 75.5% (176) were farmers, 11.6% (27) business owners and the rest were retired civil servants among others. Majority of the respondents 74.7% (174) earned less than KES. 5,000 per month, only 20.2% (47) of the respondents earned more than KES. 10,000 and 4.3% (10) earned more than KES 15,000. Most of the respondents 87.1% (203) were Christians while Islam and other forms of religion were 0.4% (2) and 12.4% (29) respectively as summarized in Table 4.1 below.

Table 4. 1:Socio- Demographic Factors

		Frequency	Percent
Age Bracket	less than 44	17	7.3
	45 to 64	90	38.6
	65 and above	126	54.1
	Total	**233**	**100.0**
Sex	Male	78	33.5
	Female	155	66.5
	Total	**233**	**100.0**
Marital status	Married	171	73.4
	Single	7	3.0
	Widowed	52	22.3
	Divorced/Separated	3	1.3
	Total	**233**	**100.0**
Highest level of education attained	None	90	38.6
	Primary	112	48.1
	Secondary	22	9.4
	University	9	3.9
	Total	**233**	**100.0**
Religion	Christian	203	87.1
	Muslim	1	.4
	Other	29	12.4
	Total	**233**	**100.0**
Occupation	Farmer	176	75.5
	Teacher	11	4.7
	Business	27	11.6
	Retired Civil servants	9	3.9
	Banker	1	.4
	Church leader	2	.9
	Casual worker	4	1.7
	Student	3	1.3
	Total	**233**	**100.0**
Level of income	less than 5000	174	74.7
	5001-10,000	47	20.2
	10,001-15,000	2	.9
	More 15,001	10	4.3
	Total	**233**	**100.0**

4.3 Prevalence of CAM Use Among Patients with hypertension

The prevalence of CAM use was 33.5% (78) compared to none CAM users at 66.5% (155) as shown in Table 4.2.

The prevalence of respective types of CAM was considerably different with herbal treatment being the most prevalent at 96.1 % (74) compared to spiritual healing 3.9% (4). It was however noted that majority 65.4 % (51) who subscribed to CAM use were majorly the elderly people (65 years and above) while the use among the younger respondents (19 to 44 years) was relatively low 7.3% (17).

Table 4. 2: Prevalence of CAM Use

		Frequency	Percentage
	Yes	78	33.5
	No	155	66.5

Table 4. 3:Common CAM Methods

		Frequency	Percentage
	Herbalist	74	96.1
	Spiritual healer	4	3.9
	Total	78	100.0

Table 4. 4:Treatment Used in the Past Year

		Health Care Provider	Herbalist	Spiritual Healer	Total
Age bracket	19 to 44	10	6	1	17
	45 to 64	71	18	1	90
	65 and above	75	49	2	126

4.5 Factors Associated with the Use of CAM

4.5.1 Demographic factors

Test of association was done using the Chi-Square test at 5% level of significance with the null hypothesis that there was no association between the variables. The test established that most of the demographic variables (sex, marital status, occupation, level of income and religion) had no significant association with the use of CAM except for age (p=0.015) which was significantly associated with the use of CAM as shown in Table 4.5 below.

Table 4. 5:Comparison of CAM Use Versus Demographic Factors

		Have you ever used CAM			Total	P Value
		Yes	No			
Sex	Male	23	55		78	0.360
	Female	55	100		155	
Total		**78**	**155**		**233**	
Marital status	Married	57	114		171	0.102
	Single	2	5		7	
	Widowed	16	36		52	
	Divorced/Separated	3	0		3	
Total		**78**	**155**		**233**	
Highest level of education attained	None	33	57		90	0.42
	Primary	38	74		112	
	Secondary	6	16		22	
	University	1	8		9	
Total		**78**	**155**		**233**	
Occupation	Farmer	60	116		176	0.619
	Teacher	3	8		11	
	Business	9	18		27	
	Retired Civil servants	4	5		9	
	Banker	1	0		1	
	Church leader	0	2		2	
	Casual worker	1	3		4	
	Student	0	3		3	
Total		**78**	**155**		**233**	
level of income per month	less than 5000	63	111		174	0.431
	5001-10,000	12	35		47	
	10,001-15,000	1	1		2	
	More 15,001	2	8		10	
Total		**78**	**156**		**233**	
Age bracket	Less than 44	6	10		16	0.015
	45 to 64	18	70		88	
	65 and above	50	75		125	
Total		**78**	**155**		**233**	

4.5.2 Other Factors Influencing CAM Use by Patients with hypertension.

Further cross-tabulation done to assess association of CAM use with other factors such as alcohol use and form of CAM treatment that was used in the past one year. Alcohol use was significant with a P value of 0.012 as shown in table 4.6 below. As earlier indicated, herbal medicine features as one of the most consumed treatments among different sources of CAM. It was too established that access to information on the use of herbal medicine (CAM type) significantly influenced the use of CAM p-Value of 0.03.

Source of information on the use of herbal medicine was greatly influenced by friends, family and CAM practitioners. The cost implication of herbal medicine did not inform much on the decision to use herbal medicine with P-Value 0.689.

Table 4. 6:Use of Alcohol Versus CAM Use

		Ever used CAM		Total	
		Yes	No		p-value
Use of Alcohol	Yes	14	11	25	0.012
	No	64	144	208	
Total		78	155	233	

Table 4. 7:Source of Information for Herbal Medicine Used

		Herbalist visited		Total	p-value
		Yes	No		
Source of information for herbal medicine used	Friends	25	0	25	0.03
	Family Members	17	0	17	
	CAM practitioner	8	0	8	
	Other Patients	3	0	3	
	Mass Media	1	0	1	
	Self	2	1	3	
Total		56	1	57	

Table 4. 8:Costs Versus Use of Herbal Medicine

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.265[a]	11	0.689
N of Valid Cases	57		

Table 4. 9:Reason for Choice of Treatment

Type of Provider	**Reason for treatment**					**Total**
	Directly treat/cure HTN	Directly treat/cure Other condition (Diabetes)	To Improve well being	Other reasons (Allergies)	Other health conditions	
Physician visited	155	6	30	2	15	209
Herbalist visited	40	2	22	2	4	70
Spiritual healer Visited	4	0	2	0	0	6
Totals (CAM users)	**44**	**2**	**24**	**2**	**4**	**76**

The types of treatment chosen involved CAM and conventional treatment as earlier indicated. Their reasons behind the choice of treatment was largely because most of them believed that the treatment types they used directly cured HTN. Among those who believed in treatment and were cured directly by them using CAM were 57.1% (of 77 who reported for reasons for treatment). Other reasons cited largely was that the medication improved their wellbeing (32.46% of the 77 respondents that reported on the benefits of using CAM) (See table 4.10). However, among those who sought treatment on CAM use, 42.7% (32 of the 75) respondents who reported on how helpful the treatment was to them in treating hypertension) found herbalist treatment method to be majorly somewhat helpful and 22.7% (17) found it to be very helpful. 29.3% (22) of them however found the treatment not helpful at all. Among those who sought treatment from spiritual healers only 2 of the respondents found the treatment to be very helpful in improving the physical wellbeing and only 1 of the respondent found it somewhat helpful (see table 4.10).

Table 4. 70:Patient's Perception on Effectiveness of CAM Use

		Common treatment used in the past 1 year		**Total**
		Herbalist	Spiritual	
How helpful was the treatment	Very helpful	17 (22.7%)	2	19
	Somewhat helpful	32 (42.7%)	1	33
	Not at all	22 (29.3%)	0	22
	Do not know	0	1	1
Total		**71**	**4**	**75**

CHAPTER FIVE

DISCUSSION

5.0 Introduction

The study aimed at establishing the prevalence of complementary and alternative medicine among patients on hypertension care program in Turbo Sub County, identify the most common CAM methods used and factors associated with the uptake of CAM.

5.1 Prevalence of Complementary and Alternative Medicine Use Among Patients in Hypertension Care Program in Turbo.

This study found that the prevalence of CAM use among the patients on hypertension care program to be 33.5%. This is comparable to a previous study done in Nigeria that reported 29% prevalence of CAM use among patients with hypertension (Amira & Okubadejo, 2007). However, this prevalence is higher compared to other similar studies conducted in South Africa and Ghana where the prevalence was reported to be 21% and 19.5% respectively (Hughes et al., 2013; Kretchy & Owusu-Daaku, 2014).

Similar studies done in several countries reported higher prevalence of CAM use among patients on hypertension management than the findings of this study such as Uganda 56.2%, Ethiopia 85%, Palestine 85.7%, USA 36% (Ali-Shtayeh, Jamous, & Salameh, 2013; Asfaw Erku & Basazn Mekuria, 2016; Barnes, Powell-Griner, McFann, & Nahin, 2004; Nuwaha & Musinguzi, 2013).

The reasons for the difference in prevalence of CAM use in different countries could be as a result of disparities in socio cultural experiences, accessibility to conventional medicine and the patient perception of the importance of using CAM in curing health problems (Asfaw Erku & Basazn Mekuria, 2016).

5.2. Types of Complementary and Alternative Medicine Used Among patients with Hypertension in Turbo Sub County.

Among the patients on hypertension care program in Turbo Sub-County who use CAM, majority of the respondents 96.1% utilize herbal based medicines while 3.9% used spiritual healing practices as a form of CAM. The findings of this study are similar to

other previous studies which reported higher prevalence of herbal medicine among patients with hypertension as reported in a study done in Ethiopia 67.5% (Asfaw Erku & Basazn Mekuria, 2016) and Nigeria 63% (Osamor & Owumi, 2010). This could possibly be due to the fact that the tradition and culture in Kenya encourage the use herbal medicine and that herbal products are naturally derived directly from the rich and diverse Kenyan flora (Ondicho, Ochora, Matu, & Mutai, 2016).

The World Health Organization (WHO) estimates that up to 80% of the population in some developing countries use traditional medicine. In addition, trade in herbal medicine is gaining acceptance globally and is now a lucrative business generating lots of revenue (WHO, 2008; WHO, 2002). In sub-Saharan Africa, the traditional healers still play a major role in the provision of healthcare. This has been attributed in part to the unavailability of healthcare facilities and affordability of herbal medicine (WHO, 2008; WHO, 2002). The Kenyan situation is not any much different, and many communities especially from the poor rural areas still rely on herbal remedies (Nagata et al., 2011). In addition, many Kenyans believe in the potency of herbal medicine, even when they can access convectional medicine. In many cases they would choose to combine both herbal and convectional medicine, especially if they are afflicted with chronic ailments such as HIV/AIDS, hypertension, infertility, cancer and diabetes (Nagata et al., 2011).

The use of herbal medicine in Kenya has not been regulated by any scientific body other than the registration of herbalists in social services department (Kigen, Ronoh, Kipkore, & Rotich, 2013). Herbal medicine may often contain a combination of ingredients, some unknown, and of unregulated quality falling outside the scope of the government drug and therapeutic agencies.

This exposes the population to potential harm and adverse effects especially if used along other prescribed conventional drugs because limited quality assurance with most of the products' contents is known. This is supported by a study done by Chagan et al which reported that supplements or natural products containing for example herbs, can cause unpredicted effects, drug interactions and poor compliance to medication (Chagan et al., 2005). This leads to increased complications, high cost of treatment and premature deaths.

Spiritual healing (prayers) was also cited as a form of CAM being utilized, which is way low as compared to similar previous studies which reported higher prevalence of 88.2% (Asfaw Erku & Basazn Mekuria, 2016) and 49.4% (Okoronkwo, Onyia-pat, Okpala, Agbo, & Ndu, 2014). African cultural beliefs explain that illness have 'spiritual' origin. Patients are therefore interested in finding an explanation for their symptoms or the origin of the problems hence consulting alternative practitioners (Okoronkwo et al., 2014).

Most religions incorporate religious convictions into daily practices, including believe in praying for one's good health. It is also supported by a study done by Asfaw E and Basazn M which indicates that CAM users considered prayer and fasting being integral part of their religious culture and believed that healing comes through fasting and praying (Asfaw Erku & Basazn Mekuria, 2016). Manya et al as well suggested that individuals with chronic disease often believe in spiritual practices that aid in their personal healing process (Manya, Champion, & Dunning, 2012). Although the effectiveness of these spiritual practices is not assured despite being cheap, safe and easy to use (Asfaw Erku & Basazn Mekuria, 2016).

5.3 Factors Associated with the Use of Complementary and Alternative Medicine in Management of Hypertension in Turbo.

This study revealed that elderly patients above 65 years are more likely to use CAM compared to young patients (P value = 0.015.). This is similar to what has been reported by similar studies (Hughes et al., 2013) and (Osamor & Owumi, 2010) where age was significantly associate with CAM use. However, it differs with another study done in Nigeria, which did not show any association between age and use of CAM among patients with hypertension (Okoronkwo et al., 2014). Our findings indicate that majority 65.4% of the respondents who subscribed to CAM use were majorly the

elderly people (65 years and above) while the use among the younger respondents aged between 19 and 44 years was relatively low 7.3%. A study done in USA among older adults, above 65 years also concluded that CAM usage was high among this age group (Bell et al., 2006). This explains the health seeking behavior of the elderly people that might need to be explored further in another study.

Despite age being significantly associated with the use of CAM among patients with hypertension, there was no association with marital status, occupation, level of income, sex, and religion with use of complementary and alternative medicine. However, existing literatures on CAM usage shows conflicting evidence on patient characteristic's association stated above. For instance, a study done by Asfaw E and Basazn M in Ethopia showed that rural residence, higher educational status, male gender, low average monthly income, development of complications, and having a family history of hypertension were significantly associated with use of complementary and alternative medicine (Asfaw Erku & Basazn Mekuria, 2016). In South Africa ,a community based study done on patients with hypertension indicate that age, marital status and employment were significant factors associated with CAM use (Hughes et al., 2013). In Iraq CAM usage among patients with hypertension was associated to patient's education level, marital status and duration of hypertension (Ibrahim, Hassali, Saleem, Al Tukmagi, & Dawood, 2018). Contrary to this, other studies done by (Okoronkwo et al., 2014) and (Hu, Li, Duan, & Arao, 2013)in urban Nigeria and China respectively have postulated that use of CAM was independent of socio-demographic characteristics. This variation could be attributed to the differences in the definition of CAM in these studies, cultural variation and differences in values and beliefs of the communities included in these studies as cited by (Ibrahim et al., 2018). The association of demographic characteristics on use of CAM clearly varies according to the dominant culture in the country of study.

The use of alcohol in this study indicated that there is significant association (P-value of 0.017) with CAM use among patients with hypertension in Turbo Sub-County. This is supported as well by a study done by Barnes et al that use of CAM varies with patient characteristics including use of alcohol (Barnes, Powell-Griner, McFann, & Nahin, 2004).

This study established that source of information on use of herbal medicine influenced by advice from mainly friends, followed by family and CAM practitioners. The findings are similar to the studies done in Ethiopia, Iraq and Germany where similar trend was reported as the most prominent sources of information for CAM choice were outside the medical structure and included families, relatives, other patients with hypertension,

herbalists and friends (Asfaw Erku & Basazn Mekuria, 2016; Ibrahim et al., 2018; Tautz, Momm, Hasenburg, & Guethlin, 2012).

The cost of CAM did not influence use of complementary and alternative medicine, p-value of 0. 689. This differs from a study done by Kretchy et al. in Ghana where inability to afford drugs was found to influence CAM use (Kretchy & Owusu-Daaku, 2014). This may be as a result of increased access to health care services that is affordable in all the primary health care centers where this study was done. The drugs in these facilities are subsidized through community revolving fund pharmacy. The Revolving Fund Pharmacy (RFP) model is an initiative to provide high- quality medications consistently to patients, using revenues generated from the sale of medications to sustainably resupply medications at a subsidized cost (Manji et al., 2016).

The limitations of the study are: the study was a cross-sectional design therefore; no causal determinants of CAM use can be ascertained. The definition of CAM modalities in this study may differ from other studies, resulting in comparison difficulties. The data in this study were obtained through an interviewer administered questionnaire, therefore, recall bias is inevitable to some extent because participants had to report CAM use for the past 12 months. Selection bias may have occurred, the subjects who agreed to participate may be different from those who did not participate. Finally, this study is a community-based survey and cannot represent the national population, a multi-centered survey that includes diverse participants is needed.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Use of complementary and alternative medicine among patients with hypertension attending outpatient public health facilities in Turbo Sub County is high despite increased access to affordable health care.

The most common type of CAM in Turbo Sub County was herbal medicines which are biological based therapies with potential to decrease or increase the effect of conventional drugs.

Factors that influenced uptake of CAM among individuals with hypertension were age 65 years and above, history of alcohol use, and those influenced by friends and family

6.2 Recommendations

Complementary and alternative Medicine practice is common and this calls for clinicians to identify ways of discussing with patients during the clinical encounters especially among elderly and those with history of alcohol use.

There is need for the government to come up with systems and policies to regulate the practice of complementary and alternative medicine in Kenya.

Further studies can explore the effectiveness of these common CAM therapies used in hypertension management and any side effects that can result from it. Qualitative research can be done to give insights why CAM practice is still common.

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APPENDICES

Appendix I: Informed Consent

Use of complementary and alternative medicine among patients with hypertension in Uasin Gishu County, Kenya

Description of the research and your participation

You are invited to participate in a research study conducted by Peninah Kiptoo, a student at Moi University, School of Public Health. The purpose of this research is to find out the prevalence of use of complementary and alternative medicine among patients with hypertension in Turbo Sub County.

Your participation will involve an interview of about 30 minutes highlighting the demographic characteristics of the patient and the health seeking behavior of use of complementary and alternative medicine in management of hypertension.

Risks and discomforts

We will only be collecting personal health information that is a routine part of seeking health care. This research will cause no harm or discomfort.

Potential benefits

There is no direct benefit to you if you participate in this research however you will help us to understand our patients with hypertension better and therefore help us to improve the care that we render to them.

The findings of this research will inform policies that concern national integration of complementary medicine into conventional medicine. There are no costs to you for participating in this study.

Protection of confidentiality

The results of this study will be stored in a database that is password protected and only accessible by those conducting the study. No one will be able to identify you or your results. Should the data be published, no individual information will be disclosed, we guarantee you confidentiality?

Voluntary Participation and Right to Discontinuation

Your participation in this study is voluntary. If you decide to participate, you can change your mind later and quit the study before the end. If you decide not to participate, or if you quit the study, it will not attract any penalty or even affect the health care services you receive at the health facilities.

By signing this document, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer for any reason.

Contact information

If you have any questions or concerns about this study or if any problem arises, please contact Peninah Kiptoo of telephone number 0724392561. If you have any questions or concerns about your rights as a research participant, please contact the Institutional Review and Ethics committee in MTRH building second floor.

Participant's informed consent

I have read/ have had the document read to me, all my questions have been answered and I have understood the information contained in the consent form above. Iagree to voluntarily take part in the study. I acknowledge receipt of a copy of the informed consent statement.

I give my consent to participate in this study.

Signature of study participant _____ Date_____

Signature of witness: _____ Date: _____
(If participant is illiterate)

Signature of person giving consent_____ Date_____

Appendix II: Questionnaire

Questionnaire on use of complementary and alternative medicine among patients with hypertension in Uasin Gishu County, Kenya.

Questionnaire NO: _____

Date of interview: _____

DEMOGRAPHIC DATA

1) Area of residence (village)……
2) Age (in years /Date of birth): ----------
3) Sex: Male ☐ Female ☐
4) Marital status: (a) Married ☐ (b) single ☐ (c) Widowed ☐
   (d) Divorced/Separated ☐
5) Highest level of education attained:
   a) None ☐ b) Primary ☐ c) Secondary ☐ d) University/college ☐
6) Occupation: a) Farmer ☐ b) Teacher ☐ c) Business person ☐
   d) Other(specify)…….
7) Level of Income per month:
   a) Less than Kshs 5,000 ☐ b) Between Kshs. 5,001 to10,000 ☐
   (c) Between Kshs. 10,001 to15,000 ☐ d) More than Kshs 15, 001 ☐
8) Religion: a) Christian (specify)…… b) Muslim ☐
   c) Others (specify) …….
9) Do you sometimes take alcohol? Yes ☐ No ☐
10) How long have you known that you have hypertension?.....
11) How long have you been on hypertension treatment? …….

CONVENTIONAL AND CAM MEDICINE

A. **Visiting health care providers:** ***health problems may be attended to by a variety of complementary and conventional health care providers.***

Provider (S) seen in the last 12 months (*check where applicable **X***)	Number of times you last saw this provider in the last 3 months ?	Please indicate the reason (s) you last saw the provider. 1. Directly treat/cure HTN 2. Directly treat/cure other health condition(specify) 3. To improve well being 4 Other(please specify the reason)	How helpful was it for you to see this provider? (check one only **X**)			
			VERY	SOMEWHAT	Not at all NOT AT ALL	Don't know DO NOT KNOW
Physician/health care provider						
Herbalist						
Spiritual healer						
Acupuncturist						
Chiropractor						
Other (please specify)						

B. Complementary medicine received from health care providers

(If you have not seen health care provider for the past 12 months, please go to question 3).

complementary treatments received from a health care provider in the last 12 months *(check where applicable X)*	No. of times you received this treatment in the last 3 months?	Please indicate the reason(s) you last received this treatment. . Directly treat/cure HTN 2. Directly treat/cure other health condition(specify) 3. To improve well being 4 Other(please specify the reason)	How helpful was it for you to use this treatment from health care provider? (*check one only **X***)			
			VERY	SOMEWHAT	NOT AT ALL	DON'T KNOW
Herbs						
Spiritual healing						
Acupuncture						
Manipulation						
Other (please specify)						

C. Using herbal medicine and other dietary supplements, including tablets, capsules and liquids.

For each category below list up to 3 products you have used in the last 12 months	Do you currently use this product? Yes/no	Please indicate the reason(s) you last used this product. 1. Directly treat/cure HTN 2. Directly treat/cure other health condition(specify) 3. To improve well being 4 Other(please specify the reason)	How helpful did you find this product? *(check one only **X**)*			
			VERY	SOMEWHAT	NOT AT ALL	DON'T KNOW
Herbal 1……. 2.. …….. 3…….						
Homeopathic remedies 1……. 2……. 3…….						
Vitamins/minerals 1…… 2…… 3……						
Other (e.g. GNLD) 1……. 2……. 3……..						

D. Self-help practices

Have you used any of the following self-help practices in the last 12 months? Yes/no	No. of times you used this practice in the last 3 months?	Please indicate the reason(s) that applies to your last use of self-help practice. 1. Directly treat/cure HTN 2. Directly treat/cure other health condition(specify) 3. To improve well being 4 Other(please specify the reason)	How helpful did you find this self-help practice? *(check one only **X**)*			
			VERY	SOMEWHAT	NOT AT ALL	DON'T KNOW
Meditation						
Visualization						
Relaxation techniques						
Attended traditional healing ceremony						
Massage therapy excluding physiotherapy						
Praying for own health						
Other (please specify)						

IF yes to any form of CAM used above, please ask the proceeding questions (13,14,15)

Type of CAM	**Herbal medicine**	**Dietary supplements**	**Prayers**	**Relaxation techniques**	**Other(specify)**
13. What are your reasons for deciding to use CAM *(you can choose more than one)*					
a) You were disappointed that conventional treatment is not working					
b) Conventional treatment is too toxic or too harmful					
c) You want to take control of your treatment and your faith in your own hands					
d) You are just trying everything that can help					
e) Other(specify)					
14. What benefits were you hoping to get from the CAM you used in treating hypertension? *(you can choose more than one)*					
a) It will directly treat/cure your hypertension					
b) It will boost your body's ability to fight hypertension					
c) It will relieve the symptoms of the hypertension					
d)It will relieve side effects of conventional treatment which you are receiving					
e) It will improve your physical well being					
f)Others (specify)					
15. How did you come to know of the CAM you are using/have used *(you can choose more than one)* from:					
a) Friends					
b) Family members					
c) CAM practitioner					
d)Other patients					
e) Church/religious group					
f)Mass media(radio, television, newspaper)					
g)Others (specify)					

16. Have you ever mention to your health care provider that you have used/are using CAM? Yes ☐ No ☐

If no, what is it that makes you feel unwilling to discuss it with him/her? .....

17. How do you get your supply of CAM?

a) From friends ☐
b) From relations ☐
c) From CAM practitioner ☐
d) Buy from the market ☐
e) From your church ☐
f) Others (specify) ----------

18. How much money do you spent on CAM per month on estimate?----------

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