

SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA

THE USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) FOR
THE MANAGEMENT OF HYPERTENSION AMONG PATIENTS SEEKING
HEALTH CARE AT THE LEDZOKUKU KROWOR MUNICIPAL ASSEMBLY
(LEKMA) HOSPITAL

BY

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THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA,
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DECLARATION

I, Magzy Frimpong Dumfeh, do hereby declare that with the exception of references made to other people’s work and textbooks which have been duly acknowledged, this dissertation is a result of my own effort. No material in this work has been presented either in whole or part to any other institution apart from the University of Ghana, for the award of any degree or certificate.

STUDENT: Magzy Frimpong Dumfeh

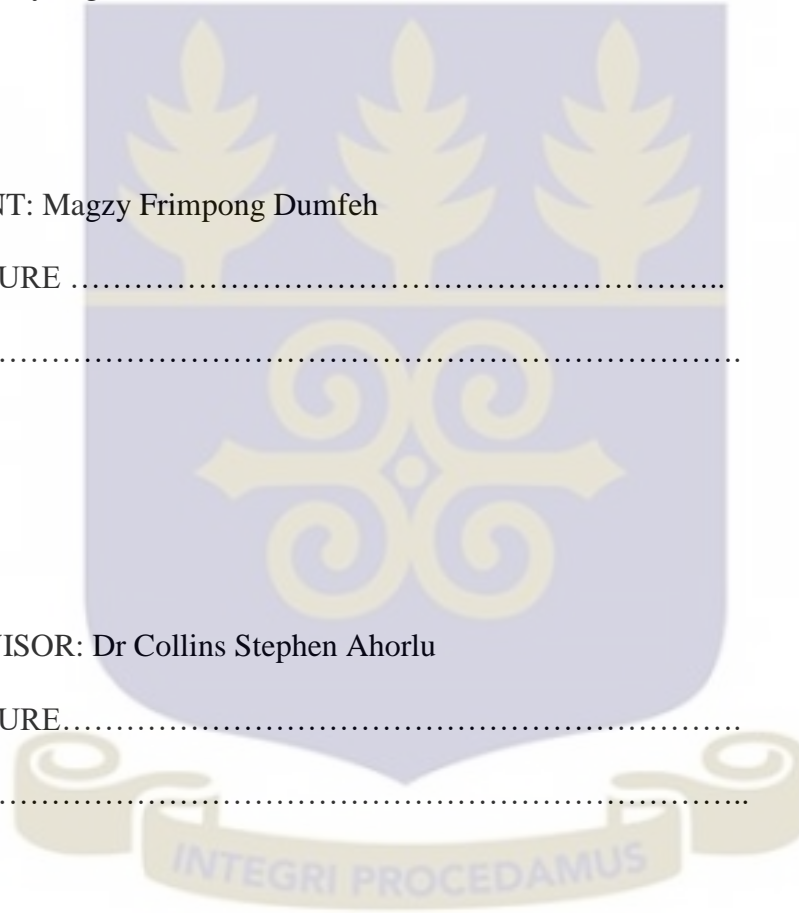
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SUPERVISOR: Dr Collins Stephen Ahorlu

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DEDICATION

This work is dedicated to my husband Dr Eric Michael Boateng Dumfeh who has always helped me and believed that I could do it. And to my sons David Roy Boateng Dumfeh and Michael Jadon Boateng Dumfeh who have dealt with all of my absence from many family occasions.



ACKNOWLEDGEMENT

I would never have been able to finish my dissertation without the help of the Almighty God, the guidance of my supervisor, help from nurses at the Physician Specialist Clinic at LEKMA hospital, and support from my family and friends.

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ABSTRACT

BACKGROUND: Complementary alternative medicine (CAM) use appears to be on the increase globally and there is an increased rate of usage among hypertensive patients. The main objective of the study was to describe CAM use among hypertensive patients for the management of hypertension.

METHOD: A descriptive cross-sectional survey involving 209 hypertensive patients seeking health care at Ledzokuku Krowor Municipal Assembly (LEKMA) hospital was conducted. Demographic data, pattern of CAM use, clinical profiles of respondents and patients attitude toward CAM were documented using validated questionnaire.

RESULTS: Out of the 209 patients surveyed, 99 (47.4%) used at least one type of CAM with majority (72.7%) of them using herbs. Majority (72.7%) of the CAM users claimed to have obtained the expected effect. However, (89.9%) did not disclose their CAM use to their physician citing lack of inquiry by these physicians as the main reason for non-disclosure. There was no association between CAM use and sex as well as CAM use and age groups. Affordability of antihypertensive medication, medication adherence and side effects, family history of hypertension as well as duration of hypertension were significantly associated with CAM usage at $p < 0.05$. Complementary and alternative medicine users in general showed positive attitude towards CAM.

CONCLUSION: A considerable proportion of hypertensive patients receiving conventional treatment at LEKMA hospital also use CAM therapies. Physicians should be encouraged to inquire about their patients' history of CAM use, appreciate the basis

for this health-seeking behaviour, and advice patients concerning the possible adverse reactions and drug interactions.



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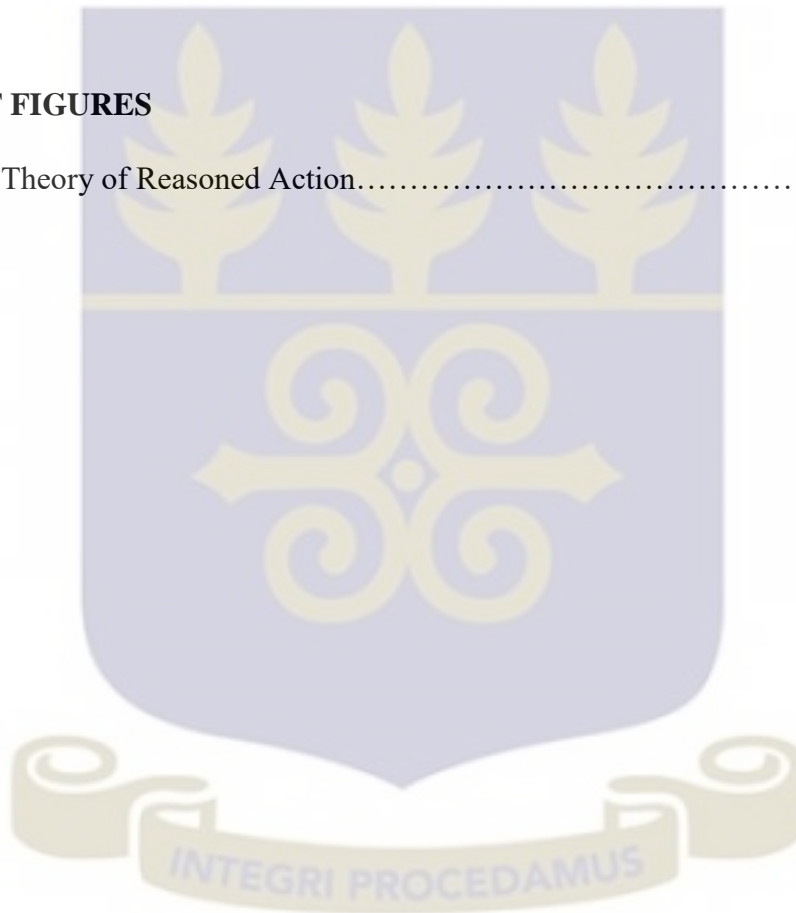
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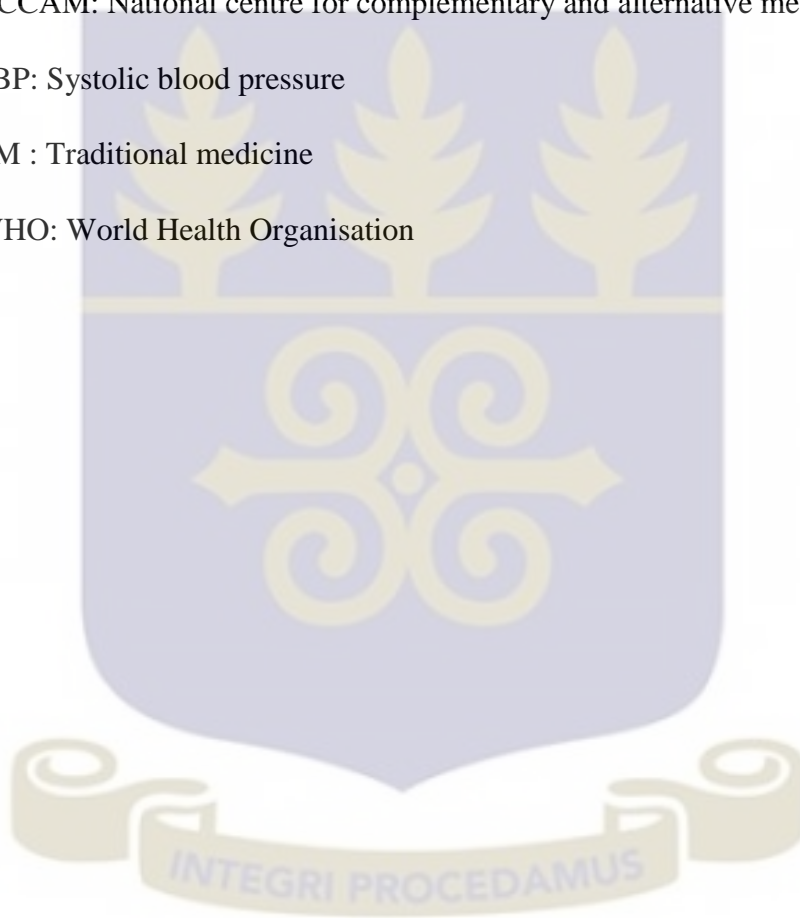
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LIST OF ABBREVIATIONS

- CAM: Complementary and alternative medicine
- DBP: Diastolic blood pressure
- HPT: Hypertension
- LEKMA: Ledzokuku Krowor Municipal Assembly
- NCCAM: National centre for complementary and alternative medicine
- SBP: Systolic blood pressure
- TM : Traditional medicine
- WHO: World Health Organisation



CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

The environment we live in is changing rapidly; globally, human health is being defined by demography, aging, rapid urbanization and globalization of unhealthy lifestyle. The same health issues are being felt by the wealthy and resource constrained countries. This shift is leading to non-communicable diseases such as hypertension taking over infectious diseases as the World leading cause of mortality (WHO, 2013).

Hypertension is a non-communicable disease affecting one billion of the World population. It is one of the leading risk factors of cardiovascular disease (WHO, 2013). It is the main cause of cardiovascular epidemic in Africa, where it is the major independent risk factor for heart failure, stroke and kidney failure (Kayima, Wanyenze, Katamba, Leontsini, & Nuwaha, 2013). In sub Sahara Africa, management of the complications of hypertension is difficult to sustain due to unattainable intensive care resources. Inadequate diagnosis of hypertension and shortcomings associated with blood pressure control in the diagnosed patients, increase morbidity and mortality leading to an increased burden to health care resources (Kayima et al., 2013).

Notwithstanding national and international guidelines and measures for hypertension control, population based studies revealed two-thirds of hypertensives are either untreated or inadequately controlled including considerable numbers who remain undiagnosed (Marshall & Wolfe, 2012). According to the World Health Organisation, patients with hypertension low adherence to treatment is a major factor impeding good control and

there has been a call to research into designing interventions to promote adherence as factors causing poor adherence are complex (Marshall & Wolfe, 2012). Multiple factors have been identified to be responsible for patient's low adherence to prescribed pharmacologic therapies. They include demographic, treatment, clinical and behavioural factors. One of such factors identified is the use of complementary and alternative medicine (CAM) (Krousel-Wood et al., 2011). Studies have also reported on varieties of self-care methods among hypertensives. One of such method is the use of complementary and alternative medicine (CAM). Complementary and alternative medicine (CAM) use has become one of the common self-care methods among hypertensives. It is therefore important to acknowledge these methods in order to assess potential risks and the effectiveness of these self-care practices (Gohar, Greenfield, Beevers, Lip & Jolly, 2008). Complementary and alternative medicine (CAM) utilization has been reported to be common among hypertensives (Krousel-Wood et al., 2011). Prior to the introduction of Western Medicine, what is referred to as CAM in modern medicine was the mainstream medicine in West Africa. It is therefore not a new phenomenon. About 70% of Ghanaians rely on Traditional medicine for their health care (Yarney et al., 2013). It has been suggested that CAM use may be attributed to people who suffer from chronic conditions that might not have received satisfactory treatment by conventional medicine or have life threatening diseases (Yarney et al., 2013). A study conducted in Palestine reported high percentage of CAM use among hypertensives to manage their condition. This high level of CAM use suggests patients prefer the integrative approach to hypertension management (Ali-Shtayeh, Jamous, Jamous & Salameh, 2013). A similar study involving twenty seven countries was conducted to determine the use of CAM by people with

cardiovascular disease; twelve in the United States and six in Canada. The remaining nine were conducted in United Kingdom, Hong Kong, India, Italy, Korea, Nigeria, Spain and Turkey (Grant, Bin, Kiat, & Chang, 2012). It was revealed that CAM use is common among patients with cardiovascular conditions. Greater percentage of them believed CAM has remedial benefits and was perceived as being safe or safer than their prescribed medications. It was also revealed that many of CAM users were often not willing to disclose their CAM use to their Physicians (Grant et al., 2012). Some CAM products may likely interfere with the intended action of prescribed antihypertensive drugs (Tachjian, Maria, & Jahangir, 2010). The main objective of this study is to describe the use of complementary alternative medicine among persons with hypertension.

1.2 PROBLEM STATEMENT

It has been revealed that a high proportion of Ghanaians depend on complementary and alternative medicine (CAM) commonly referred to as Traditional Medicine (TM) for their health care in the ratio of one traditional practitioner to four hundred (400) people as compared to one allopathic Doctor to twelve thousand (12,000) people (Yarney et al., 2013). Complementary and alternative medicine (CAM) utilization has been reported to be common among hypertensives and among patients with cardiovascular conditions (Krousel-Wood et al., 2011). Much discussion has been done on the reason why patients choose to use CAM, but not fully understood (Osamor & Owumi, 2010). Many hypertensive patients believe CAM to be of significant benefits than conventional medications due to harmful side effects of conventional therapy, enhancing complete well being and good health. Many also perceived that CAM has remedial benefits, safe and

with fewer side effects than conventional medications (Grant, Bin, Kiat & Chang, 2012). However, some CAM products have the potential of causing adverse reactions either intrinsic or extraneous. The intrinsic is due to pharmacological effects. The extraneous effects come about as a result of improper handling and production processes such as misidentification, absence of standardizations, contaminations and others, thus use of CAM could be harmful (Sawalha, 2007). Acknowledging and understanding CAM use among hypertensive patients could help to enhance the remedial benefits, identify and eliminate potential risks associated with CAM products.

This study is aimed at adding to available knowledge regarding hypertensive patients' use of CAM for management of their ailment, factors influencing the use and their attitude toward CAM.

1.3 CONCEPTUAL FRAMEWORK

The study adopted the Theory of Reasoned Action to understand the use of CAM among patients with hypertension. This theory was formulated by Martin Fishbein and Icek Ajzen in 1975.

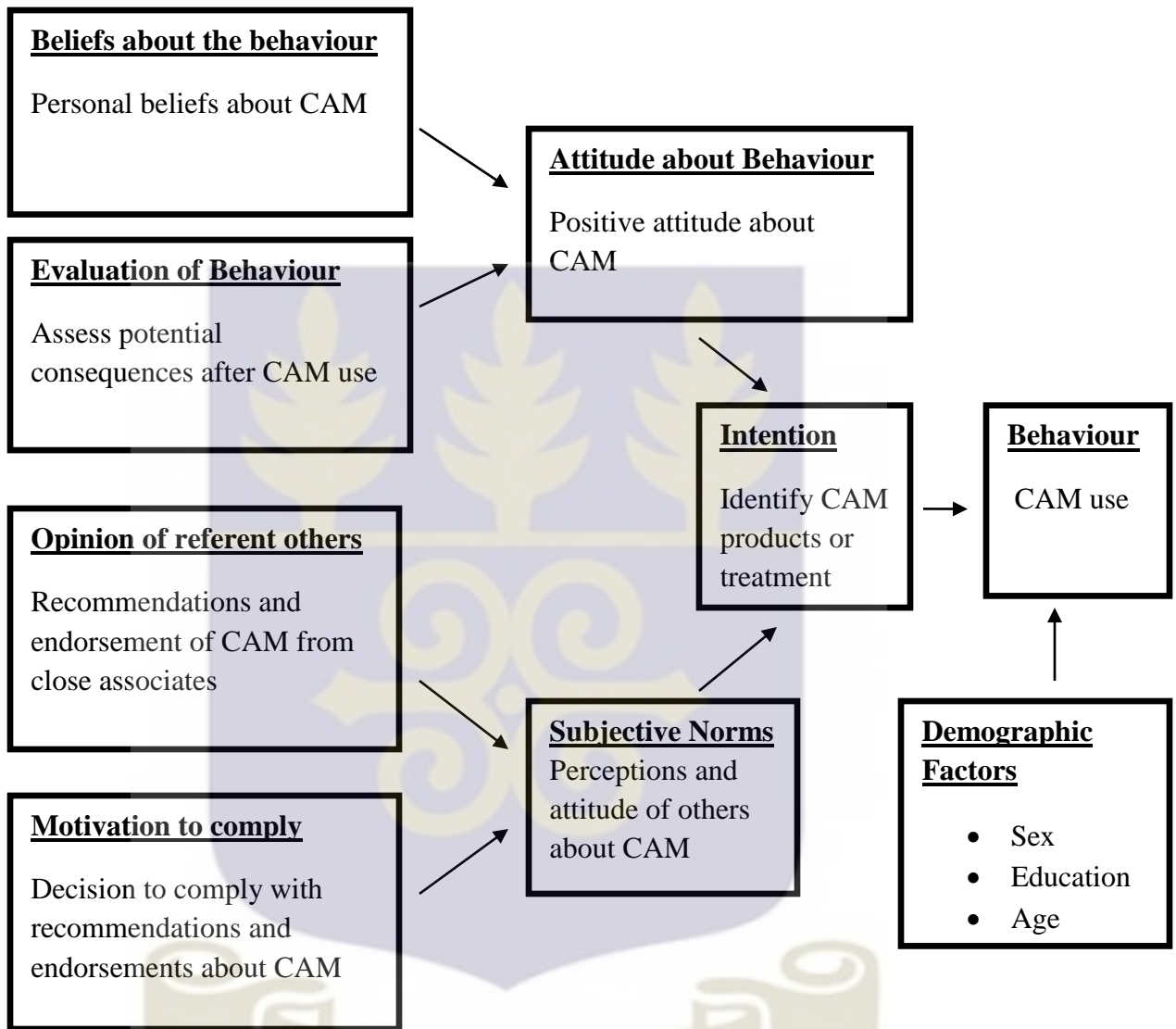
According to this theory, an individual's behaviour is influenced by the behavioural intention to articulate the behaviour. There are two factors that influence behavioural intention; a person's attitude toward the behaviour and subjective norms. The theory is made up of three components; a person's attitude toward the behaviour, subject norms and behavioural intention. An individual's attitude toward a particular behaviour is suggested to be a function of the positive or negative beliefs and evaluation of the perceived outcome of performing the behaviour. Subjective norms on the other hand are

functions of the person's (normative) beliefs about what referent individuals or groups think about the behaviour and the person's motivation to comply with these referents. The behavioural intention however, is the perceived likelihood of the person performing the particular behaviour (Vallerand, Paul, Jean-Pierre, Luc, & Claude, 1992).

Hypertensive patient's intention to use CAM for management of the condition will depend on attitude and subjective norms. The beliefs about CAM and the value hypertension patient attaches to use of CAM (i.e. his evaluation of his health outcome if he uses CAM and perceived satisfaction) will inform his decision. The patient will consider how satisfactorily it will be for his condition especially if he has had dissatisfied effect from using conventional therapy. If the beliefs and evaluation about CAM are favourable then the patients will have a positive attitude towards CAM. However, if the patient beliefs about CAM are not favourable and values it as less satisfactory to his ailment, he may not consider using CAM.

In other words, with subjective norms, positive recommendations and endorsement from close associates and significant others will encourage the patient to use it. However, negative suggestions such as bad side effects and association with death will scare the patient from using it. The patient's decision to comply with these external pressures is very paramount. The behavioural intention after these assessment and evaluation is the decision of which CAM product to use. Demographic factors such as age, gender and educational level may also be influencing factors. The relative importance of the attitudinal and normative components in determining intention is expected to differ according to behaviour, the situation and individual differences.

Figure 1: Theory of Reasoned Action



Source: Theory of Reasoned Action adopted from Fishbein and Ajzen 1975

1.4 JUSTIFICATION OF STUDY

This study has brought to light the extent of CAM use among hypertensives seeking health care at LEKMA hospital. Findings from this study would also inform the design of educational programs to educate patients on the benefits and side effects of CAM. Findings could also be used to design an educational program to incooperate information about CAM into clinical practices as well as integrate some beneficial CAM therapies into conventional therapies for the management of hypertension.

1.5 RESEARCH QUESTIONS

1. Are hypertensive patients using CAM to manage their condition?
2. What are the factors influencing CAM use among hypertensives?
3. What are the attitudes of hypertensive patients toward the use of CAM?

1.6 GENERAL OBJECTIVE

To describe CAM use among patients with hypertension for the management of their condition.

1.7 SPECIFIC OBJECTIVES

The specific objectives are;

1. To determine the use of CAM by hypertensive patients for the management of their condition
2. To determine the attitudes of hypertensive patients toward the use of CAM

3. To determine factors influencing CAM use among hypertensives for management of their condition.



CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter reviewed the literature on the subject matter, which is considered relevant to this study. The literature review is structured per the objectives of this study.

2.1 HYPERTENSION

Hypertension is defined as persistent elevation of systolic blood pressure (SBP) of ≥ 140 mmHg and or diastolic blood pressure (DBP) of ≥ 90 mmHg. High blood pressure can be classified as follows (Rashid, Khalid, & Chia, 2011);

Category	Systolic (mmHg)		Diastolic (mmHg)
Optimal	<120	and	<80
Pre-hypertension	120-139	and/or	80-89
Stage 1 HPT	140-159	and/or	90-99
Stage 2 HPT	160-179	and/or	100-109
Stage 3 HPT	≥ 180	and/or	≥ 110

Hypertension is the main cause of vascular diseases such as stroke and myocardial infarction and congestive heart failure. These diseases lead to remarkable medical expenses and low productivity in the work force mostly due to poor adherence to lifestyle changes and medications (Rashid et al., 2011).

2.1.1 Management of Hypertension

Problems associated with hypertension are important public-health issues worldwide. Hence prevention, detection, treatment, and control of this condition should be given most important consideration (Kearney et al., 2005). First line of managing hypertension is through life style modifications. When the disease is asymptomatic, lifestyle changes such as low sodium diet, weight loss, increased exercise and reduction in alcohol consumption are difficult. Continual adherence to medications is burdensome when the disease is asymptomatic and drug related side effects emerge (Luehr D, Woolley T, Burke R, Dohmen F, Hayes R, Johnson M, Kerandi H, Margolis K, Marshall M, O'Connor P, Pereira C, Reddy G, Schlichte A, 2012). Intervention and the development of completed management plan such as lifestyle advice and drug treatment should rest on a complete clinical investigation to recognize clinical conditions (National Heart Foundation of Australia, 2010).

In commencing drug therapy for patients with uncomplicated hypertension, first line of treatment is with antihypertensive monotherapy with any of the following agents (Krause, Lovibond, Caulfield, McCormack, & Williams, 2011);

- angiotensin-converting enzyme (ACE) inhibitors (or angiotensin II receptor antagonists)
- calcium channel blockers
- thiazide diuretics

2.2 COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM)

The national centre for complementary and alternative medicine (NCCAM) in US defines complementary and alternative medicine as a 'group of diverse medical and healthcare systems, practices and products that are not presently considered to be part of conventional medicine' (Hori, Mihaylov, Vasconcelos, & McCoubrie, 2008). However, the exact definition of what comprises CAM is culturally dependent. National centre for complementary and alternative medicine (NCCAM) classification of CAM therapies are as follows (Hori et al., 2008);

1. Whole medical systems - Homeopathic medicine, naturopathic medicine, chiropractic, traditional Chinese medicine, Ayurveda etc.
2. Mind-body interventions - Meditation, prayer, mental healing, art, dance, music therapy etc.
3. Biologically based therapies - Herbs, vitamins, dietary supplements, Health foods, aromatherapy etc.
4. Manipulative and body based methods- Chiropractic or osteopathic manipulation, massage etc.
5. Energy therapies (Biofield therapies and bioelectromagnetic based therapies)

During the past decade, there has been an increase in the interest of CAM and mostly positive attitude toward CAM among the general public (Frass et al., 2012). Significant numbers of people are turning to CAM. This has enhanced a mass of literature aimed at examining who uses CAM and reasons for use (Bishop & Lewith, 2010). Complementary and alternative medicine utilization is increasing globally with both global and African populations usage documented to be between 20-80%.

However due to lack of evidence to support efficacy of a number of these CAM products and practices or therapies as well as lack of documentation for potential adverse effects, cost considerations and lack of evidence-based treatment decision making, many medical practitioners are reluctant when it comes to CAM utilization especially with chronic conditions in which health outcomes are dependent on adherence to treatment (Amira & Okubadejo, 2007).

Various studies have been conducted to examine reasons for the growth of CAM usage despite lack of scientific evidence for the effectiveness of most forms of CAM therapy. Several explanations for the increase in CAM usage have been given; these include market forces, availability of information on the internet, the desire of patients to be actively involved with medical decision making, and the dissatisfaction with orthodox medicine (Chua & Furnham, 2008). A study conducted by Okoronkwo, Okpala, Agbo & Ndu (2014) revealed that a higher number of participants perceived CAM as beneficial and effective for their health condition. Few participants reported adverse effects. Documentation from systemic studies substantiates the blood lowering effect of some CAM products. As part of evidence-based approach to the treatment of hypertension, various CAM therapies can be reviewed (Nahas, 2008).

Complementary and alternative medicine usage has been reported to be one of the causes of poor adherence to antihypertensive. Gohar et al., (2008) conducted a study aimed at determining the prevalence of self-care behaviours in patients attending a secondary care hypertension clinic. Non CAM users were reported to adhere more to anti-hypertensive medication as compared to CAM users in the proportion of 60.5% and 44.8% respectively. Being female and a CAM user was significantly associated with imperfect

adherence to anti-hypertensive medication. This study also reported no statistical differences between CAM users and non CAM users in terms of demographic factors such as age, education. Gohar et al., (2008) reported that the most commonly used CAM reported were vitamins and food supplements.

Tachjian et al., (2010) conducted a review and reported high consumption of herbal remedies or high-dose of vitamins among millions of people in the United States and total number of visits to complementary and alternative medicine (CAM) providers far exceeds those to primary physicians. The review also highlighted commonly used herbs and drugs interactions and also discussed health-related issues of herbal products and suggested ways to improve their safety to better protect the public from untoward effects. Some problems related to the use of Herbal products discussed are; Lack of scientific evidence of safety and efficacy, Lack of regulatory oversight, Lack of quality control, Public misinformation, and Under-reporting of adverse drug reactions, Lack of knowledge about herb–drug interactions by patients and health care providers. A similar study also reported on the direct and indirect risk associated with CAM usage and suggested full appreciation and appraisal of the relative merits and potential risks of CAM practice and provision by researchers (Wardle & Adams, 2014).

2.3. PATTERNS OF CAM USE AMONG HYPERTENSIVE PATIENTS

Several studies have been conducted to determine CAM use among hypertensive patients. Complementary and alternative medicine use in hypertensive patients has been revealed via extensive and methodical review of surveys reporting the prevalence of CAM use by the general public (Harris, Cooper, Relton, Thomas, & Harris, 2012). Studies have been

conducted in South Africa (Peltzer, 2009), and United States of America (Barnett et al., 2003), and some other studies have focused on CAM use in hypertensive patients. According to these reports, there seems to be a high prevalence of CAM use in hypertensive patients for treatment of hypertension. Most of these studies reported the prevalence of CAM use in hypertensive patients and examined the association between CAM use and demographic features. However, few studies reported the perceived effectiveness and attitudes of non CAM users and possible side effects or adverse reactions after using CAM. A study conducted by Okoronkwo et al.,(2014) revealed although CAM is generally perceived to be natural and safe with low side effects, some participants reported adverse effects such as body discomfort, dizziness, general malaise, weakness, stomach upset and diarrhoea (Okoronkwo et al., 2014).

In a study conducted among hypertensives seeking health care at hypertensive outpatient department at Government hospitals, Military medical clinics, and refugee camps in eight towns in the Palestinian authority region involving males and females across different age groups, 85.7% of respondents used at least one type of CAM. Majority of CAM users in this study were females. Factors that were identified to be associated with CAM use are family history of hypertension, having other chronic diseases and other family members' use of CAM. The study also revealed that a higher proportion of the patients use one or more types of CAM. On top of the list are herbs, followed by diet, and then exercise. Most of these herbs users were more than 50 years old and of low educational level. More than half of these herb users expressed satisfaction with perceived effect. No significant associations were statistically found to exist between CAM users and non CAM users in terms of age, educational level. The study also revealed that hypertensives

received their main sources of recommendation from family, followed by friends, then Physicians and Pharmacists, media and lastly, herbalist. Approximately half of CAM users believed they would get relief from symptoms of the disease. Other evaluation of the use of CAM included, slowing down of the disease progression, curing of the disease and reduction of side effects of prescribed medications (Ali-Shtayeh et al., 2013). The study did not disclose attitude of non CAM users towards CAM and their reasons for not using CAM and also the possible side effects experienced by participants of CAM after usage.

In another cross sectional study conducted at the Komfo Anokye Teaching Hospital and Korle Bu Teaching Hospital by Kretchy, Owusu-Daaku & Danquah (2014) to determine patterns and determinants of the use of complementary and alternative medicine among hypertensives in Ghana, 19.5% reported using CAM with majority being biological base therapies. In the studies it was revealed that more males were likely to use CAM than female. Affordability of medications had influence on CAM use with those who could not afford their medication relying on CAM. Complementary and alternative medicine users were found to be non adherent to their antihypertensive drugs as compared to non CAM users (Kretchy et al., 2014). The study also revealed about 70% of CAM users had not disclosed their CAM use to their healthcare professionals. Main reasons for non-disclosure are fear of health care professionals' reactions and the lack of inquiry by these health professionals. However, the study did not address patient's attitude towards CAM and attitude of non CAM users towards CAM and also the possible side effects experienced by participants of CAM after usage.

In another study conducted in Urban Nigeria employing both quantitative and qualitative study design to determine CAM use among hypertensives, 29% of the patients were found to use CAM in the management of their ailment. Herbs were the most common form of CAM. Being male, belief in supernatural causes of hypertension and lack of belief that hypertension is preventable were variables found to influence CAM use. Age, educational level and occupation were not independent predictors of CAM use (Osamor & Owumi, 2010). Patient's attitudes toward CAM were not addressed as well as attitude of non CAM users.

In the context of establishing CAM use pattern, a systematic search of existing literatures using different databases from PubMed/Medline, PSYINDEX and PsycLit were conducted. The study was conducted to research the utilization and acceptance of CAM among the general population and health personnel. The search focused on "Complementary medicine". CAMbase and CAMRE-SEARCH were also included in the search. A total of sixteen (16) papers met the search criterion. Homeopathy and acupuncture were utilized most. It was also revealed that Chiropractic manipulation, herbal medicine, massage and homeopathy were the most utilized therapies among the general population. Sex, age, and education were identified to be predictors of CAM use. More women as well as the middle aged and the educated were found to utilize CAM the most (Frass et al., 2012). This study was more concerned with prevalence of CAM use. It did not seek to address patient's attitude about CAM, their reasons and possible side effects after usage.

"Frequency of complementary and alternative medicine utilization in hypertensive patients attending an urban tertiary care centre in Nigeria" was another study conducted

with the objectives to determine the frequency of utilization of CAM among hypertensives, identify determinants of CAM utilization and impact of CAM usage on blood pressure control. The study added to available literature on increased CAM utilization globally; it was reported 39.1% of respondents used CAM. In the study, CAM utilization was independent of socio-demographic factors, as well as duration of hypertension. Herbs were the common type of CAM used by participants. However the study did not report attitude of participant towards CAM and any perceived effect that may be associated with usage (Amira & Okubadejo, 2007).

China is one country that has various forms of CAM available. These CAM therapies and products are widely used by Chinese to promote general health, to treat and prevent medical conditions. Hu, Li, Duan & Arao (2013) conducted a cross-sectional study aimed to determine the use of CAM in community-dwelling individuals with hypertension in China. The study examined prevalence and patterns of CAM use and perceived effectiveness of CAM and found that 74.2% of the participants reported having used CAM in the last 12 months. They also reported that there was no statistical difference between CAM users and non-CAM users by age, health status, duration of hypertension, or education. The study also reported high prevalence of CAM usage among female respondents than male.

Complementary and alternative medicines are used extensively by a number of patients in the UK (Bishop & Lewith, 2010). A narrative review of demographic characteristics and health factors associated with CAM use was conducted in UK to investigate this practice. This narrative review involved gathering and assessing evidence concerning the demographic characteristics and health status factors associated with CAM use in

community-based non-clinical populations. The evidence gathered indicated that females as well as middle aged people and those with higher education tend to use CAM more. The study also revealed individuals with co-morbidities such as cancer, and those who rate their own general health as poor also tend to use CAM (Bishop & Lewith, 2010).

Hori, Mihaylov, Vasconcelos & McCoubrie (2008) aimed to investigate the patterns of CAM use, perceived effectiveness and disclosure of CAM use to orthodox medical practitioners amongst patients attending typical primary and secondary care clinics in a busy district general hospital in Tokyo, Japan. The study reported a significant proportion (50%) of CAM usage among the study participants within the last 12 months. The majority of CAM users found their CAM treatment to be effective. Females and those with a high number of medical conditions were more likely to use CAM. Only a small proportion of patients reported their CAM use to their physician. Age groups and educational level were not determinant factors for CAM use.

A cross-sectional study was conducted to explore the prevalence of herbal medicine use in a cohort of patients with chronic kidney disease, dyslipidemia and hypertension in Jordan. Although this study was carried out among participants with chronic diseases, majority of patients had hypertension. This study confirmed that there is an appreciable prevalence of herbal use among patients with chronic kidney diseases, dyslipidemia and hypertension in Jordan. The study also revealed most CAM users were older than 50 years of age and majority were female. The study confirmed growing usage of CAM among hypertensives (Wazaify, Alawwa, Yasein, Al-Saleh, & Afifi, 2013). A similar study to determine CAM use pattern and related satisfaction was conducted among adults in Italy and it was revealed that people with chronic diseases used CAM

more frequently with high satisfaction. Other factors identified to be associated with CAM use included gender, age and educational level. Women as well as middle-aged, highly educated were identified to use CAM more frequently (Barbadoro et al., 2011).

Commonest reasons given for the use of CAM among hypertensives are; safety, being natural, mistrusts in conventional therapy, curiosity, less expensive, poor adherence to conventional therapy, close associates' recommendations. In a survey study conducted in Palestine to determine the use and safety of complementary and alternative medicine, participants gave more than one reason that encouraged them to use CAM. Some of the reasons given by the participant are safety, being natural and strong belief in curative potential (Sawalha, 2007). In support of this finding, study conducted by Osamor & Owumi (2010) also revealed patients choose to use CAM because they are dissatisfied with conventional medicine (perceived to be ineffective or unpleasant side effects). Patients may also find it to be in harmony with their personal value, health and religious ideology. An exploratory study was carried out among Malaysian elderly populations aimed to explore the types of CAM use and reasons for usage. More than half of the respondents perceived CAM to be more effective than allopathic medicine particularly among Chinese respondents. The reasons given for using CAM are; CAM is safer than allopathic medicine, less side effects compared to allopathic medicine, CAM is good to maintain overall health and wellbeing. Majority of the respondents expressed that they use CAM because allopathic medicine is less effective (Mitha, Nagarajan, Babar, Siddiqui, & Jamshed, 2013).

2.4. ATTITUDE OF HYPERTENSIVE PATIENTS TOWARD CAM

Attitude; a disposition or state of being for or against something that is associated with emotions, feelings and values (Nissen, Schunder-Tatzber, Weidenhammer, & Johannessen, 2012). In this study, patient's attitude towards CAM is the patient's belief about CAM; positive or negative and the value a patient attaches to the use of CAM. Mcfadden, Hernández & Ito (2010) in their study to explore how attitudes toward complementary and alternative medicine (CAM) and conventional medicine influence CAM use in a healthy population reported there are currently no standard, widely used measures of attitudes toward CAM from the perspective of the healthcare recipient. However, two attitudinal dimensions were discussed as theoretically relevant to understanding CAM use; possession of a philosophical orientation harmonious with CAM and dissatisfaction with conventional medicine. Patients with a philosophical orientation harmonious with CAM would hypothetically be more likely to practice CAM treatment.

To access the attitudes and needs of European Citizens in relation to complementary and alternative medicine, systematic searches of electronic databases was conducted by Nissen et al., (2012). Although available research-based knowledge about citizens' attitudes and needs concerning CAM in many European countries was limited, some trends were noted. Many citizens hold positive attitudes to CAM and wish for increasing access to CAM provision. Citizens' value distinct aspects of CAM practice, however, they are also critical consumers and support clear regulatory and educational frameworks to ensure the quality and safety of CAM provision and medicinal products (Nissen et al., 2012).

Lee et al (2014) conducted a qualitative study to determine preferences for complementary and alternative medicine among hypertensive patients and the influence of these preferences on the adherence to prescribed medication. They reported nine (9) out of twenty three (23) participants had positive attitude toward CAM; they perceived it as being holistic, non-invasive in nature and were considered alternative to Western medication, however, five (5) out of 23 participants had negative attitude toward CAM. Their perceptions include beliefs that they are unscientific; they are prescribed by unqualified practitioners, difficulty with measurement and difficulty associated with obtaining information about them. It was revealed that majority of the participants had negative perceptions of western medicine (conventional medicine), hence adjusting their prescribed antihypertensive drugs with CAM. Those who had positive perception about western medicine or conventional therapy had good adherence to their prescribed medications. Most of the participants were of the notion that western medicine was not curative due to its side effects (Lee et al., 2014).

Grant et al.(2012) also conducted a systematic search involving eight bibliographic databases to examine twenty seven studies on CAM use among patients with cardiovascular disease. It was revealed that CAM use was common among patients with cardiovascular disease with positive attitude toward it. They believe CAM has a remedial benefits as well as being safe and even safer than their prescribed medications. Study conducted by Sawalha (2007) also revealed that participants had positive attitude toward CAM.

CHAPTER THREE

METHODOLOGY

3.1. STUDY DESIGN

The study design is detailed outline of how the study will take place. It defines the study type and framework created to seek answers to research questions. The study is descriptive cross-sectional survey of hypertensive patients seeking health care at Ledzokuku Krowor Municipal Assembly (LEKMA) hospital. A questionnaire survey approach was used for data collection to describe complementary and alternative medicine (CAM) use among hypertensive patients

3.2 STUDY LOCATION

The study was conducted at Ledzokuku Krowor Municipal Assembly (LEKMA) hospital. LEKMA hospital is a ministry of health facility built by the Chinese government as a China-Ghana friendship hospital. It is located at Teshie in Accra. LEKMA hospital is a 100-bed capacity hospital that can boast of all the departments of a general hospital such as CT scan, Dental clinic, Ear, Nose and throat clinic, Eye clinic, Laboratory, radiology. In addition LEKMA hospital has a Malaria control program as well as Herbal Medicine unit. It is the municipal hospital for the Ledzokuku/Krowor (Teshie/Nungua) area. The hospital runs a hypertensives clinic on Tuesdays and Thursdays, every week. Average attendance of hypertensive patients on the clinic days is 40 to 50.

3.3. STUDY POPULATION

The target population for this study were hypertensives who were 18 years and above. To qualify, a participant must have been clinically diagnosed as hypertensive. Other inclusive criterion was a patient seeking health care at LEKMA. Patients who were below 18 years of age were excluded.

3.4. VARIABLES

To attain the objectives of the study, data was collected to measure the following variables;

Dependent variable;

- CAM use

Independent variables are;

- Demographic factors; age, sex, educational level.
- Attitude
- Patterns of CAM use
 - Types of CAM use
 - Reasons for CAM use
 - Patients' source of information about CAM
 - Outcome after CAM usage
- Factors influencing the use of CAM

3.5. SAMPLING PROCEDURE

Data collection was carried out at the physician specialist clinic at the facility on every Tuesday and Thursday within six weeks. Maximum of twenty questionnaires were issued out to participants each day. To ensure that every patient had an equal chance of being selected and also to avoid sampling biases, simple random sampling without replacement (SRSWOR) technique was employed to select participants for the study. Simple random sampling without replacement means once a patient is selected, he or she will not be selected again. Each day, available outpatient folders of patients were located. Numbers of each folder were written down on a piece of paper and put together in a bowl and then randomly picked out till the required number for the day was reached. Selected folders were scrutinized to ensure patient met the inclusive criteria. Folders selected each day were marked to avoid double selection. After selection, the nurses on duty will then introduce me to the patients stating the purpose of my presence at the clinic. Selected patients were then approached to take part in the study. Patients selected were given a study material and consent form to read or read to them and sign prior to the administration of questionnaire. Study material and consent form were read out and explained to patients who could not read and write. Each questionnaire took 10-15 minutes on the average to be completed. Patients were assured of confidentiality.

3.6 SAMPLE SIZE

Sample size of 188 was calculated using utilities function in EPI INFO based on the following assumptions

1. 95% confidence interval,
2. 5% margin of error.
3. Estimated proportion of 15%.
4. Total hypertensive patients OPD attendance for the year 2013 was 4765

Using expected loss ratio of 10%, sample size was increased to 209.

3.7 DATA COLLECTION TOOLS

The tool for data collection was a validated questionnaire. The questionnaire was designed to reflect the objectives of the study and variables envisioned to measure with closed and open ended questions. The questionnaire had four sections. Section A; measured patient's demographic details such as age, sex and educational levels, Section B; Clinical profiles of respondents, Section C; Attitude of hypertensive patients toward the use of CAM and Section D; Patterns of CAM use. The questionnaire was five paged and needed between 10 to 15 minutes to be completed.

3.8 ADMINISTRATION OF QUESTIONNAIRE

Data collection was done through interviewer-administered patients' interview to ensure consistency in the interpretation of questions and also probing for clarifications especially for open ended questions. None of the patients approached to answer the questions declined giving a return of 100%.

3.9 QUALITY CONTROL

- Pretesting of Data collection tool was done to validate the survey tools.
- Study materials were explained to participants prior to interview.
- Double entering of data into SPSS to minimize errors and data cleaning was done
- Research assistance was trained to carry out survey accurately.
- Filled questionnaires were cross checked by principal researcher.

3.10 DATA PROCESSING AND ANALYSIS

The completed questionnaires were cross-checked by the principal investigator. The questionnaires were then coded and entered into the computer using Statistical Package for Social Scientists (SPSS) version 20 for analysis. Descriptive statistics was used for frequency counts and percentage of participant characteristics. Chi square was used to evaluate CAM use pattern and establish relationship between relevant variables. Statistical significance was assumed at a P value of < 0.05 .

3.11 DATA STORAGE / DATA PROTECTION

Questionnaires were kept in files and stored in a locked cabinet. A soft copy of Data collected was code locked on a computer and only accessible to the principal investigator.

3.12 PRETESTING

The questionnaire was designed to reflect objectives of the study. Pretesting of data collections tools was done at Nyaho Medical Centre with 10 hypertensive patients to validate survey tools. The purpose was to establish if the tool was clearly worded and devoid of major biases and can seek the type of information intended. Pretesting was also carried out with the aim of eliminating irrelevant questions so as to make it reliable. It took participant within 10-15 minutes to complete. The pretesting results were used to refine the questionnaire before the main study.

3.13 LIMITATIONS

The study followed a cross-sectional survey design, conducted among hypertensive patients attending a typical busy physician specialist clinic at LEKMA hospital and therefore cannot be used to generalise hypertension patients in Ghana. Patients were asked to give detailed account of their CAM use and medication intake information and that may have been prone to bias.

3.14 ETHICAL CONSIDERATION

Introductory letter was obtained from the Social and Behavioural Science Department of the school of public health to Greater Accra Regional Health Directorate who in turn introduced the student to the head of the LEKMA Hospital for permission from hospital authorities to carry out the study at the facility. Institutional support letter was then obtained from the facility and attached to the proposal. The proposal was then submitted to the Social and Behavioural Science Department of the school of public health who then forwarded it for ethical clearance from Ghana health services ethical review board. Data collection only started after ethical clearance was obtained from Ghana Health Services ethical review board.

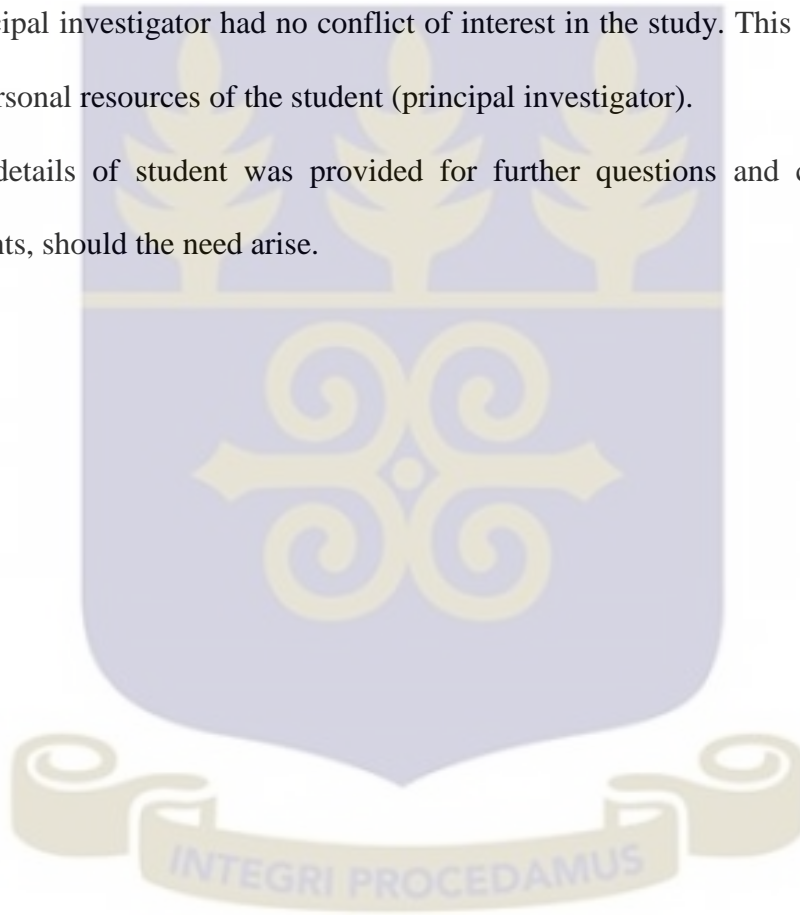
Participation in this study was entirely voluntary and participants had the option not to participate or to discontinue their participation without any adverse consequence. Participants were given sufficient information about the study to enable them decide whether to take part or not. Participants were assured of the fact that this work is for academic purpose and that no harm, direct or indirect is intended. The study did not incur any major cost for participants except the participants' time that was spent in answering the questionnaire. Written informed consent forms were given to participants to sign or thumb print. All informed consent was in English. However consent form was read out to patients who could not read and write and they were made to thumb print in place of signature. Verbal consent was also sought from respondents.

Findings were presented in a way that the individuals were not identified by names with their opinions; however each questionnaire was given a unique identification number.

Participants were assured of high degree of confidentiality and anonymity. Hard copy and electronic data were stored in locked file cabinets and access was limited to the Principal Investigator (PI) and the Supervisors of the study. There was no form of compensation or monetary gain for participants of this study however, the potential benefits that might come out of the study were explained to them.

The principal investigator had no conflict of interest in the study. This study was funded by the personal resources of the student (principal investigator).

Contact details of student was provided for further questions and clarification from participants, should the need arise.



CHAPTER FOUR

RESULTS

4.0 INTRODUCTION

This chapter of the dissertation presents the results obtained from the analysis of data collected from patients. The data were collected and then processed to address the objectives of the study.

4.1 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

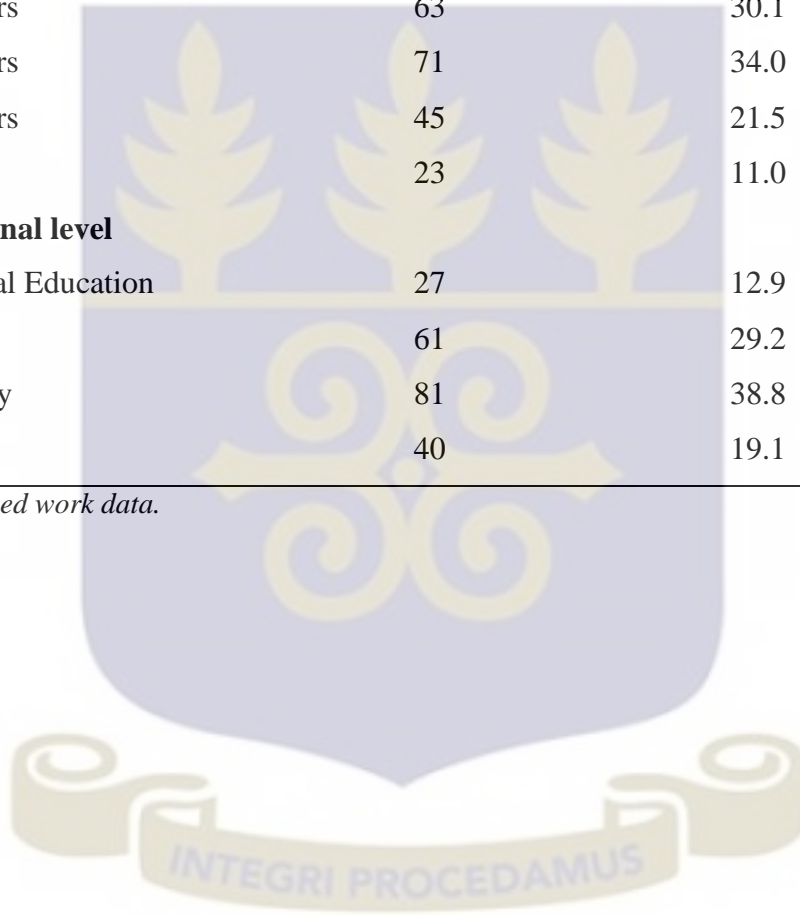
Table 4.1 summarises the demographic characteristics of respondents. Results show that both men and women were fairly represented in the study with females constituting 51.2% of respondents. Over a third (38.8%) of the respondents had attained secondary school education. Respondents were mostly between the ages of 40 and 69 years with the age group of 50 – 59 years constituting 34.0%.



Table 4.1: Demographic Characteristics of respondents

Variables	Frequency (n= 209)	Percentage (%)
Sex		
Male	102	48.8
Female	107	51.2
Age		
30-39years	7	3.3
40-49years	63	30.1
50-59years	71	34.0
60-69years	45	21.5
≥70years	23	11.0
Educational level		
No Formal Education	27	12.9
Primary	61	29.2
Secondary	81	38.8
Tertiary	40	19.1

Source; filed work data.



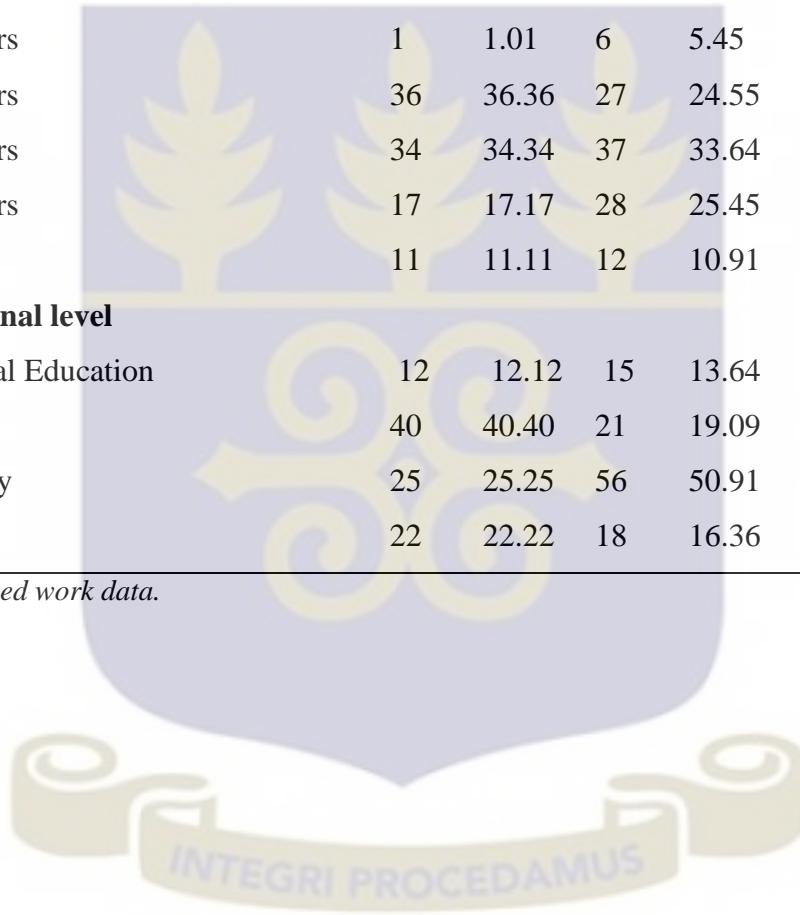
The association between CAM use and respondents' demographic data is shown in Table 4.2. A statistically significant association was identified between CAM use and educational level at 0.05 level of significance ($p = 0.01$). Most CAM users (40.40%) had attained primary level of education as compared to (19.09%) non CAM users. On the other hand most non CAM (50.91%) users had attained secondary level of education. There was no association between CAM use and sex as well as CAM use and age groups (Table 4.2).



Table 4.2: Association between demographic data of respondents and CAM use

Variables	Using CAM				ρ -value
	YES		NO		
	N	%	N	%	
Sex					
Male	49	49.49	53	48.18	.85
Female	50	50.51	57	51.82	
Age					
30-39years	1	1.01	6	5.45	.13
40-49years	36	36.36	27	24.55	
50-59years	34	34.34	37	33.64	
60-69years	17	17.17	28	25.45	
≥ 70 years	11	11.11	12	10.91	
Educational level					
No Formal Education	12	12.12	15	13.64	
Primary	40	40.40	21	19.09	.01
Secondary	25	25.25	56	50.91	
Tertiary	22	22.22	18	16.36	

Source; filed work data.



4.2 CLINICAL PROFILE OF RESPONDENTS

Complementary and alternative medicine (CAM) usage was reported among 99 (47.4%) respondents. It was observed that 208 (99.5%) respondents sampled for the study were on antihypertensive drugs. Over a third of the respondents (36.4%) reported experiencing negative side effects of their antihypertensive medication. It was also observed that 170 (81.3%) of the respondents reported adhering to their antihypertensive medication.

It came to light that 71 (34.0%) respondents declared having other chronic diseases such as diabetes. In relation to disease duration, most respondents (72.0%) reported having lived with the disease between 1-10 years with a third (36.4%) of them having the disease for between six and ten years. Few respondents (14.4%) reported having lived with the disease for 16 years or more. Family history of hypertension was reported among 50.7% of respondents.

Majority (58.9%) of the respondents reported using health insurance due to high cost of their medications. Respondents who were not using health insurance reported various levels of affordability; 55 (26.3%) respondents found their medication affordable, 11 (5.3%) found their medication somehow affordable and 20 (9.5%) found their medication expensive.

Table 4.3 summarises the significant association between CAM use and some specific clinical profiles of respondents. The analysis showed clearly that CAM users demonstrated poorer adherence to their antihypertensive medications (30.30%) as compared to non CAM users (8.18%), whereas, 91.82% of those who adhere to treatment

did not use CAM. A statistically significant association was identified between CAM use and medication adherence ($p = 0.01$).

Although most respondents reported that they use health insurance for their medication, CAM users reported levels of difficulty involved with paying for their anti-hypertensive medications as compared to non CAM users; 11.11% CAM users found their medication somehow affordable while none of non CAM users reported in the affirmative. Also 14.14% of CAM users found their medication expensive as compared to 5.45% non CAM users. The experience of side effects of anti-hypertensive medication was reported more (57.58%) among CAM users than non-CAM users (17.27%). In relation to duration of hypertension, more CAM users (20.20%) reported having lived with the condition longer i.e. 16 years and above as compared to non CAM users in the proportion (9.09%). Having other chronic diseases was reported between CAM users and non CAM users in an almost even proportion of 33.33% and 34.55% respectively. Finally, 61 (61.62%) CAM users reported having family history of hypertension and 45 (40.91%) non CAM users also reported having family history of hypertension.

The determinants of CAM use, obtained by Chi-square analysis, are presented in Table 4.3 at $p < 0.05$. Affordability of antihypertensive medication, medication adherence, side effects of medication, family history of hypertension as well as duration of hypertension were statistically and significantly associated with CAM usage at $p = 0.01$. However, no statistically significant association exist between CAM use and having other chronic diseases at $p = 0.85$.

Table 4.3: Summary of clinical profile of respondents and association with CAM use

Statements	CAM Usage				p-value
	YES (n = 99)		NO (n =110)		
	N	%	N	%	
Are you able to stick to the prescribed dosage of your antihypertensive medications?					
Yes	69	69.70	101	91.82	.01
No	30	30.30	9	8.18	
Do you find your medication affordable?					
Affordable	18	18.18	37	33.64	.01
Use Health Insurance	56	56.57	67	60.91	
Somehow Affordable	11	11.11	0	0	
Expensive	14	14.14	6	5.45	
Do you experience any negative side effects of your medications?					
	57	57.58	19	17.27	.01
Yes	42	42.42	91	82.73	
No					
Duration of illness					
1-5 years	35	35.35	40	36.36	.01
6-10 years	27	27.27	49	44.55	
11-15 years	17	17.17	11	10.00	
≥16 years	20	20.20	10	9.09	
Other chronic illness					
Yes	33	33.33	38	34.55	.85
No	66	66.67	72	65.45	

Family history of hypertension

Yes	61	61.62	45	40.91	.01
No	38	38.38	65	59.09	

Source; filed work data.



4.3 ATTITUDE OF RESPONDENTS TOWARD CAM

To determine respondents' attitude toward CAM, frequencies and percentages were computed and the results are summarised in Table 4.4 below;

From Table 4.5, 74 (74.75%) of respondents out of 99 CAM users believe that CAM products are effective and more natural form of healing while only eight (7.27%) out of 110 non CAM users believe so about CAM. Out of 110 non CAM users, 24 (21.82%) believe there is lack of regulatory oversight and 27 (24.55%) believe that the adverse effects of treatment are under reported. On the other hand 5 (5.05%) CAM users believe there is lack of regulatory oversight and 2 (2.02%) believe adverse effects of treatment are under reported. Unexpectedly, 3(3.03%) CAM users reported contamination and adulteration of products while none of non CAM users reported so. Results also indicated that 27 (24.55%) non CAM users reported lack of evidence of safety and efficiency about CAM while no CAM users reported so. CAM users (14.14%) also believe that CAM products enable them to take more active part in maintaining their health as compared to 3 (2.73%) non CAM users.

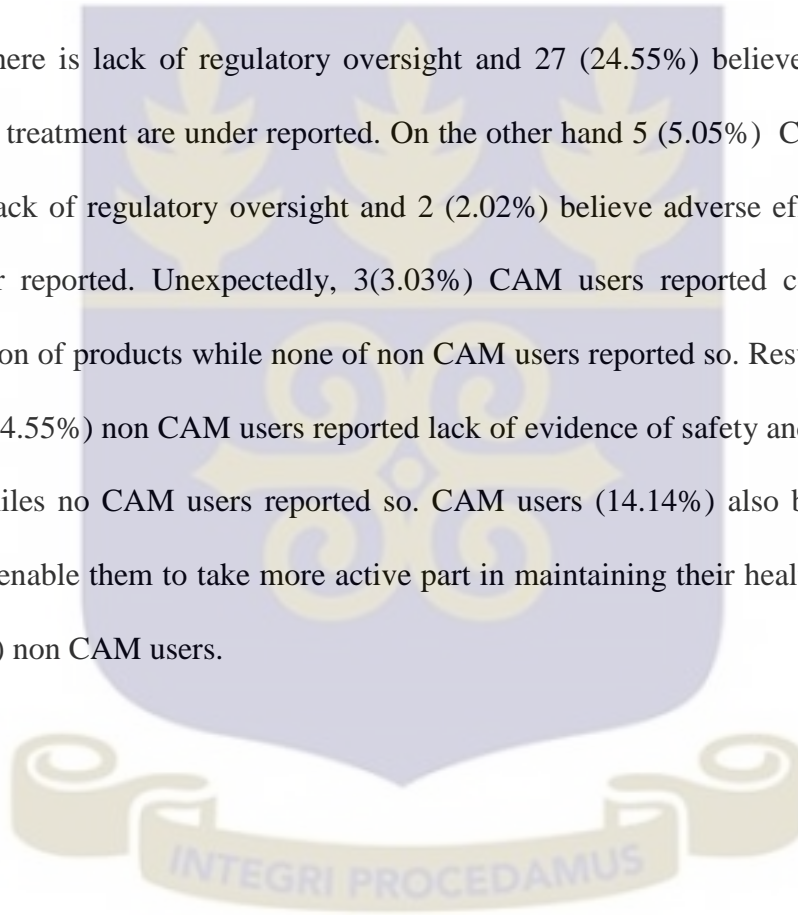
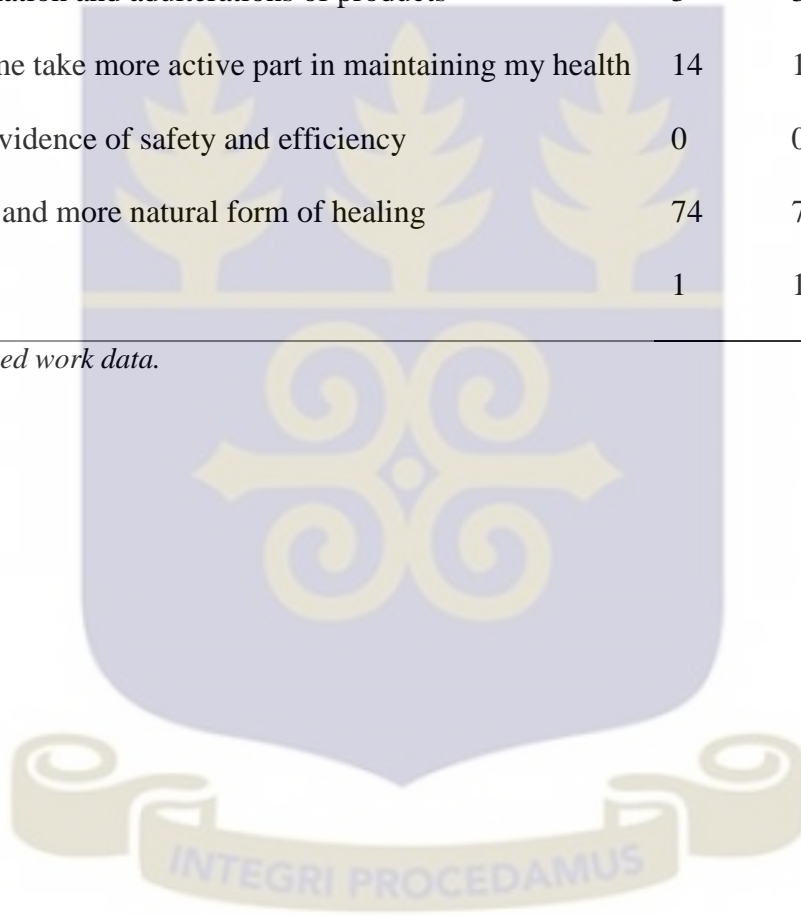


Table 4.4: Summary of respondents’ beliefs and evaluation about CAM

RESPONSES	CAM Usage			
	YES (n = 99)		NO (n =110)	
	N	%	N	%
Lack of regulatory oversight	5	5.05	24	21.82
Adverse effects of treatment under reported	2	2.02	27	24.55
Contamination and adulterations of products	3	3.03	0	0
Enables me take more active part in maintaining my health	14	14.14	3	2.73
Lack of evidence of safety and efficiency	0	0	27	24.55
Effective and more natural form of healing	74	74.75	8	7.27
Others	1	1.01	21	19.09

Source; filed work data.



4.4 PATTERNS OF CAM USE AMONG HYPERTENSIVE PATIENTS

Considering the types of CAM being used or used by respondents in the last 12 months, a significant number of respondents 72 (72.7%) said they used herbal preparations. The other types of CAM used by respondents included dietary supplements 46 (46.5%) and acupuncture 3 (3.0%). However, none of the respondents who admitted using CAM products ever made use of Homeopathy.

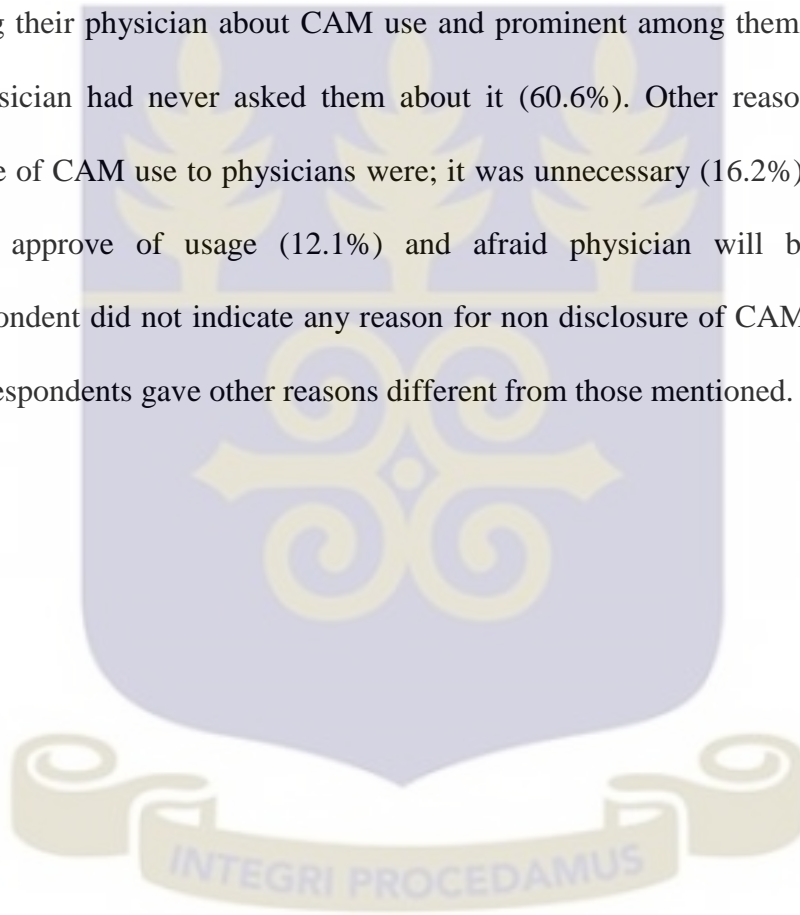
Various reasons were given by CAM users for its usage and these were; it slows down progression of disease (52.5%), it is natural and safe 38 (38.4%), it will cure the disease (29.3%) and it relieves the symptoms of the disease (24.2%). Other reasons were; it is cost effective (11.1%), not satisfied with conventional therapy (11.1%) and it is easily accessible (10.1%).

Out of the 99 respondents who were using CAM, 72 (72.7%) of them said their expected effect of the therapy was achieved. Also, 79.8% of them said they have experienced improvement in their health status after going on CAM therapy. Generally, majority of CAM users, 71 (71.7%) out of the 99, said they found it effective with 17(17.2%) of them stating that they were emphatic that the CAM therapy was not effective. However, it is worth reporting that only 5 (5.1%) of CAM users reported that they have had some side effect after using CAM therapy and these were mostly diarrhoea.

Main sources of recommendation for CAM use were friends 42 (42.4%), followed by the media 30 (30.3%) then family members 22(22.2%). 1 respondent got recommendation for CAM use from another hypertensive patient, while CAM was recommended to two

patients by herbalist and two patients were not sure about how they were introduced to CAM.

Out of 99 CAM users, only 10 (10.1%) of them said that they have informed their physician about their use of CAM, thus majority of them 89 (89.9%) did not disclose their use of CAM to their physician. Various reasons were given by respondents for not informing their physician about CAM use and prominent among them was the fact that their physician had never asked them about it (60.6%). Other reasons given for non disclosure of CAM use to physicians were; it was unnecessary (16.2%), afraid physician will not approve of usage (12.1%) and afraid physician will be angry (6.1%). One respondent did not indicate any reason for non disclosure of CAM use to physician while 4 respondents gave other reasons different from those mentioned.



CHAPTER FIVE

DISCUSSION

5.0 INTRODUCTION

This chapter presents the discussion of the findings in relation to the objectives set for the study. This study sought to describe Complementary and alternative medicine (CAM) usage among hypertensives seeking health care at Ledzokuku Krowor Municipal Assembly (LEKMA) hospital.

5.1 PATTERN OF CAM USE

Complementary and alternative medicine (CAM) is used by significant proportions of the general population all over the world (Harris et al., 2012). This study revealed that out of the 209 hypertensives that took part in the study, 99 (47.4%) of the participants are using or have used one or more CAM products or therapies in the past 12 months. This finding is in line with the trend of CAM use throughout the world as reported by various studies; in Palestine (Ali-Shtayeh et al., 2013), in China (Hu et al., 2013), in Nigeria (Osamor & Owumi, 2010), in UK (Bishop & Lewith, 2010) as well as in Ghana (Kretchy et al., 2014) and (Yarney et al., 2013).

This study has revealed a comparatively lower (47.4%) rate of CAM usage among participants than what was reported in China with usage rate of 74.2% (Hu, Li, Duan, & Arao 2013). However a study conducted by Osamor & Owumi (2010) to investigate the frequency and factors associated with use of CAM among hypertensive subjects in an

urban Nigerian community reported relatively lower rate of (29%) of CAM use among respondents.

5.1.1 CAM modalities used by respondents

Findings revealed that almost all (98.99%) of our respondents who were using CAM did it in concurrence with their antihypertensive medications. Most of the CAM products being used by our respondents were herbal based products (72.7%) and dietary supplements (46.5%). This finding is similar to studies conducted in Nigeria (Amira & Okubadejo, 2007), in Jordan (Wazaify et al., 2013), as well as in Ghana (Kretchy et al., 2014) as all these studies reported higher proportion of herbal products usage. Tachjian et al., (2010) also conducted a review and reported high consumption of herbal remedies among millions of people in the United States. However a systematic search of existing literatures using different databases reported contrasting findings; report of the study revealed homeopathy and acupuncture were the most utilized CAM products (Frass et al., 2012). Yarney et al., (2013) also carried out a study to investigate the prevalence, pattern and predictors of CAM use in cancer patients and reported a significant proportion (59.2%) of herbal usage among cancer patients. Generally, Ghanaians use herbal products to treat all forms of ill health and our finding of high herbal based therapy usage among respondents only go to confirm the belief in the healing potentials of herbs among Ghanaians.

5.1.2 Reasons for CAM use

Several reasons have been given by patients for using CAM. In this study, varied reasons were given for using CAM and the two most prominent reasons being that it slows down the progression of disease and that it is natural and safe. This finding is similar to what were reported in other studies (Sawalha, 2007; Osamor & Owumi, 2010; Mitha, Nagarajan, Babar, Siddiqui & Jamshed, 2013). The implication of this finding is that a good proportion of hypertensive patients will continue to use CAM and most probably in combination with allopathic medicine and this calls for the need to examine the safety of using the two together to reduce or prevent adverse reactions and its health implications.

5.1.3 Outcomes after CAM Usage

Overall, CAM users in this study reported perceived satisfaction as majority (79%) of them reported improvement in their health status, achieved the expected effect of CAM (72%) and that the remedy was effective (71.7%) and this is similar to other findings (Barbadoro et al., 2011); Hu et al., 2013; Hori et al., 2008). A similar study to determine CAM use pattern and related satisfaction conducted among adults in Italy also revealed that people with chronic diseases used CAM more frequently with high satisfaction (Barbadoro et al., 2011). Also, a study conducted in China reported that more than 70% of the respondents perceived CAM products to be effective (Hu et al., 2013). A study conducted in Japan also reported that majority of the respondents found their CAM treatment to be effective (Hori et al., 2008).

With most CAM users perceiving it to have remedial benefits to them call for the need to fully appreciate and appraise the relative merits of CAM practice, its use and its effectiveness as suggested by Wardle & Adams (2014). As part of evidence-based approach to the treatment of hypertension, various CAM therapies should be evaluated so as to determine their full benefits and efficacy (Nahas, 2008).

Similar to what was reported from Nigeria by Okoronkwo et al., (2014), only a few respondents reported adverse reactions after using CAM. However, in their study, Okpala, Agbo, & Ndu, (2014) few participants reported adverse effects such as body discomfort, dizziness, general malaise, weakness, stomach upset and diarrhoea. As CAM usage is growing and gaining acceptance, there is the need for more research into the adverse effects associated with the use so as to be sure of the safety of the products.

Friends, followed by media were the main sources of recommendation for CAM use and this confirmed what was reported by Ali-Shtayeh et al., (2013) in their study that the main sources of recommendation for CAM usage were from family, followed by friends, then Physicians and Pharmacists, media and herbalists. Media is a powerful tool for disseminating information about products. With the current influx of radio and television stations in Ghana, and increased advertisement and discussions about various CAM products, it is not surprising that significant number of participants got their recommendation for CAM use from the media. Chua & Furnham (2008) in their study gave several explanations for the increase in CAM usage and mentioned the availability of information on the internet as one source which is driving the increase in CAM use.

An interesting finding of this study is that most patients (89.9%) have never disclosed the use of CAM to their physicians and the main reason being that their physicians have

never inquired about it. Whiles some were afraid to tell their physicians for fear that the physician may not approve of its use; others indicated that they do not think it was necessary to tell the physician. This finding is in agreement with other similar studies where few patients disclose their CAM use to their health professionals. For instance, Hori et al., (2008) reported from Japan that only a small proportion of patients reported their CAM use to their physician. Our findings confirmed a study conducted in Ghana that reported that a significant number of participants did not disclose their CAM use to their healthcare providers (Kretchy et al., 2014). This finding shows the enormous power that the physician wield over the patients, which could pose a threat to quality health care delivery, in that it may not allow for quality doctor-patient interactions to address some of the gaps in patient knowledge regarding the dangers that may come with the unsupervised use of conventional medications and herbs simultaneously. It has been reported that this can result in serious herb-drug interactions (Tachjian et al., 2010). It also raises the issue of whether health professionals adequately investigate their patients self-use of other forms of treatment other than the conventional therapies so as to provide quality care. The use of CAM, especially herbs in conjunction with conventional medicines without discussing with one's physician or healthcare provider could lead to ineffective management of hypertension and this must be addressed.

5.2 FACTORS INFLUENCING CAM USE

5.2.1 Demographic characteristics

Understanding the demographic characteristics of CAM users provide insight into some factors that may influence the choice to use CAM. In this study CAM users and non CAM users were fairly represented in terms of age and sex. Results obtained showed no association between CAM use and age as well as sex. These findings are consistent with a study by Hu et al., (2013). However, our findings were inconsistent with other studies (Wazaify et al., 2013; Barbadoro et al., 2011). In relation to educational level, most respondents who use CAM had attained primary school education compared to non CAM users with higher levels of education. Though, our findings were inconsistent with a study by Barbadoro et al., (2011) that revealed higher rate of CAM utilization among highly educated individuals, it confirmed what was reported in a study Ali-Shtayeh et al., (2013), which reported that CAM usage was higher among study participants with low level of education compared to those with higher levels of education. Thus in our study, there was a significant relationship between educational level of respondents and CAM use and this contradict findings of other studies which reported no relationship between CAM use and educational level (Hu et al., 2013; Hori et al., 2008).

5.2.2 Clinical profile of respondents.

Some specific clinical profiles of respondents were evaluated to find their influence on CAM use. This study revealed a significant association between CAM use and adherence to medication, presence of anti- hypertensive medication side effects, duration of illness and affordability of medications. Complementary and alternative medicine (CAM) usage

was positively related to poor adherence to antihypertensive therapy. Thus CAM users were less likely to adhere to their anti-hypertensive medications and this is consistent with a study by Gohar, Greenfield, Beevers, Lip, & Jolly, (2008) which also reported poor adherence of antihypertensive medication among CAM users in UK.

In our study, majority of respondents indicated the use of health insurance for their medications, which is an indication of economic accessibility, however those who were not on health insurance reported some levels of difficulty with affordability of their medications. Our study revealed statistical association between CAM use and medication affordability, thus those who were using CAM were less able to afford their medications and this compares with findings reported by Kretchy et al., (2014) that affordability of medications had influence on CAM use, with those who could not afford their medication relying on CAM. This calls for efforts to get more hypertensive patients into the health insurance scheme to lessen their burden of buying medicine on cash and carry basis as this will also go a long way to improve treatment adherence among patients. Other factors that were significantly associated with CAM use in this study include having a family history of hypertension and duration of hypertension. These results are comparable to a study by Ali-Shtayeh et al., (2013) which reported association between CAM use and family history of hypertension. Contrary to findings reported by Bishop & Lewith, (2010) that the presence of other chronic diseases had influence on CAM use, our results showed no significant association between CAM use and presence of other chronic diseases.

Our findings revealed a significant association between CAM use and the experience of anti- hypertensive medication side effects, which was similar to a survey by (Lee et al.,

2014) which revealed that majority of the participants had negative perceptions of western medicine due to its side effects hence adjusting their prescribed antihypertensive drugs with CAM.

5.3 ATTITUDE OF HYPERTENSIVE PATIENTS TOWARD CAM

It has been reported that when patients have a philosophical congruence with CAM, they will choose to use it (Mcfadden, Hernández, & Ito, 2010b). As may be anticipated, respondents with positive philosophical orientation that was harmonious with CAM were more likely to use CAM compared to those with negative philosophical orientation of CAM and this confirmed what was reported by Nissen et al., (2012) that European citizens hold positive attitudes to CAM and wish for increasing access to CAM provision. Lee et al., (2014) also conducted a qualitative study to determine preferences for complementary and alternative medicine among hypertensive patients and the influence of these preferences on the adherence to prescribed medication found that nine (9) out of twenty three (23) participants had positive attitude toward CAM and five (5) out of 23 participants had negative attitude toward CAM. In a similar study, it was reported that CAM use was common among patients with cardiovascular disease with positive attitude toward it (Grant et al., 2012). Study conducted by Sawalha (2007) also revealed that participants who use CAM had positive attitude toward it.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 CONCLUSION

Hypertension is an important public-health concern and it is the major cause of cardiovascular disease in Africa and the World at large. First line of treatment is through life style change. It is managed through continual adherence of antihypertensive medications. There are reported self-care practices among hypertensives. One such identified practice which is gaining grounds among patients and the general population is the use of complementary and alternative medicine (CAM). Hypertensives world-wide are reported to use different types of CAM products and therapies with varied levels of efficacy and few adverse effects.

The study detailed CAM use, factors influencing CAM use and patients attitude toward CAM.

This study revealed that approximately 47.4% of the hypertensive patients surveyed used one or more types of CAM for management of hypertension. At the top of CAM products being used were herbs and dietary supplements. Respondents gave several reasons for their CAM use. The main reasons given were that CAM slows down progression of disease and it is natural and safe. Majority of CAM herbal users were satisfied with its effect and found it effective. Very few CAM users reported adverse reactions after usage and diarrhoea was the only mentioned side effect experienced. Friends followed by the media were the main sources of recommendation for CAM use among the hypertensive

patients in this study. The study revealed that most patients did not disclose the use of CAM remedies to their physician and the main reason being that physicians had never inquired about such use. It was revealed that CAM users showed positive attitude toward CAM than non CAM users.

The demographic factors that were significantly associated with CAM use in this study include one's educational level. In this study, those with primary school level of education were more likely to use CAM. Patients who had lived with the illness longer and those with family history of hypertension were also more likely to use CAM. However, no significant association was found between CAM use and age, sex and having other chronic disease.

Antihypertensive medications affordability, adherence as well as experienced side effects also had influence on CAM use. Majority of CAM users reported to have experienced side effects of their hypertensive medications. Most of those who were not using health insurance found their medications expensive and therefore not surprisingly, reported poor adherence to anti- hypertensive medications.

It can be concluded from the study that the use of CAM, particularly herbal therapies for managing hypertension, is prevalent among hypertensive patients seeking health care at LEKMA hospital. Educational level, duration of hypertension and family history has influence on patient CAM use. Adherence to medication and side effects of medication were also indentified to be factors influencing CAM use. CAM users showed more positive attitude toward CAM than non CAM users.

6.2 RECOMMENDATION

To assist in broadening knowledge about complementary and alternative medicine (CAM) use among patients, the following recommendations are thus put forward:

1. Patients should be encouraged by their health care providers to disclose their CAM use to their physicians and health care professionals so as to evaluate and prevent any potential herb-drug interactions and adverse reactions. Possible serious consequences might be avoided by obtaining history of CAM use from patients before initiating treatment and advice appropriately.
2. Ghana Medical and Dental Council, Ghana Medical Association as well as Medical directors at the various health facilities should encourage their Physicians to inquire about their patients' history of CAM use.
3. It is recommended that information about CAM use particularly herbal use in combination with conventional antihypertensive medications be integrated into clinical practice as well as into patient and professional education by policy makers at the ministry of health.
4. More research should be carried out by universities, research institutions, health organizations and individuals to appreciate fully, the relative benefits of some herbal products and therapies to hypertensive patients and to determine the potential risks of some CAM practices and products.
5. The National Media Commission should regulate the media, especially the radio and TV stations the kinds of information they disseminate concerning CAM products, to reduce the propagation of unsubstantiated claims about CAM products being advertised in the country.

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APPENDICES

APPENDIX A (consent form)

APPENDIX B (Questionnaire)



APPENDIX A

CONSENT FORM

Title: The use of Complementary and alternative medicine (CAM) for the management of hypertension among patients seeking health care at the Ledzokuku Krowor Municipal Assembly (LEKMA) hospital

Principal Investigator: Magzy Frimpong Dumfeh

Address: College Of Health Sciences, School Of Public Health, Department of Social and Behavioural Science, University Of Ghana, Legon.

Email: magzydak@gmail.com

Telephone: 0244220513

Introduction: The title of this study is “The use of complementary and alternative medicine (CAM) for the management of hypertension among patients seeking health care at the Ledzokuku Krowor Municipal Assembly (LEKMA) hospital” Complementary and alternative medicine (CAM) also known as **Traditional medicine** is a group of diverse medical and healthcare systems, products, and practices that are not presently considered part of conventional medical care. Examples are herbs, dietary supplements, acupuncture, homeopathy, etc. The main objective of this study is to describe hypertensive patients’ use of CAM for the management of hypertension.

You are being invited to participate in this study undertaken by Magzy Frimpong Dumfeh, a student of University Ghana, pursuing an MSc in Applied Health Social Science of the School of Public health. This form is intended to seek your consent to

participate in the study. This consent form contains information about the study and in order to ensure your understanding about participating, you are being encouraged to read and sign. Prior to conduct of the study, you will be required to furnish us with some information about yourself.

This study is intended to throw light on the extent of CAM use among hypertensives.

The study poses no risk whatsoever to participant. You are being asked to answer questionnaire which will take about 20 minutes of your time to complete. You may voluntarily decline to answer any question and also decline involvement at any level of the survey. Participant who consents to take part in the study will not be given any monetary compensation. There will be no direct benefit to participant; however, information provided could be used to enhance CAM use which could be beneficial in the future.

Confidentiality

This study has been reviewed and approved by the ethical review committee of Ghana health service. Information provided will be stored in a secured place such as locked cabinets. Data will be entered into SPSS and electronic files accessible by only principal investigator and research supervisor. Participant's personal identification such as name and address will not be written on questionnaire. However, each questionnaire will be given a unique identification number.

If you have any questions and concerns, we will be more than happy to answer and address then now or later at your convenient time. You may contact me on the telephone number and email address provided.

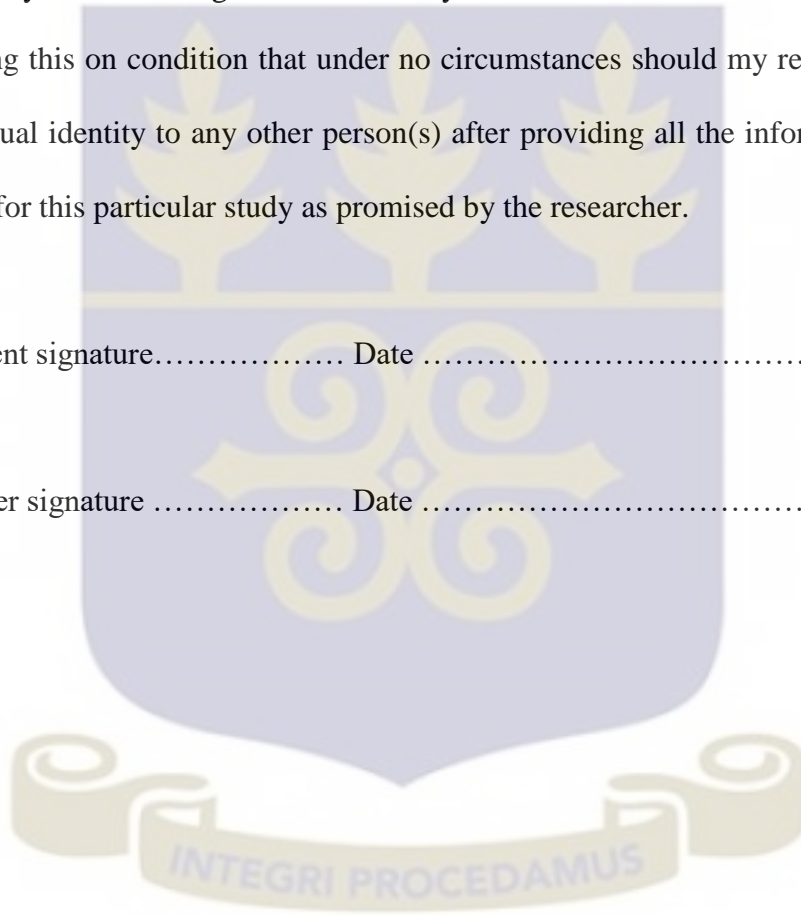
PARTICIPANT CONSENT FORM

Ihave been thoroughly briefed on the entire methodology and significant of the ongoing study which is being conducted by Magzy Frimpong Dumfeh. On my own free will, I hereby consent to be part of the study, based on my understanding of what the study entails.

I am doing this on condition that under no circumstances should my references be made to my actual identity to any other person(s) after providing all the information requested from me for this particular study as promised by the researcher.

Respondent signature..... Date

Researcher signature Date



APPENDIX B

**SCHOOL OF PUBLIC HEALTH
UNIVERSITY OF GHANA, LEGON**



**THE USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM)
FOR THE MANAGEMENT OF HYPERTENSION AMONG PATIENTS
SEEKING HEALTH CARE AT THE LEDZOKUKU KROWOR MUNICIPAL
ASSEMBLY (LEKMA) HOSPITAL**

My name is Magzy Frimpong Dumfeh. This research is being carried out for academic purposes as part of requirements for the award of MSc Applied Health Social Science degree at the School of Public Health, University of Ghana. The title of this study is “The use of complementary and alternative medicine (CAM) for the management of hypertension among patients seeking health care at the Ledzokuku Krowor Municipal Assembly (LEKMA) hospital “Complementary and alternative medicine also known as **traditional medicine** is a group of diverse medical and healthcare systems, products, and practices that are not presently considered part of conventional medical care. Examples are herbs, dietary supplements, acupuncture, homeopathy, etc. The main objective of this research is to describe hypertensive patients’ use of CAM for the management of their condition. You are being asked to answer questionnaire which will take about 20 minutes of your time to complete. Participation in this study is absolutely voluntary. Please feel free to express yourself as accurately as possible in your answers to the questions. We are interested in your personal viewpoints. Responses will be confidential and will not be disseminated to outside parties. Thank you for accepting to participate in this study.

Magzy Frimpong Dumfeh

Mobile Phone Contact +233 244220513

Email: magzydak@gmail.com

Questionnaire code _____

Please tick the one you think applies to you after reading the questionnaire

SECTION A: Demographic characteristics of respondents

NO.	Question	Response	Code
1	Age	≤18 []	1
		20 – 29 []	2
		30 – 39 []	3
		40 – 49 []	4
		50 – 59 []	5
		60 – 69 []	6
		≥70 []	7
		Don't know	96
2	Sex	Male []	1
		Female []	2
3	Educational level	No formal education []	1
		Primary []	2
		Secondary []	3
		Tertiary []	4

SECTION B: Clinical profile of respondents

4	How long have you been diagnosed with hypertension?	< 1 year	1
		1-5year []	2
		ii.6- 10 years []	3
		11- 15 years []	4
		iv. ≥ 16years []	5
5	Do you have any other chronic diseases? eg Diabetes	Yes []	1
		No []	2
6	Is any other member in your family hypertensive?	Yes []	1
		No []	2
7	Are you currently on antihypertensive drugs?	Yes []	1
		No []	2

8	Are you able to stick to the prescribed dosage of your antihypertensive medications?	Yes [] No []	1 2
9	Do you find you medication affordable?	Affordable [] Use health insurance [] Somehow affordable [] Expensive []	1 2 3 4
10	Do you experience any side effects of your medications?	Yes [] No [] If yes specify.....	1 2
<p>SECTION C: Attitude of patients toward the use of CAM (NB: If you answer NO to question 11 please answer only question 12. However if you answer YES please continue from question 12 to question 23)</p>			
11	Have you ever used any CAM product/ services/ practices to manage your condition?	Yes [] No []	1 2
12	What are your beliefs and evaluation about CAM therapies?	Don't know about CAM [] Lack of regulatory oversight [] Adverse effects of treatment under reported [] Contamination and adulteration of products [] Enables me take more active part in maintaining my health [] Lack of evidence of safety and efficacy [] Effective and more natural form of healing [] Others (please specify)..... Not applicable []	1 2 3 4 5 6 7 99 100

SECTION D: Pattern of CAM use among hypertensive patients			
13	Which of the following CAM products are you using or have you used in the past 12 months? (You may tick more than one)	a. Herbs [] b. Dietary supplement [] c. Acupuncture [] d. Homeopathy [] e. Others (please specify)	1 2 3 4 99
14	Why do you take this remedy? (You may choose more than one reason)	a. It is natural and safe [] b. Relieves symptoms of disease [] c. Slows down progression of disease [] d. You think will cure disease [] e. Not satisfied with conventional therapy [] f. Easily accessible [] g. Cost effective [] h. Others (Please specify).....	1 2 3 4 5 6 7 99
15	Did you achieve the expected effect?	Yes [] No []	1 2
16	Did you experience improvement in health status after usage?	Yes [] No []	1 2
17	Did you experience any side effects after usage?	Yes [] No []	1 2
18	If you answered yes to question 19 which of the following did you experience?	Body discomfort [] Dizziness [] General malaise [] Weakness [] Stomach upset [] Diarrhoea [] Others (please specify)..... Not applicable []	1 2 3 4 5 6 99 100

19	Did/ do you find this remedy effective?	Yes [] No [] Not Sure []	1 2 3
20	Who recommended this remedy to you?	Friend [] Family member [] Physician or health professional [] Herbalist [] Media (Adverts on radio or TV, hard copy such as News paper etc) [] Recommendation from other hypertensive patient [] Others (please specify).....	1 2 3 4 5 6 99
21	Is your Physician aware of your CAM usage?	Yes [] No []	1 2
22	If you answered NO to question 22, please indicate your reasons	No reasons [] I Don't think it is necessary to tell my Doctor [] Afraid my Doctor will not approve of usage [] Afraid my Doctor will be angry [] Never been asked by Doctor [] Others (please specify)..... Not applicable []	1 2 3 4 5 99 100