KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,

KUMASI, GHANA

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF HEALTH EDUCATION, PROMOTION AND DISABILITY

THE EFFECT OF CERTIFIED HERBAL MEDICINES NON-INCLUSION IN THE NATIONAL HEALTH INSURANCE SCHEME (NHIS) ON HEALTH CARE DELIVERY WITHIN THE KUMASI METROPOLIS

BY

NKETIA ANTHONY (BSc. HERBAL MEDICINE)

NOVEMBER, 2019

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A THESIS SUBMITTED TO THE DEPARTMENT OF HEALTH EDUCATION, PROMOTION AND DISABILITY, SCHOOL OF PUBLIC HEALTH, COLLEGE OF HEALTH SCIENCES, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF PUBLIC HEALTH IN HEALTH PROMOTION AND EDUCATION

NOVEMBER, 2019

DECLARATION

I, Nketia Anthony, author of this thesis herein declare that, the entire submission is as a result of my own project in partial fulfillment of the requirement for the award of the degree of Master of Public Health in Health Promotion and Education.

To the best of my knowledge the content in this thesis does not contain material previously published by another person, nor material accepted for the award of the same or similar degree of the University, except where due reference has been cited.

NKETIA ANTHONY ……...…….. ……

PG NO: PG5136118 SIGNATURE DATE

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DR. EMMANUEL NAKUA ……...…….. ……

(ACADEMIC SUPERVISOR) SIGNATURE DATE

CERTIFIED BY

PROF. ANTHONY EDUSEI ……...…….. ……

(HEAD OF DEPARTMENT) SIGNATURE DATE

DEDICATION

I dedicate this project to my twin brother, Nketia Emmanuel, and all the great men and women who have impacted on my life. I have come this far because of your constant motivation, inspirational messages and unflinching support. Thank you very much for everything you have sacrificed for my sake and ultimately for believing in my dreams. God abundantly bless you.

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To the Almighty God, I express my utmost appreciation for showing me his love, grace and mercies and also for always assisting me with strength and wisdom as I journey through this life. Praise and Glory be unto His Holy name.

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ABSTRACT

Background: Herbal medicine, the most prevalent form of complementary and alternative medicine (CAM), is highly utilized in many countries across the globe. A very large percentage of Africans rely on herbal medicine to meet their primary health needs. In Ghana, herbal medicine has been integrated into the mainstream of health care delivery since 2011. Though eight years into the integration process, not a single certified herbal drug dispensed to clients patronizing the services of the herbal unit at government hospitals is covered by the NHIS.

Objectives: To assess the effect of certified Herbal Medicines non-inclusion in the National Health Insurance Scheme (NHIS) on health care delivery within the Kumasi Metropolis.

Methods: A cross-sectional study was conducted from July to August, 2019. Primary data was collected from four hundred and thirteen participants using semi-structured questionnaires. Purposive and convenience sampling technique were used to select the participants.

Results: Majority of the study respondents were females (54.0%) and the median age was 35 years. It was ascertained that 80.9% of the respondents interviewed preferred Herbal Medicine to Orthodox Medicine. Factors established to influence preference of Herbal Medicine to Orthodox Medicine were occupation, nature/severity of condition and cost of certified herbal drugs dispensed at the herbal unit. A little above half (51.5%) of the respondents described the cost of certified herbal drugs dispensed at the herbal unit as very expensive. As many as 72.1% of the respondents also believed that the cost of certified herbal drugs adversely affect the utilization of the herbal unit at government hospitals. A positive correlation coefficient (r = 0.5498) was obtained for respondents' rating of cost of certified herbal drugs dispensed at herbal unit within government hospitals and its adverse effect on utilization of the herbal unit. Interestingly, 99.5% of respondents recommended for the inclusion of certified herbal drugs in the National Health Insurance Drug List (NHIDL). **Conclusion:** The study reveals that the cost of certified herbal medicines negatively affects the utilization of the services provided by

the herbal unit at government hospitals. It is, to improve the extent of utilization of the herbal units, necessary for certified herbal drugs dispensed at these units to be included in the NHIDL of the country.

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LIST OF ABBREVIATIONS/ACRONYMS

AIDS	-	Acquired Immune Deficiency Syndrome
CAM	-	Complementary and Alternative Medicine
CSRPM	-	Centre for Scientific Research into Plant Medicine
GHAFTRAM	-	Ghana Federation of Traditional Medicine Practitioners
GOG	-	Government of Ghana
GSS	-	Ghana Statistical Service
HIV/	-	Human Immunodeficiency Virus
HM	-	Herbal Medicine
KATH	-	Komfo Anokye Teaching Hospital
KNUST	-	Kwame Nkrumah University of Science and Technology
MOH	-	Ministry of Health
MSM	-	Modern Scientific Medicine
NCDs	-	Non-communicable Diseases
NHIDL	-	National Health Insurance Drug List
NHIS	-	National Health Insurance Scheme
OM	-	Orthodox Medicine
OMPs	-	Orthodox Medicine Practitioners
PHC	-	Primary Health Care

TCAM	-	Traditional, Complementary and Alternative Medicine
TM	-	Traditional Medicine
TMPs	-	Traditional Medical Practitioners
UCC	-	University of Cape Coast
UG	-	University of Ghana
UK	-	United Kingdom
UNICEF	-	United Nations Children's Fund
USA	-	nited States of America
WHO	-	World Health Organization

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This section introduces the study. It encompasses background of study, problem statement, justification, research questions, research objectives, conceptual framework, and thesis structure.

1.1 Background of study

Indisputably, Complementary and Alternative medicine (CAM) is highly utilized in many countries across the globe (WHO, 2004a; Maclennan *et al.*, 2006; Sim *et al.*, 2013). Inasmuch as in some countries the term CAM and Traditional Medicine (TM) are used interchangeably, both describe a health care system indigenous to the people who practice them (Opoku *et al.*, 2015). According to various sources of literature, about 70%-80% of the world's populace, especially people in second and third class countries rely on TM to meet their primary health care (PHC) needs (WHO, 2002; Kassaye *et al*., 2006;Verma and Singh, 2008; Yadav *et al.*, 2011; Modern Ghana, 2013).

The practice of TM is not a new phenomenon. It has been in existence for several centuries (Haq, 2004; Elujoba *et al*., 2005; Adjei, 2013; Gyasi, 2014). It covers myriad health practices and approaches, beliefs and knowledge, which integrates plants, animals and/or mineralbased medicines, manual techniques and exercises, in addition to spiritual therapies used singularly or together to achieve health and well-being and has become a significant African socio-cultural heritage (WHO, 2004a).

During the colonial era in Africa, the practice of TM was criticized as primeval and unjustifiably disdained with rancor, particularly by colonial masters and subsequently by orthodox medical practitioners. But nowadays, TM has hit the spotlight in Africa. It has

contributed, in various countries, to meeting a wider coverage of PHC delivery. The World Health Organization (WHO) has backed, advocated and championed the advancement of TM for decades. As a matter of fact, the philosophy to drive forward the African health campaign via promoting TM was strengthened at the 1978 Alma Ata Declaration. Ever since, the WHO had outlined adequate guidelines that could be employed by countries to improve and also take advantage of the primitively natural system of health care (medicine), in developing national program of health and well-being (Elujoba *et al.,* 2005).

There are over 100 different CAM/TM therapies available including acupuncture, chiropractic, herbal medicine, homeopathy, naturopathy, osteopathy among others (Chan, 2003; Maclennan e*t al.*, 2006), that have demonstrated prodigiously towards diminution in undue disability, morbidity and mortality occurring from infirmities including malaria, sicklecell anaemia, tuberculosis, diabetes ans HIV/AIDS to mention but few (Elujoba *et al.,* 2005).

At this present-day, courses are offered in CAM/TM at many universities and medical schools (Maclennan *et al.,* 2002). Elujoba *et al*. (2005), disclosed that among other CAM/TM therapies, herbal medicine has gained the considerable interest lately, particularly in the UK. Countries including Sri Lanka, India and China have similarly attained great advancement in the practice of herbal medicine. Clearly, herbal medicines are very much established in the aforementioned countries to the extent that the practice has extended from family and community levels to hospital levels. Moreover, in the aforementioned countries the practice of herbal medicine fundamentally dwells on efficient knowledge, thorough procedure and an outstanding clinical background (WHO, 200b; Twumasi, 2005; Verma and Singh, 2008).

It has been asserted that very large percentage of Africans rely on herbal medicine, with profound use in curbing and managing several infirmities and also to satisfy their PHC needs.

HM is employed for the management of ailments including malaria, sickle cell anaemia, diabetes, hypertension as well as HIV/AIDS (Okigbo and Mmeka, 2006). According to Yadav *et al.* (2011), in Ghana approximately 60% of the entire feverish conditions in children resulting from malaria infection are treated with herbal medicines at home.

A Bachelor of Science (BSc.) programme in Herbal Medicine is currently run at Kwame Nkrumah University of Science and Technology (KNUST), Kumasi-Ghana. The programme produces competent practitioners in herbal medicine endowed with explicit knowledge regarding identification and uses of medicinal plants. They also, as in orthodox system of health care, are able to apply scientifically-formulated herbal drugs to the management of disease diagnosed form the conceptual point of view (Adusei-Poku *et al*., 2010). It is worth indicating herbal medicine practice based on clinical evidence is currently operational within the country; an approach to meeting the 2014-2023 target of World Health Organization (WHO) Traditional Medicine Strategy (WHO, 2013a). Herbal medicine, therefore, is practiced in some government hospital in the Ghana. Indeed, at present, herbal medicine which is a CAM/TM and its products play an imperative role in the provision of health care services across the nation.

1.2 Problem statement

Escalating rate of the world's urban population has quadrupled to that of rural population. Urban drift is more predominant in the developing world. If and only if urbanization is to be accompanied by adequate housing and sanitation, the crises of health problems such as malaria, cholera, typhoid and the like will definitely not be a worry. Nevertheless, rapid unregulated urbanization in developing countries including Ghana often leads to an upsurge in or resumption of these health problems owing to housing and sanitation challenges among others (Martens & Hall, 2000).

The pursuit for quality affordable health care against medical conditions has melancholically compelled many people to search for medical attention from different sources. According to Opoku *et al.* (2015), Orthodox Medicine (OM)/Modern Scientific Medicine (MSM) and Complementary and Alternative Medicine (CAM)/Traditional Medicine(TM) are the two main medical systems which have operated distinctively along each other in Ghana. These forms of medicine have existed alongside each other for quite a while with Orthodox Medicine regarded to be more robust and renowned.

However the growing awareness of the alarming toxicity and side effects of orthodox drugs used for therapy have now drifted attention unto the Traditional Medicine (Verma & Singh, 2008). This has paved way for the resurgence of Traditional Medicine which had long existed before the arrival of MSM in Africa. TM specifically Herbal Medicines (HM) employed in the treatment of various diseases are presumed to be much safer with minimal or no side effect. Notwithstanding that studies have proven herbal drugs to elicit some adverse effects, people (users of HM) believe they are from natural origin. Hence, they hold the belief that the adverse effects are not likely to result from using the herbal drugs (Haq, 2004).

According to Gyasi (2004) as means of achieving health for all Ghanaians, the country has embraced PHC as its health delivery approach. In 2011, the Ministry of Health (MOH) embedded the aspect of clinical herbal medicine into health care services rendered in Ghana (Boatemg et al., 2016). This was one of the means of enriching government health facilities in providing adequate service and also ensuring optimum access to PHC. Thus, the process was geared towards facilitating and promoting the health of citizens in the country and currently, clinical herbal medicine service is rendered at some government hospitals across the country. The drugs prescribed and dispensed to clients who seek medical care from the herbal units are certified herbal medicines. This is in line with the permission granted staff within health facilities to issues certified herbal medicines to clients (Bodeker, 2001).

Whilst accessing orthodox health care at the government hospitals, both cost of services and drugs for treatment are ideally consumed by the National Health Insurance Scheme (NHIS). However, but cost of services, no certified herbal drugs prescribed for clients by Medical Herbalists at the various government hospitals is covered by the NHIS. Therefore, the cost of any certified herbal drug prescribed is the sole responsibility of the clients who access herbal facilities at the various government hospitals. This phenomenon whereby clients foot the total bills of certified herbal drugs dispensed at the herbal unit within the various Government hospitals creates a barrier for majority of people, hindering them from utilizing the services of the herbal unit when ill. This therefore militates against health care services provided by the herbal units within the Metropolis and the country at large.

1.3 Justification

In Ghana, Conventional or Western Medicine has long reigned as the acceptable approach for the provision of health care services. Nonetheless, there have been resurgence in the use of herbal medicine lately (Haq, 2004). Large percentage of Ghanaians have shown significant appreciation and acceptance of HM ever since the integration process. Although herbal medicine is integrated into Nation's system of health care delivery, not a single certified herbal drug used for therapy is captured under the National Health Insurance Scheme (NHIS).

Inasmuch as clients who visit the herbal units at the various government hospitals bear the full cost of the certified herbal drugs dispensed, there is paucity of information pertaining the repercussions of such approach on the overall patronage of the services rendered by unit and its contribution to the delivery of health care at large.

Therefore, availability of such information will fill in the knowledge and literature gap regarding the implications that bearing the cost of certified herbal drugs by clients have on the patronage of the services rendered by Medical Herbalists at the herbal centers. The knowledge

would also serve as a guide for students, researchers, consultants and clients who may be interested to conduct similar studies in related fields. Moreover, the result of the study will inform stakeholders to undertake a restructuring or otherwise. The outcome of the research will also serve as a novel tool which would be used to ascertain whether there is really an imperative and urgent call for including certified herbal drugs into the NHIS.

1.4 Research Questions

In line with objectives of the study, the outlined questions would be answered.

i. How knowledgeable are people regarding Herbal Medicine?

ii. What reasons predict clients' preference for herbal treatment to orthodox treatment at the various government hospital?

iii. What is the implication of the cost of certified herbal drugs on the utilization of herbal unit within the various government hospitals?

1.5 Study Objectives

Main Objective

To assess the effect of certified Herbal Medicines non-inclusion in NHIS on health care delivery within the Kumasi Metropolis.

Specific Objectives

- ✓ To assess participants' knowledge regarding integrated HM process in Ghana.
- ✓ To identify factors which influence patients to prefer herbal medicine to Orthodox medicine.
- ✓ To assess the implication of the cost of certified herbal drugs on the utilization of herbal unit at government hospitals.

1.6 Conceptual Framework

This study adopted a Behavioral Model specifically employing the Andersen Health Care Utilization model. The model ascertains the factors that influences (facilitate or inhibit) the use of health services. Numerous researchers have employed Andersen's model in their projects to ascertain factors behind using health services. According to Andersen (1995), three factors predicts the use of health care services viz. predisposing, enabling and need factors.

The predisposing component entails the socio-cultural features of a person. These factors encompass an individual's demographic characteristics (age, gender, and religion among others); an individual's social structures (ethnicity, occupation, social networks among others); and an individual's health beliefs (knowledge, attitude and values among others).

The enabling component of Andersen's model also constitutes the logistical aspect involved in getting access to health care. It can personal, family, or community related (income, availability of health staff, time involved to access service). Genetic as well as psychological features also form part of the enabling factors influencing the patronage/utilization of health services.

According to Andersen, the need component encompass both perceived and evaluated need. These components mostly influence health care services utilization and it's usually an individual's perception about the severity of health issue and also the assessment of benefits associated with seeking health care (Andersen and Newman, 1973; Andersen, 1995).

As indicated in Figure 1.1 below, during this study the predisposing factors considered were age, marital status, sex, education attained, religious background, and occupation of respondents. The enabling factors possible of driving clients to use the herbal unit at the various government hospitals also considered included cost of herbal drugs at the health facilities. The need factors on the other hand also encompassed severity and the nature of condition that drives clients to seek the service of the Medical Herbalist.

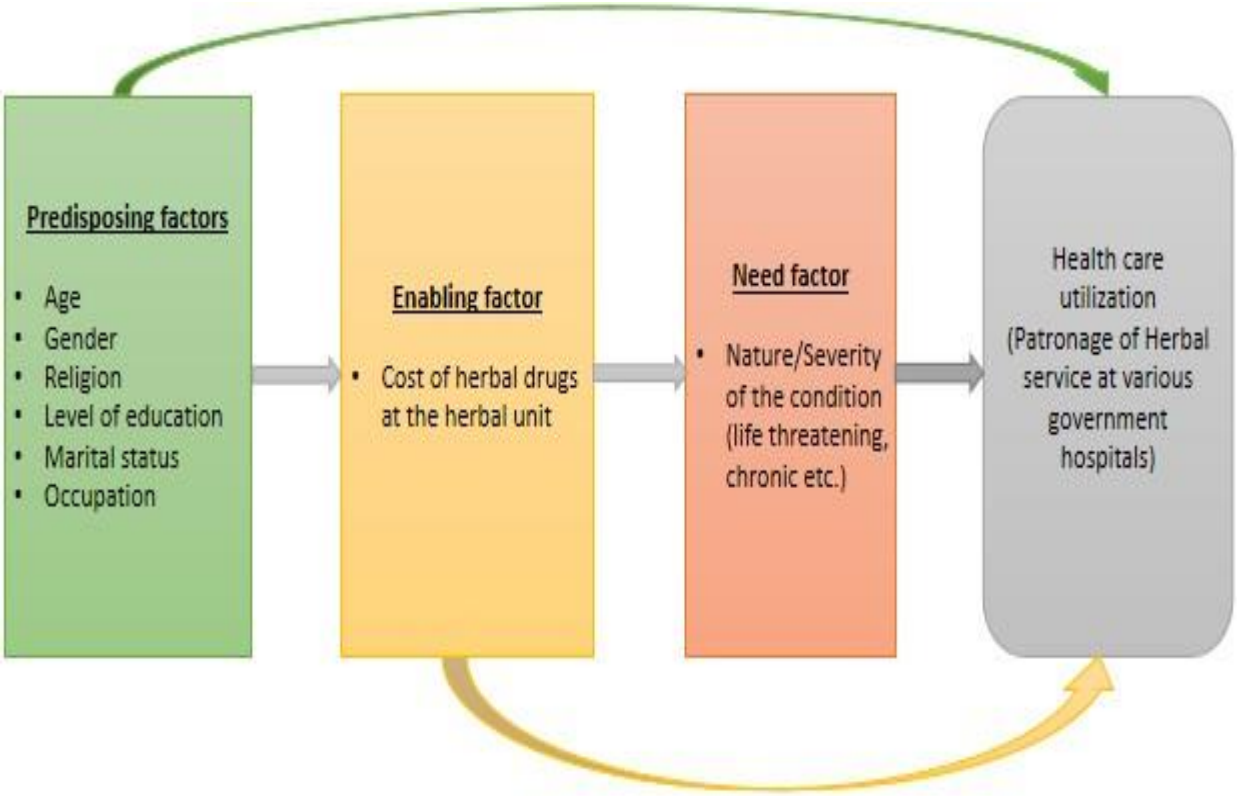

Figure 1.1 conceptual framework based on Andersen healthcare utilization model

(Author's construct, 2019)

1.7 Scope of study

The study focuses on ascertaining effect of certified Herbal Medicines non-inclusion in the NHIS on health care delivery within Kumasi Metropolis. The study is limited to only public hospitals which have herbal unit manned by Medial Herbalist. Within the Metropolis are three public hospitals which meet the criteria. These hospitals are Tafo hospital, SouthSuntreso hospital and Kumasi-South hospital. The respondents recruited for the study are clients above 18 years who patronize the service of the herbal units as well as Medical Herbalists working at the herbal unit.

1.8 Thesis Structure

There are six different sections in this thesis. The first chapter is introduction. It gives a general overview of the project in its background section, describes the problem and provides justification for conducting the research. The objectives (both main and specific) as well as

conceptual framework are also availed in the first chapter. The second chapter is basically about information from previous published works significant to the objectives of this research.

Chapter three entails the methodology. The approach used for data collection is extensively explained in this section. Chapter four, five and six respectively presents on analysis of results, discussion based on the results and conclusion plus recommendations spelled out from the research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section reports on previous works and additional facts significant to the research. The areas that are dug into for explicit insight concerning the project topic include overview of Traditional medicine (TM), Traditional Complementary and Alternative Medicine (TCAM) practices, overview of Herbal Medicine (HM), terminologies used in Herbal Medicine, knowledge of people regarding Herbal Medicine practice, factors underpinning the patronage and utilization of Herbal Medicine, Herbal Medicine practice in Ghana, as well as the integrated Herbal Medicine process.

2.1 Overview of Traditional Medicine

Traditional medicine (TM) dates from ancient times. Indisputably, the practices of TM has existed for centuries and constantly handed to next generation. However, it gained official recognition in the year 1978 when it was described as "*a crucial element in achieving an acceptable level of health for all people of the world by the year 2000*" (WHO and UNICEF, 1978). Since then, the practice of TM has seen greater advancement and even guidelines has been issued regarding its harmonious collaboration with biomedicines (Richer, 2003).

An act was passed in Ghana in the dawn of the 21st century called the Traditonal Medicine Practice Act 595. TM as defined in the act entailed practices hinged on beliefs and ideas identified by a community to be used in the provision of health care making use of herbs and different substances which are obtained naturally. These beliefs and practices use herbs and other naturally occurring substances (WHO, 2011). According to Richer (2003), the use of traditional medicines is usually referred to as *phytotherapy* in biomedical literature.

TM, as disclosed by WHO provides a dependable approach to achieving a global coverage of health care for all people (Antwi-Baffour *et al.,* 2014). In global context, it is difficult to define or describe the term "traditional medicine" due to its comprehensiveness plus the wide range of practices it covers (WHO, 2001). Notwithstanding, according to WHO (2000a) "*Traditional medicine may be considered as 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 illnesses"*.

Knowledge regarding TM practice may be handed down from generation to generation by oral means or by teaching in an accredited institution such as universities (WHO, 2001). Wootton (2006), argued that TM holds diverse estimable oral tradition of local medicine encompassing ritual, magic in addition to religious customs practiced by families and healers in Africa, as well as Eastern Europe and South American. Recording, documenting and regulating as well as preserving and protecting such traditions are extremely challenging to do.

TM practices differs from in terms of country, region and even race. This is because TM practices are dependent on the cultural, historical, philosophical and personal attitude of the people who practice it (WHO, 2000a). Although TM practices may appear differently in different areas across the globe, once it is used within its native country, it is termed as

traditional (WHO, 2001). Antwi-Baffour *et al.* (2014) postulated that the principle of TM practice hinges on idea that people are composed of somatic and spiritual aspect and hence an infirmity can be as a result of invasion of foreign object into the body as well as supernatural causes. Therefore, TM considers not only the symptoms of the disease, but additionally factors regarding the sociological as well as psychological facets of life. Both holistic and cultural based strategy to health care indisputably becomes very imperative with respect to the practice of TM.

In certain countries,there is interchanging use of the the terms complementary, alternative and non-conventional medicine with TM (WHO, 2000a; WHO, 2001). Therefore, a common nomenclature known as Tradtional, Complementary and Alternative Medicine (TCAM) has been adopted for these terms. This is due to the reason a system of traditional practice native to one region or area may be used as alternative or complementary in a different area (Wootton, 2006). In many countries of the world, TCAM practices are extensively employed to prevent, diagnose and treat several diseases. TCAM has proven to be effective in the treatment of non-communicable (NCDs), improvement of mental health, prevention of disease and enhancing quality of life for patients with long term illness plus the ageing population (WHO, 2002). Application and theories pertaining to TCAM differ from OM in several cases, TCAM has however depicted enormous efficacy in the provision of broad spectrum of health care needs (WHO, 2000a; WHO, 2001).

2.2 Traditional Complementary and Alternative Medicine (TCAM) Practices.

Traditional Medicine (TM) / Complementary and Alternative Medicine (CAM) encompasses several practices and therapies which, in terms of region and country, vary greatly (WHO, 2003a). These therapies have been in existence for a very long time now. Among these therapies are Acupuncture, Aromatherappy, Ayurveda, Biofeedback, Homeopathy,

Naturopathy, Traditional Chinese medicine, Chiropractic and Osteopathic medicine, Chelation, Diet therapy, Massage, Tai chi, Yoga, Meditation, Magnet therapy, Herbal medicine, Reiki, Reflexology, Siddha, Unani, Qigong, Meditation, Hypnotherapy, Therapeutic touch, Art, dance and music etc. (WHO, 2001; Chan, 2003; Maclennan *et al.*,
2006; Wootton, 2006; Mind, 2013; Johns Hopkins Medicine, n.d.).

According to Debas *et al.* (2006), Carroll (2007) and Millstine (2018), the therapies and practices of Traditional Complementary and Alternative Medicines (TCAM) fall under five recognized categories. These categories are Alternative/Whole medical systems (eg. Traditional Chinese Medicine, Herbal Medicine, Ayurveda etc.), Manipulative and bodybased threapies (Reflexology, Hypnotherapy, etc), Mind-body techniques (eg. Meditation, Biofeedback, Yoga etc.), Biologically based therapies (eg. Acupuncture, Diet therapy, Chelation etc.), Manipulative and body-based therapies, and Energy therapies (eg. Magnet therapy, Reiki etc.).

2.3 Overview of Herbal Medicines

For long, natural products specifically plants and herbs have been used by human beings as food and medicines to cure and prevent diseases. However, pointing out exactly the time when plants started to be used as medicines will be difficult to do (Qazi and Molvi, 2016). According to Plaeger (2003), the use of plants (herbs) to treat illness has its root in an ancient holistic healing tradition and has existed for several centuries. Plants were cultivated as medicines 60,000 years ago according to records of carbon dating from the ancient Babylon (currently called Iraq). Approximately 2600 BC, Mesopotamia people documented the use of natural product as medicine in cuneiform language on clay tablets which contain oils from *Cupressus sempervirens* (Cypress) and *Commiphora* species (myrrh) which are still used today to treat coughs, colds and inflammation (Spainhour, 2005; Dias *et al*., 2012).

With regards to the pharmaceutical industry, plants and herbs have played a significant role. Certainly, medicinal plants and herbs have played and still play an imperative role in the development of potent therapeutic agents. As indicated by WHO approximately twenty-five percent of medicines used for the treatment of infirmities arose from herbs and plants which were first utilized for treatment traditionally. Many others are synthetic analogues built on prototype compounds isolated from plants. Around the year 1950-1970 approximately 100 plants based new drugs were introduced in the USA drug market. Among these drugs were deserpidine, reseinnamine, reserpine, vinblastine and vincristine derived from higher plants. Also from the year 1971-1990 new drugs synthesized from plant materials appeared all over the world. These durgs included artemisinin, ectoposide, eguggulsterone, ginkgolides, lectinan, nabilone, plaunotol, teniposide, and Zguggulsterone. From 1991-1995, drugs sourced from plants included paciltaxel, toptecan, gomishin, irinotecan etc. (Verma and Singh, 2008).

Indisputably, plant (herb) have contributed significantly to the manufacturing of pharmaceutical medicines and it has yielded the evolution of several potent therapeutic agents. For instance, a component called serpentine which was massively used to manage and lower high blood pressure was isolated in the year 1953 from *Rauwolfia serpentine* (root). Moreover, an active components called vinblastine and vincristine used in treat several cancerous diseases such as lymphomas and lukemia among others was isolated from *Catharanthus rosesus.* Additionally, an isolate of *Phodophyllium emodi* called
Phophyllotoxin is presently employed in the treatment of lymphomas, and other cancers (Verma and Singh, 2008).

Indeed, the the genesis of pharmaceutics is greatly linked to plants and herbs. Even up to this age, ethnopharmacognosy research continues to be relevant in the manufacturing of novel drugs for contemporary pharmaceutical industries.

Just some few decades, the practice of herbal medicine has gained great global recognition, and hence a greater number of people have turned to its use either as a complementary to or alternative to OM (Vickers *et al*, 2006; Lucas, 2010; Adjei, 2013). WHO (2003b), report indicated that in herbal medicines serves as the first point of health care for over 60% of Ghanaians, Malians, Nigeriaians and Zambians children who present with elevated body temperature and other health conditions. Again, approximately 75% of HIV/AIDS patients residing in Africa studies in Africa utilize herbal medicine and other TM either alone or in addition to other medications for management of their condition.

Aside serving the basis of African Traditional Medicine, in terms of marking, herbal medicines are also exceedingly profitable globally (WHO, 2008; Naidoo and Agbor, 2016).
In 2017, the global market was estimated to be US$ 107 billion (Asmelashe Gelayee, 2017).
The sales of herbal medicinal products in Japan is estimated around $ 2.1 billion every year.
Moreover, the sales of TM in Malaysia in is approximately within M $ 1.00 billion and M $ 2.00 billion each year and this amount is higher than the sales of OM (Haq, 2004).

According to Wolf (2003), there are several forms in which herbs employed for treatment are obtained. They may either be obtained in the form of powders, tinctures, syrups, concoctions and even tea which are consumed internally. They may also be applied topically or externally as creams, ointments. Herbal medicine manufacturers from across the globe now label herbal products and market them in attractive packages. Diverse marketing strategies like advertisement on the radio, television, newspaper, and the internet are also adopted to champion and promote herbal medicines (Soner *et al.,* 2013).

2.4 Terminologies used in Herbal Medicines

Several definitions have be given by different people with regards to HM (Kamboj, 2000; Nsowah-Nuamah *et al.,* 2004; Lucas, 2010). According to WHO (2004a), and Yadav *et al.*

(2011), "*Herbal medicines are composed of herbs, herbal materials, herbal preparations, and finished herbal products, that contain as active ingredients parts of plants, or other plant materials, or combinations thereof*."

As stipulated by WHO (2004a), the definition of the various composition of herbal medicines is given below.

Herbs encompass crude plant material such as leaves, stems, wood, bark, roots, flowers, fruit, seed, rhizomes or other plant parts, which may perhaps be entire, fragmented or powdered.

Herbal materials include, in addition to herbs, essential oils, fixed oils, fresh juices, resins, gums and dry powders of herbs. In some countries, these materials may perhaps be processed through various local procedures, by means of roasting, steaming, or stir-baking with alcoholic beverages, honey, or other materials.

Herbal preparations represent the fundamental of finished products. These preparations may encompass tinctures, comminuted extract of herbs, and oils obtained from herbal materials. They are produced by means of concentration, extraction, purification, fractionation, or by other biological or physical processes. Herbal preparation include products made by means of steeping/ heating herbal materials in alcoholic beverages and/or honey, or in other materials.

Finished herbal products are herbal preparations made from one or more herbs. The term "mixture herbal product" is used for finished herbal products prepared from more than one herb. It is worth noting that finished herbal products may perhaps, in addition to the active ingredients, contain excipients. Nonetheless, the product ceases to be called herbal if chemically defined active substances such as synthetic compounds have been added or there has been an active ingredient isolated from the herbal materials.

2.5 Knowledge of people regarding Herbal Medicine practice

According to various sources of literature, about 70% - 80 % of the world populace, especially people from low and middle income countries rely on TM for PHC (WHO, 2002; Kassaye *et al.*, 2006; Verma and Singh, 2008; Yadav *et al*., 2011; Modern Ghana, 2013).

Moreover, numerous sources point out herbal medicines as the most prevalently used form of TM/CAM medication therapy (WHO, 2004a; Elujoba *et al.*, 2005; Diouf *et al.*, 2013). It has been estimated that in developed countries such as United States, plants drugs (herbal medicines) comprise up to 25% of the total drugs, while in fast developing countries such as China and India, it comprises up to 80% (Qazi and Molvi, 2016). Additionally, Okigbo and Mmeka (2006), stipulated that a very large percentage of Africans rely on herbal medicine for their PHC needs.

Awareness and knowledge of TM/CAM especially herbal medicine and its usage is virtually common in most part of the world including Ghana (Darko, 2009). Ohemu and colleagues found that all respondents have ever heard of TM and also know of one of the forms of TM, out of which 64.2% knew of herbal medicine among the TM/CAM modality that were presented to them (Ohemu *et al.,* 2017). The finding of another study also showed that about 98.4% of the participants know of HM as form of TM/CAM and had ever used HM (AgyeiBaffour *et al.,* 2017). Moreover, Ameade and colleagues found interestingly that 88.1% of respondents were aware of herbal medicine as a form of TM because they have ever heard of it (Ameade *et al.,* 2015). Similarly, Bamidele and colleagues found 85% of the respondents to know of herbal medicine as an alternative form of getting treatment apart from orthodox medicine (Bamidele *et al.,* 2009). According to Akan *et al*. (2012), several factor have been established to influence an individual's awareness on TM practices. Some of these factors are related to the environment, religious belief, and culture of a person among others. The awareness and knowledge that a person has about HM motivates such as person to utilize it

(Harun-Or-Rashid e*t al.,* 2011).

Though herbal medicine is embedded into the health care system of several countries of which Ghana is one, its publicity is not forthcoming. In a qualitative study, Boateng *et al.* (2016) found that most patients who visit the biomedical unit were ignorant of the presence of HM unit operating within the same hospital. It has been ascertained in a cross-sectional study that about 42.3% of clients utilizing public health facilities with a HM unit were ignorant about the presence of HM unit operating within the health facility (Agyei-Baffour *et al.,* 2017). As opined by Agyei-Baffour and colleagues, among the respondents who admitted that they know of the HM unit at the health facility, 2.7%, 3.9%, 5.2%, and 13.8% got to know about the availability of the unit through the media, friends, relatives and health professionals respectively. Furthermore, an inductory exploratory study by Aziato and Antwi (2016), unveiled that sources of information that led to the initiation of HM use among respondents were acquired through recommendations of friends, family members (relative) and the media.

It has been stipulated in an article by Nasri and Shirzad (2013), that drugs which are effective are considered to possess side effects. However, herbal medicines are generally considered to be safe and effective agents. This is because many people assume that since herbal medicines are from natural source, they are devoid of side effects (George, 2011). Therefore, people show interest in herbal medicine with believe that plant remedies are free from undesirable side effects (Nasri and Shirzad, 2013). According to Adjei (2013), when respondents were querried about the side effects associated with the use of herbal drugs, 91.2% said they have never experienced any adverse side effect with the use of herbal medicines. Adjei (2013), again reported that with respect to the issue that herbal medicines have dangerous effects on human health, 55.6% of respondents strongly disagreed whereas 17.1% of them disagree stating reason that they are natural and devoid of any adverse effects and that those who rely on it have relatively longer life than those who rely on orthodox medicine. Another study by Harun-Or-

Rashid e*t al.* (2011), disclosed that 98.6% of the respondents HM were satisfied as they got benefit without any harmful side-effects. Moreover, the findings from Ohemu *et al.* (2017), revealed that 62.8% of the respondents believed that herbal medicines are devoid of side effects, 29.9% believed that herbal medicines have side effects like skin rashes, vomiting, dizziness etc and 6.2% also believed that there is the experience of inexplicable side effects. Other studies however, have proven that an appreciable number of people are aware of the side effects of herbal medicines. For example, a study by Bamidele *et al. (*2009) found 54.9% of the interviewees to be cognizant of that TM including HM has potential adverse effect such as diarrhoea.

Significantly, herbals contain ingredients that can accelerate or inhibit the metabolism of prescription drugs consequently altering the therapeutic outcome. According to Markowitz *et al.* (2003), St. John's wort is one of such herbs and it has been ascertained to affect the metabolism of virtually 50 percent of all prescription drugs. The interaction of herbal and conventional drugs may lead to a number of long term or short term untoward effects. With evidence surrounding the adverse effects of HM, patient or users of HM should seek for advice form well-trained practitioners (Medical Herbalists since they have been formally trained) before initiating treatment with HM (Haq, 2004).

2.6 Factors underpinning the patronage and utilization of herbal medicines

Herbal medicine is patronized not only by a specific class or group of people. Rather, it is available all manner of people (Adjei, 2013). Myriad of reasons underpin the patronage and utilization of herbal medicines. These reasons alter from culture to culture and race to race. Easy availability and accessibility, its effectiveness, its safety, its affordability as well as its cultural acceptability are common reasons people associate to the use of HM (Haq, 2004; Darko, 2009; Aziato and Antwi, 2016). As reported by Agyei-Baffour and colleagues, 25.3%,

24.4% and 16% of the respondents utilized HM at health facility level because of easy accessibility and availability, effective treatment of HM, and being comparatively cheaper respectively (Agyei- Baffour *et al.,* 2017). A report obtained from another study outlined that 16.4% of respondents who prefer ATM especially HM associate their reason to easy accessibility, 13.4% associate their reason to acceptability, and 21.4% due to its affordability (Bamidele *et al.*, 2009). The most common reasons underlining the patronage and usage of herbal medicines have further been expounded below.

First and foremost, easy availability and accessibility is one of the commonest reasons known to influence the patronage and utilization of herbal services and medicines. An account issued by WHO (2002), indicated that the wide use of HM in developing countries relies basically on availability as well as accessibility. The availability of herbal medicines in many developing countries such as Ghana highly outwits the availability of allopathic medicines. Due to the above stated reason, a whole lot of people when ill or confronted with health problem resort to herbal therapies. Besides widely availability of herbal medicines, easy accessibility to herbal medicine practitioners also explicitly elucidates the widespread use of herbal medicines in Africa and some developing countries (WHO, 2013b). Allopathic practitioners are majorly located in the urban and big cities with just few practitioners or virtually none in the rural settings to cater for the health needs of the rural folks. Certainly, there is more easily accessibility and availability of herbal medicines to many people, especially those in rural areas where allopathic or modern medical facilities are difficult to come by (Twumasi, 2005; Darko, 2009). Therefore, as opined by Abdullahi (2011) for millions of people in rural settings, native healers including herbal medicine practitioners continue to serve as their providers in terms of health.

Furthermore, people prefer to use herbal medicines when unwell because they are well known to be more efficacious in the management of most diseases. Clement *et al.* (2007), indicated that a major factor contributing to the increasing popularity of herbs in developed countries and their sustained use in developing countries is the perception that herbal remedies are efficacious, and in some cases more so than allopathic medicines. This favorable level of perceived efficacy of HM supports their continual utilization among substantial number of patients. A study by Nyeko *et al.* (2016), indicated that perception and believe in the efficacy of herbal medicines influences its use even among pregnant women. Shaikh and Hatcher in 2005 opined that herbal therapies are tag with significant achievement in curing both chronic and acute ailments. This supports the claim made by Boadu and Asare (2017) that HM is used in managing and treating acute ailments such as cuts and foot roots as well as chronic ailments such as diabetes among others. Moreover, ancient literature cites herbal medicines to be effective for diseases related to old age such as immune and liver disorders, memory loss, diabetic wounds, osteoporosis, etc. for which no modern medicine or only palliative therapy is available (Kamboj, 2000). Herbal medicines have furthermore been employed in treating malaria and AIDS considered as life-threatening ailments. This provides explanation its high use amongst Africans who have HIV to gain relief from symptoms and also to manage infections which develop as a result of their condition (WHO, 2012).

Moreover, people use herbal medicines because they believe they are safe. As cited in the work of Ameade *et al.* (2015), HM cannot be entirely regarded as safe since it has been found to be associated with side effects following its use. For instance Germander and Ginseng used with apparent safety for centuries have recently been identified to be hepato-toxic drug (Haq, 2004), Aristolochia also identified to be cause genitourinary cancer (De Smet, 2002). Additionally, cardiovascular diseases such as stroke and heart attack has been reported to result from the use of Ephedra (Shekelle *et al.*, 2013). However, people continue to disclose the safety of herbal

products as the reason behind their use of herbal products mainly because they are prepared from natural source.

Affordability of cost of treatment also largely informs a person choice of place of seeking health care services. Some traditional practitioners or healers charge exorbitantly high amount, nonetheless, such charges or fees are negotiable with a flexible payment options (Debas *et al.*, 2006). Certainly, most people opt for the services of herbal medicine for the treatment of certain diseases due to its affordability. It has been ascertained through research that in countries like Ghana, Kenya and Mali, a course of pyrimethamine/sulfadoxine antimalarial can cost several dollars. Hence, some populations especially the poorest patients/clients simply cannot afford such chemical drugs. They therefore turn to local herbal practitioners for herbal medicines which is relatively cheap and payable in kind and/or according to the "wealth" of the client. Similarly, the fee for treating a child for diarrhea as an out-patient at a public hospital in Salvador can be as high as US$ 50 (for both consultation fee and medication) whereas treatment of the same condition by an herbal medicine practitioner, may be no more than US$ 5 or payable in kind (WHO, 2002).

Cultural acceptability also underpins the reason regarding the enormous utilization of herbal medicines (WHO 2002; Darko, 2009). According to the WHO (2013a), 76% and 86% of people in Singapore and Republic of Korea prefer using Traditional Medicine due to its cultural influence. In developing world, the story is not different. Twumasi (2005), argued that traditional practitioners speak the same dialect as their patients and for that matter each party is easily understood during their interaction. They also share common beliefs regarding origin and even the preferred way of treating an ailment. Herbal practitioners, unlike orthodox practitioners who work in place with socio-cultural beliefs different from their own, usually tend to conduct their service in their native land. Therefore, they are versed with the beliefs and customs of the people they deal with and always considers those beliefs when attending to their

people. This enhances the efficacy of treatment and hence strengthens the bond of always patronizing such service (Darko, 2009; Twumasi, 2005).

2.7 Herbal Medicine Practice in Ghana.

Local herbs employed in the treatment of various illness is perhaps the largest single contributor to the health need of majority of the population of most African countries such as Ghana. Interestingly, knowledge of herbal medicine is virtually common in most Ghanaian homes, with proof of increase in its usage (Darko, 2009). Practitioners who employ herbs in the management of disease are termed as Herbalist and they form one of the Traditional Medical Practitioners (TMPs) group within the country. In fact, the Ghanaian cultural belief perceives the world to be made of two systems, viz. the physical and supernatural system, and therefore traditional practitioners attribute the aetiology of disease to one of the two systems and hence treat accordingly. The physical system entails the natural environment which is seen whereas the supernatural system entails the unseen spiritual aspect which influences greatly on the physical (Addy, 2004).

Besides herbalists who emphasize on the physical aspect of illness, there is another group of TMPs called spiritualists who focus on the spiritual aspect (origin) of diseases. This group of TMPs use spiritual or psychic method of healing (Addy, 2004).

According to Addy (2004), the largest group of Traditional Medicine Practitioners in this country, Ghana are herbalisits. Due to the diversity of ethnic groups within the country, different vernacular names are used to refer to herbalist. The various vernacular names used for herbalists in Ghana include *odunsini* (Akan), *gbedala* (Ewe), *kpeima* (Dagomba), *tsofatsɛ* (Ga) etc.

Six biomedical institution which undertake research into herbal medicines or product are in

Ghana. These institutions include "*Noguchi Memorial Institute for Medical Research; Centre for Clinical and Pharmacology and Therapeutics, University of Ghana (UG); Faculty of Pharmacy, Kwame Nkrumah University of Science and Technology (KNUST); Centre for Scientific Research into Plant Medicine (CSRPM) and the Department of Chemistry, University of Cape Coast*" (UCC) (MOH, 2005; Darko, 2009).

2.8 Integration of herbal medicine into the mainstream of health care system in Ghana

For decades, the WHO has played a remarkable role in supporting, promoting and assisting the development of TM in bid to move the African health agenda forward for the lessdeveloped countries. At the Alma Ata declaration of 1978 when it was ascertained that majority of developing countries of the world was unable to provide maximum heath care to its members using the orthodox health facilities, the objective of integrating TM into the mainstream health system was reinforced (Elujoba *et al.*, 2005). There has, since then, been significant and steady progress in implementing, regulating and managing TM in most regions of the world. The WHO through various expert conferences, committees' policy decision and resolution has outlined substantial guidelines and frameworks that countries could adopt to develop and utilize their indigenous systems for medicine, for their individual national health agenda (WHO, 2002a; WHO, 2003; WHO, 2011; WHO, 2013).

Integration generally depicts the combination of two parts so that they work together or form a whole. The concept is considered primarily as a process of amalgamation where two or more components are merged with sufficient interaction so that unity of the newly formed entity is achieved. Though integration of traditional medicine and orthodox medicine into one whole is not an easy task, its success plays a major role in the entire health care delivery system of the country as it offers a mutual benefit for each other thereby improving the general health care knowledge for the greater welfare of the society (Opoku *et al.*, 2015). According to WHO (2013a) the integration may be of greatest relevance to populations living with chronic disease

or in health promotion, as well as in certain circumstances it may contribute to the treatment of acute disease. Moreover, successful integration of the knowledge of traditional medicine into orthodox medicine makes patients confident since their health needs will be accessed by doctors in all aspects and coping with various illness will be assessed expediently (Opoku *et al.*, 2015).

Some countries in the world have integrated TCAM into their health care system. Typical example of such countries are China and Viet Nam (WHO, 2002; WHO, 2013a). In Ghana, TM particularly Herbal Medicines harmoniously co-exist with Orthodox Medicine as both systems of heath care are being practiced at various government hospitals in the country. That is, Herbal medicine is currently incorporated and practiced as part of the nation's health care system. Herbal Medicine service therefore, is being rendered at some government hospitals across the nation.

There are a total of 17 government health facilities across the country including Kumasi South Hospital, Suntreso Government Hospital and Tafo Government Hospital which had piloted the integration since its inception in the year 2011 (Boateng *et al.*, 2016). There is herbal unit within these various government health facilities where the service of Herbal Medicine is rendered. Each herbal unit is being manned by Medical Herbalists. The Medical Herbalists in charge of the various herbal units have been well trained and nurtured in a degree programme in Herbal medicine at KNUST, Kumasi as well as the Centre for Scientific Research into Plant Medicine in Mampong-Akwapim (Addy, 2004; Adusi-Poku *et al.*, 2010). Additionally, a number of private herbal centers have been set-up in the country which also use modernized and sophisticated instrument in the diagnosis of ailment or

infirmities.

The various herbal units at the government hospitals procure their medicines (herbal drugs) used for the management of various diseases or health conditions from Centre for Plant Medicine Research (CPMR) in Mampong-Akwapim. These herbal drugs are certified and they are solely the drugs deemed to be prescribed by Medical herbalists for clients at the various herbal units at the government hospitals. Though consultation service rendered by the Medical herbalist is covered by the National Health Insurance Scheme (NHIS), the certified herbal drugs are not. This is due to the fact that certified herbal drugs are not on the National Health Insurance Drug List (NHIDL). Clients utilizing the herbal unit are therefore obliged to make payment for the certified herbal drugs after consultation before they can get access to them.

Table 2.1 shows the amount that clients use on certified herbal drugs for the management of their health condition at the herbal unit at government hospitals. The table below is not a description of all but rather some of the health conditions presented to the herbal unit and the amount which clients have to pay in order to obtain the medicines (certified herbal drugs) used in their management.

Table 2.1: Amount used on drugs for management of certain health conditions at the herbal unit at government hospitals.

HEALTH CONDITON	AMOUNT USED FOR MANAGEMENT
Malaria	GH¢24.00
Peptic ulcer	GH¢48.00
Gastritis	GH¢42.00
Haemorrhoids	GH¢52.00
Musculoskeletal pain	GH¢62.00
Upper Respiratory Tract Infection	GH¢52.00
Urinary Tract Infection	GH¢62.00

Neuropathies	GH¢63.00
Anaemia	GH¢34.00 / GH¢60.00
Hypertension	GH¢63.00
Diabetes	GH¢52.00

Source: Kumasi South Government Hospital, Herbal unit.

CHAPTER THREE

METHODOLOGY

3.1 study area

The study was conducted at the Kumasi Metropolis specifically at the government hospitals that have herbal unit being manned by Medical Herbalist, graduates from KNUST who had undergone a year internship training at Akuapem-Mampong. There are three (3) hospitals within the Kumasi Metropolis which fell under the above category and hence employed for the research. These hospitals are Tafo government hospital, Suntreso government hospital and Kumasi South government hospital.

3.1.1 Profile of study area

The Kumasi Metropolis is one of the thirty (30) districts in Ashanti Region. It is located between Latitude 6.35^{o}N and 6.40^{o}S and Longitude 1.30^{o}W and 1.35^{o}E and elevated 250 to 300 meters above sea level. It is approximately 270km north of the national capital, Accra. The Metropolis shares boundaries with Kwabre East and Afigya Kwabre Districts to the north, Bosomtwe District to the south, Asokore Mampong and Ejisu-Juaben Municipality to the east, and Atwima Kwanwoma and Atwima Nwabiagya Districts to the west.

Figure 3.1: Map of Kumasi Metropolis

(Adapted from GSS, 2014)

Kumasi Metropolis has a population of 1,730,249. This translates into 36.2% of the overall inhabitants of Ashanti Region which stands at 4,780,380. The population of males and females in the Metropolis is 826,479 which represents 47.8% and 903,779 which represents 52.2% respectively. The population of the Metropolis depicts a broad base population pyramid which tapers off with a small number of elderly persons (60 years and older). The age dependency ratio for the Metropolis is 58; the age dependency ratio is 59.9 for males and 56.3 for females. The Metropolis covers a land area of 214.3 square kilometers, which is 0.9% of the region's land area of 24,389 square kilometers. The Metropolis has a population density of 8,075 persons per square kilometer.

Though, almost all the ethnic groups in Ghana are resided in the Kumasi Metropolis, the largest is the Asante (80.7%) which is a sub-group of the larger Akan ethnic group. This is followed distantly by the Mole Dagbon (8.7%) and Ewe (3.6%). Ethnic and cultural diversity abounds tremendously in the Metropolis, yet, the population is closely–knit together in a harmonious relationship due to the presence of a strong traditional administrative set-up that endeavors to foster cohesion among the diverse ethnic groups.

Kumasi Metropolis has 136 health facilities providing healthcare services to its residents. The biggest of such facility is the Komfo Anokye Teaching Hospital (KATH) which is a modern teaching hospital widely used by residents and others from Ghana and overseas. Out of the 136 health facilities within the Metropolis, majority (115) are privately owned.

The Metropolis also has 919 pre-schools, 967 primary schools, 597 junior high schools, 52 senior high schools and 10 tertiary institutions. The Kwame Nkrumah University of Science and Technology, the nation's premier Science and Technology University, is one of the tertiary institutions in the Metropolis. It offers higher education for people from Ghana, Africa and the world as a whole.

Urban agriculture is main agriculture practice in the Kumasi. It focuses on the cultivation of vegetables such as carrot, cabbage, lettuce and green onions. With regards to livestock rearing, poultry (chicken), goat, sheep and pigs are the animal mostly reared in the Metropolis (GSS, 2014).

3.2 Research design

Research design is a planned structure and strategy of investigation, so as to obtain answers to research questions or problems. It has been emphasized that having a clear plan for conducting research provides a mean for an effective systematic inquiry (Berg & Lune,

2012). In fact, the research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. As such the design includes an outline of what the researcher will do from writing the hypothesis and its operational implications to the final analysis of data (Kothari, 2004). A cross-sectional design was employed for the study. Quantitative data collection approach was used to achieve the objectives underpinning the study. The data was collected using a semi-structured questionnaire. The questionnaire was administered to participants who accessed the services of the herbal unit as well as the Medical Herbalist who manned the herbal unit at the selected study area.

3.3 Target Population

The target population included clients who sought medical service from the herbal unit within the various government hospitals in the Kumasi Metropolis. Clients who were 18 years and above constituted the respondents. This approach ensured that the respondents were matured, could make informed decisions by themselves, and also contributed meaningfully and effectively to the study. Additionally, as part of the respondent, the Medical Herbalists in charge of the unit included.

3.4 Sampling strategy and recruitment

Sampling refers to the process of selecting a number of study units from a defined study population. The study units selected is used to represent the whole study population. Some studies involve only small population size and thus all of them can be included. However, several research focus on a large population that it is only possible, for practical reasons, to include just a fraction or a part of its members in the investigation (Varkevisser *et al.,* 2003). In this study, the Cochran's formula was used to determine the sample size (Cochran, 1977).

The Cochran's formula for determining sample size is given as;

$$N = z^2p\ (1\text{-}p)/d^2$$

Where N = required sample size

Z = Confidence level of standard value (from statistical table)

P = estimated proportion of clients who access health care service from the herbal units at government hospital within Kumasi Metropolis. d = margin of error (degree of accuracy)

A 95% confidence level of standard value of 1.96 from statistical table and 5% (0.05) margin of error (degree of accuracy) was used. A study conducted by Agyei-Baffour *et al.* (2017) ascertained out of the total clients (patients) who visit government hospitals having herbal medicine unit, 42.2% access the service of the unit. Hence, by the Cochran's formula, the required sample size was calculated to be

$$N = \frac{(1.96)^2 * (0.422)(1-0.422)}{(0.05)^2}$$

$= 374.8$

≈ 375

Making provision for 10% non-response, 10% of 375

$= 37.5$

≈ 38

Therefore, the total number of participants to be recruited for the study

$= 375 + 38$

$= 413$

The catchments size for Tafo government hospital, Suntreso government hospital and Kumasi-South government hospital are 236619, 357886 and 448097 respectively (AgyeiBaffour *et al.*, 2017). These figures were employed in calculating the sample sizes for the respective study areas as illustrated in Table 3.1 below.

Table 3.1: Estimated sample size from selected government hospitals within the study area.

Hospital	Catchment sizes	Proportion (%)	Sample
Tafo government hospital	236,619	22.70	94
Suntreso government hospital	357,886	34.33	142
Kumasi South government hospital	448,097	42.97	177
Total	1,042,602	100	413

Both purposive and convenience sampling techniques were used to select participants who met the inclusion criteria for the study. Though probability sampling is more robust for this study, convenience sampling was rather used when recruiting the clients who utilized the services of the herbal unit at the selected government hospitals. This technique (convenience sampling) was used based on the reason that few clients access the services of herbal unit each day. Therefore, clients who were available at the herbal unit at the time of the research were engaged in the study; thus convenient accessibility. The inclusion of only Medical Herbalist in the study amidst the other health care professionals at the various hospital was a purposive sampling strategy. Medical Herbalists were considered the best respondents on the basis of their knowledge and experience on the subject matter, herbal medicines, and consequently could provide the appropriate data for the study. Hence, Medical Herbalists were deliberately included in the study. Moreover, the two sampling techniques were adopted because of the relative advantage of time and money inherent in these method of sampling (Kothari, 2004).

3.5 Data collection strategy

There are various data collection techniques which can be used to obtain data. These include using available information, observing, interviewing (face-to-face), administering written questionnaires, focus group discussions, projective technique etc. (Varkevisser *et al.*, 2003).

Moreover, interview guide, facilitation guide, questionnaires, and focus group discussions (FGD) guide are some instruments used for data collection (Adjei, 2013).

For the purpose of this study, the main source of primary data from the field were obtained by administering a semi-structured questionnaire to the respondents. Results from this source formed the basis of data analysis. Literature sources including books, handouts, newspapers, journals, magazines, the internet etc. were reviewed and the information obtained used to discuss the results generated from primary data analysis.

The questionnaire were pre-tested at a hospital which has similar characteristics with the study population and the necessary corrections made before the actual administration.

3.6 Data analysis

After the data collection, the questionnaires were reviewed, responses were coded and analyzed using STATA. The analysis employed cross tabulations, chi-square, correlation and logistic regression. Chi-square analysis was conducted to ascertain the association between preference of Herbal medicine to Orthodox medicine and selected variables. Multivariate logistic regression was used to establish factors which influences preference of herbal medicine to orthodox medicine. Tests of analysis were explored at a significance level of 0.05. Moreover, respondents' rating of overall cost of certified herbal drugs dispensed at the herbal unit within government hospitals and adverse effect of the cost of herbal drugs on utilization of the herbal unit was analyzed using correlation.The results obtained from the information were explicitly discussed with appropriate references to literature where necessary.

3.7 Inclusion criteria

a. The study was opened for clients who accessed the service of the herbal unit within the selected government hospitals for the study.

b. The client had to be 18 years and above.

c. The Medical Herbalist(s) in charge of the herbal units within the government hospital were also included in the study.

d. The participants were recruited based on their willingness to provide an informed consent.

3.8 Exclusion criteria

a. The study excluded people present at the herbal unit who were neither clients nor Medical Herbalists.

b. The study also excluded clients present at the herbal unit who were below 18 years of age.

3.9 Ethical issues

Ethical clearance was obtained from appropriate bodies including;

i. The School of Public at Health Kwame Nkrumah University of Science and Technology (KNUST) ii. The Committee on Human Research and Publication Ethics (CHPRE) at KNUST iii. The administration of Tafo Government Hospital iv. The administration of South Suntreso Government Hospital v. The administration of Kumasi South Government Hospitals

Informed consent and permission to participate in the study were also sought from each participant. Participants were at liberty to withdraw from the study anytime they deemed necessary. Moreover, participants were at liberty to choose not to answer particular questions they were uncomfortable with. Strict confidentiality of the identity of respondents was maintained using unique numeric codes which were available only to the principal investigator. Completed data collection tools were retained until the final work was submitted and approved.

3.10 Study variables

The study examines the extent to which some of the independent-variables such as knowledge and cost of herbal medicines could affect the dependent variable (accessing herbal unit at government hospitals for health care delivery).

3.11 Assumptions of the study

The assumptions below were made for the study

a. The sample size adequately represented the population under study.
b. Some participants did not decline in answering the questionnaire
c. Respondents were truthful, honest and frank with the responses they gave to the questionnaire.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter entirely presents findings from the survey conducted. These findings are presented under five sections. The various sections encompass socio-demographic characteristics of respondents, level of knowledge of respondents on herbal medicine practice in Ghana, factors which influence patients to prefer herbal medicine to orthodox medicine, implication of the cost of certified herbal drugs on the utilization of herbal unit at government hospitals and assessment by Medical herbalist(s) at the various herbal units.

4.1 Socio-demographic characteristics

A total of four hundred and thirteen (413) respondents were engaged in the study. The four hundred and thirteen respondents were from the three selected government hospitals; Tafo government hospital, Suntreso government hospital and Kumasi South government hospital.

Majority (43.0%) of these respondents came from Kumasi South government hospital and the minority (22.7%) also were from Tafo government hospital. Out of the total respondents, five (5) were Medical Herbalists who work at the herbal units within the selected government hospitals. All the Medical herbalists were males with two (2) each coming from Tafo government hospital and Kumasi South hospital and one (1) from Suntreso hospital. The remaining four hundred and eight (408) respondents encompassed clients who visited the herbal units. The distribution of respondents from the each of the selected hospital is illustrated in Fig. 4.1 below.

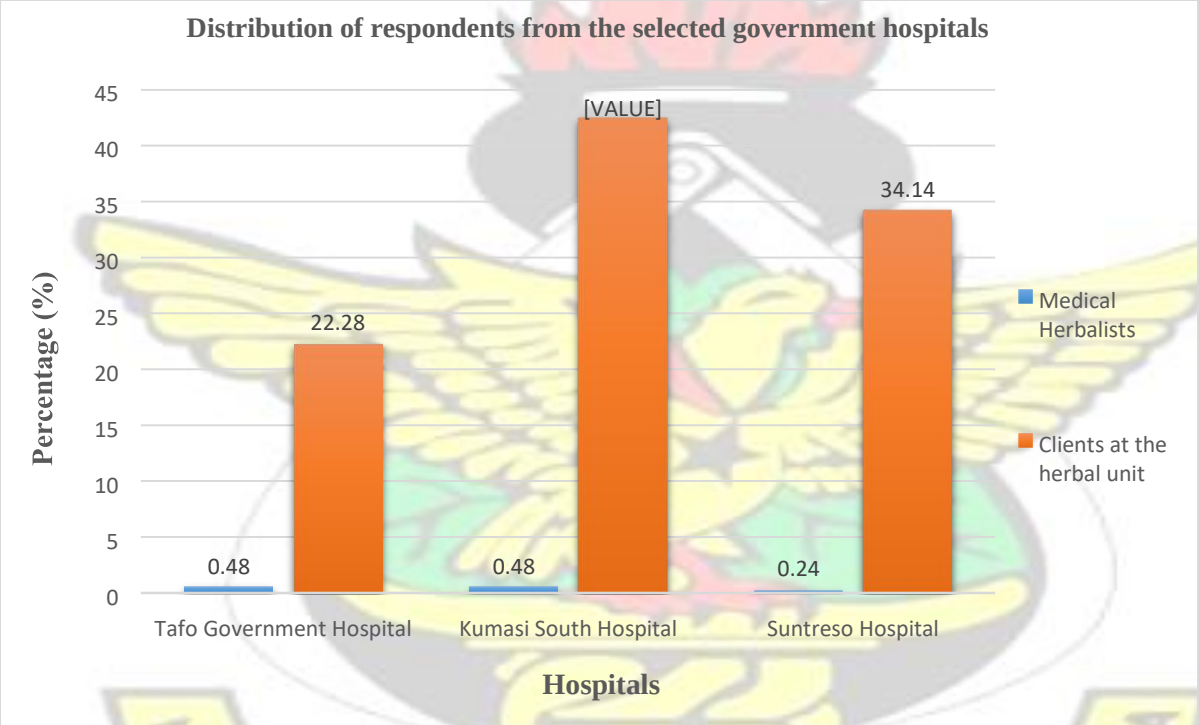

Figure 4.1: The distribution of respondents from the selected government hospitals.

Source: Field survey, 2019.

The four hundred and thirteen (413) respondents enrolled into the study comprised of 190 (46.0%) males and 223 (54.0%) females. Pertaining to age distribution, the minimum and maximum age recorded from the study were 18 years and 82 years respectively. Moreover, out of the total respondents 210 (50.9%) were within the ages of 18 years to 35 years, 147 (35.6%)

were between the ages of 35 years and 60 years whereas the minority, 56 (13.6%) were 60 years and above. The median age (25^{th}, 75^{th} percentile) of the respondents was 35 years (27 years, 49 years) with a mean age of 38.73. Also the standard deviation for the age of respondents involved in the study was 15.23.

Majority of the respondents, 152 (36.8%) had secondary education as their highest educational background. This was closely proceeded by tertiary education and then basic education counting up to 131 (31.7%) and 90 (21.8%) of the respondents respectively.

Nonetheless, 40 (9.7%) of the respondents who were interviewed had no formal education. In terms of religion, Christians constituted 349 (84.5%) of the total respondents. The remaining respondents also comprised of 55 (13.3%) and 8 (1.9%) Muslims and Traditionalists respectively with one respondent, (0.24%) belonging to no religion. According to the study majority of the respondents, 231 (55.9%) were found to be married.

The major occupation of the respondents who were engaged in the study was trading although quite a number of them were also into public services. Just a small number of the respondents were found to be unemployed. A detailed description of the socio-demographic characteristics of the respondents is presented in Table 4.1 below.

Table 4.1: Socio-Demographic Characteristics of Respondents

Variable	Frequency (N = 413)	Percentage (%)
Age		
18 – 35 years	210	50.85
36 – 59 years	147	35.59
≥ 60 years	56	13.56
Median = 35 years		
Range = 18 – 82 years		
Mean ± S.D = 38.73±15.23		
Sex		
Male	190	46.0
Female	223	54.0
Educational Level		
No formal education	40	9.69
Basic education (Primary and JHS)	90	21.79
Secondary education (Middle school/SHS)	152	36.80
Tertiary	131	31.72
Religion		
Christianity	349	84.50
Islam	55	13.32
Traditional	8	1.94
None	1	0.24
Marital Status		
Single	146	35.35
Married	231	55.93
Divorced	18	4.36
Widowed	18	4.36
Occupation (*n* = 402)		
Farmer	37	9.20
Trader	123	30.60
Public servant	110	27.36
Other business	97	24.13
Unemployed	35	8.71

4.2 Level of knowledge of respondents on Herbal Medicine practice in Ghana.

With the exception of the Medical herbalists, all the other respondents (clients who utilize the services of the herbal units) interviewed admitted to have heard of traditional medicine and that herbal medicine is a form of traditional medicine. Most (83.1%) of these respondents were fully aware and knew that the existence and service of the herbal unit at the hospital is as a result of the integration of herbal medicine into the health care system of the country. Moreover, majority (87.0%) of the respondents were aware that the Medical Herbalist at the herbal unit has been formally trained.

With regards to the source of knowing about the herbal medicine unit at the various government hospitals, half (50.0%) of those who responded to the question revealed that it was through a friend. The other sources included relatives, the media as well as health professionals, and the percentage of respondents made aware through these sources were 20.8%, 15.1% and 14.1% respectively. When asked about the adverse effects of herbal medicines, 79.0% of the 405 respondents who answered indicated that there is no adverse effect, 15.6% of them responded that there are adverse effects like vomiting, dizziness, temporal weakness, skin rashes etc. with only 5.4% indicating that there is the experience of inexplicable adverse effects. Table 4.2 gives a detailed description of the variables measured under the level of knowledge of respondents on herbal medicine practice in Ghana.

Table 4.2: Level of knowledge of respondents on herbal medicine practice in Ghana.

Variable	Frequency (N = 413)	Percentage (%)
Ever heard of TM (*n* = 408)		
Yes	408	100.0
Herbal medicine is a form of TM (*n* = 408)		
Yes	408	100.0

Herbal medicine is integrated into the mainstream health care system of the country (*n* = 408)		
Yes	339	83.09
No	69	16.91
Medical Herbalist(s) is/are formally trained (*n* = 408)		
Yes	355	87.01
No	53	12.99
How did you know about the herbal medicine unit at this hospital? (*n* = 404)		
Through a friend	202	50.00
Through a relative	84	20.79
Through the media	61	15.10
Through a health personnel	57	14.11
What do you know about the adverse effects of herbal medicines? (*n* = 405)		
There is no adverse effect	320	79.01
There is adverse effect like vomiting, dizziness, temporal weakness, skin rashes etc.	63	15.56
There is the experience of inexplicable adverse effects	22	5.43

A chi-square analysis was conducted to ascertain the association between respondent's level of education and some selected variables under level of knowledge of respondents on herbal medicine practice in Ghana at a significance level of 0.05. The selected variables included herbal medicine has been integrated into the health care system of the country, Medical herbalist(s) is/are formally trained as well as knowledge regarding the adverse effects of herbal medicines. From the analysis, a p-value of 0.001 was obtained for all the variables which were compared. The result therefore indicates that a statistically significant association exits between respondent's level of education and the selected variables because the obtained p-value is less than the significance level used for this research. Table 4.3 details the chisquare analysis of the compared variables.

Table 4.3: Association between respondents' educational level and selected variables under level of knowledge of respondents on herbal medicine practice.

	Educational level		

Variables	No formal education n(%)	Basic education n(%)	Secondary education n(%)	Tertiary education n(%)	x^2	P - value
Herbal medicine is integrated into the mainstream health care system of the country.						
Yes	27(6.6)	72(17.7)	117(28.7)	123(30.2)	30.5054	**0.001***
No	13(3.2)	18(4.4)	35(8.6)	3(0.7)		
Medical Herbalist(s) is/are formally trained.						
Yes	34(8.3)	72(17.7)	126(30.9)	123(30.2)	18.8803	**0.001***
No	6(1.5)	18(4.4)	26(6.4)	3(0.7)		
Knowledge about the adverse effects of herbal medicines.						
There is no adverse effect	35(8.6)	83(20.5)	128(31.6)	74(18.3)		
There is adverse effect like vomiting, dizziness, temporal weakness, skin rashes etc.	2(0.5)	5(1.2)	19(4.7)	37(9.1)	49.5194	**0.001***
There is the experience of inexplicable adverse effects	0	2(0.5)	5(1.2)	15(3.7)		

*Chi-Square statistic is significant at the 0.05 level

4.3 Factors which influence patients to prefer herbal medicine to orthodox medicine.

4.3.1. Respondents' use and preference of herbal medicine

From Table 4.4 below, the clients at the various herbal units who were engaged in the study all admitted to have ever used orthodox medicine (engaged the service of a Medical doctor) before. By assessing the frequency of use of the herbal units, it was established that minority of the respondents were first time users whereas majority of the respondents were second time users. It was also established that respondents who had come to the various herbal units for the third time were the second highest users followed by respondents utilizing the service of the herbal unit for more than three occasions.

In ascertaining nature of conditions for which clients seek the service the herbal unit, options including for all ailments, for chronic conditions, for conditions which orthodox treatment fails and for non-life threatening conditions were considered. On the whole, 44.6% of the respondents mostly utilized the services rendered at the herbal unit for conditions which orthodox treatment fails. Interestingly, 80.9% of the respondents (clients at the herbal units) interviewed preferred herbal medicine to orthodox medicine. Reasons which informed respondents' preference were hinged on attitude of herbal practitioners (58.2%), easily accessibility and availability of herbal medicine services (27.3%), safety of herbal medicines (35.5%) as well as efficacy of herbal treatment (77.0%).

Table 4.4: Respondents' use and preference of herbal medicine

Variable	Frequency (n = 408)	Percentage (%)
Ever used orthodox medicine (*n* = 408)		
Yes	408	100.00

Frequency of use of the herbal unit within the hospital		
First time/once	61	14.95
Twice	205	50.25
Thrice	78	19.12
More than thrice	64	15.69
For which condition do you seek the service of a Medical herbalist?		
For all ailments	126	30.9
For chronic conditions	75	18.4
For conditions which orthodox treatment fails	182	44.6
For non-life threatening health conditions	25	6.1
Do you prefer HM to OM?		
Yes	330	80.88
No	78	19.12
Reasons for preference of HM to OM? *		
Attitude of herbal practitioners	192	58.18
Easy accessibility and availability	90	27.27
The safety of herbal medicines	117	35.45
The efficacy of herbal medicines	254	76.97

***** Multiple response

4.3.2 Factors associated with preference of HM to OM

The association between some selected variables and preference of herbal medicine to orthodox medicine was explored using chi-square analysis at a significance level of 0.05. The selected variables included socio-demographic characteristics, conditions for which respondents seek the services rendered at the herbal unit, and cost of certified herbal drugs dispensed at the herbal unit. The null hypothesis (H_O) for the analysis states that no significant association exists between the selected variables and preference of herbal medicine to orthodox medicine. On the contrary, the alternate hypothesis (H_A) states that a significant association exists between the selected variables and preference of herbal medicine to orthodox medicine.

With regards to socio-demographic characteristics, it was unveiled that there is a statistically significant association between respondents' occupation and their preference of herbal medicine to orthodox medicine. The association is statistically significant because the chisquare analysis yielded a p-value (0.001) which is less than the significance level (0.05). Therefore, the null hypothesis (H_O) for the chi-square analysis which states that there is no significant association between respondents' occupation and their preference of herbal medicine to orthodox medicine is rejected in favor of the alternate hypothesis (H_A); there is significant association between respondents' occupation and their preference of herbal medicine to orthodox medicine.

However, respondents' socio-demographic characteristics such as age, sex, educational level, religion and marital status for the chi-square analysis respectively had a p-value of 0.652, 0.873, 0.905, 0.251 and 0.221 which is greater than the level of significance (0.05). Therefore, we fail to reject the null hypothesis (H_O) for these variables and conclude that statistically nonsignificant association exists between respondents' age, sex, educational level, religion or marital status and their preference of herbal medicine to orthodox medicine.

Furthermore, conditions for which respondents seek the services rendered at the herbal unit and the cost of certified herbal drugs dispensed at the herbal unit both yielded a p-value of 0.001 in the chi-square test. There is therefore a statistically significant association between the two variables and preference of HM to OM. Table 4.5 details finding of factors associated with preference of HM to OM.

Table 4.5: Factors associated with preference of HM to OM

Variables	**Preference for herbal medicine to orthodox medicine**	x^2	**P - value**

	Yes n(%)	No n(%)		
Age				
18-35	169 (41.4)	40(9.8)		
36-59	118(28.9)	25(6.1)	0.8551	0.652
≥ 60	43(10.5)	13(3.2)		
Sex				
Male	149(36.5)	36(8.8)	0.0256	0.873
Female	181(44.4)	42(10.3)		
Educational level				
No formal education	31(7.6)	9(2.2)		
Basic education	73(17.9)	17(4.2)	0.5605	0.905
Secondary education	122(29.9)	30(7.4)		
Tertiary education	104(25.5)	22(5.4)		
Religion				
Christianity	273(66.9)	71(17.4)		
Islam	48(11.8)	7(1.7)	4.0951	0.251
Traditional	8(2.0)	0		
None	1(0.3)	0		
Marital status				
Single	113(27.7)	32(7.8)		
Married	190(46.6)	37(9.1)	4.4050	0.221
Divorced	12(2.9)	6(1.5)		
Widowed	15(3.7)	3(0.7)		
Occupation				
Farmer	31(7.8)	6(1.5)		
Trader	99(24.9)	24(6.1)		
Public servant	94(23.7)	11(2.8)	34.4155	**0.001***
Other business	82(20.7)	15(3.9)		
Unemployed	16(4.0)	19(4.8)		

Conditions for which respondents seek the services rendered at herbal unit				
All ailments	80(19.6)	46(11.3)		
Chronic conditions	67(16.4)	8(2.0)	54.9951	**0.001***
Conditions which orthodox treatment fails	169(41.4)	13(3.2)		
Non-life threatening health conditions	14(3.4)	11(2.7)		
Cost of certified herbal drugs dispensed at the herbal unit				
Very expensive	147(36.0)	64(15.7)		
Moderate	130(31.9)	12(2.9)	36.1343	**0.001***
Not expensive	53(13.0)	2(0.5)		

*Chi-Square statistic is significant at the 0.05 level

4.3.3 Multivariable logistic regression of factors influencing preference of HM to OM.

Different factors were ascertained to influence preference of HM to OM. In terms of occupation, public servants had a highest odds of preference for HM to OM (OR: 6.59; CI: 2.37-18.36; p-value: 0.005). Also, with regards to the nature of conditions it was discovered that respondents who seek the services rendered at the herbal unit for conditions which orthodox treatment fails had increased odds of preference for HM to OM (OR: 6.78; CI: 2.4019.17; p-value: 0.001). Interestingly, it was also revealed that respondents who considered the overall cost of certified herbal prescribed at the herbal unit as not expensive had increased odds of preference for HM to OM (OR: 8.94; CI: 2.01-39.87; p-value: 0.004). Table 4.6 describes the multivariate logistic regression analysis of factors which influence respondents preference of HM to OM.

Table 4.6: Multivariable logistic regression of factors influencing preference of HM to OM.

Covariates	**Preference for herbal medicine to orthodox medicine**	**OR [95% CI]**	**P - value**

	Yes no(%)	No no(%)			
Occupation					
Unemployed	16(4.0)	19(4.8)	1.00		
Trader	99(24.9)	24(6.1)	3.81	[1.51 - 9.64]	0.012
Farmer	94(23.7)	11(2.8)	4.86	[1.42 - 16.67]	0.001
Public servant	82(20.7)	15(3.9)	6.59	[2.37 - 18.36]	0.005
Other business	31(7.8)	6(1.5)	5.1	[1.93 - 13.73]	0.001
Conditions for which respondents seek the services rendered at herbal unit					
Non-life threatening health conditions	14(3.4)	11(2.7)	1.00		
Conditions which orthodox treatment fails	169(41.4)	13(3.2)	6.78	[2.40 - 19.17]	0.001
Chronic conditions	67(16.4)	8(2.0)	3.57	[1.13 - 11.22]	0.030
All ailments	80(19.6)	46(11.3)	1.21	[0.46 - 3.18]	0.693
Cost of certified herbal drugs dispensed at the herbal unit					
Very expensive	147(36.0)	64(15.7)	1.00		
Moderate Not expensive	130(31.9)	12(2.9)	3.92	[1.91 - 8.08]	0.001
	53(13.0)	2(0.5)	8.94	[2.01 - 39.87]	0.004

Outcome variable: Preference of HM to OM

4.4 Implication of the cost of certified herbal drugs on the utilization of herbal unit at government hospitals

A little above half (51.5%) of the respondents disclosed their take on the cost of certified herbal drugs dispensed at the herbal unit per treatment as very expensive. About 34.8% were also of the notion that the cost of certified herbal drugs per treatment was moderate with very few

(13.7%) of the respondents describing the cost as not expensive. As many as 72.1% of the respondents believed that the cost of certified herbal drugs dispensed at the herbal unit adversely affect the utilization of the herbal unit whereas 27.9% of the respondents believed otherwise. Out of the 72.1% respondents 67.0%, 60.5% and 78.2% believed that the cost of certified herbal drugs deters current clients from later seeking the service of the herbal unit, makes clients less interested in the service of the herbal unit and prevents people from choosing the service of the herbal unit respectively.

Amazingly, virtually all four hundred and eight respondents engaged in the study recommended for the inclusion of certified herbal drugs in the National Health Insurance Drug List (NHIDL). Reasons underpinning respondents' recommendation included herbal drugs are very efficacious, herbal drugs are very safe to use, not everyone can afford the price of the herbal drugs, in order to reduce the burden associated with the cost of certified herbal drugs, in order to make the service of HM accessible to all manner of patients and to make people more interested thereby leading to an increase in patronage of the service of the herbal unit. Unfortunately, the remaining 0.49% of the respondents who failed to recommend for the inclusion of certified herbal drugs into the NHIDL refused to provide reason for their choice. The table below, Table 4.7 gives a detailed description of respondents believe about the implication of the cost of certified herbal drugs on the utilization of the herbal units at the various government hospital.

Table 4.7: Implication of the cost of certified herbal drugs on the utilization of the herbal unit at government hospitals.

Variable	Frequency (N = 413)	Percentage (%)

How would you rate the overall cost of certified herbal drugs dispensed to you? (*n* = 408)		
Very expensive	210	51.47
Moderate	142	34.80
Not expensive	56	13.73
Does the cost of herbal drugs dispensed at government hospitals adversely affect the utilization of the herbal unit? (*n* = 408)		
Yes	294	72.06
No	114	27.94
In what way(s) do(es) the cost of certified herbal drugs affect the utilization of herbal unit at the government hospital? *		
Deter current users from later seeking the service of the unit	197	67.01
Make clients less interested in the service of the herbal unit	178	60.54
Prevent people from choosing the service of the herbal unit	230	78.23
Would you recommend that certified drugs be included in the NHIDL? (*n* = 408)		
Yes	406	99.51
No	2	0.49

*Multiple response

The correlation between respondents' rating of overall cost of certified herbal drugs dispensed at the herbal unit within government hospitals and adverse effect of the cost of herbal drugs on utilization of the herbal unit was analyzed. A positive correlation coefficient (r = 0.5498), which is significantly different from zero was obtained from the analysis. This therefore indicates that, the overall cost of certified herbal drugs dispensed at the herbal unit within the various government hospitals adversely affect the utilization of herbal units. The correlation result is shown in Table 4.8.

Table 4.8: Correlation between the overall cost of certified herbal drugs and its adverse effect on the utilization of the herbal units.

Variable	Overall cost of certified herbal drugs dispensed at the herbal unit	The cost of certified herbal drugs dispensed at government hospitals adversely affect the utilization of the herbal unit
Overall cost of certified herbal drugs dispensed at the herbal unit	1.0000	
The cost of certified herbal drugs dispensed at government hospitals adversely affect the utilization of the herbal unit	0.0.5498 0.0000	1.0000

4.5 Assessment by Medical Herbalists

As indicated earlier, the four hundred and thirteen respondents engaged in the study comprised of five Medical herbalists. These Medical herbalists have all been in the professional practice for a period 5 to 10 years. Moreover, they admitted that clients have to pay for every certified drug dispensed to them at the herbal unit. Relating to the average amount that a client after consultation has to spend on certified herbal drugs for treatment, 3 (60.0%) of the Medical herbalists indicated Gh¢50.00 whereas the other 2 (40.0%) Medical herbalists indicated above Gh¢50.00.

Concerning the issue that the cost of certified herbal drugs adversely affects the utilization of the herbal unit by clients 2 (40.0%) Medical herbalists strongly disagreed, 1 (20.0%) agreed and 2 (40.0%) strongly agreed to it. Furthermore, 1 (20.0%) Medical herbalist, 3 (60.0%) Medical herbalists and 1 (20.0%) Medical herbalist respectively disagreed, agreed and strongly

agreed that the cost of certified herbal drugs deters current users from later seeking the service of the herbal unit. A varied view was expressed by the Medical herbalists pertaining the issue that the cost of certified herbal drugs makes clients less interested in the service of the herbal unit. This is because the result was uniformly distributed across the options strongly disagree, disagree, neutral, agreed and strongly agreed. In addition, one Medical herbalist strongly disagreed, one Medical herbalist was neutral and three Medical herbalists agreed that the cost of certified herbal drugs prevent people from choosing the service of the herbal unit.

All the Medical herbalists interviewed positively disclosed that they would advocate for the inclusion of certified herbal drugs in the NHIDL. Several reasons were cited by the Medical herbalists for their positive response. A Medical herbalist disclosed that the herbal clinic is run on the basis of primary health care and hence inclusion of certified herbal drugs in NHIDL will make the service of the herbal clinic accessible to all. Another Medical herbalist argued that because some medical conditions like kidney stones, hepatitis B infection etc. are best managed with herbal medication than orthodox drugs. Another cited that it will help many people to patronize the services of a Medical herbalist as payment for the medications has been a problem for many people. A Medical herbalist also indicated that some of the clients who have to come for review do not come because of the cost of medication and hence if the drugs are included in the NHIDL, such a challenge would be eliminated. It was also elucidated by another Medical herbalist that more than 90% of the clients are NHIS card bearing members and since they acquire medicines free at the orthodox side of the hospital, they do not agree to why they should be made to pay for every drug at the herbal side.

Factors which also impede the progress of the herbal unit at the various government hospitals were found to include inadequate publicity on the existence of the herbal unit in the various hospital of the integration, inadequate sensitization of the integration policy to the public,

negative perception about herbal medicines, and shortage of the certified herbal drugs at the various herbal units due to delay in releasing funds for restocking of the drugs.

CHAPTER FIVE

DISCUSSION

5.0 Introduction

At the Alma Ata declaration of 1978 when it was ascertained that majority of developing countries of the world were incapable of delivering maximum health care to their citizens using orthodox health facilities, the objective of integrating traditional medicine into the mainstream health system was reinforced by WHO (Elujoba *et al.*, 2005). In Ghana the integration of herbal medicine into the mainstream health care system has been in existence since the year 2011. Currently, there are seventeen (17) government health facilities across the country engaged in the integration (Boateng *et al.,* 2016). These government health facilities have herbal unit, being manned by well-trained Medical Herbalists, where the service of Herbal Medicine is rendered (Addy, 2004; Adusi-Poku *et al.,* 2010). Since the inception of herbal medicine integration till now, none of the certified herbal drugs is covered by the NHIS. Hence, clients pay for the drugs dispensed to them at the herbal unit within government hospitals. This study therefore assessed the effect of certified Herbal Medicines non-inclusion in the NHIS on health care delivery within the Kumasi Metropolis. The findings from specific objectives of the study have been discussed in relation to literature under this chapter.

5.1 Level of knowledge of respondents on integrated HM process in Ghana.

WHO describes TM as 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 illnesses (WHO, 2000a). TM encompasses several therapies and practices of which Herbal medicine is inclusive (WHO, 2001; Chan, 2003; Maclennan *et al.*, 2006; Wootton, 2006; Mind, 2013). Findings from the study revealed that all the respondents have heard of TM, which is similar to a study conducted in Jos North Local

Government Area (L.G.A) in Plateau state, Nigeria (Ohemu *et al.*, 2017). This finding spells out that the practice of TM is not uncommon within the Kumasi Metropolis. It can also be explicated that TM is highly utilized by residences of the study area, and therefore affirms the claim that about 70% - 80 % of the world population, especially people in developing countries depend on TM for their primary health care (PHC) needs (WHO, 2002; Kassaye *et al.*, 2006; Verma and Singh, 2008; Yadav *et al.*, 2011).

Respondents interviewed were all cognizant that herbal medicine is a form of TM. Though interviewed at the herbal unit within the various government hospitals, respondents knew that any herbal medicine service is rooted in TM. The finding cements results from other studies which assessed the most conversant form of TM. For instance, Bamidele *et al.* (2009) in found that 94.2% of respondents were aware of concoction (herbal preparations) as a form of alternative therapy (TM) with 85% cognizant that the work of a herbalist is regarded as alternative therapy (TM). Another study by Ohemu *et al.* (2017) also reported that 64.2% of the respondents knew herbal medicine as a form of TM.

Being cognizant about the integration process has a link with the educational status of a person. Majority of the respondents (clients utilizing the herbal unit) could relate the service rendered at the herbal unit to the integration process. Moreover, majority of the respondents were aware that the Medical Herbalist at the herbal unit has been formally trained. The turnout though encouraging, some people are still benightedly ignorant about the integration process. This informs that there is still an unfilled gap with regards to sensitizing people about the integration process. Agyei-Baffour *et al*. (2017), reported that not all people who use herbal medicine from local or traditional practitioners do utilize the integrated herbal medicine services when they visit government health facilities having such services available. Probably because they are not previewed to the availability of herbal medicine services within those government health facilities. A study conducted within the same study area divulged that at Kumasi South hospital,

patients at the biomedical unit were not aware of the herbal unit operating within the hospital and even some patients at the herbal clinic viewed it as part of the hospital formal services (Boateng *et al.*, 2016).

Mass media is the leading source of promoting herbal medicine in Bangladesh (Harun-OrRashid *et al.,* 2011). However, friends and relatives serves as the major play-makers championing the publicity of integrated herbal medicine process within Kumasi Metropoli. Usually, people tend to share the experiences they have garnered overtime with others. When it comes to health matters too, the picture is not different. People propose to their neighbors, friends or relatives to seek health care from places known or have heard to provide better services. Likewise, anyone who has ever utilized the service of the herbal unit at government facility and felt better would hastily recommend the unit to a friend or relative who encounters a health problem. A study by Harun-O-Rashid *et al.* (2011), attests to the latter statement. Additionally, Ohemu *et al.* revealed that most respondents admitted to encourage others to use TM and this is related to the personal benefits they obtain from ever utilizing the service (Ohemu *et al,* 2017). In bid of facilitating and increasing knowledge about the integration process, the various media platforms including radio and televisions, should be extensively employed. The reason being that information through these platforms are able to reach large number of people at a time.

With regards to the adverse effects, majority of the respondents held the view that herbal medicines had none. The findings corroborate with that of other studies (Harun-Or-Rashid e*t al.,* 2011; Adjei, 2013; Ohemu *et al.,* 2017). As stipulated by George (2011), many people assume that since herbal medicines are from natural source, they are devoid of side effects. Notwithstanding evidence suggesting that herbal remedies have adverse effects, several people still perceive herbal medicines safe and devoid of adverse effects. Findings from the study revealed a statistically significant relationship between a person's level of education and

knowledge about the adverse effect of herbal drugs. It can therefore be construed that many users of herbal medicines who deem that herbal medicine is not associated with adverse effect do not comprehend what constitute adverse effect of a drug in the first place. Additionally, herbal medicines users are perhaps usually preoccupied with the outcome they anticipate to obtain and hence become oblivious to the adverse reactions that develop in the course of using the drugs.

5.2 Factors which influence patients to prefer herbal medicine to orthodox medicine. According to Boateng *et al.* (2016), the biomedical health care system (OM) in Ghana is seen as structurally superior whiles herbal medicine can be viewed as functionally strong. It is therefore comprehensive to get all respondents admitting to have ever used the biomedical health care system (OM). Together, the two health care systems serve the health needs of virtually all Ghanaians (Boateng *et al.*, 2016). Following the integration process, 42.2% of patients at government hospitals utilize the services of herbal medicine unit available in those hospitals (Agyei-Baffour *et al.*, 2017). Results from this study revealed that majority of patients who seek health care from the herbal unit available at government hospitals do so for conditions which orthodox treatment fails. This supports the findings of a published work which argued that OM cannot cure certain kinds of diseases or health conditions (Ohemu *et al.*, 2017). It also gives strength to the argument that for easily diagnosed ailments which have well-established cures, such as malaria, patients prefer to go to OM practitioners

(OMPs), but for chronic health problems they seek the services of TMPs such Medical Herbalists (Tabuti, 2004).

The study also found that most clients (patients) who utilize the services of herbal unit at government hospitals showed preference for HM to OM. Harun-Or-Rashid *et al.* (2011), also reported on a high preference for HM. Such a high preference reflects patients' satisfaction with the services provided by the herbal unit at government hospitals. A study by AgyeiBaffour

et al. (2017), found a high level of satisfaction with services provided to herbal medicines users at the health facilities. Patients were probed further to ascertain reasons underpinning their preference for HM to OM. Interestingly, efficacy of herbal treatment was found to be major reason. With regards to the efficacy, herbal medicines have already been tagged with significant success in healing acute as well as chronic diseases (Shaikh and Hatcher, 2005). They are therefore employed for the treatment and management of acute ailments such as cuts and foot rots and also for chronic ailments such as diabetes, stroke, fevers, and cancer (Boadu and Asase, 2017). Additionally, herbal medicines have been reported be effective for diseases related to old age such as immune and liver disorders, memory loss, diabetic wounds, osteoporosis, etc. for which no modern medicine or only palliative therapy is available (Kamboj, 2000),.

Other reasons dictating respondents' preference for HM were also found to include attitude of herbal practitioners, safety of herbal medicines as well as easily accessibility and availability of herbal medicine services. The stated reasons have surfaced in several earlier studies as accounting for the patronage and utilization of HM and its services in general (Bamidele *et al.*, 2009; Darko, 2009; Aziato and Antwi, 2016; Agyei-Baffour *et al.*, 2017).

Moreover, the study established that occupation, nature of condition as well as cost of certified herbal drugs dispensed at the herbal unit are significant determinants of a person's preference for H M to OM. Hence, it can be construed that occupational status of a person, nature/severity of health condition (ailment) and the cost involved in obtaining certified herbal drugs serve as indispensable factors influencing patronage and utilization of HM at the various government hospitals. The occupational and cost factor could be linked to the ability to pay for the cost of certified herbal drugs which currently none is on the NHIDL. The nature/severity as a factor could also be related to the effectiveness of herbal drugs in the management and treatment of certain kinds of diseases.

5.3 Implication of the cost of certified herbal drugs on the utilization of herbal unit at government hospitals.

Clients who seek health care service from the various herbal unit at government facilities pay for every certified drug dispensed to them after consultation. At the herbal unit, the least amount that a client after consultation gets to spend on certified herbal drugs for treatment is Gh¢50.00. Majority of the patients patronizing the services of the herbal unit at government hospitals consider the cost of certified herbal drugs dispensed to them as very expensive, though studies have shown that users of herbal medicines consider the cost of treatment to be affordable (Bamidele *et al.*, 2009; Agyei-Baffour *et al.*, 2017). Such contrast in perception about the cost could stem from the reason that herbal medicines sold by the local herbalists cost lesser with flexible payment methods than the certified ones sold at the government hospitals. The report of Agyei-Baffour *et al.* (2017), noted that local herbal practitioners are willing to accept delayed payment, payment in kind such as agricultural seeds, fowls, goats, salt, palm oil, or palm wine, or in some cases patients can negotiate the amount. However, this is not applicable with the herbal unit at the government hospitals as payment is always in cash and even made before the herbal drugs are dispensed to the client. It appears that established herbal clinics, both private and government have a higher cost of treatment. A study by Aziato and Antwi (2016), discovered that patients are drawn from a private herbal clinic due to the reason that herbal medicine was exorbitant.

Both Medical herbalists and clients (patients) asserted that the cost of certified herbal medicines dispensed at the herbal unit within government hospitals adversely affects the utilization of the services provided by the unit. Aziato and Antwi (2016), revealed that the exorbitant cost of herbal medicines at a private herbal clinic precludes patients from utilizing that particular clinic. Likewise, with regards to herbal unit within government hospitals, it was discovered that the cost of certified herbal drugs ultimately prevents people from choosing the service of the herbal

unit. Largely, patients will avoid the herbal unit within government hospitals on the ticket that they can get for free at the orthodox side of the same hospital treatment drugs which would have to be paid for at the herbal unit.

Additionally, the cost of certified herbal drugs was found to deter current clients from later seeking the service of the herbal unit whiles instigating others to become less interested in the service of the herbal unit. To buttress these arguments, a Medical herbalist recruited for the study disclosed that some of the clients who have to come for review fail to come because of the cost of medication. This is consistent with the findings of Aziato and Antwi (2016), that the high cost of herbal medicines deters people from using herbal clinics.

Inclusion of certified herbal medicines dispensed at government hospital into the NHIDL is something that both Medical herbalists and clients keenly anticipate for. From the perspective of Medical herbalists, the herbal unit is run on the basis of primary health care and hence inclusion of certified herbal drugs in NHIDL will make the service of the herbal unit accessible to all. On the other hand clients using the herbal units opined that not everyone can afford the price of the herbal drugs dispensed at the unit. Hence, such a move will make the service of HM unit accessible to all manner of patients and also stir up interest of people in the services of the unit thereby bringing about tremendous increase in patronage and utilization of the service rendered by the herbal unit in the country.

Besides the cost of certified herbal drugs, the Medical herbalists brought to light other barriers impeding the progress of the herbal unit at the various government hospitals. Among the barriers were factors such as inadequate publicity on the existence of the herbal unit in the various hospital of the integration, inadequate sensitization of the integration policy to the public, negative perception about herbal medicines, and shortage of the certified herbal drugs at the various herbal units due to delay in releasing funds for restocking of the drugs.

5.4 Strength and Limitations of the study

The significance of the study was to provide information which would contribute to knowledge and enhance understanding of the integrated herbal medicine process. The availability of such knowledge would serve as a guide for students and researchers who may be interested to conduct similar studies in related fields. Moreover, the findings would inform appropriate stakeholders to undertake a restructuring of the integration process or otherwise.

Interviewing participants from all three government hospitals with herbal units within the Kumasi Metropolis enhances the generalizability of the study findings and strengthens the evidence for policy proposal. Notwithstanding the meticulousness of the study, certain facets of the research process might perhaps place limitations on the generalizability of the results. These areas include:

a. Medium of the study tool. The questionnaire were drafted in English and unfortunately some respondents could not read. The questionnaire was therefore interpreted from English to local dialect for such participants and this could affect the content of the study.
b. Time for the interview. The interview was conducted after participants had been attended to by Medical Herbalist and were about to leave the herbal unit. This could have affected the response of the interview since some were in a hurry to leave the place.
c. Sampling technique: A convenience sampling was used to select clients for the study. This method was adopted instead of a probability sampling technique owing to the few number of clients who visit the herbal unit at the government hospitals and also the short time window for the research. This reduces the utility of the findings and have potential bias.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.0 Introduction

This chapter draws conclusions on the study in line with key elements of the specific objectives. Moreover, the chapter spells out recommendations on how best to enhance and facilitate the integrated herbal medicine process in the country. It also provides possible areas for future research.

6.1 Conclusion

The outcome of the study shows that respondents have ever heard of TM and also cognizant that HM is a form of TM. The study also reveals an unfilled gap with regards to sensitizing people about the integration process. This is because notwithstanding some people even utilizing the services of the herbal unit, they have no knowledge about the integrated HM process. Pertaining adverse effects, many respondents associate HM with none. People continues to hoard the ideology that HM are natural and hence safe. Moreover, the study divulges that people get to know about the herbal unit at government hospital primarily through friends and relatives. Education affects a person's knowledge about the integrated HM process.

According to this study, there is high preference for HM by respondents to that of OM. Respondents mostly resort to the services of the herbal unit for conditions which orthodox treatment fails. This shows the functionality of services of integrated herbal medicine process as in health care delivery in Ghana. Efficacy of herbal treatment, attitude of herbal practitioners, safety of herbal medicines as well as easily accessibility and availability of herbal medicine informs a person preference for HM. Additionally, the study has made it evidently clear that a person's occupation is an indispensable factor which influences the utilization and preference for HM at government facilities.

Lastly, the study brings to light that the cost of certified herbal medicines negatively affects the utilization of the services provided by the herbal unit at government hospitals. It is therefore imperative for certified herbal medicines, as recommended by both Medical Herbalists and users of the herbal unit, to be included in the NHIDL of the country.

6.2 Recommendation

The following are recommended based on the observations and findings of this study.

The foregoing analysis apparently discloses that patients are unable to access the integrated herbal medicine unit at government facilities due to the cost involved in securing certified herbal drugs to be used for treatment. Therefore, the Ministry of Health (MOH) in collaboration with the Government of Ghana (GOG) should incorporate certified herbal drugs into the NHIDL of the country. Such as move will enable the services of the various established herbal units to be accessible to every Ghanaian.

The MOH should channel efforts towards sensitizing the general public of the integrated herbal medicine process. At government hospital level, the Medical herbalists manning the various herbal units should also ensure that patients patronizing the services of the facility becomes cognizant about the integration process.

The integrated herbal medicine process is functionally robust in provision of health care. For this reason, the MOH and GOG should expand and extend the integration process to cover other government hospitals within the country.

Until the initiative to incorporate certified herbal medicines into the NHIDL is effected, other researchers should replicate the study in other regions to gain broader insight into the subject matter.

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APPENDICES

APPENDIX I

SEMI-STRUCTURED QUESTIONNAIRE

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF HEALTH EDUCATION AND PROMOTION

Dear Respondent,

Greetings. I am a researcher and a student of Kwame Nkrumah University of Science and Technology. I would like to crave for your consent to engage you in a research work that I am conducting. This study is aimed at assessing the effect of the cost of herbal medicines on integration of Herbal medicines into the main stream health care delivery in Ghana. Information gathered from this study is expected to influence policies concerning herbal medicine practice in Ghana. It will also be used for academic purposes.

Below are a few questions to help achieve the aim of the study. Responding to these questions will last for approximately 30 minutes. Please respond to them by ticking where boxes have been provided or writing out your response in full where spaces have been provided. Be assured that every information you provide will be treated as confidential and will not be disclose to any outsider. You are at liberty to skip any question that you may deem inappropriate. However, snice your opinions will be very necessary for this research work, I would be exceedingly grateful if you fully participate in this study.

Thank you.

PART A

(Socio-Demographic Characteristics)

Tick the appropriate box **[√]**

1. Age:…… years…….
2. Sex

   Male **[ ]** Female **[ ]** Others (specify)……

3. Highest Educational Level

   No formal Education **[ ]** Basic Education **[ ]**

   Secondary Education **[ ]** Tertiary Education **[ ]**

4. Religion

   Christianity **[ ]** Islam **[ ]** Traditional **[ ]** Other (specify)…….

5. Marital status

   Single **[ ]** Married **[ ]** Divorced **[ ]** Widowed **[ ]**

6. Occupation (please specify) …….

7. Place of Residence: …….

PART B

TO BE COMPLETED BY CLIENT USING THE HERBAL FACILITY

Level of knowledge of respondents on Herbal Medicine practice in Ghana

8. Have you ever heard of Traditional medicine?

   Yes **[ ]** No **[ ]**

9. Herbal medicine is a form of Traditional medicine?

   Yes **[ ]** No **[ ]**

10. Herbal medicine has been integrated into the health care system of the country?

Yes **[ ]** No **[ ]**

11. Are you aware that the Medical Herbalist(s) at this facility is/are formally trained?

    Yes **[ ]** No **[ ]**

12. How did you know about the herbal medicine unit at this hospital?

    Through a friend **[ ]** Through a relative **[ ]** Through a health personnel **[ ]**

    Through the media **[ ]** Others (specify)……

13. What do you know about the adverse effects of herbal medicine?

    There is no adverse effect **[ ]**

    Has adverse effect like vomiting, dizziness, temporal weakness, skin rashes etc **[ ]**

    There is the experience of inexplicable adverse effects **[ ]**

    Others (specify)……...

Factors which influence patients to prefer herbal medicine to Orthodox medicine

14. Have you ever used the service of orthodox medicine before?

    Yes **[ ]** No **[ ]**

15. How many times have you used the service of the herbal unit at this hospital?

    First time/Once **[ ]** Twice **[ ]** Thrice **[ ]** More than thrice **[ ]**

16. For which condition do you seek the services rendered at the herbal unit?

    For all ailments **[ ]**

    For chronic conditions **[ ]**

    For conditions which Orthodox treatment fails **[ ]**

    For non-life threatening health conditions **[ ]**

17. Do you prefer Herbal medicine to Orthodox medicine?

    Yes **[ ]** No **[ ]**

18. If you answered **"Yes"** to **Question 17,** what reason(s) predict(s) your preference?

    Attitude of herbal practitioners **[ ]** Easily accessibility and availability **[ ]**

    The safety of herbal medicines **[ ]** The efficacy of herbal medicines **[ ]**

    Others (specify)…….....

19. If you answered **"No"** to **Question 17,** why?

    ……

    ……

    ……

    ……

    ……

    ……

Implications of the cost of certified herbal drugs on the utilization of the herbal unit at government hospitals.

20. How would you rate the overall cost of the herbal certified herbal drugs prescribed to you? Very Expensive **[ ]** Moderate **[ ]** Not Expensive **[ ]**
21. Does the cost of certified herbal drugs prescribed at government hospitals adversely affect the utilization of herbal unit? Yes **[ ]** No **[ ]**
22. In what way(s) do(es) the cost of certified herbal drugs affect the utilization of herbal units at the government hospitals?

    Deter current users from later seeking the service of the unit **[ ]**

    Make clients less interested in the service of the herbal unit **[ ]**

    Prevents people from choosing the service of the herbal unit **[ ]**

    Others (specify)……

23. Would you recommend that certified herbal drugs be included in the NHIS?

Yes **[ ]** No **[ ]**

24. Give reason for your choice of answer to **Question 24**

……

……

……

……

……

……

PART C

TO BE COMPLETED BY MEDICAL HERBALIST(S) AT THE HERBAL UNIT

25. How long have you been in the professional practice?

    Less than 5 years **[ ]** 5 to 10 years **[ ]** More than 10 years **[ ]**

26. Do clients have to pay for every certified herbal drug prescribed for them at this hospital?

    Yes **[ ]** No **[ ]**

27. What is the average amount a client after consultation has to spend on a certified herbal drug at your facility? Below GH₵10 **[ ]** GH₵10 **[ ]** GH₵20 **[ ]** GH₵30 **[ ]** GH₵40 **[ ]** GH₵50 **[ ]** Above GH₵50 **[ ]**

28. The cost of certified herbal drugs adversely affects the utilization of this unit by clients.

    Strongly Disagree **[ ]** Disagree **[ ]** Neutral **[ ]** Agree **[ ]**

    Strongly Agree **[ ]**

29. The cost of certified herbal drugs deters current users from later seeking the service of the herbal unit.

Strongly Disagree **[ ]** Disagree **[ ]** Neutral **[ ]** Agree **[ ]** Strongly Agree **[ ]**

30. The cost of certified herbal drugs makes clients less interested in the service of the herbal unit

    Strongly Disagree **[ ]** Disagree **[ ]** Neutral **[ ]** Agree **[ ]** Strongly Agree **[ ]**

31. The cost of certified herbal drugs prevents some people from choosing the service of the herbal unit

    Strongly Disagree **[ ]** Disagree **[ ]** Neutral **[ ]** Agree **[ ]** Strongly Agree **[ ]**

32. Would you advocate for the inclusion of certified herbal drugs in the NHIDL?

    Yes **[ ]** No **[ ]**

33. Give reason for your choice of answer to **Question 32**

    ……

    ……

    ……

    ……

    ……

    ……

34. What other factor(s) impede(s) the progress of the herbal unit at this hospital?

    ……

    ……

    ……

    ……

    ……

    ……

APPENDIX II

CONSENT FORM

Researcher's Details

Name: Nketia Anthony

Position: Master of public Health student in the Department of Health Education and Promotion, School of Public Health, Kwame Nkrumah University of Science and Technology

Student Reference Number: 20607168

Contact Address: P.O.BOX SE 909, Suame-Kumasi, Ashanti Region

Email address: nketiaanthony@gmail.com

Phone: 0547363487

Respondent Confirmation Form

Please tick a box

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask question.

   Yes [ ] No[ ]

2. I understand my participation is voluntary and that I am free to withdraw at any time without giving reason.

   Yes [ ] No[ ]

3. I agree to take part in the above study

   Yes [ ] No[ ]

4. I agree to the interview being audio recorded

Yes [ ] No[ ]

5. I agree to the use of anonymity quotes in publication

   Yes [ ] No[ ]

6. I agree that my data gathered in this study may be shared in a specialist data centre and may be used for future research

   Yes [ ] No[ ]

Name of Researcher……. Date……

Signature……

Name of Researcher……. Date……

Signature…….

APPENDIX III

ETHICAL CLEARANCE

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF MEDICAL SCIENCES / KOMFO ANOKYE TEACHING HOSPITAL
COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Our Ref: CHRPE/AP/416/19 3rd July, 2019.

Mr. Nketia Anthony
Department of Health
Education and Promotion
School of Public Health
KNUST-KUMASI.

Dear Sir,

LETTER OF APPROVAL

Protocol Title: ***"The Effect of Certified Herbal Medicines Non-Inclusion in the NHIS on Health Care Delivery within the Kumasi Metropolis."***

Proposed Site: ***(Herbal Medicine Unit) Tafo Government Hospital, South-Suntreso Government Hospital and Kumasi South Government Hospital.***

Sponsor: ***Principal Investigator.***

Your submission to the Committee on Human Research, Publications and Ethics on the above-named protocol refers.

The Committee reviewed the following documents:

- Notification letter from the Tafo Government Hospital, South-Suntreso Government Hospital and Kumasi South Government Hospital (study sites) indicating approval for the conduct of the study at the Hospitals.
- A Completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Protocol.
- Questionnaire.

The Committee has considered the ethical merit of your submission and approved the protocol. The approval is for a fixed period of one year, beginning 3rd July, 2019 to 2nd July, 2020 renewable thereafter. The Committee may however, suspend or withdraw ethical approval at any time if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study.

Thank you, Sir, for your application.

Yours faithfully,

Osomfo Prof. Sir J. W. Acheampong MD, FWACP
Chairman

Room 7 Block J, School of Medical Sciences, KNUST, University Post Office, Kumasi, Ghana
Phone: +233 3220 63248 Mobile: +233 20 5453785 Email: chrpe.knust.kath@gmail.com / chrpe@knust.edu.gh

APPENDIX IV

APPROVAL LETTER FROM STUDY AREA

Kwame Nkrumah
University of Science
and Technology, Kumasi

College of Health Sciences
SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF HEALTH PROMOTION AND EDUCATION

KNUST-SPH/HRAR/ 13

29th April, 2019

The Medical Superintendent
South-Suntreso Government Hospital
Ashanti Region
Kumasi

Dear Sir/ Madam,

LETTER OF INTRODUCTION

This is to introduce to you, Nketia Anthony, an MPH student in the Department of Health Promotion and Education, School of Public Health, Kwame Nkrumah University of Science and Technology.

He is working on a study titled **"The effect of certified herbal medicines non-inclusion on NHIS in health care delivery within the Kumasi Metropolis".**

The school humbly requests your support and cooperation to enable him successfully complete his research work.

Thank you.

Yours sincerely,

Prof. Anthony K. Edusei
Head Department

Attn Head of Herbal Unit Suntreso Govt hospital.

17/05/19

PMB UPO, KNUST, Kumasi, Ghana. Phone: 233-3220-60263 Fax: 233-3220-60902 Email: [illegible]
Website: www.knust.edu.gh

In case of reply the number and the date of this letter should be quoted

My Ref. No: TGH/HM//05/01/19
Your Ref. No:

TEL: 0322026606

TAFO GOVERNMENT HOSPITAL
GHANA HEALTH SERVICE
P. O. BOX 1908
KUMASI

28TH MAY, 2019

TO WHOM IT MAY CONCERN

LETTER OF INTRODUCTION RE: NKETIA ANTHONY

This is to certify that, the above-named person, an MPH student, will be allowed to undertake a study titled '**the effect of certified herbal medicines non-inclusion on NHIS in health care delivery within the Kumasi Metropolis**' at the herbal medicine unit of the hospital. Anthony will be accorded the necessary support and cooperation to enable him successfully complete his research work.

Thank you.

KOFI TURKSON

(PHYSICIAN ASSISTANT)

FOR: MEDICAL SUPERINTENDENT

In case of reply the number and the date of this letter should be quoted

My Ref. No: KSH/RESH- 58
Your Ref. No:
Tel. : 0507842165/0501297212
Fax :03220 35169
E-mail: rh.an@ghsmail.org

GHANA HEALTH SERVICE
KUMASI SOUTH HOSPITAL
P. O. BOX 1908
KUMASI

9th May, 2019

PERMISSION TO CONDUCT RESEARCH

This serves to formally inform you that the under mentioned final year MPH Student in the Department of Health Promotion and Education, School of Public Health, Kwame Nkrumah University of Science and Technology, Kumasi has been granted permission by the Kumasi South Hospital to conduct the study.

Student's Name: Nketia Anthony

Title: **"The effect of certified herbal medicines non-inclusion on NHIS in health care delivery within the Kumasi Metropolis at Kumasi South Hospital".**

Thank you.

GYAMFI YEBOAH
CHIEF HEALTH SERVICE ADMINISTRATOR
For: MEDICAL DIRECTOR

HEAD OF DEPARTMENT
HEALTH PROMOTION AND EDUCATION
KNUST
KUMASI