

**THE USE OF TRADITIONAL HERBAL MEDICINES AMONG PALLIATIVE
CARE PATIENTS AT MULANJE MISSION HOSPITAL, MALAWI**

By

Dr Joseph Wangisani Chisaka

MBBS, PGD (Pall Med), PPH7048W

Student Number: CHSJOS005

**Dissertation Submitted as a partial requirement for the Master of Philosophy
Degree in Palliative Medicine**

University of Cape Town

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

CERTIFICATE OF APPROVAL

The dissertation of Joseph Wangisani Chisaka is approved by the Thesis Examination

Committee

(Chairman, Post Graduate Committee)

Signature Removed

Dr. Rene Krause (Primary Supervisor)

Signature Removed

(Internal Examiner)

(Head of Department)

DECLARATION

I, **Joseph Wangisani Chisaka**, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

I empower the university to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

Signature:

Signed by candidate

Date: 2nd January, 2019

ACKNOWLEDGEMENTS

I express gratitude to the Medical Director and the Palliative Care Clinic in-charge for Mulanje Mission hospital for granting me permission and support to carry out this study. Most of all, I thank the patients attending the clinic for taking part in the study. I am very grateful for the mentorship and support I have received from Dr. Rene Krause and Dr. Jane Bates starting from the beginning of this project and all the way to the end.

I would also like to thank these people who helped make this work possible: Associate Professor Fanuel Lampiao, Mr. Vincent Samuel, Mr. Ibrahim Chikowe and the President of the Malawi traditional healers umbrella organization (MTHUO).

Special thanks should go to my family especially my wife Khumbo, my two sons Duane and Darren, and my parents; for their love, encouragement and support.

Above all I would like to thank the Almighty God for the gift of life, wisdom and strength.

ABSTRACT

Background: The prevalence of use of traditional medicines by patients receiving palliative care is poorly documented. In 2002, the World Health Organisation estimated about 4 billion people (80% of the world's population) used traditional medicines for some aspect of primary healthcare, with 90% of users living in low and middle income countries. Studies in Africa have shown that patients on palliative care are more likely to use traditional medicines especially after the diagnosis of cancer. This study describes the prevalence of and reasons for TM use amongst PC patients and also explores the common herbs used by this population.

Methodology: A mixed method descriptive cross sectional study design was used including the following: questionnaire administered to patients attending palliative care clinic and focus group discussions with palliative care patients.

Results: 60.4% of palliative care patients (n = 96; males = 53%) reported use of traditional herbal medicines. The majority of survey participants had the diagnosis of cancer (94%; n = 90) and HIV (89%; n = 85). Traditional herbal medicine use was common in participants who had the following symptoms: diarrhoea 83%, anorexia 63%, pain 61% etc. Traditional medicine use was not associated with age, gender, education, occupation, distance from hospital, diagnosis or symptom. 62% of the participants who used herbal medicines did not know the herbs they were taking. *Kigelia Africana*, *Moringa oleifera*, *Cyphostema sp*, and *Strychnos innocua* were the common herbs used. Cultural practices, limitations of conventional health system and credibility of traditional healers were the main reasons for using traditional herbal medicines.

Conclusion: Use of traditional herbal medicines is high among patients receiving palliative care at Mulanje Mission hospital mainly for symptom management and cancer. Further research is needed to investigate effectiveness of identified herbs and also assess their potential herb-drug interactions. Ongoing work including liaison with traditional healers would assist to formulate effective local palliative care management programs that are sensitive to traditional medicine practices.

Table of Contents

CERTIFICATE OF APPROVAL	2
DECLARATION	3
ACKNOWLEDGEMENTS	4
ABSTRACT.....	5
List of tables.....	9
List of figures.....	10
List of abbreviations	11
CHAPTER 1: INTRODUCTION AND BACKGROUND INFORMATION	13
1.1 Traditional Medicine.....	13
1.2 Palliative Care.....	14
1.3 Statement of the problem	16
CHAPTER 2: LITERATURE REVIEW	17
2.1 Literature search methodology	17
2.2 Use of traditional medicines internationally	17
2.2.1 Use of herbal medicines internationally	18
2.3 Use of traditional medicines in Malawi	19
2.4 Reasons for traditional medicine use	20
2.5 Herbal medicines used in Africa	23
2.6 Herbal medicines used in Malawi	23
2.7 Palliative care and traditional medicines	24
CHAPTER 3: STUDY OBJECTIVES	27
3.1 Aim	27
3.2 Objectives	27
CHAPTER 4: METHODOLOGY	28
4.1 Study design	28
4.2 Study site	28
4.3 Study population	28
4.3.1 Selection criteria	28
4.3.1.1 Inclusion criteria	28
4.3.1.2 Exclusion criteria	29
4.3.2 Sampling	29
4.3.2.1 Sample size	29

4.3.2.2 Sampling methods	29
4.4 Data tools	30
4.4.1 Data tools development	30
4.5 Data collection process	30
4.5.1 Recruitment of research assistant and training	31
4.5.2 Piloting	31
4.5.3 Recruitment of participants for questionnaire	31
4.5.4 Recruitment of participants for FGDs	32
4.5.5 The distress protocol	32
4.6 Study period.....	33
4.7 Data storage and confidentiality.....	33
4.8 Data analysis	34
4.9 Dissemination of results.....	34
4.10 Ethical considerations.....	35
CHAPTER 5: RESULTS	36
5.1 Prevalence of traditional herbal medicine use	36
5.1.1 Demographic characteristics of questionnaire participants.....	36
5.1.2 Age distribution of participants for the questionnaire.....	37
5.1.3 Symptoms of participants during survey	38
5.1.4 Diagnoses of questionnaire participants	39
5.1.4.1 Cancer	39
5.1.4.2 HIV.....	40
5.1.4.3 Traditional herbal medicine use in other diagnoses.....	41
5.2 Cost of traditional herbal medicines	41
5.3 Sources of traditional herbal medicines used.....	42
5.4 Traditional herbal medicines used	43
5.5 Conventional pain medication used	44
5.6 Reasons for use of traditional herbal medicines.....	45
5.6.1 Themes.....	47
5.6.1.1 Traditional practice.....	48
5.6.1.1.1 Traditional health beliefs	48
5.6.1.1.2 Familiarity with traditional medicines.....	48

5.6.1.1.3 Perceived similar effectiveness between Traditional and conventional medicines.....	48
5.6.1.1.4 Perceived higher effectiveness of THM above conventional medicine.....	49
5.6.1.2 Limitations of conventional health system.....	49
5.6.1.2.1 Delay in conventional diagnosis	49
5.6.1.2.2 Lack of sufficient relief from conventional medicines	50
5.6.1.2.3 Cost of conventional services	50
5.6.1.2.4 Long distance to conventional facilities	50
5.6.1.2.5 Long waiting times at conventional facilities	51
5.6.1.2.6 Uncaring attitude of staff	51
5.6.1.3 Traditional healers' credibility	51
CHAPTER 6: DISCUSSION	52
CHAPTER 7: CONCLUSION AND RECOMMENDATIONS.....	58
REFERENCES	59
APPENDICES	67
Appendix 1: Questionnaire data collection tool	67
Appendix 2: Semi-structured questions for FGDs.....	68
Appendix 3: The Karnofsky performance scale	69
Appendix 4: The distress protocol	70
Appendix 5: University of Cape Town ethical approval letter	72
Appendix 6: University of Malawi-College of Medicine ethical approval letter	73
Appendix 7: Mulanje Mission Hospital study clearance letter	74

List of tables

Table 1: Demographic characteristics of questionnaire participants versus THM use.....	36
Table 2: Traditional medicines reported by patients.....	43
Table 3: Conventional pain medication used.....	45
Table 4: Baseline characteristics of focus group discussions (FGD) participants.....	45
Table 5: Presentation of themes and sub-themes.....	47

List of figures

Figure 1: Age distribution of questionnaire participants	38
Figure 2: Percent traditional herbal medicine use in reported symptoms.....	39
Figure 3: Traditional herbal medicine use in cancer patients	40
Figure 4: Traditional herbal medicine use in other diagnoses	41
Figure 5: Cost distribution of traditional herbal medicines	42
Figure 6: Sources of traditional herbal medicines	43

List of abbreviations

AIDS:	Acquired Immunodeficiency Syndrome
ART:	Ante-Retroviral Therapy
CAM:	Complementary and Alternative Medicine
CHM:	Chinese Herbal Medicine
COM:	College of Medicine
COMREC:	College of Medicine Research and Ethics Committee
FGD:	Focus Group Discussions
HAART:	Highly Active Ante-Retroviral Therapy
HIV:	Human Immunodeficiency Virus
HM:	Herbal Medicine
HREC:	Human Research Ethics Committee
MDHS:	Malawi Demographic Health Survey
MK:	Malawian Kwacha
MMH:	Mulanje Mission Hospital
MoH:	Ministry of Health
NGO:	Non-Governmental Organization
PCST:	Palliative Care Support Trust
PC:	Palliative Care
QECH:	Queen Elizabeth Central Hospital
SADC:	Southern Africa Development Countries
SSA:	Sub-Saharan Africa
SWAp:	Sector Wide Approach
TEM:	Traditional Eye Medicine

TH: Traditional Healer
THAM: Traditional Healers Association of Malawi
THM: Traditional Herbal Medicine
TM: Traditional Medicine
UCT: University of Cape-Town
UN: United Nations
UNAIDS: United Nations Programme on HIV and AIDS
WHO: World Health Organization

CHAPTER 1: INTRODUCTION AND BACKGROUND INFORMATION

1.1 Traditional medicine

The World Health Organization (WHO) describes traditional medicine (TM) as the most commonly used form of medicine in many parts of the world(1) and also having a very long history of practice.(2) For health purposes, reports by Kloos(3) and Bannerman(4) indicate an increase in traditional medicine use for various health conditions worldwide. However, little documentation exists regarding use of traditional medicines particularly in palliative care settings. The comprehensive term “Traditional Medicine” is described by the WHO as both traditional medicine systems and various forms of indigenous medicine.(5) It is a broad term used to refer to diverse indigenous health practices, approaches, knowledge and beliefs which incorporate; plants, animal or mineral based medicines, spiritual therapies, manual techniques and exercises; applied singularly or in combination to maintain well-being, to prevent, diagnose or treat illness.(1) In some countries, the term “complementary and alternative medicine (CAM)” is used to mean traditional medicine.(2) Herbal medicine is a subset of traditional medicine where plants and/or plant products are used for medicinal purpose.(6) It is defined by WHO as “the one that includes herbs, herbal materials, herbal preparations and finished herbal products, that contain as active ingredients parts of plants, other plant materials, or combinations.”(6)

In 2002, the WHO estimated about 4 billion people (80% of the world’s population) used traditional medicines for some aspect of primary healthcare, with over two thirds of these living in developing countries.(1) Despite this reported massive use of TM, the WHO raised concerns regarding inadequate scientific evidence on safety and efficacy of traditional medicines. Current evidence is based on individual case reports and patient series with no control or comparison groups. Without adequate evidence, TM use may remain of concern to have detrimental effects on patients.(1) A systematic review of 33 clinical trials done by Cichero et al (2014) on “Herbal medicines in the management and treatment of HIV-AIDS” also raised several concerns regarding herbal medicine use among various groups of people. It reported that the mechanisms of action of the herbs were not clear and the whole herbs or specific phytochemicals required further research. Concerns related to unsafe or erroneous practices as well as increasing frequency of claims of cure when there is insufficient evidence

to support such claims were also raised.(7) Further to the issue of lack of evidence on efficacy, Bodeker et al 2006 raised concerns that herbs or their phytochemicals may display potential herb-drug interactions or adverse effects when used in conjunction with conventional drugs, and may be contraindicated for use with these medications.(8) With the remarkable increase in the popularity of herbal preparations especially in developing countries, TM practice continues to bring considerable public health concerns and uncertainty among physicians and other health professionals regarding the safety of herbs especially when used concomitantly with regular conventional medications,(9) considering the fact that many patients are reluctant to disclose use of TMs to conventional health workers.(10) Several studies have strongly recommended that physician awareness of patients' herbal medicine use, combined with adequate physician knowledge about potential detrimental herb–drug interactions are vital to improve the quality of patient care.(11)

Since the early 1990s, the WHO has been recommending that Sub-Saharan countries should include traditional medicine, particularly herbal medicines and faith healing, in their national responses especially to HIV and AIDS, and facilitate its development within legal and safety frameworks, and its use through advocacy, institutionalization and partnerships.(5) Adding to this, a systematic review by Mills et al (2005) recommended that governments and all interested partners should make efforts to include traditional healers and patients on the judicious use of traditional medicines in-order to prevent harmful interactions.(12) According to the Malawi Traditional Medicine Policy (2004), the Malawi Government acknowledges traditional medicine practice in the country but could not measure the extent of traditional medicine use and ascertain specific reasons why people use particular traditional medicines. The Government however included TM practice in national healthcare guidelines in compliance with national priorities as outlined in the programme of work for health Sector Wide Approach (SWAp) (2004-2010), HIV/AIDS policy (2003), National Environmental policy (2004), and the science and Technology Policy (2002).(13)

1.2 Palliative care

The WHO defines palliative care as “an approach that improves the quality of life of patients and their families facing the problems associated with life threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment

and treatment of pain and other problems, physical, psychosocial and spiritual.”(5) Palliative care entails a holistic approach and also management of patients in familiar environments where it would add comfort and also improve quality of life for both the patient and care givers. HIV/AIDS and cancers constitute the majority of palliative care conditions in Malawi, (14)(15) other conditions including end-organ diseases and other life limiting conditions. The prevalence of HIV in Malawian adults is at 10.8%, and about 60% of patients requiring palliative care in Malawi have HIV associated diseases.(16)(17) Harding and Higginson (2005) reported that over 80% of cancer patients in SSA are in advanced and incurable stage of cancer at the time of diagnosis making the need for palliative care more important in this region.(18) A lot of palliative care patients in Malawi are managed whilst living in rural communities where TM is easily available. However, the use of TMs in the palliative care population in Malawi has not been explored to ensure its judicious use within this population.

Traditional healers (THs) are also known for providing bio-psycho social and spiritual care to patients and are consulted frequently when patients are diagnosed with life threatening illnesses. Grant et al (2011) in a report titled “Palliative care making a difference in rural Uganda, Kenya and Malawi: Three rapid evaluation field studies”, stated that palliative care patients value being treated with dignity and respect and being supported at home reduced physical, emotional and financial burden of travel and care at health facilities. The report which was generated from evaluations of palliative care programs in the countries of Uganda, Kenya and Malawi utilized the following methods: interviews with key informants, observations of clinical encounters within local health and social care context, and analysis of routine data from local reports. It further reported that practical support and instructions in feeding and bathing patients facilitated good deaths at home and enabled rapid access to social support networks.(19) However, despite considerable recent growth in palliative care services in Africa, access still remains a huge problem with the services being accessible to less than an estimated 5% of those in need leading to many patients not able to access pain and symptom control, and terminal care.(20)(18) With cancer rates expected to rise 400% by 2050,(18) the need for palliative care services on the continent will continue to outstrip capacity.(21) And despite WHO encouragement for a public health approach to pain management and palliative care, a lack of legislative and policy support still exists in many African countries.(22) Malawi developed a Palliative care policy championed by the Ministry of Health in 2014 which acts as a legislative commitment by the government.(23) Only

eleven out of forty seven African countries use morphine for chronic pain, and of these eleven, the amount consumed is tiny, thereby making adequate pain management remain a major constraint. South Africa is highest user on the continent consuming 265 daily defined doses (DDD) while Namibia uses 97 and Uganda 9 DDDs. However, eighty six percent of the world's morphine is still used by the 20 richest countries.(24) Therefore, lack of support from the formal health sector can make patients seek alternative care like TMs.

1.3 Statement of the problem

Limited information exists concerning the use of herbal medicine among patients receiving palliative care worldwide and Malawi in particular. For Malawi, some of the reasons for this could be: non-disclosure of traditional herbal medicine use by patients due to health workers' lack of interest or comfortability in asking for such information from patients and/or unwillingness of patients and guardians to reveal use of herbal medicine to health practitioners; and emphasis mostly on the spiritual (especially religious) aspect of palliative care leaving out the traditional beliefs' and cultural aspects which include use of herbal medicines. As observed and described above, we feel that evidence quantifying traditional medicine use as well as expounding on the reasons for TM use in palliative care in relation to specific geographical areas, cultures and herbs is very important to inform policies and guide further research on TM use, and also important for the development of right strategies to improve traditional medicine practice. Nevertheless, this information is very much lacking in Malawi.

CHAPTER 2: LITERATURE REVIEW

2.1 Literature Search Methodology

A Literature search was undertaken using the EBSCO host database platform: Africa-wide information, ATLA Region database with ATLASerials, CINAHL and MEDLINE. The keywords and phrases used to search thematically included: “traditional medicine”, “traditional herbal medicine”, “herbal medicine”, “complementary and alternative medicine”, “CAM”, “palliative care”, “palliative medicine”, “Cancer”, human immunodeficiency virus“, “HIV”, “acquired immunodeficiency syndrome”, “AIDS”, “HIV and AIDS”, “HIV/AIDS”, “symptom management”, “quality of life”, “Africa”, “Sub-Saharan Africa”, “Malawi”. Additional articles were found by scanning reference lists found in the initial search and those cited in journal articles. Other resources that were consulted to broaden knowledge of traditional medicine and palliative care were: The National traditional medicine policy guidelines set out by the Malawi Ministry of Health, the WHO Guidelines for traditional medicine use, the Malawi palliative care policy and the Malawi palliative care trainer’s manual. Various websites were also visited: www.africanpalliativecare.org; [www.who<<http://www.who.int/cancer/palliative/en/>](http://www.who.int/cancer/palliative/en/); www.who.int/traditionalmedicine/en; www.mmj.mw; <https://hospicecare.com/members-section/iahpc-cinahl-database/>

2.2 Use of traditional medicines internationally

The WHO (2002) reported poor documentation of TM use across the world due to underestimation of TM use in healthcare and also issues of privacy, traditions and culture which are associated with TM preparation and administration. These are compounded by non-documented drug-herb interactions, poor regulation of TM use, reported high use worldwide and possibilities of drug development from TMs hence making the area of TM an emerging area for research.(2) The WHO in 2002 estimated about 4 billion people (80% of the World’s population that year) used traditional medicines for some aspect of primary healthcare.(1) The Use was reported to be common in low and middle income countries with estimate range of 60 to 90% of their total populations using traditional medicines mainly for primary healthcare.(1) Some African countries had the following estimates (according to WHO) of traditional medicine use against their total populations: Ethiopia 90%, Rwanda 70% and Tanzania and Uganda each 60%.(1) Unlike in low and middle income countries,

Bodeker (2002) reported that in high income countries traditional medicines are commonly used in parallel with conventional therapy like the Highly Active Anti-Retroviral Therapy (HAART).(25) Nevertheless, the increasing demand for TM in Europe, Asia and America has also been documented.(26) The WHO in 2002 estimated between 40% and 60% of the populations in the WHO Western Pacific Region used TM to treat various diseases, with China's TM accounting for about 40% of all China's health care delivered. For Australia, the percentage of the population that used CAM at least once that year was 48%, 70% in Canada, 42% in USA, 38% in Belgium and 75% in France.(5) In 2014, the WHO stated that there were over 100 million traditional medicine users in Europe of which one fifth were regular users. It stated that the numbers were more in Africa, Asia, Australia and North America.(2)

2.2.1 Use of herbal medicines internationally

Although herbal medicine is regarded as the most commonly used form of traditional medicines in the world, concerns on availability of documented evidence on prevalence still remain critical. Reports by Colebunders(27) and Duggan(28) on studies done in Europe (a multi-country study) and USA respectively on herbal medicine in HIV and AIDS showed a prevalence of 25% and 26% respectively of HIV infected people who used herbal medicines as part of their treatment. A report by Langlois-Klassen in 2007 showed an overall prevalence of 63.5% of AIDS patients who used herbal medicine after HIV diagnosis in Kabarole District, Western Uganda.(29) In the same line, a systematic review by Liwa in 2014 on Traditional herbal medicine (THM) use among hypertensive patients in Sub-Saharan Africa (SSA) which included four studies; three of which were done in urban Nigeria and one in rural South Africa, looked at the prevalence of both CAM and THM use among hypertensive patients. For THM, the prevalence in the four studies ranged from 25-65% with an average of 38.6%.(30) The study from South Africa reported higher rate of THM use at 65%(31) than the 3 studies from Nigeria i.e. 25%-37.8%.(32)(33)(34) In the three studies that reported both CAM use and THM use, THM use represented the majority of CAM use (86.7%-96.6%).(31)(32)(34) And among herbal medicine users, 47.5% concomitantly used conventional and herbal medicines.(30) Regarding costs of TMs, the 56th World Health Assembly (WHA) report used findings from a study on cost-effectiveness of CAM conducted for the Government of Peru and supported by WHO to inform some of its decisions on TM

costs. The report concluded that for mild and chronic pathologies, the direct costs incurred in using TM were lower than those for conventional therapy. However, the report recommended for larger studies in-order to understand the differences on a broader scale.(35)

2.3 Use of traditional medicines in Malawi

Documentation regarding traditional medicine use in Malawi is largely unavailable and for the little data available on TM use in Malawi, most of it is very old. A report from a cross-sectional study done by Courtright et al (1994) on “Traditional eye medicine use among patients with corneal disease in rural Malawi” found a prevalence of 33.8% of traditional eye medicines (TEM) use among 583 ophthalmic patients recruited in Mulanje and Chikwawa districts. The study did not find any age or sex differences in TEM use but it found that patients who reported TEM use were more likely to have a delayed presentation to health services with an average of one month.(36) Another cross-sectional study done by Zachariah et al (2002) on “Health seeking and sexual behaviour in patients with sexually transmitted infections: the importance of traditional healers in Thyolo district, Malawi” conducted on 498 new patients with sexually transmitted illness (STI) found the prevalence of use of traditional medicines among STI patients at 53%. The study found that the most frequent source of traditional medicines were the traditional healers at 37%.(37) Being female, less educated and a resident in the village were associated with TH visits. The study however did not look at reasons for TM use or herbs used. Robinson in 2002 reported that over 80% of the population in Malawi relied on traditional medicine for health problems, partly because modern health services were inadequate as compared to services offered by traditional healers which were easily accessible.(38)

The International Traditional Healers Association based in Blantyre (Malawi) reported of having over 45,000 THs as members in 2002 and estimated that there could be more than double that number throughout Malawi.(38) On the other hand, only 334 medical doctors were reported by the medical regulatory body in 2010 to be practicing in Malawi against the then national population of 13 million people.(39) However, the given numbers of practising THs were not obtained from studies, they were estimated through expert opinions and experience of people in TM practice during a consultative workshop on traditional medicine and medicinal plants research done on April 4 and 5 2002 in Mangochi, Malawi, where

traditional healers, researchers and government officials were in attendance.(38) Our literature search did not find any study related to the use of TM in PC in Malawi.

2.4 Reasons for traditional medicine use

There are various reasons for which herbal medicine is valued by patients and families. In her statement at the International Conference on Traditional Medicine for South-East Asian Countries in February 2013, the then WHO Director-General, Dr Margaret Chan, stated that; *“Traditional medicines, of proven quality, safety, and efficacy, contribute to the goal of ensuring that all people have access to care. For many millions of people, herbal medicines, traditional treatments, and traditional practitioners are the main source of health care, and sometimes the only source of care. This is care that is close to homes, accessible and affordable. It is also culturally acceptable and trusted by large numbers of people. The affordability of most traditional medicines makes them all the more attractive at a time of soaring health-care costs and nearly universal austerity.”*(2)

Cost of conventional medications

A report by Bodeker(8) on “Traditional systems of health care in the management of a global epidemic” identified high cost and/or unavailability of conventional medicines as primary reasons for the use of herbal medicines in low and middle income countries. In addition, a study by Agbor and Naidoo (2011) reported low costs of THs as one of the reasons why people in low income countries access TMs. However, a systematic review by Liwa (2014) stated the following as additional reasons for the use of traditional herbal medicines on top of high cost and unavailability of conventional medicines: Perceived failure of conventional medicines, social cultural practices or herbal knowledge, poor accessibility to medical facilities, safety concerns about conventional medicines, uncaring attitudes of hospital staff, prior phobia of hospitals, curiosity about herbal medicines and pressure from herbal sellers.(30) These additional reasons are further discussed below.

Cultural beliefs and practice

Clegg- Lamptey(40) reported that most cancers in low to middle income countries are diagnosed at a stage when most conventional therapies fail. If patients and families are led to understand that nothing could be done, they may resort to other therapies. In addition,

Cassileth(41) reported that the patients' hope to "leave no stone unturned" becomes a powerful motivator, which in return renders cancer patients prime candidates for TM or CAM use. In addition to that, a cross-sectional study by Agbor and Naidoo (2011) titled "Knowledge and practice of traditional healers in oral health in the Bui Division, Cameroon", where they interviewed 21 traditional healers and 52 clients of THs; found that socio-cultural and economic factors affect health seeking behaviours of patients who visit THs. Other than low costs of THs' services (69%) as explained above, the study also reported the following as reasons why most patients visit THs for their oral health needs: THs understand their problems better than health workers (12%), fear of death from tooth extraction at health facilities (8%), and hospitals or clinics being too far (5%).(42) Agbor (2016) added that in African TM, the curative, promotive and rehabilitative services are all referred to as clinical practices, and the cornerstones of these clinical practices include community's norms, taboos, tradition and culture. This integration of TM practices into community's traditions, culture and taboos contributes to making TM practices easily acceptable and hence highly demanded by the population.(43) Culture plays an important role in palliative care including end-of-life care. A report by Green et al (2018) on "Culturally and linguistically diverse palliative care patients' journeys at the end-of-life" states of an emerging need to address cultural wishes and needs of palliative care patients in the end-of-life period within the physical, psychological, spiritual, and social palliative care domains to ensure provision of quality care.(44)

Accessibility

Accessibility (easy accessibility of TMs than conventional medicines) is one major factor that can be attributed to the widespread use of TM in Africa.(26) For instance, in 2004, Awases et al in a WHO directed synthesis report on migration of health practitioners in 9 African countries of Kenya, Zimbabwe, Nigeria, Swaziland, South-Africa, Ghana, Uganda, Tanzania and Mozambique calculated the average ratios of traditional healers to the population in Africa to be 1: 500 compared to 1:40 000 medical doctors to the population.(45) The majority of medical doctors available in Africa are concentrated in urban areas and cities at the expense of rural areas. Therefore, for millions of people in rural areas, traditional healers remain their health providers.(26) However, even in the milieu of accessible conventional medicine, TM is still used.

Reliability of traditional healers

According to the WHO, a traditional healer is “a person who is recognised by the community where he or she lives as someone competent to provide health care by using plant, animal and mineral substances and other methods based on social, cultural and religious practices”.(5) Traditional healers on the other hand are believed to provide care to patients which appear more patient focused and in wider dimensions compared to health practitioners.(2) Merriam and Muhamad(46) reported the following as main roles of traditional healers: medicinal healers, emotional comforters, spiritual guides, and palliative caregivers. The UNAIDS 2000 report titled “Collaborating with traditional healers for HIV/AIDS prevention in sub-Saharan Africa” pointed out the following as among other pluses for traditional healers: “traditional healers often outnumber doctors by 100 to 1, are accessible and inexpensive, provide client-centred, personalized health care that is culturally appropriate, holistic and tailored to meet the needs and expectations of the patient,” and “they often see their patients in the presence of other family members, which sheds light on the traditional healers’ role in promoting social stability and family counselling”.(47) These showed that traditional healers mostly use a holistic approach to patient care which is also in accord to the WHO’s definition of PC. In the same line, Labhardt’s (2010) comparative study titled “Bridging the gap: How traditional healers interact with their patients” done in Cameroon where Seven traditional healers were compared to eight conventional medicine providers in the same district in terms of care provision, pointed out that client satisfaction with traditional healers compared to conventional medicine was related to the interactions of the patients with the traditional healers; traditional healers interacted very differently with their clients using a more patient-centred communication style to seek common ground with patients. This was essential for a functioning health system but lacked in conventional medicine providers.(48)

Health differences between high and low income countries

In high income countries, factors responsible for the widespread use of TM are beyond accessibility, affordability and cultural compatibility.(26) According to the World Health Organisation (2002), anxiety about the adverse effects of chemical drugs, improved access to health information, changing values and reduced tolerance of paternalism are some of the factors responsible for the growing demand for CAM in high income countries.(5) Okigbo and Mmekka (2006) in their paper titled “An appraisal of Phytomedicine in Africa”, argue that

TM is still preferred for use in modern day Africa after hundreds of years of its existence because of presence of minimum reported cases of their adverse effects.(49) However, judging by limited documentation on TM, this could be one of the reasons for minimum reported cases of adverse effects due to poor drug monitoring. Mander et al (2007) in a study titled “Economics of the traditional medicine trade in South Africa” argued that people choose TM because of the inadequacy of Western medicine. They stated that among South African black population, TM “is thought to be desirable and necessary for treating a range of health problems that conventional medicine does not treat adequately”.(50)

2.5 Herbal medicines commonly used in Africa

Medicinal plants (herbs) are the most common form of traditional medicine in practice across the African continent. In many parts of Africa, medicinal plants are the most easily accessible health resource available to the community, often the preferred option for patients.(51) A review by Mills et al (2005) on “African herbal medicines in the treatment of HIV: *Hypoxis* and *Sutherlandia*. An overview of evidence and pharmacology” looked at *Hypoxis hemerocallidea* (African potato – an immune stimulant) and *Sutherlandia*, two of the herbal compounds known to be used in HIV/AIDS treatment in Sub-Saharan Africa and recommended by the South African Ministry of Health for HIV management.(12)(52) The review looked at evidence for use and pharmacological effects. Despite the popularity of their use and the support of Ministries of Health and NGOs in some African countries, the review found no clinical trials of efficacy done on them and evidence of detrimental interactions with ARV drugs were demonstrated. The review recommended that efforts should be made by governments and all interested partners to include traditional healers and patients on the judicious use of traditional medicines to prevent harmful interactions.(12) Hills S et al 2006 in a book section titled “Clinical Guide to Supportive and Palliative Care for HIV/AIDS in Sub-Saharan Africa” reported other herbal medicines that are used in HIV/AIDS for symptom management as follows: Analgesics: *Datura suaveolens*, *Albizia* sp., *Cannabis sativa*, and *Papaver somniferum*; sedative: *Rauwolfia vomitoria* and *Datura stramonium*; Oral thrush: *Bridelia ferruginea*; antibiotics: *Leonotis nepetifolia*, *Albizia* sp., *Erythrina abyssinica*, *Aristolochia elegans*; Antivirals: *Withania somnifera*, *Aspilia africana* /*plurisetia*; for neuralgia: *Securinega virosa*, *Cucurbita maxima* etc. However, lack of evidence in support of their efficacy and absence of herb-drug interactions remain a big concern.(53)

2.6 Herbal medicines used in Malawi

For decades, several plants have been studied in Malawi for their medicinal properties; but still limited data exist regarding their use in healthcare. In 1987, Msonthi reported on 35 medicinal plants he studied in Malawi with their respective phytochemical compounds isolated. He screened various plants for their biological activities with the hope of standardizing them so that their end products, free of toxic materials could be directly used by patients thereby having a shorter but meaningful alternative route than the longer route of developing a drug from a medicinal plant. He reported that some plants showed potential for drug formulation, for example: *Carissa edulis*; leaves, stem and root bark for edema, pain and as laxative; *Hypoxis nyasica bak* for uterine cancer and premenstrual syndrome; *Catharanthus rosea* for diabetes.(54) Robinson et al (2002) in a study titled “Medicinal Plant Use By Traditional Healers in Malawi: Focus on Neem, Tephrosia, Moringa, Jatropha, Marula and Natal Mahogany” reported on 6 medicinal plants mentioned in the title where they investigated local availability and actual usage patterns by 22 traditional healers interviewed from 10 districts including 1 TH from Mulanje district, our study area. Some interesting medicinal uses of these plants as reported by traditional healers were: Neem (*Azadirachta indica*) for cancer, fever, HIV related symptoms and fungus control; Tephrosia (*Tephrosia vogeli*) for constipation, diarrhoea and leg swelling; Moringa (*Moringa oleifera*) for general body pain, skin rash and swollen legs; Jatropha (*Jatropha curcas*) for boils, bowel problems and stroke; Marula (*Sclerocarya birrea*) for AIDS, anemia and diarrhoea; and Natal mahogany (*Trichilia emetica*) for anaemia, constipation and stomachache. However, the study only looked at information from THs and not the patients; this may have led to giving out of many uses to one plant. In addition, the compounds were never tested for their phytochemical compounds. Another challenge in the study could be definitions of some diseases, for instance, it is unclear what criteria were used by THs for the diagnosis of cancer and/or HIV/AIDS? However, this study highlights the symptoms treated by these plants which are common symptoms experienced by patients with life limiting illnesses.

2.7 Palliative care and traditional medicine

Palliative care patients exhibit complex symptoms in the context of a progressive incurable disease which are usually difficult to manage. These symptoms are many times not sufficiently controlled by conventional medicine alone. At the same time, there are beliefs by many communities that traditional medicines have demonstrated effectiveness in managing certain symptoms, even though proof for such is largely lacking. Pachman et al (2012) described the following as frequently experienced symptoms by cancer patients: fatigue, paraesthesia and dysesthesia, chronic pain, anorexia, insomnia, limb edema, and constipation.(55) Despite the high prevalence of these symptoms reported in cancer patients, a systematic review and meta-analysis by Chung et al (2016) titled “Chinese Herbal Medicine for Symptom Management in Cancer Palliative Care” argues that treatments from conventional medicine on these symptoms have been far from satisfactory; adverse effects have further restricted their clinical use; a substantial number of patients are not sufficiently relieved with about 10% to 15% of patients being refractory to pharmacotherapy.(56) The review which included 14 randomised controlled trials (RCTs) compared combined Chinese herbal medicine (CHM) and conventional treatments with conventional intervention alone. The meta-analysis showed that combined CHM and conventional treatment significantly reduced pain than conventional treatments alone. Six trials comparing CHM with conventional medications demonstrated similar effect in reducing constipation. In addition, the review found out that adverse events were infrequent and mild in combined treatments. However, the additional use of CHM to chemotherapy did not improve fatigue and anorexia when compared to chemotherapy alone. The review concluded that CHM may be considered as an add-on to conventional care in the management of pain in cancer patients, and could also be considered as an alternative to conventional care for reducing constipation; but further research is required for anorexia and fatigue.(56) A study in Thailand by Poonthananiwatkul et al (2015) on “Traditional medicine use by cancer patients in Thailand” reported that a wide range of TMs is taken by cancer patients in Thailand and considered to provide more benefit than harm. The study which included 286 cancer patients who were prescribed a 11-herb anti-cancer formula called “yod-ya- mareng”, at Wat Khampramong Thai Buddhist temple hospice of herbal medicine, looked at improvement in patients’ symptom burden at discharge from the herbal hospice. The study reported a significant reduction in number and severity of symptoms after treatment with yod-ya-mareng at Khampramong hospice, indicating an improvement in quality of life, the aim of palliative care.(57) However, the study

acknowledged that the improvement in quality of life could not result from the herbal drug alone.

Potential limitations in the approach of traditional healers in palliative care

Accessible, affordable and socially and culturally acceptable care is essential when dealing with PC patients. PC is also about patient and family centred care which is many times overlooked in many clinics in Malawi because this requires adequate time and most of our clinics are busy due to high numbers of patients. Several studies in Africa have reported THs being the most easily accessible source of healthcare or the ones providing socially and culturally acceptable care depended on by the community. A qualitative study by Campbell et al (2014) on “Potential benefits and challenges of traditional healers in providing aspects of palliative care in rural South Africa” suggested that if palliative care could be offered by a range of professional and non-professional healthcare givers, including non-professionals such as THs in a palliative care team taking cognisance of a holistic principle of palliative care and aiming to care for patients in familiar contexts; may strengthen care provision as THs have intimate knowledge of patients’ local culture and spiritual beliefs.(58) However, the study pointed out that the resistance of THs to believe in the incurability of an illness coupled with their beliefs in their ability to ‘cure’ conditions like HIV and AIDS provides THs with opportunities to exploit palliative care patients for personal gain, which in-turn provides challenges to working with THs in PC.(58) This study therefore found it necessary to explore the use of TMs in PC within local settings.

CHAPTER 3: STUDY OBJECTIVES

3.1. Aim

The aim of this study was to describe the use of traditional herbal medicines among patients receiving palliative care at Mulanje Mission Hospital (MMH).

3.2 Objectives

- a) To determine the prevalence of herbal medicine use among palliative care patients at MMH,
- b) To describe which type of herbal medicines are used by patients receiving palliative care at MMH,
- c) To describe the reasons for the use of traditional herbal medicines by patients receiving palliative care at MMH.

CHAPTER 4: METHODOLOGY

4.1 Study design

This was a descriptive cross sectional study which used both quantitative and qualitative methods.

4.2 Study Site

This study was conducted at Mulanje Mission Hospital (MMH) in Mulanje district which is located about 100km east of Blantyre city in Malawi. MMH provides both primary and secondary health care services to a catchment population of around 85,000 people. It is a Christian Health Association of Malawi (CHAM) owned health facility belonging to the Church of the Central African Presbyterian (CCAP), and was established in the year 1896.

Patient enrolment was done at the palliative care clinic at MMH. According to the MMH palliative care clinic attendance register, the clinic saw in total 1613 patients in 2016 of which the majority were cancer and HIV patients. The site was selected for study because it is in a district (community) setting where it is directly surrounded by rural communities making it a familiar hospital to rural communities around where rural traditional healers are also easily accessed. The majority of the population of Malawi (86.2 %) live in rural settings(16) making a district based site more representative of the wider population than a central/urban based health facility. We were also interested in the practise of rural traditional healers because they tend to use “crude/undiluted/less mixed” herbal medicines, which would make it easier for us to identify actual plants (scientific names) which were used to prepare the medicines, unlike with traditional healers in towns and cities who are rumoured and alleged to mix their medicines with some allopathic drugs like ARVs, antibiotics etc.

4.3 Study Population

4.3.1 Selection criteria

Inclusion and exclusion criteria for patients and traditional healers were as follows:

4.3.1.1 Inclusion criteria

- Patients 18 years old and above,

- Patients registered with MMH palliative care clinic,
- Patients with a Karnofsky performance score of ≥ 40 (Appendix 3).

4.3.1.2 Exclusion criteria

- Patients under 18 years of age
- Patients unable to provide verbal consent
- Patients who were confused (disorientated in terms of time, place, or person)
- Patients who were frail (having a Karnofsky performance score of below 40)

4.3.2 Sampling

4.3.2.1 Sample size

The proportion of cancer patients requiring palliative care in SSA was reported at over 80% by Harding and Higginson in 2005.(18) Using this proportion (0.81) as our expected prevalence, and assuming a population size of 8 patients per clinic day (the average number of patients seen in a clinic day at MMH palliative care clinic) which add up to 160 patients over one month proposed data collection period, with a 80% power, alpha of 0.05 and 95% confidence, and using the sample size calculator for prevalence studies ($n = \frac{P(1-P)Z^2}{d^2}$), we calculated a sample size of 96 patients to be enrolled for the questionnaire.

Where:

n = sample size

p = Expected proportion

z = Statistic corresponding to level of confidence (Confidence Interval)

d = Margin of error (precision, corresponding to effect size)

4.3.2.2 Sampling methods

We used convenience sampling to select participants for the survey and purposive sampling for participants for the FGDs.

For the survey, all patients attending MMH palliative care clinic during the study period were approached for recruitment after screening for eligibility.

For focus group discussions, participants were selected from those patients who had indicated to have used traditional medicines in the questionnaire and also based on closeness to the facility as a venue for the discussions and availability for the discussions.

4.4 Data collection tools

4.4.1. Data tools development

A questionnaire (appendix 1) and FGD guide (appendix 2) were developed by the PI to collect data on prevalence of THM use and from FGDs respectively. The process of developing data collection tools involved the following:

- Discussions with palliative care specialists at QECH,
- discussions with MMH clinic in-charge,
- using information from literature searches and
- consultations with supervisors.

The data collection tools were developed in English and were translated to Chichewa (Malawi's local language) by an independent person (nurse) and back translated to English by the PI.

Face validity was used to establish validity of the FGD guide and it was done by the following: Both supervisors, two nurses at MMH palliative care clinic and the Secretary for the traditional Healers Association of Malawi. Face validity evaluated the guide in terms of: Clarity of the language and wording, the likelihood that the target audience would be able to answer the questions and consistency of the style and layout. Suggested corrections were discussed and necessary amendments were made on the guide. As for the questionnaire, the approach used to establish validity is explained under the piloting section below.

Baseline variables collected by the questionnaire were: Demographic information, clinical information, conventional medicines received in the current illness and traditional medicines used in the current illness (see appendix 1). Information collected by the FGD is shown in appendix 2.

4.5 Data collection process

Data collection commenced after University of Cape Town (UCT) Human Research Ethics Committee (HREC's) and College of Medicine Research Ethics Committee (COMREC's) approvals together with written authorizations from MMH. Permission by the site was granted after holding a site sensitization meeting with the hospital director and the palliative care team. Data was collected in two forms: quantitative data was collected from patients using a questionnaire, and qualitative data was collected through FGDs.

4.5.1 Recruitment of research assistant and training

An independent research assistant was responsible for administering the questionnaire. We recruited a research assistant who is a nurse-midwife technician with a qualification of a diploma in nursing, lives in Mulanje district and works at one of the public health centres under Mulanje district health office. She received training in research ethics and skills to ensure privacy and confidentiality, training on how to screen patients, give informed consent, select patients and administer the questionnaire. She is a fluent speaker of Chichewa (Malawi's local language) and Lhomwe (Mulanje district's local language). To promote patients' openness with the research assistant, she was advised not to disclose her nursing profession to participants and also not to wear nursing uniform during the study. She signed a letter of confidentiality before the study and was later introduced to the clinic by the clinic in-charge. The PI and clinic in-charge met regularly with her for feedback and progress discussions.

4.5.2 Piloting

After granting of ethical approvals, the questionnaire was first piloted at Tiyanjane adult palliative care clinic at QECH. A research assistant (nurse) with paediatric palliative care training and the principal investigator administered the questionnaire during the pilot phase which took 10 working days. The pilot was used to assess the questionnaire's usability, validity (external validity through sample size calculation, and content validity through assessment of different answers obtained from the set questions against the desired outcomes); and reliability (inter-rater/observer reliability by assessing the consistency of the answers given by the two different raters/observers). Minor language and patient flow adjustments were made to the questionnaire following piloting.

4.5.3 Recruitment of participants for questionnaire

All patients attending MMH palliative care clinic were invited to take part in the study after screening for eligibility for inclusion in the study by a research assistant. Screening for patients' eligibility for the study was done at the clinic in a private room after patients' review by medical team was already done. All patients attending the clinic undergo screening first for palliative care by the medical team at the clinic before they get registered for the clinic. For those who showed interest to participate in the study, screening included checking of vital signs and action plan documented by the medical team, and assessment for confusion and their Karnofsky performance scores (see appendix 3). Patients who met the inclusion criteria were invited to participate. They were asked to read the consent form which also outlined screening details. The research topic and process was explained to them. Private time of up to five minutes was given to the patient (and guardian) to make an independent decision on whether to participate or not. If agreed, they were asked to sign the consent form, giving us permission to collect some information concerning their health. Participants were then asked a few questions to see how well they understood the consent form. Just to make sure that all the major points of the study process were addressed and that they understood our research and its importance. Patients were informed that they could withdraw from the study at any point and it would not affect their care.

4.5.4 Recruitment of participants for FGDs

From the questionnaires, participants were purposefully selected for FGDs based on their reported use of TMs, closeness to the hospital and ease of travel/availability for the discussions. Participants were provided with transport refund at the end of discussions. The purpose and process of the discussions including participants' right of withdrawal from the study at any point with no effect to care, and the distress protocol were explained to them before start of discussions. Participants were asked to sign a letter of consent if they agreed to take part. FGDs were aimed at collecting data on various THMs used in palliative care, routes of administration, and reasons for use. They were held on a scheduled date in a private room at MMH where none other than participants and facilitators were allowed during discussion time. The discussions were facilitated by the PI and the research assistant. A digital audio recorder was used with prior consent from the participants. Voice recording was complemented with paper notes of important points raised.

4.5.5 The distress protocol

Patients receiving palliative care are at risk of distress which can come due to the nature of the incurable illness they are suffering. To address that, a distress protocol (Appendix 4) was adopted as outlined below:

If, whilst administering the questionnaire the participants were to display or express physical or psychological distress, the plan in the study was to stop the questionnaire session immediately and either abandon or reschedule to a later date when they would be more stable and able. The procedures to be followed if a patient was in distress are listed in the distress protocol (see appendix 4) and were included in the training of the research assistant and mentioned to the participants before participating in the questionnaire. Arrangements were made with the facility before the research was commenced to refer patients in distress during the study to appropriate officers (doctor, social worker and visiting psychologist) within the hospital. A referral form with the patient's name, the study's name, the interviewer's contact details and the principle investigators details was designed for use. Discontinuing the questionnaire would not have had any effect on further care or management of the patient, and this was made clear to participants. Similarly, should the research assistant feel that her physical safety was in jeopardy or that infection control was insufficient, then the questionnaire was to be stopped, and the steps described in the distress protocol (appendix 4) followed. Fortunately, the whole data collection was not met with any patient in any form of distress.

4.6 Study Period

The study period spanning from data collection to report submission is 16 months i.e. from October 2017 to February 2019 with data collection done between 10th October 2017 and 23rd January 2018.

- **Patient questionnaire**
 - Questionnaire was administered between 10th October and 15th December 2017.
- **Focus group discussions**
 - FGDs with patients were done on 23rd January, 2018.

4.7 Data storage and confidentiality

All completed questionnaires and study folders were stored in a locked office room accessible only by the study principal investigator. Data was entered into a password-protected Epi-Info database which was reviewed periodically by the principal investigator to check for systemic errors. Upon completion of data entry, data was cleaned by the data manager using SAS version 9.3. Persons having access to the database included data entry clerk and the principal investigator. The data entry clerk was recruited for data entry and he signed a letter of confidentiality. After study completion, all written documents will be stored under lock and key by the principal investigator for up to 5 years after which they will be destroyed by burning under direct supervision of the principal investigator. The FGD recordings will be stored in a password protected computer by the PI and will be deleted after the same time period.

4.8 Data analysis

Quantitative data were analysed using Stata version 14.0 (Stata Corp, Texas, USA). Descriptive analysis was done where prevalence, proportions, frequencies, mean and standard deviation (SD) were presented. Chi2 tests were done to measure association between variables. We further did logistic regression to control for confounding factors. Qualitative data was analysed using thematic analysis which included: transcription and translation by an independent person, coding of emerging themes from the data by the PI and presentation of data in form of themes and subthemes describing reasons and how traditional herbal medicines were used.

4.9 Dissemination of results

The findings and subsequent reports will be submitted to the University of Cape Town Library, the Health Sciences Research Committee, University Research and Publication Committee, College of Medicine Research and Ethics Committee (COMREC), College of Medicine Library, Mulanje Mission Hospital and Traditional Healers Association of Malawi. A copy will also be submitted to Malawi Ministry of Health unit of Non-Communicable

Diseases. An oral presentation of the research findings was made at the 22nd Malawi College of Medicine research dissemination conference in Blantyre as a key presentation under the theme of herbal medicine. Results will be disseminated to patients through a research report which will be shared to hospital administration and in-turn can be used during engagements with communities on palliative care issues, and also through a poster of research summary which will be put in the hospital's palliative care clinic. Findings will be published in a peer reviewed journal.

4.10 Ethical Considerations

Ethical and scientific approvals were obtained prior to conduction of the research from the University of Cape Town Human Research Ethics Committee (HREC) reference number 478/2017 (appendix 5) and from the College of Medicine Research and Ethics Committee (COMREC) reference number p.07/17/2220 (appendix 6). Written authorization was obtained from the management of Mulanje Mission Hospital (appendix 7). Informed consent was sought from all eligible participants.

This study recognised the fact that it was dealing with a 'vulnerable' group of patients who were receiving palliative care, which comes about due to the nature of the incurable illness they are suffering. As such, there were risks to participants in the form of: distress during the study, protection of information and confidentiality especially in FGDs where these cannot be totally guaranteed and fear of victimization by health workers if they disclosed use of TMs. However, these risks were greatly minimized by allowing patients to withdraw at any time during the study, and also the availability of the distress protocol (appendix 4) which included a proper plan of referral for counselling, to the doctor and/or social worker. Furthermore, confidentiality and privacy were maintained as maximally as possible and participants were constantly assured of no victimization as a result of their participation in the study. The study used a neutral research assistant who is not an employee at the hospital.

Benefits from the study include knowledge of actual plants used as herbal medicines by patients, and also improving communication between medical professionals and patients regarding TM use. Study findings will be used to inform policy review at central level regarding herbal medicine use in palliative care, which in return will benefit patients.

CHAPTER 5: RESULTS

5.1 Prevalence of herbal medicine use

In total, 96 patients completed the questionnaire. 53% (n = 51) were males. Traditional medicine use was reported in 60% of patients (n = 58), of which 62% (n = 32) were males

5.1.1 Demographic characteristics of questionnaire participants

The table below shows the demographic characteristics of participants for the questionnaire:

Table 1: Demographic characteristics of questionnaire participants versus THM use

Variable	n (%)	TM Use		p-value
		Yes n (%)	No n (%)	
Sample size	96 (100%)	58 (60%)	38 (40%)	
Sex				0.679
Males	51 (53%)	32 (63%)	19 (37%)	
Females	45 (47%)	26 (58%)	19 (42%)	
Age (years)				0.855
Mean (SD)	42 (10.94)	43 (11.66)	42 (9.87)	
Marital status				0.036
Single	3 (3%)	1 (33%)	2 (67%)	
Married	64 (67%)	41 (64%)	23 (36%)	
Divorced/separated	22 (23%)	15 (68%)	7 (32%)	
Widow/widower	7 (7%)	1 (14%)	6 (86%)	
Education level				0.849
None	8 (8%)	5 (62%)	3 (38%)	

Primary	65 (68%)	38 (58%)	27 (42%)	
Secondary	19 (20%)	13 (68%)	6 (32%)	
Tertiary	4 (4%)	2 (50%)	2 (50%)	
Occupation				0.947
Unemployed	48 (50%)	30 (62%)	18 (38%)	
Employed	16 (17%)	10 (62%)	6 (38%)	
Business	13 (13%)	7 (54%)	6 (46%)	
Other	19 (20%)	11 (58%)	8 (42%)	
Distance from MMH (TA)				0.715
Chikumbu (10 km)	46 (48%)	30 (65%)	16 (35%)	
Mabuka (21 km)	21 (22%)	11 (52%)	10 (48%)	
Nkanda (23 km)	11 (12%)	7 (64%)	4 (36%)	
Njema (35 km)	10 (10%)	6 (60%)	4 (40%)	
Juma (30 km)	06 (6%)	2 (33%)	4 (67%)	
Mthiramanja (17 km)	01 (1%)	1 (100%)	0 (0%)	
Phalombe (40 km)	01 (1%)	1 (100%)	0 (0%)	

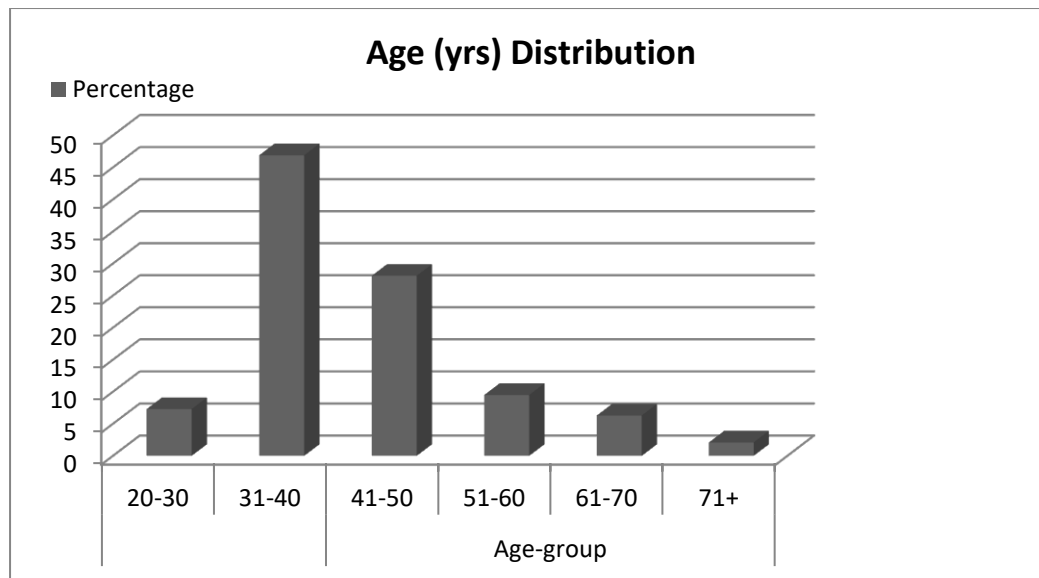
Using the Fisher's Exact test, traditional herbal medicine use was found to be significantly associated only with the marital status of participants ($p = 0.036$), but not with gender ($p = 0.679$), education level ($p = 0.849$), occupation ($p = 0.947$) nor distance from MMH ($p = 0.715$). Logistic regression analysis for marital status showed a significant reduction of 90% in the odds of THM use in the widowed compared to the married (OR = 0.09, $p = 0.033$, 95% CI: 0.0105932 - 0.8252009) but no significant associations between the single ($p = 0.310$) and the divorced/separated ($p = 0.727$) respectively compared with the married.

5.1.2 Age distribution of participants for the questionnaire

The age range of the participants was 24 – 76 years with a mean age of 42 years (SD 10.94).

The figure below shows the age categories of participants.

Figure 1: Age distribution of questionnaire participants



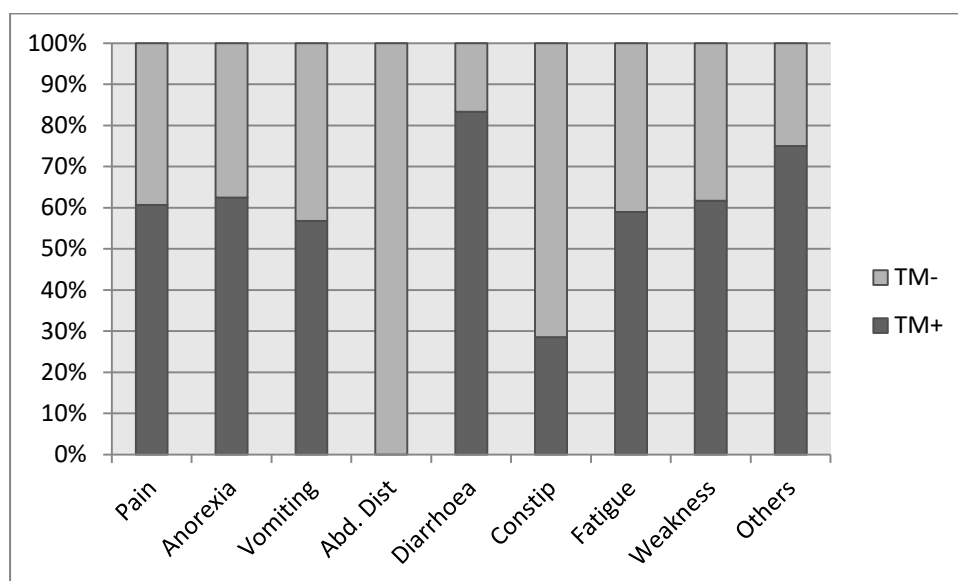
In an independent-samples t-test conducted to compare mean ages in THM users and non-users, the results showed no significant mean age difference between THM users ($M = 42.5$, $SD = 11.66$) and non-users ($M = 42.1$, $SD = 9.87$), conditions; $t(94) = -0.1835$, $p = 0.855$.

The results suggest that THM use by patients was not associated with age.

5.1.3 Symptoms of participants during survey

Most patients (98%, $n = 94$) had documented pain at the time of study of which 17% ($n = 16$) reported to have pain on more than one site. 83% ($n = 80$) had more than one symptom at the time of study. The other symptoms were reported as follows: Anorexia/cachexia 33% ($n = 32$); nausea/vomiting 39% ($n = 37$); abdominal distension 2% ($n = 2$); diarrhoea 13% ($n = 12$); constipation 7% ($n = 7$); fatigue 58% ($n = 56$); weakness 49% ($n = 47$) and other symptoms 17% ($n = 16$). The graph below shows percentage of TM use in the symptoms reported:

Figure 2: Percent THM use in reported symptoms



Abd. Dist = abdominal distension; Constip = constipation; Others = other symptoms.

THM use was not significantly associated with any clinical symptom in patients as shown in the following: Pain (OR = 1.54, $p = 0.761$), Anorexia (OR = 1.14, $p = 0.768$), Abdominal distension ($p = 0.078$), nausea and vomiting (OR = 0.78, $p = 0.561$), Constipation (OR = 0.24, $p = 0.074$), Diarrhoea (OR = 3.75, $p = 0.083$), Weakness (OR = 1.11, $p = 0.801$), Fatigue (OR = 0.86, $p = 0.724$) and Others (OR = 2.22, $p = 0.191$).

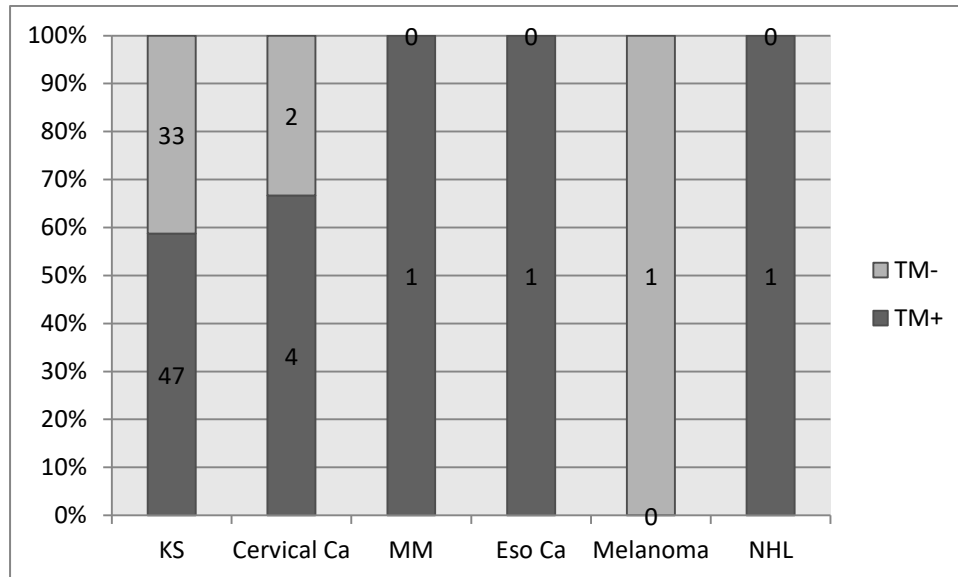
5.1.4 Diagnoses of questionnaire participants

5.1.4.1 Cancer

Of the total 96 patients, 94% ($n = 90$) had the diagnosis of cancer of which 46% ($n = 41$) were females. The commonest cancer was Kaposi's sarcoma which accounted for 89% ($n = 80$) seconded by cancer of the cervix at 7% ($n = 6$) and 1% each ($n = 1$) for multiple myeloma, oesophageal cancer, non-Hodgkin's lymphoma and melanoma. The prevalence of THM use among cancer patients was 60% ($n = 54$). All KS patients were HIV positive and on ART, and 58% ($n = 46$) of them (KS patients) reported use of THMs. 50% ($n = 3$) of cervical

cancer patients were HIV positive and on ART, and 67% (n = 4) of them reported use of THMs. The figure below shows the frequency of THM use among cancer patients:

Figure 3: THM use in cancer patients



KS = Kaposi sarcoma; Cervical Ca = cervical cancer; MM = multiple myeloma; Eso Ca = oesophageal cancer; NHL = Non-Hodgkin’s lymphoma.

82% (n = 74) of cancer patients reported using or to have used chemotherapy for cancer treatment. Chemotherapy was used for KS treatment only and vincristine and bleomycin were the only anti-cancer drugs used. 20 patients were treated with combined chemotherapy (vincristine plus bleomycin), 49 patients were treated with vincristine alone while 3 patients with bleomycin alone. 8 KS patients never received chemotherapy.

Neither the diagnosis of cancer (OR 0.75, p = 0.747, 95% CI 0.65 – 5.65) nor chemotherapy use (OR = 0.84, p = 0.725, CI 0.27 – 2.47) was associated with increased odds of THM use compared to those without cancer or not used chemotherapy respectively.

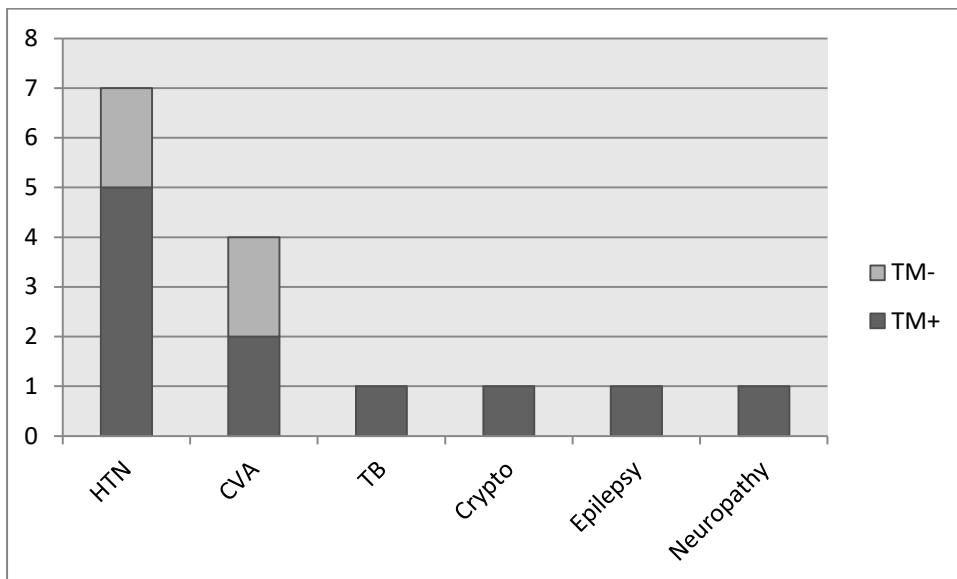
5.1.4.2 HIV

85 patients (89%) were HIV positive of which 50 (59%) were males. All HIV positive patients were on Ante-retroviral therapy (ART). The prevalence of THM use in HIV was 60% (n = 51). Those with HIV were not associated with increased odds of THM use compared to those without HIV (OR 0.86, p = 0.82, 95% CI 0.17 – 3.69).

5.1.4.3 THM use in other diagnoses

Apart from cancer and HIV, other diagnoses included: Hypertension (n = 7), cardiovascular accident (n = 4), TB spine (n = 1), Cryptococcal meningitis (n = 1), epilepsy (n = 1) and neuropathy (n = 1). These conditions occurred as co-morbidities or isolate diagnoses. The graph below shows THM use in these other diagnoses:

Figure 4: THM use in other diagnoses



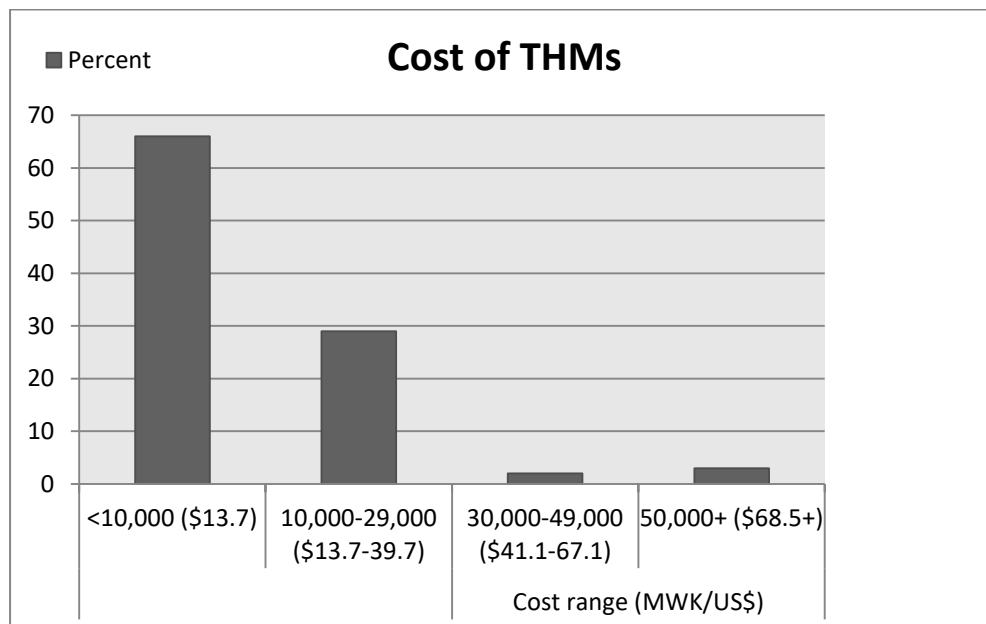
HTN = Hypertension; CVA = Cardiovascular accident; TB = Tuberculosis; Crypto = Cryptococcal meningitis.

5.2 Cost of traditional medicines

Participants were asked to report on how much they paid for both the service and traditional medicine used on the current illness for which they are receiving palliative care. 66% (n = 38) of the participants who used THM reported to have procured both the service and medicines at a cost of less than MK10, 000 (USD 13.4), 29% (n = 17) spent between MWK10, 000 to MWK29, 000; 2% (n = 1) spent between MWK30, 000 to MK49, 000 and 3% (n = 2) spent MWK50, 000 and above. The less than MWK10, 000 (\$13.7) category was both the median and modal cost category. On the other hand, a visit at MMH for PC services costs a patient between MK7, 000 – MK10, 000 (\$9 – 13.4), amount increases with number of hospital visits.

The graph below shows the percent costs distribution at which THM were accessed:

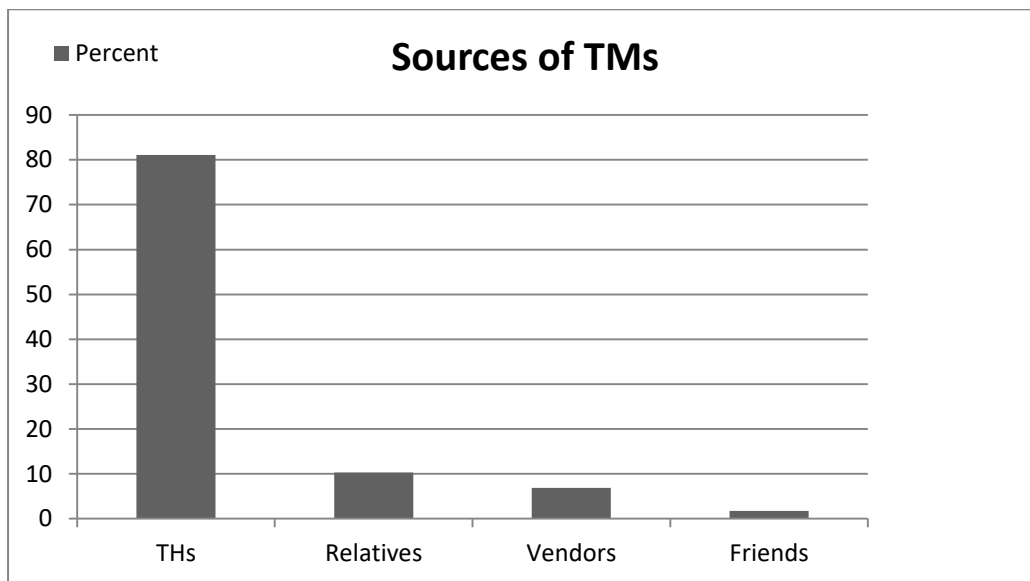
Figure 5: Cost distribution of THMs



5.3 Sources of traditional medicines

The sources of traditional medicines as reported in a questionnaire were THs, relatives, friends and vendors. THs were the commonest source of TM at 81% (n = 47), Relatives 10% (n = 6), vendors 7% (n = 4) and friend 2% (n = 1) as shown in the graph below:

Figure 6: Sources of THM



THs = Traditional healers

5.4 Traditional herbal medicines used by patients

Table 3 below reports the names, routes and prevalence of traditional medicine use among patients at MMH:

Table 2: Traditional medicines reported by patients

Herbal medicine	n (%)	Routes of intake	Parts of plant used	Purpose
<i>Cyphostema ssp:</i> Mwanamphepo	8 (14%)	Oral In hot water for foot massage	Stems Leaves	Wound Pain Edema
<i>Kigelia Africana:</i> Mvunguti	12 (21%)	Oral drink Minor subdermal surgery	Fruits Stem barks Leaves	Neuropathic pain Severe pain Cancer pain
<i>Moringa oleifera:</i> Chammwamba	5 (9%)	Topical (wash) Oral drink	Leaves	Skin rash Skin ailments
<i>Strychnos innocua:</i> Nkali	2 (3%)	Minor subdermal surgery	Stem barks	Deep bone pain
<i>Ceiba pentandra:</i> Mai bao	1 (2%)	Topical Oral	Leaves	Wound Pain
Nalingo	1 (2%)	Oral drink	Stems	Pain
<i>Erythrophleum suaveolens:</i> Mtengo wa mwabvi	1 (2%)	Topical	Leaf stems	Wound Skin ailments
Neem	1 (2%)	Oral	Leaves Stem barks	Headache
Don't know	36 (62%)	Oral Minor subdermal		

		surgery		
		Nebulise		
		Apply on skin		
		In a bath		
		Apply on undergarments		

5.5 Conventional pain medication used

Pain medications used were obtained from the participants' health passport books and also through verbal reports where necessary (e.g. if using new health passport book). The commonest analgesics used are shown in the table below:

Table 3: Conventional pain medication used

Medication	n (%)
Paracetamol	91 (95%)
Ibuprofen	74 (77%)
Indomethacin	40 (45%)
Morphine	11 (11%)
(Amitriptyline)	13 (14%)

Paracetamol was the most prescribed analgesic at 95% whereas morphine was the least prescribed at 11%. 73% (n = 8) of patients on morphine concomitantly used morphine and THMs. Oral liquid morphine was the only form of morphine and the only opioid used by the study participants. Amitriptyline was captured for its adjuvant analgesic functions.

5.6 Reasons for use of Traditional medicines by patients

Two FGDs with a total of 14 participants (6 females) were held. The mean age of participants was 45 years (median 42 years, range 35 – 61). From the FGDs, reasons for use of traditional medicines by patients were documented. The table below describes baseline characteristics of FGD participants:

Table 4: Baseline characteristics of focus group discussions (FGDs) participants

P #	Sex	Age (Yrs)	Marital status	Occupation	PC diagnosis	Co-morbidity	Education level	Location (TA)
P01	F	37	Divorced	Un-employed	KS	HIV	Primary	Chikumbu
P02	M	61	Married	Un-employed	KS	HIV	Primary	Chikumbu
P03	F	54	Married	Dramatist	KS	HIV	Primary	Mabuka
P04	M	40	Married	Temporary jobs	KS	HIV	Secondary	Mabuka
P05	F	39	Divorced	Small businesses	KS	HIV	Secondary	Chikumbu
P06	F	42	Married	House wife	KS	HIV	Secondary	Chikumbu
P07	M	36	Married	Un-employed	Cryptococcal meningitis	HIV	Primary	Chikumbu
P08	F	35	Married	House wife	KS	HIV	Secondary	Mthiramanja
P09	F	60	Widow	Un-employed	KS	HIV	Primary	Njema
P10	M	52	Married	Un-employed	KS	HIV	Primary	Chikumbu

P11	M	37	Married	Builder	KS	HIV	Primary	Nkanda
P12	M	44	Married	Temporary jobs	KS	HIV	Primary	Chikumbu
P13	M	49	Married	Tea estate worker	KS	HIV	Primary	Chikumbu
P14	M	42	Married	Temporary jobs	KS	HIV	Secondary	Chikumbu

P# = Participant number; TA = Traditional Authority

5.6.1 Themes

Three main themes and a total of 14 sub-themes emerged from the FGDs. The main themes were: “Traditional practices”, “Limitations of the conventional health system” and “Credibility of traditional healers”. The table below shows the main themes and sub-themes developed:

Table 5: Presentation of the themes and sub-themes

Theme 1: Traditional practices	Theme 2: Limitations of the conventional health system	Theme 3: Credibility of THs
<ul style="list-style-type: none"> • Traditional health beliefs • Familiarity with traditional medicines • Perceived similar effectiveness between traditional and conventional medicines • Perceived higher effectiveness of TM above conventional medicine 	<ul style="list-style-type: none"> • Delay in conventional diagnosis • Lack of sufficient relief with conventional medicines • Cost for conventional services • Long Distance • Long waiting times at conventional facilities • Uncaring attitude of staff 	<ul style="list-style-type: none"> • Easy access • Affordable • Hospitable • Flexible

5.6.1.1 Traditional practices

5.6.1.1.1 Traditional health beliefs

Participants explained that their culture is closely linked with the use of traditional medicine for varied purposes including health. Participants explained that THM use in their area is usually learned from young age and that traditional beliefs incorporate THMs on many conditions including palliative care. THM use was attributed to cultural beliefs as explained by a participant below:

“The main reason for using THM is because of traditional beliefs; there are so many traditional beliefs in the villages...” P01, FGD

Another participant acknowledged the fact that conventional facilities can be available and within reach however they choose to use THMs because of cultural beliefs:

“It is not that we live far from the health facilitybut just traditional beliefs” P03, FGD

5.6.1.1.2 Familiarity with traditional medicines

Familiarity with THMs was another reason why some patients used THMs as explained by a 36-year-old man below:

“.... We have grown up using these THMs....” P07 FGD

5.6.1.1.3 Perceived similar effectiveness between traditional and conventional medicines

Some participants believed THMs worked just like conventional medicines and that both share similar limitations. This is what a 37-year-old woman said in this regard:

“THMs work in some situations; they depend on a person’s body. It’s just like with conventional medicine; one can take a medicine and get healed but the same medicine another person will not” P1 FGD

Participants believed that THM can be efficacious if used early during the course of illness or when the condition is not severe, which also is the case with conventional medicines;

“Traditional medicine works depending on how severe the disease is” P7 FGD

“..... It (THM) works depending on the time of presentation especially when started early....., One can use a medicine but no improvement while another uses it and notices remarkable improvement.” P5 FGD

5.6.1.1.4 Perceived higher effectiveness of THM above conventional medicine

THM was suggested by some participants as better and last resort for some conditions difficult to manage with conventional medicines or where conventional medicine appeared to fail.

*“The wound on which one has tried various medicines including hospital ones but not helping, we use THMs particularly **Erythrophleum suaveolens** (mtengo wa mwabvi) for that...” P7 FGD*

“I used THM for cancer pain on my leg and the pain stopped..... THM cured my wound and pain, I can use THM again.” P7 FGD

5.6.1.2. Limitations of conventional health system

Poor conventional healthcare services provided in public health facilities due to poor health system and lack of professionalism among healthcare staff influenced patients to seek traditional medicines as an alternative. Participants pointed out the public health system’s lack of resources (equipment and supplies) and uncaring attitude, under-qualification or under-experience of healthcare workers in government run institutions lead to failure to diagnose diseases, failure to provide cure, failure to provide sufficient symptomatic relief and lack of respect to patients and preservation of their dignity. These influence patients to go to THs for treatment.

5.6.1.2.1 Delay in conventional diagnosis

Failure for hospitals to provide concise diagnosis makes patients to go for THs for diagnosis to confirm what is going on in them. Participants said they are sent back from conventional hospitals which fail to diagnose a condition at a particular time. They are made to wait up until the condition is more apparent which on the other hand results into delayed diagnosis and delayed treatment as explained by some participants below:

“I used TMs because the doctor sent me back telling me that I had no cancer..... I later on came here (MMH) when they told me I had skin cancer...” P3 FGD

“I was just following what the vendors told me on the type of THMs to use since I had been sent back from the hospital....., P6 FGD

5.6.1.2.2 Lack of sufficient relief from conventional medicines

Lack of sufficient relief from conventional medicine was one of the reasons that made participants seek THMs. On top of the relief, some participants were also looking for cure in-order to get lasting relief. Below is what some participants said:

I used THM (sausage tree) because that time I had severe leg pain like cancer with no relief from Panadol and brufen.” P7 FGD

“I found some people selling THM (sausage tree), seeing that I have been coming to the hospital here for some time with no improvement, I bought that medicine.” P10 FGD

I had been going to a public health centre for over a year with no improvement..... I then used THMs for the cancer, you know when you are very sick you try everything possible.” P6 FGD

5.6.1.2.3 Cost of conventional services

Almost all participants were of the idea that the mission hospital and other private hospitals provided better health services than public facilities. However, failure to meet the cost for these services was one of the reasons why some participants used TMs instead. One participant explained this as follows;

“I used sausage tree because that time I didn’t have money to go to hospital and the pain was too much. I just thought it wise to use the sausage tree” P7 FGD

“Good hospitals like this one need money, but we can use TM and also get better...” P7 FGD

5.6.1.2.4 Long distance to conventional facilities

Participants mentioned long distances to conventional hospitals as one of the reasons they use THMs since THs are locally found within the communities and easy to get.

“It also depends on one’s closeness to the hospital, for some of us hospitals are far and travelling to the hospital demands money or walking long distance with difficulties....” P7 FGD

5.6.1.2.5 Long waiting time at conventional facilities

Participants decried long waiting times at public facilities as another reason they used THMs instead. They said usually long waiting time in these facilities is as a result of congestion but sometimes as a result of bad attitude of health workers who just don't want to assist patients in good time. One participant had this to say;

"I was admitted at the district hospital at around 6 o'clock in the morning but only received medicine at around 6 o'clock in the evening, imagine all that time just waiting?" P3 FGD

5.6.1.2.6 Uncaring staff attitude

Participants strongly talked about the rudeness and non-friendly attitude of most healthcare workers in public health facilities as one reason why they opted for THM or even go to mission hospital. Below is what some participants said regarding bad attitude of health staff in public facilities:

"Here at mission hospital they receive us very well but government hospitals are rude. Maybe because we pay here at MMH but they receive us well. Some people go to THs because they are afraid going to public hospitals." P1 FGD;

"Health workers at government hospitals are really rude; they don't receive patients with respect." P2 FGD;

"Public hospitals are very rude; they even shout at you when in-fact you are seriously ill. So to think about your sickness and the shouting, can your head function properly?" P1 FGD;

".... From the wheel chair they just threw me on the bed and not give me treatment in good time, health workers at public hospital are very rude beyond measure." P3 FGD

5.6.1.3 Credibility of THs

Credibility of THs in terms of access, affordability, hospitality was another reason why patients used THMs. Participants explained that THs lived in the communities with them and it was easy to reach them compared to health facilities which are mostly at long distances. Considering their conditions, travelling to health facilities is mostly at a cost or with physical difficulties and good hospitals demand money. Sometimes THs are able to visit them at their homes for diagnosis and not only as a follow up visit.

“... for some of us hospitals are far and travelling to the hospital demands money or walking long distance with difficulties... we can go to THs, use TMs and get better” P7 FGD

THs were also regarded to be flexible and able to welcome every patient even when they are sent back from the hospital. With THs, there was estimated less waiting time and preservation of respect when treating patients:

“I used THMs because the conventional doctor sent me back.....” P3 FGD

CHAPTER 6: DISCUSSION

Prevalence of THM use

This study was conducted to explore the prevalence, reasons and medicinal plants used as THMs by patients receiving PC at MMH. The study found a high level of herbal medicine usage among respondents at 60.4%, mainly for symptom management and cancer. Lack of documentation regarding THM use in PC makes it difficult to compare our findings with similar studies in PC. Nevertheless, our work still expands on previous studies across sub-Saharan Africa which described the high prevalence of TM use in various disease conditions.(30)(37)(59) A study done in north Tanzania found a prevalence of 56% of THM use among adults in that region mainly for symptomatic ailments (42%) and chronic diseases (15%).(59) A systematic review by Liwa et al (2014) found an average prevalence of 38.6% of THM use among hypertensive patients in SSA.(30) A local study by Zachariah et al (2002) in Thyolo, a neighbouring district of our study district, reported a prevalence of 37% THM use (herbs from THs) among STI clients.(37) We however observe a higher prevalence of THM use in our study which looks at PC compared to prevalence reported by various studies on other disease conditions. This may agree with a report by Cassileth (1996) that the understanding by patients and families that ‘nothing could be done’ on the illness versus the hope to ‘leave no stone unturned’ may render PC patients prime candidates for THM use.(41)

In our study, THM use was not significantly associated with gender, age-group, education level, occupation, diagnosis and symptoms of participants or distance from health facility. This is different from findings in a study done in Thyolo district where they found THM use being associated with low education level (primary level and below) and being resident in the village.(37) However, this study found THM use to be significantly associated with marital status; we found a significant reduction of 91% in the odds of THM use in the widowed compared with the married ($p=0.033$).

Reasons for THM use

Our study found three main reasons why participants used THMs: Traditional practices, credibility of traditional healers and limitations of the conventional health system.

Traditional Practices

Traditional practices involving traditional medicines for healthcare are embedded in the culture of the Lhomwes, a tribe which all our study participants belonged to. Some participants reported using THMs since childhood ages and grew up using them for various purposes and are familiar with them. Our research team witnessed the strong cultural beliefs in this area during the data collection period when we had to suspend data collection for almost 6 weeks due to rumours about ‘blood sucking vampires’ which made way in five districts including our study district, in the Southern region of the country.(60) Our findings also corroborate several other findings from studies in the SSA region. A systematic review by Liwa (2014) reported that 20% of the participants used THMs for hypertension based on cultural practices and herbal medicine knowledge.(30) In our study, lack of monitored dosing, scientific evidence, diagnostic testing, standardized diagnostic criteria and poor hygienic practices were reported as major setbacks for use of traditional herbal medicines by participants; similar to what Stanifer et al (2015) reported as reasons why some people view TM as “outdated” or “backward” leading to non-use.(59) However, despite the above, we find the high adherence to traditional medicine practice as being closely related to participants’ strong cultural beliefs. Some participants in the current study regarded THM as being equal to or even better (more effective) than conventional medicine, and this agrees with findings in studies done in South Africa and China where THM was reported to be desirable for treating a range of health problems that are not adequately managed by conventional medicine.(50)(56)

Credibility of traditional healers

Our study describes traditional healers as the commonest source for THMs patients used at 81%. A previous local study in Thyolo district also reported traditional healers as the commonest source of THMs for STI clients at 37%.(37) We think the high proportion in our study could arise due to the chronic and complex nature of PC conditions which may require someone with good knowledge of THMs like THs to manage. In this study, THs were viewed to be easily accessible since they lived within the communities; affordable due to lower

charges compared to MMH paying charges or less travelling costs to reach them compared to travelling costs to MMH; and also welcoming as they were able to welcome and manage patients who were even sent back from conventional facilities for various reasons. THs were able to visit patients at their homes for diagnosis and not only for follow up as is a case with the conventional system. This was viewed by participants as respect of family dynamics by THs and also demonstrated THs' flexibility and approachability. The findings agree with Zachariah's (2004) description of traditional healers in Malawi as having a reputation of being sympathetic, more confidential, and easily accessible.(37)

Limitations of the conventional system

The current study found limitations of the conventional system as a third reason why participants used THMs. The conventional system was perceived to fail to deliver to satisfaction through the following ways: Failure or delay in diagnosis (resulting in lack of or delayed treatment), lack of sufficient relief from conventional medicines, erratic or non-availability of conventional medicines especially anti-cancer and pain medication, high cost of conventional services, long distance to facilities, long waiting times at facilities and uncaring attitude of staff. These findings concur with findings from a systematic review by Liwa (2014) which also gave the above as reasons for using THMs by hypertensive patients in SSA. However, the review had high cost and un-availability of conventional medicines as primary reasons for THM use, which is not the case in our study.(30) We also observed a low morphine uptake at only 11% against documented pain of 98% among patients. Although this study did not measure the proportion of those with documented severe pain, but using the fact that lack of sufficient symptomatic relief with conventional medicines was one of the reported reasons for use of THMs, and also knowing that the majority of the participants had cancer and HIV where severe pain is common, we look at 11% morphine uptake to be very low and we believe many patients were inadequately treated for pain. Our study also found that 73% of the patients on morphine concomitantly used morphine and THMs for pain. Arguably, a systematic review and meta-analysis by Chung (2016) reported significant reduction in pain among patients who combined conventional and Chinese herbal medicine for cancer pain in palliative care.(56) However, unlike with CHMs, most THMs in our setting are not researched and their active phytochemicals are not known hence posing a risk for potential detrimental herb-drug interactions which patients may not realize as coming from

the herbs and the conventional medicines used. About 62% of the participants who used herbal medicines in our study did not know the herbs they were taking. We find this concerning because again most conventional workers in the country do not ask patients about the use of herbal medicines. A study in Ghana reported up to 90% of hypertensive patients were not asked about herbal medicine use by conventional doctors and about 98% of the patients had never shared information on their use of herbal medicine with conventional doctors.(61) Although some of the herbs used could potentially be harmless, we find this high proportion worrisome because the concomitant use of herbs and conventional medicines such as ARVs and anti-cancer drugs (as demonstrated in the current study) may have potential herb-drug interactions which may affect the effectiveness or increase toxicological effects of some drugs.

Traditional herbs used

Kigelia africana, *Moringa oleifera*, *Cyphostema junceum* and *Strychnos innocua* were the commonest reported herbs in this study.

Kigelia Africana

Kigelia Africana or Mvunguti as known in local Chichewa language was reported to be used for neuropathic pain, cancer pain, severe pain and cancer. Flour and paste made from dried and grounded plant fruits, stem barks and leaves were the reported forms of medicine used. It was used concurrently with ART and chemotherapy in most patients. Several studies have demonstrated strong analgesic and anti-inflammatory activities on this plant.(62)(63) The ethanolic extract of the stem bark and fruits were shown by Owolabi and Omogbai (2007) to inhibit the synthesis of prostaglandins and other inflammatory mediators through selective inhibition of COX 2 enzymes, and the results were shown to be well comparable to the respective standard drugs (i.e. NSAIDS).(62) Just like in the current study, previous studies also reported dried fruit and bark extract forms being used as strong pain relievers when administered on painful joints, back and rheumatism. Additionally, the extract of root bark, stem bark and fruit have also been reported for their cytotoxic activities and showed promising results in treating melanoma and renal carcinoma.(62)(54) We did not find literature regarding effectiveness of this herb against KS, the commonest cancer in the current study whereas the only participant with melanoma in the current study did not use herbal medicines.

Moringa oleifera

Moringa oleifera also known as Chammwamba locally (Chichewa) was mainly used for skin rash and other skin ailments using boiled leaves to wash the affected area. A review by Stohs et al (2015) reported that extracts of *M. oleifera* leaves possess a wide range of biological activities including antioxidant, tissue protective (liver, kidneys, heart, testes, and lungs), analgesic, antiulcer, antihypertensive, radio-protective, and immunomodulatory actions. It reported that a wide variety of polyphenols and phenolic acids, as well as flavonoids, glucosinolates and alkaloids were believed to be responsible for the observed effects.(64) However, the review did not include safe concentrations and the results reported were not conclusive.

Cyphostema junceum

Cyphostema junceum known by the Chichewa name Mwanamphepo, is a herb which in the current study was used for wound, pain and oedema treatment using leaves and stems. It is reported in the current study to work well in combination with other herbs known locally as mwanamvula and mtengo wa mwabvi (*Erythrophleum suaveolens*). We did not find any literature regarding use of this herb for wound, pain and oedema as reported in the current study, however, the plant has been reported before for wide use in reproductive health in Malawi.(38)(54)

Strychnos innocua

Strychnos innocua also called Nkali (Lhomwe) or Mateme (Chichewa) was used for deep bone pain using dried stem bark and root flour applied to affected area through minor subdermal surgery done by THs. We did not find scientific evidence supporting its use for pain as reported in the current study. However, Kamuhabwa et al (1999) through interviews with herbal experts reported the use of roots of this plant for inflammation, colic pain and as a laxative. However, the active phytochemicals were not studied.(65)

STUDY LIMITATIONS

Despite the above findings, the study contained the following limitations;

- a. Generalisability: the strength of this study is that it was conducted in a rural setting, similar to those occupied by the majority of Malawians. However, the population was sampled from those attending a recognised health facility, and may not represent the practices of the wider community, particularly those who choose not to go to hospital or are unable to attend a paying clinic. It would be anticipated that TM use amongst such populations could be much higher than in this study.
- b. The study was conducted at a mission hospital only; we know the majority of patients in the country go to public health facilities which are free of charge. As such, we could not compare study findings with those from public facilities.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

In this study we report that the use of traditional herbal medicine is very common among patients receiving palliative care at Mulanje Mission hospital; nearly two thirds of the palliative care patients use traditional herbal medicines mainly for symptom management and cancer. *Kigelia africana*, *Moringa oleifera*, *Cyphostema junceum* and *Strychnos innocua* are the most common herbs used and traditional healers the commonest source of the used herbs at 81% followed by relatives at 10%, vendors at 7% and friends at 2%.

Reasons given for TM use include traditional practices and a widespread belief in the efficacy of such compounds, despite the fact that more than 60% of products were unknown to the patients. Failures of conventional medical services also contribute to high prevalence of TM use, and as such, health system issues in Malawi including the reception by health workers need to be urgently addressed.

Further investigations are required on the effectiveness of these herbs with respect to their targeted symptoms and also potential herb-drug interactions especially with ARVs, anti-cancer drugs and opioids mostly used concomitantly with the herbs. There is need to encourage open and non-judgmental communication between healthcare workers and patients regarding use of herbal medicines. However, to achieve this, healthcare workers need to be provided with knowledge regarding traditional herbs commonly used in PC and also skills for obtaining traditional medicine history from patients within the local context without instilling fear which may result to non-disclosure. There is need for more research on the use of traditional medicines covering different geographical areas and varied ethnic groups. It is also important to identify specific traditional practices that affect healthcare, and to work in liaison with traditional healers to formulate effective local PC management programs that are sensitive to TM practices.

REFERENCES

1. WHO. Traditional Medicine-Growing Needs and Potential. World Heal Organ Policy Perspect Med [Internet]. 2002;2:6. Available from:
<http://apps.who.int/medicinedocs/pdf/s2293e/s2293e.pdf>
2. WHO. WHO Traditional Medicine Strategy 2014-2023. Altern Integr Med [Internet]. 2013;1–76. Available from:
http://apps.who.int/iris/bitstream/10665/92455/1/9789241506090_eng.pdf?ua=1
(Accessed 09.09.2016)
3. Kloos H, Hailemariam D, Kaba M, Tadele G. Review article Traditional medicine and HIV / AIDS in Ethiopia : Herbal medicine and faith healing : A review. Ethiop J Heal Dev. 2013;27(2):141–55.
4. Bannerman R. Traditional Medicine and Healthcare. WHO. 1993;
5. World Health Organization (WHO). WHO Traditional Medicine Strategy 2002-2005. World Heal Organ Geneva [Internet]. 2002;1–74. Available from:
http://www.wpro.who.int/health_technology/book_who_traditional_medicine_strategy_2002_2005.pdf
6. WHO. General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine World Health Organization. World Heal Organ [Internet]. 2000;1–73. Available from:
http://apps.who.int/iris/bitstream/10665/66783/1/WHO_EDM_TRM_2000.1.pdf
(Accessed 09.09.2016)
7. Cichello S, Tegegne S, Yun H. Herbal medicine in the management and treatment of HIV-AIDS: A review of clinical trials 2014. Aust J Herb Med. 2014;26(3):99–118.
8. Bodeker G, Carter G, Burford G, Dvorak-Little M. HIV/AIDS: Traditional Systems of Health Care in the Management of a Global Epidemic. J Altern Complement Med. 2006;12(6):563–76.
9. WHO, UNAIDS. Joint United Nations programme on HIV/AIDS epidemic update. Geneva; 2007.

10. Dorfman J, Denduluri S, Walseman K, Bregman B. The Role of Complementary and Alternative Medicine in End-of-Life Care. *Psychiatr Ann.* 2012;42(4):150–5.
11. Bica I, Tang AM, Ph D, Gorbach S, Wilson IRAB, Sc M. Use of Complementary and Alternative Therapies by Patients With Human Immunodeficiency Virus Disease in the Era of Highly Active Antiretroviral Therapy. *J Altern Complement Med.* 2003;9(1):65–76.
12. Mills E, Cooper C, Seely D, Kanfer I. African herbal medicines in the treatment of HIV: Hypoxis and Sutherlandia. An overview of evidence and pharmacology. *Nutr J* [Internet]. 2005;4:19. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/15927053> <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC1156943>
13. Ministry of Health G of M. Traditional Medicine Policy for Malawi. 2004;6–18. Available from: [http://www.ndr.mw:8080/xmlui/bitstream/handle/123456789/868/Tradition medicine.pdf?sequence=1](http://www.ndr.mw:8080/xmlui/bitstream/handle/123456789/868/Tradition%20medicine.pdf?sequence=1). (Accessed 19.02.2018)
14. Hecce ME, Elmore SN, Kalanga N, Keck JW, Wroe EB, Phiri A, et al. Assessing and responding to palliative care needs in rural sub-Saharan Africa: Results from a model intervention and situation analysis in Malawi. *PLoS One* [Internet]. 2014;9(10). Available from: <http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0110457> (Accessed 26.06.2018)
15. Finch T. Palliative Care in Salima District. *Malawi Med J* [Internet]. 2008;21(suppl 13):153–7. Available from: [www.mmj.medcol.mw/MMJ 20\(4\) 2008](http://www.mmj.medcol.mw/MMJ%20(4)%202008) (Accessed 26.06.2018)
16. Malawi Government. Malawi MDG endline survey 2014. Lilongwe; 2014.
17. Bates J, Gwyther L, Dinat N. Morphine : friend or foe ? *Malawi Med J.* 2008;20(4):112–4.
18. Harding R, Higginson IJ. Palliative care in sub-Saharan Africa: Review. *Lancet* [Internet]. 2005;365:1971–7. Available from: www.thelancet.com (Accessed

16.04.2018)

19. Grant L, Brown J, Leng M, Bettega N, Murray SA. Palliative care making a difference in rural Uganda, Kenya and Malawi: Three rapid evaluation field studies. *BMC Palliat Care* [Internet]. 2011;10(8):1–10. Available from: <http://www.biomedcentral.com/1472-684X/10/8> (Accessed 26.03.2018)
20. Downing J, Grant L, Leng M, Namukwaya E. Understanding Models of Palliative Care Delivery in Sub-Saharan Africa : Learning From Programs in Kenya and Malawi. *J Pain Symptom Manage* [Internet]. Elsevier Inc; 2015;50(3):362–70. Available from: <http://dx.doi.org/10.1016/j.jpainsymman.2015.03.017> (Accessed 16.04.2018)
21. Fraser BA, Powell RA, Mwangi-Powell FN, Namisango E, Hannon B, Zimmermann C, et al. Palliative Care Development in Africa: Lessons From Uganda and Kenya. *J Glob Oncol* [Internet]. 2018;(4):1–10. Available from: <http://ascopubs.org/doi/10.1200/JGO.2017.010090> (Accessed 16.04.2018)
22. World Health Organization (WHO). *Cancer pain relief; with a guide to opiate availability*. Geneva; 1996.
23. Ministry of Health G of M. *National Palliative Care Policy* [Internet]. Lilongwe: Malawi Government; 2014. p. 1–25. Available from: http://www.palliativecareassociationofmalawi.org/images/pdf/malawi_palliative_policy_2014.pdf (Accessed 26.06.2018)
24. Logie DE, Harding R. An evaluation of a morphine public health programme for cancer and AIDS pain relief in Sub-Saharan Africa. *BMC Public Health* [Internet]. 2005;5:1–7. Available from: <http://www.biomedcentral.com/1471-2458/5/82> (Accessed 16.04.2018)
25. Bodeker G, Kronenberg F. A public health agenda for traditional, complementary, and alternative medicine. *Am J Public Health*. 2002;92(10):1582–91.
26. Abdullahi AA. Trends and challenges of traditional medicine in Africa. *African J Tradit Complement Altern Med* [Internet]. 2011;8(5 SUPPL.):115–23. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3252714/pdf/AJT085S-0115.pdf> (Accessed 02.03.2018)

27. Colebunders R, Dreezen C, Florence E, Pelgron Y, Schrooten W. The use of complementary and alternative medicine by persons with HIV infection in Europe. *Int J STD AIDS*. 2003;14(10):672–4.
28. Duggan J, Peterson W, Schutz M, Khuder S, Charkraborty J. Use of complementary and alternative therapies in HIV infected patients. *AIDS patient care STDS*. 2001;15(3):159–67.
29. Langlois-Klassen D, Kipp W, Jhangri GS, Rubaale T. Use of traditional herbal medicine by AIDS patients in Kabarole District, western Uganda. *Am J Trop Med Hyg* [Internet]. 2007;77(4):757–63. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/17978084>
30. Liwa AC, Smart LR, Frumkin A, Epstein H-AB, Fitzgerald DW, Peck RN. Traditional herbal medicine use among hypertensive patients in sub-Saharan Africa: a systematic review. *Curr Hypertens Rep*. 2014;16(6):437.
31. Peltzer K. Health beliefs and prescription medication compliance among diagnosed hypertension clinic attenders in a rural South African Hospital. *Curationis*. 2004;27(3):15–23.
32. Amira OC, Okubadejo NU. Frequency of complementary and alternative medicine utilization in hypertensive patients attending an urban tertiary care centre in Nigeria. *BMC Complement Altern Med* [Internet]. 2007;7:30. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2045097&tool=pmcentrez&rendertype=abstract>
33. Olisa N, Oyelola F. Evaluation of use of herbal medicines among ambulatory hypertensive patients attending a secondary health care facility in Nigeria. *Int J Pharm Pract* [Internet]. 2009;17(2):101–5. Available from: <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed9&NEWS=N&AN=2009146360>
34. Osamor PE, Owumi BE. Complementary and alternative medicine in the management of hypertension in an urban Nigerian community. *BMC Complement Altern Med* [Internet]. 2010;10(1):36. Available from:

- <http://bmccomplementalalternmed.biomedcentral.com/articles/10.1186/1472-6882-10-36>
35. WHO. 56th World Health Assembly Traditional medicine Report. Geneva; 2003.
 36. Courtright P, Lewallen S, Kanjaloti S, Divala DJ. Traditional eye medicine use among patients with corneal disease in rural Malawi. *Br J Ophthalmol* [Internet]. 1994;78(78):810–2. Available from: <http://bjo.bmj.com/content/bjophthalmol/78/11/810.full.pdf>.(Accessed on 19/02/2018)
 37. Zachariah R, Nkhoma W, Harries A, Arendt, V, Chantulo A, Spielmann M, et al. Health seeking and sexual behaviour among patients with sexually transmitted infections - the importance of traditional healers. *Malawi Med J* [Internet]. 2004;14(2):15–7. Available from: <http://www.ajol.info/index.php/mmj/article/view/10761>.(Accessed 19.02.2018)
 38. Robison LM, Sclar D, Skaer T. Medicinal Plant Use By Traditional Healers in Malawi: Focus on Neem, Tephrosia, Moringa, Jatropha, Marula and Natal Mahogany. USAID. 2002;(49):1–12.
 39. Malawi Government. Human Resources for Health Country Profile. 2010;21–52. Available from: www.health.gov.mw/index.php/policies-strategies?download=12:hrh-malawi (Accessed 15.03.2018)
 40. Clegg- Lamptey J, Dakubo J, Attobra Y. Why do breast cancer patients report late or abscond during treatment in Ghana? A pilot study. *Ghana Med J*. 2009;49(3):127–31.
 41. Cassileth B, Chapman C. Alternative and complementary cancer therapies. *Cancer*. 1996;1026–34.
 42. Agbor AM, Naidoo S. Knowledge and practice of traditional healers in oral health in the Bui Division, Cameroon. *J Ethnobiol Ethnomed* [Internet]. 2011;7:1–8. Available from: <http://www.ethnobiomed.com/content/7/1/6> (Accessed 03.03.2018)
 43. Agbor, A M, Naidoo S. A review of the role of African traditional medicine in the management of oral diseases. *African J Tradit compleplementary Altern Med* [Internet]. 2016;13(2):133–42. Available from:

<http://dx.doi.org/10.4314/ajtcam.v13i2.16> (Accessed 02.03.2018)

44. Green A, Jerzmanowska N, Thristiawati S, Green M, Lobb EA. Culturally and linguistically diverse palliative care patients' journeys at the end-of-life. *Palliat Support Care*. 2018;1–7.
45. Awases M, Gbary AR, Nyoni J, Chatora R. Migration of health professionals in six countries: a synthesis report1. Awases M, Gbary AR, Nyoni J, Chatora R. Migration of health professionals in six countries: a synthesis report. *World Heal Organ Geneva* [Internet]. 2004;18–37. Available from: http://www.afro.who.int/sites/default/files/2017-06/hrh_migration_en.pdf (Accessed 06.03.2018)
46. Merriam S, Muhamad M. Roles traditional healers play in cancer treatment in Malaysia: Implications for health promotion and education. *Asian Pacific J Cancer Prev*. 2013;14(6):3593–601.
47. King R. Collaboration with traditional healers in HIV/AIDS prevention and care in sub-Saharan Africa: A literature review. *Literature review*. Geneva; 2000.
48. Labhardt ND, Aboa SM, Manga E, Bensing JM, Langewitz W. Bridging the gap: how traditional healers interact with their patients. A comparative study in Cameroon. *Trop Med Int Heal* [Internet]. 2010;15(9):1099–108. Available from: <http://onlinelibrary.wiley.com.ezproxy.uct.ac.za/doi/10.1111/j.1365-3156.2010.02575.x/full> (Accessed 08.03.2018)
49. Okigbo R, Mmeka E. An appraisal of phytomedicine in Africa [Internet]. *KMITL Sci. Tech. J*; 2006. p. 1–4. Available from: https://scholar-google-co-za.ezproxy.uct.ac.za/scholar?hl=en&as_sdt=0%2C5&q=An+appraisal+of+phytomedicine+in+Africa&btnG= (Accessed 08.03.2028)
50. Mander Myles; Ntuli, Lungile; Diederichs, Nicci; Mavundla K. Economics of the Traditional Medicine Trade in South Africa. *South African Heal Rev* [Internet]. 2007;189–200. Available from: http://journals.co.za.ezproxy.uct.ac.za/docserver/fulltext/healthr/2007/1/healthr_2007_a16.pdf (Accessed 08.03.2018)

51. Mahomoodally MF. Evidence - Based Complementary and Alternative Medicine Traditional Medicines in Africa : An Appraisal of Ten Potent African Medicinal Plants. Evidence-based Complement Altern Med [Internet]. 2013;2013:1–10. Available from: <http://dx.doi.org/10.1155/2013/617459> (Accessed 02.03.2018)
52. SADC. SADC ministerial consultative meeting on Nutrition and HIV/AIDS. Johannesburg; 2002.
53. Hills S, Finch L, Garanganga E. Traditional medicine. In: Hills S, editor. A Clinical Guide to Supportive and Palliative Care for HIV/AIDS in Sub-Saharan Africa. APCare; 2006. p. 220–30.
54. Msonthi JD. Herbs of Medicinal Value in Malawi - A potential for drug formation [Internet]. Zomba: Cabi.org; 1987. p. 146–61. Available from: <https://www.cabi.org/gara/FullTextPDF/2010/20103041196.pdf> (Accessed 27.02.2018)
55. Pachman D, Barton D, Swetz K, et al. Troublesome symptoms in cancer survivors: fatigue, insomnia, neuropathy, and pain. *J Clin Oncol*. 2012;30:3687–3696.
56. Chung VCH, Wu X, Lu P, Hui EP, Zhang Y, Zhang AL, et al. Chinese Herbal Medicine for Symptom Management in Cancer Palliative Care: Systematic Review And Meta-analysis. *Medicine (Baltimore)* [Internet]. 2016;95(7):1–10. Available from: www.md-journal.com (Accessed 22.03.2018)
57. Poonthananiwatkul B, Lim RHM, Howard RL, Pibanpaknatee P, Williamson EM. Traditional medicine use by cancer patients in Thailand. *J Ethnopharmacol* [Internet]. Elsevier; 2015;168(April):100–7. Available from: <http://dx.doi.org/10.1016/j.jep.2015.03.057> (Accessed 26.03.2018)
58. Campbell LM, Amin NN. Potential benefits and challenges of traditional healers in providing aspects of palliative care in rural South Africa: A qualitative study. *Int Electron J Rural Remote Heal* [Internet]. 2014;1–9. Available from: [available: http://www.rrh.org.au](http://www.rrh.org.au) (Accessed 23/09/2018)
59. Stanifer JW, Patel UD, Karia F, Thielman N, Maro V. The Determinants of Traditional Medicine Use in Northern Tanzania : A Mixed-Methods Study. 2015;1–17. Available

from: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0122638>
(Accessed 02.03.2018)

60. Kandu F. Malawi cracks down on “vampire” lynch mobs. *BBC News Africa*. Blantyre; 2017 Oct;1.
61. Agyei-Baffour P, Kudolo A, Quansah DY, Boateng D. Integrating herbal medicine into mainstream healthcare in Ghana: Clients’ acceptability, perceptions and disclosure of use. *BMC Complement Altern Med* [Internet]. *BMC Complementary and Alternative Medicine*; 2017;17(1):1–9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29191194> (Accessed 14.10.2018)
62. Gabriel OA and, Olubunmi A. Comprehensive scientific demystification of *Kigelia africana* : A review. *African J Pure Appl Chem* [Internet]. 2009;3(9):158–64. Available from: <http://www.academicjournals.org/AJPAC> (Accessed 04/10/2018)
63. Osman A., Ali G, Chittiboyina AG, Khan IA. *Kigelia africana* Fruit : Constituents , Bioactivity , and Reflection on Composition Disparities. *World J Tradit Chin Med* [Internet]. 2018;3(4):1–6. Available from: www.wjtcn.net (Accessed 04.10.2018)
64. Stohs SJ, Hartman MJ. Review of the Safety and Efficacy of *Moringa oleifera*. *Phyther Res* [Internet]. 2015;804(February):796–804. Available from: (Accessed 26.10.2018)
65. Kamuhabwa A, Nshimo C, De Witte P. Cytotoxicity of some medicinal plant extracts used in Tanzanian traditional medicine. *J Ethnopharmacol*. 2000;70(2):143–9.

APPENDICES

APPENDIX 1: QUESTIONNAIRE DATA COLLECTION TOOL

Demographic Variables	Patient ID
	Age (Years)
	Gender
	Location (Traditional Authority)
	Socio-economic information
Clinical information	Diagnoses
	Presenting symptoms and their duration
	Treatment options (drugs, radiotherapy etc.)
Medication received in current illness	Chemotherapy
	Antibiotics
	Analgesics
Traditional medicine information	Traditional medicines ever used in current illness
	Duration
	Targeted symptom/ disease
	Perceived effects

APPENDIX 2: SEMI-STRUCTURED QUESTIONS FOR FGDs

1. Can you tell me the disease conditions/symptoms for which you used traditional herbal medicines?
2. Can you mention the herbs which you used for these disease conditions? What are the names of the plants from which these herbs are derived?
3. How are these herbal medicines administered in patients?
4. Where did you get these herbal medicines?
5. In what ways have these herbs been of assistance to you?
6. What are your thoughts regarding the effectiveness of these herbal medicines on your condition?
7. Can you explain any non-desirable effects you ever encountered with these herbs?
8. What were the reasons for your use of traditional herbal medicines?
9. How would you describe your experience on using these herbal medicines together with western medicines?
10. What do you think hospitals should do regarding use of traditional herbal medicines by patients?

Thank you so much, that marks the end of our discussion

APPENDIX 3: THE KARNOFSKY PERFORMANCE SCALE

Score (category)	Karnofsky
100	Normal; no complaints; no evidence of disease.
90	Able to carry on normal activity; minor signs or symptoms.
80	Normal activity with effort; some signs or symptoms of disease.
70	Care for self; unable to carry on normal activity or to do active work.
60	Requires occasional assistance but is able to care for most of his needs.
50	Requires considerable assistance and frequent medical care.
40	Disabled; requires special care and assistance.
30	Severely disabled; hospitalization necessary; active supportive treatment is necessary.
20	Very sick; hospitalization necessary; active supportive treatment is necessary.
10	Moribund; fatal processes progressing rapidly.
0	Dead.

Copied from the internet source: <https://www.semanticscholar.org/paper/Karnofsky-performance-score-in-acute-renal-failure>

APPENDIX 4: THE DISTRESS PROTOCOL

If, whilst administering the questionnaire a participant becomes uncomfortable or expresses severe physical, emotional or existential distress, the following actions will be taken by the interviewer:

1. The interviewer will suggest that it is appropriate that the interview be terminated.
2. If the participant wishes this to happen, the interview will be completed.
3. Time will be spent with the participant and assistance provided, within the scope of interviewers abilities, to discuss their concerns and support them, if appropriate.
4. The participant will be recommended to speak to a [NAME OF SERVICE] health professional to discuss their concerns.
5. A follow-up phone call will be made by the interviewer the following day to ensure that the participant is alright. During this time, the information previously provided regarding counselling services in the community and at [NAME OF SERVICE] will be, once again, provided.

Similarly, should the interviewer feel that his/her physical safety be in jeopardy or that infection control be insufficient, then the questionnaire is to be stopped, and the following procedure followed:

1. Apologize for having to stop the research questioning
2. Explain your concern for safety or infection control
3. Enquire whether another time or place could be arranged to continue completing the questionnaire
4. If yes, then reschedule an interview at a more appropriate location or time, without the validity of the answers being affected. Ensure that adequate corrective measures are instituted.

5. If no, thank them for their time and reassure them that there would not be any negative consequences to their future and ongoing management

In either situation, ensure that it is documented on the questionnaire, by marking the relevant check box that the distress protocol was required.

Distress protocol copied from internet source: <https://cmhdaresearchnetwork.com>.

APPENDIX 5: UNIVERSITY OF CAPE TOWN ETHICAL APPROVAL LETTER



UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee



Room E53-46 Old Main Building
Groota Schuur Hospital
Observatory 7925
Telephone [021] 406 6492
Email: sumavah.arietdien@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

29 August 2017

HREC REF: 478/2017

Dr R Krause
Division of Palliative Care
Family Medicine
Falmouth Building-FHS

Dear Dr Krause

PROJECT TITLE: THE USE OF TRADITIONAL HERBAL MEDICINES AMONG PALLIATIVE CARE PATIENTS AT MULANJE MISSION HOSPITAL, MALAWI (MPHIL CANDIDATE - DR J CHISAKA)

Thank you for your response, addressing the issues raised by the Human Research Ethics Committee (HREC).

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30 August 2018.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.

(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

We acknowledge that the student: Dr J Chisaka will also be involved in this study.

Please quote the HREC REF in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate Institutional approval, where necessary, before the research may occur.

Yours sincerely

Signature Removed

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE

Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938

HREC 478/2017

APPENDIX 6: UNIVERSITY OF MALAWI-COLLEGE OF MEDICINE ETHICAL APPROVAL LETTER



APPENDIX 7: MULANJE MISSION HOSPITAL STUDY CLEARANCE LETTER

Church of Central Africa Presbyterian  Blantyre Synod
Mulanje Mission Hospital
P.O. Box 45, Mulanje, Malawi. Tel.: +265 (0) 1 467 044 / 095 Fax: +265 (0) 1 467 022
E-mail: info@mmh.mw

**College of Medicine Research and Ethics Committee
Private Bag 360,
Chichiri
Blantyre 3
15 June 2017**

Dear Sir

**Re THE USE OF TRADITIONAL HERBAL MEDICINES AMONG
PALLIATIVE CARE PATIENTS AT MULANJE MISSION
HOSPITAL, MALAWI**

I can confirm that MMH management are happy for Joseph CHISAKA and his team to undertake the above study at Mulanje Mission Hospital and will ensure that they receive appropriate support here.

Yours faithfully

Signature Removed

Dr Ruth Shakespeare MBBS MRCP FFPHM
Medical Director