

**DOCTORS' TRAINING, KNOWLEDGE AND ATTITUDE IN END OF LIFE
CARE: CROSS-SECTIONAL SURVEY OF THREE MISSION HOSPITALS IN
KENYA**

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**A Thesis Report Presented to the Institute of Postgraduate Studies of Kabarak
University in Partial Fulfilment of the Requirements for the Award of the Master of
Medicine Degree in Family Medicine and Community Care**

KABARAK UNIVERSITY

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DECLARATION

The research project is my own work and to the best of my knowledge it has not been presented for the award of a degree in any university or college.

Signed: _____

Date: _____

David Mung'ara

GMMF/M/1193/09/15

RECOMMENDATION

To the Institute of Postgraduate Studies:

The research thesis entitled “**Doctors’ training, knowledge and attitude in end of life care: Cross-sectional survey of three mission hospitals in Kenya**” and written by **David Mung’ara** is presented to the Institute of Postgraduate Studies of Kabarak University. We have reviewed the research thesis and recommend it be accepted in partial fulfilment of the requirement for award of the degree of Master of Medicine in Family Medicine and Community Care.

Signed: _____

Date: _____

Prof. Wesley Too,
Kabarak University

Signed:  _____

Date: 27/10/2019

Dr. Peter Halestrap,
AIC Kijabe Hospital

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DEDICATION

I dedicate this work to my dear wife, Grace, and my lovely children- Joanna and Joseph. I also dedicate it to the patients with life limiting illnesses and the doctors who care for them.

To my heavenly Father, all glory and honour be to your Holy name for enabling me to finish this project.

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ABSTRACT

There is an increasing number of people in Kenya with life limiting illnesses secondary to HIV/AIDS, cardiovascular diseases and cancer. Patients who suffer from these illnesses require palliative and end of life care. In developed countries such care is often given in a hospice or at home by palliative service professionals. In Kenya, there are limited such resources and opportunities and therefore care frequently ends up being offered by inpatient healthcare professionals. When this occurs, the patients' management is normally spear-headed by doctors. Currently there is a paucity of data regarding how prepared the doctors are in offering end of life care. The aims of this study were three-fold: to assess doctors' previous training in end of life care, to assess doctors' knowledge regarding end of life care, and to assess doctors' attitude towards end of life care. A descriptive cross-sectional survey utilizing a questionnaire was administered to doctors working in three mission hospitals in Kenya. Descriptive statistics and independent student t-test for association of knowledge and attitude scores was analysed using SPSS version 25. The response rate was 59.2%. Forty percent of the respondents had not had any end of life care training as part of their undergraduate curriculum. For those who had received training only 26% had received bedside training in addition to didactic lectures. Half of the respondents had pursued further training in end of life care after undergraduate training. End of life care knowledge was positively associated with having received both lectures and bedside teaching ($p=0.001$) as an undergraduate as well as having undergone further training in end of life care at postgraduate level ($p=0.046$). Other factors associated with a higher knowledge score on end of life care were: older age ($p=0.008$), seniority ($p=0.000$), medical specialty ($p=0.029$), having trained in a developed country ($p=0.000$) and having >10 years clinical experience ($p=0.004$). There was no significant association between the amount of training doctors had received and their attitude to end of life care. However, a positive attitude was associated with having >10 years of clinical experience ($p=0.018$), seniority ($p=0.005$), having trained in Kenya versus other developing countries ($p=0.035$) and having cared for >20 patients in the last six months of clinical practice ($p=0.007$). In conclusion, forty percent of doctors working in three mission hospitals in Kenya had never received any form of undergraduate training in end of life care. Those clinicians who had received more intensive end of life care training appeared to have a greater knowledge of end of life care management. Clinicians' attitude towards end of life care did not associate with the degree of training they had received. However, it was affected by a clinician's seniority and exposure to palliative patients. Curriculum reviewers should incorporate end of life care as part of training for all doctors. The training should include both lectures and bedside tutorial. Further research on the practice of end of life care is also recommended.

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ABBREVIATIONS AND ACRONYMS

AGC	Africa Gospel Church
AIC	Africa Inland Church
AIDS	Acquired Immunodeficiency Syndrome
APCA	African Palliative Care Association
COPD	Chronic obstructive pulmonary disease
CPD	Continuous Professional Development
EoLC	End of Life Care
GPs	General Practitioners
HIV	Human Immunodeficiency Virus
KEHPCA	Kenya Hospices and Palliative Care Association
PCEA	Presbyterian Church of East Africa
PC	Palliative Care
PEACE	Palliative care Emphasis program on symptom management and Assessment for Continuous medical Education
UK	United Kingdom
USC	University of Southern California
WHO	World Health Organisation

OPERATIONAL DEFINITION OF TERMS

End of Life Care: Care that helps all those with advanced, progressive, incurable illness to live as well as possible until they die (UK National Council for Palliative Care, 2006). Although difficult to predict, end of life care is usually defined as being for individuals who are in the last year of life, and for legal and health care purposes, typically the last six months of life (Krau, 2016).

Palliative care: “An approach that seeks to improve 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” (WHO, 2002).

Terminal illness: A disease for which there is no cure and will eventually lead to death

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter will cover the following nine content areas: background to the study, statement of the problem, purpose of the study, objectives of the study, research questions and justification for the study, scope of the study, limitations of the study and assumptions of the study.

1.2 Background to the Study

Palliative care as defined by WHO is “an approach that seeks to improve the quality of life of patients and their families facing the problems associated with life-threatening illness” (WHO, 2002). The estimated global number of adults in need of palliative care at the end of life is over 19 million according to World Health Organisation (WHO, 2014). In Sub-Saharan Africa, HIV/AIDS, cancer and cardiovascular diseases are the leading causes of terminal illness (WHO, 2014). In Kenya, 1.5 million people are living with HIV and 28,000 deaths are attributable to AIDS (Ministry of Health, 2018). Furthermore, cancer causes 7% of total national mortality per year, with an estimated annual incidence of 37,000 cases and annual mortality of more than 28,000 (Ministry of Health, 2017). Among the reported cases of cancer, 80% are diagnosed at advanced stages when very little can be achieved in terms of curative treatment (Ministry of Health, 2017). These statistics underscore the need for palliative and end of life care.

End of life care (EoLC) is part of the spectrum of palliative care and is defined as care that helps all those with advanced, progressive, incurable illness to live as well as possible until they die (National Council for Palliative Care, 2011). Although difficult to predict, end of life care is usually defined as being for individuals who are in the last

year of life, and for legal and health care purposes, typically the last six months of life (Krau, 2016).

Patients with advanced terminal illness have common symptoms towards the end of life. A systematic review identified eleven common symptoms among end-stage patients with cancer, AIDS, heart disease, chronic obstructive pulmonary disease, or renal disease (Solano, 2005). These are: pain, depression, anxiety, confusion, fatigue, breathlessness, insomnia, nausea, constipation, diarrhoea, and anorexia (Solano, 2005). Among these symptoms, pain, fatigue and breathlessness were the most common in all the five diseases (Solano, 2005). Improving quality of life by controlling these symptoms rather than extending their life is the preference and priority of most patients. Other key priorities identified by patients requiring EoLC are emotional well-being, spiritual care, family support, choice of where to be cared for, and appropriate information provision (Powell et al, 2014).

Another critical priority for patients and their families when end of life care is required is their preferred place of care. In Europe a comparative population-based survey in seven countries showed that a majority of people would prefer to be cared for at home towards their end of life (Higginson et al, 2014). There is limited published research from an African context. One survey from Kenya revealed that one's own home was the most preferred place of care, while hospital was the second most preferred place (Downing et al, 2014). A similar survey in Namibia showed that hospital was the preferred place of care (Powell et al, 2014). Factors that may influence a patient to prefer hospital-based EoLC include: a desire to save relatives and friends from the physical and financial burden of home care, a belief in better care being provided in hospital, or a refusal to admit that a cure is not possible (Powell et al, 2014).

Are the hospital-based doctors prepared to care for these patients? A recent literature review on the training of health-care professionals across Africa in palliative care for cancer patients noted that the number of doctors per head of population is low and the number of doctors with advanced training or knowledge in palliative care is even lower (Rawlinson et al, 2014). The WHO recognizes the challenge this inevitably brings and thus advocates for incorporating palliative care into the services provided by all doctors dealing with cancer patients as well as including it in the undergraduate curriculum (WHO, 2007).

In Kenya, a national palliative care training curriculum for HIV & AIDS, cancer and other life-threatening illnesses was launched in 2013 (Ministry of Health, 2013). In the same year, a higher diploma palliative nursing course was launched in one of the national medical training colleges. There have also been efforts to incorporate palliative care training into undergraduate medical training. A study reviewing the success of these training ventures identified numerous challenges including: few hours allocated for the unit, inadequately prepared clinical staff and limited institutional support (Cheptum, 2016).

Research looking at the clinical practice of palliative care in Kenya has also identified some gaps. A study conducted in Western Kenya described clinician's concerns regarding prescribing of morphine to palliative patients due to the fear of addiction, dosing and side effects (Zubairi et al, 2016). Another study explored palliative care provider self-competence among staff in an inpatient hospice setting in Kenya (Sedillo et al, 2015). It found that the three lowest mean self-competence scores among the clinical staff were: discussing inpatient hospice referral, the use of injectable opioid analgesics, and the assessment of pain in the paediatric patient.

Most African studies performed to date have evaluated the knowledge and attitudes of nurses in palliative care (Fadare, 2014; Kasa, 2014; Machira 2013), but there is paucity of evidence with regard to doctors. Doctors provide a key role in end of life care since they make the diagnosis of a terminal illness, make decisions on patient's care, prescribe medications, and communicate to the patients and their families. But how prepared are the doctors in offering this crucial service? This current study aimed to determine the training, knowledge and attitude of doctors towards end of life care.

1.3 Statement of the Problem

There are a growing number of people with incurable illnesses in Kenya due to chronic diseases such as HIV/AIDS, cardiovascular diseases and cancer (Ministry of Health, 2013). Patients who suffer from these illnesses require end of life care as part of their broader palliative care. End of life care is care that helps all those with incurable illness to live as well as possible until they die. While in the developed countries such care is given in a hospice or at home by palliative service professionals, in Kenya this care frequently ends up being offered by hospital inpatient healthcare professionals.

Doctors play a key interface role in offering end of life care at the hospital. They make the diagnosis of a terminal illness, prescribe medications and communicate to the patients and their families. Most studies to date have looked at nurses' knowledge and attitude in end of life care (Fadare, 2014; Kasa, 2014; Machira 2013), but there is paucity of evidence with regard to doctors. The limited evidence to date in an African context implies that doctors have limited knowledge and skills in palliative care (Rawlinson et al, 2014).

This study aimed to understand doctors' training, knowledge and attitude with regard to end of life care in Kenya. To the author's knowledge, this is the first such study in

Kenya. The results of this study will be able to inform the basis for future studies as well as guide decisions regarding the training of doctors in end of life care in Kenya.

1.4 Purpose of the Study

The purpose of this study was to understand the level of training, knowledge and attitude of doctors with regard to end of life care.

1.5 Objectives of the Study

- i. To describe doctors' previous level of training in end of life care.
- ii. To assess doctors' knowledge with regard to end of life care
- iii. To assess doctors' attitude towards end of life care.

1.6 Research Questions

- i. What training have doctors received in end of life care?
- ii. What level of knowledge do doctors have with regard to end of life care?
- iii. What is the doctors' attitude towards end of life care?

1.7 Significance of the Study

This study will be of benefit to palliative patients, doctors, palliative professionals and policy makers involved with medical education in Kenya. It will highlight the doctors' current level of training in end of life care. It will also highlight the existing gaps in doctors' knowledge and attitude with regard to end of life care.

The study will also identify factors associated with higher levels of knowledge regarding end of life care and factors associated with positive views of end of life care. This will subsequently form a basis for review and improvement of the current training of doctors in end of life care. When doctors training improves, this will result in improved quality of life for patients requiring end of life care.

Without this study, we would not know the current situation in Kenya with regard to doctors' training, knowledge and attitude in end of life care. This would lead to status quo without informed assessment of this very important domain.

This study will influence policy and strategy on doctors' training in palliative care with the hope of improving practice. Furthermore, it will contribute to the body of existing knowledge of EoLC as far as doctors' management of life limiting illnesses is concerned.

1.8 Scope of the Study

This study was conducted among medical doctors in three Christian mission hospitals in Kenya (i.e. AIC Kijabe, AGC Tenwek, and PCEA Chogoria Mission Hospitals).

1.9 Limitations of the Study

- i. The study did not include the practice of end of life care. Practice is an essential component since it looks at the actual practical application of knowledge and attitude. It is possible that the results gathered in this study are not reflected in the practice of the doctors questioned. A similar follow study on doctors' practice of end of life care is therefore recommended.
- ii. The study was conducted in three mission hospitals. Since these are faith-based institutions, the doctors who were interviewed were most likely Christians whose faith may have influenced their attitude to end of life care. A study that includes a broader sample of hospitals may result in different findings.
- iii. The study utilised a questionnaire. The response rate from this method is usually about fifty per cent based on evidence from other studies. It is possible that there may be a bias with those more interested in palliative care completing the questionnaire. In addition, the questionnaire provided numerical data. A

complementary qualitative study looking at the attitude of doctors to end of life care would provide useful additional information.

1.10 Assumptions of the Study

Doctors are thought to be ill-prepared to handle EoLC issues of patients with life-threatening illnesses. These include: physical symptoms, emotional well-being, spiritual care, family support, choice of where to be cared for, and appropriate information provision. This may reflect their training and individual's perception of the issues related to EoLC.

It is further assumed that there are complexities of EoLC issues that doctors may find themselves in an awkward situation, unable to give competent EoLC.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will cover the following content areas: the search strategy; general overview of literature related to the main concepts; literature review based on the study objectives; the theoretical framework and the conceptual framework.

2.2. Search strategy

Literature search related to this study was done from PubMed central, Hinari and Google scholar. The key words in the search were: knowledge, attitude, training, physician, doctor, end of life care and palliative care.

2.3. General overview of literature related to the main concepts

2.3.1 Epidemiology of life limiting illnesses

The estimated global number of adults in need of palliative care at the end of life is over 19 million according to World Health Organisation (WHO, 2014). The great majority of these die from cardiovascular diseases, cancer, chronic respiratory diseases, HIV/AIDS, and diabetes (WHO, 2014). In sub-Saharan Africa, HIV/AIDS, cancer and cardiovascular diseases are the leading causes of terminal illness (WHO, 2014). In Kenya more than 1.5 million people are living with HIV and 28,000 deaths every year are attributable to AIDS (Ministry of Health, 2018). Cancer causes 7% of total national mortality per year, with an estimated annual incidence of 37,000 cases and annual mortality of more than 28,000 (Ministry of Health, 2017). Among the reported cases of cancer, 80% are diagnosed at advanced stages when very little can be achieved in terms of curative treatment (Ministry of Health, 2017). This underscores the need for end of life care.

2.3.2 Definition of end of life care

End of life care (EoLC) is defined as care that helps all those with advanced, progressive, incurable illness to live as well as possible until they die (National Council for Palliative Care, 2011). Although difficult to predict, end of life is care for individuals who are in the last year of life, and for legal and health care purposes, typically the last six months of life (Krau, 2016). EoLC is part of the broader spectrum of palliative care. Palliative care as defined by WHO is “an approach that seeks to improve 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” (WHO, 2002).

2.3.3 Patient’s priorities at the end of life

Improving their quality of life by controlling their physical symptoms rather than extending their life is the most important priority of patients at the end of life (Powell, 2014). Patients with advanced terminal illness have common symptoms towards the end of life. A systematic review identified eleven common symptoms among end-stage patients with cancer, AIDS, heart disease, chronic obstructive pulmonary disease, or renal disease (Solano, 2005). These are: pain, depression, anxiety, confusion, fatigue, breathlessness, insomnia, nausea, constipation, diarrhoea, and anorexia. Among these symptoms pain, fatigue and breathlessness were the most common in all the five diseases (Solano et al, 2005). The other key priorities for these patients are: emotional well-being, spiritual care, family support, choice of where to be cared for, and information needs (Powell et al, 2014). Knowledge of these patients’ symptoms and priorities is vital for doctors and other healthcare professionals who care for them.

A critical decision for patients with advanced terminal illness and their families is their preferred place of care. In Europe a comparative population-based survey in seven countries showed that a majority of people would prefer to be cared for at home towards their end of life (Higginson et al, 2014). However, a similar study done in Namibia showed that hospital is the preferred place of care (Powell et al, 2014). In Kenya, a similar survey revealed that one's own home was the most preferred place to die, while hospital was the second most preferred place (Downing et al, 2014). This preference for hospitals-based EoLC could be explained by acceptance of the inevitability of inpatient care, a desire to save relatives and friends from the physical and financial burden of home care, a belief in better care being provided in hospital, or a refusal to admit that a cure is not possible (Powell et al, 2014). It is therefore inevitable for hospital-based healthcare professionals to be competent in end of life care.

2.4. Doctors' training in end of life care

While the ideal palliative care team should include a palliative professional physician, this is not the case in most developing countries such as Kenya. The WHO recognizes this and advocates for incorporating palliative care into the services provided by all doctors dealing with cancer patients as well as including it in the undergraduate curriculum (WHO, 2007). Indeed education and training in palliative and end of life care is the foundation for doctors' knowledge and attitude with regard to end of life care. Furthermore, appraising the existing training models for palliative care is also crucial.

A literature review conducted in Canada looking at resources for educating, training, and mentoring all physicians providing palliative care discovered that despite there being many resources for palliative care training, very few were in use in physician training (Downar, 2017). It also noted that not much was known about which palliative care educational approaches impacted physician behaviour and patient care (Downar, 2017).

Symptom management and communication skill were the two competencies that were noted to be more readily taught to physicians. A shift from time based (e.g. lecture hours) to competency-based approach in undergraduate and postgraduate medical education were noted as important interventions in palliative training (Downar, 2017).

Electronic learning is an avenue of continuing medical education that has been studied in the training of physicians in palliative and end of life care (Pelayo, 2011; Alvarez 2006; Reed, 2011). This is in light of the shortage of palliative care professionals and the pressure of time for those who enrol for face to face courses (Pelayo, 2011). A systematic review demonstrated some benefit of a multifaceted approach to PC and EoLC training over the traditional didactic approaches (Alvarez, 2006). A randomized controlled educational trial that compared physician's knowledge and attitude towards palliative care for advanced cancer patients using an online platform versus the traditional approach showed a significant increase in knowledge and positive attitude in favour of the former (Pelayo, 2011). Furthermore, a study testing the effect of a multimedia cancer pain management module for primary care physicians showed that it was effective (Reed, 2011).

What is the situation of palliative and end of life care training in Africa? A recent literature review on the training of health-care professionals across Africa in palliative care for cancer patients noted that the number of doctors per head of population is low and the number of doctors with advanced training or knowledge in palliative care is even lower (Rawlinson et al, 2014). Championing, advocacy and strengthening of EoLC training and educational opportunities for Doctors has largely been done by non-governmental bodies and associations such as the African Palliative Care Association (Rawlinson, 2014). These organizations have advocated for review of curriculum and provided placements of providers to improve knowledge and skills on EoLC.

Availability of training opportunities specifically tailored to doctors lacks in the region and hence their ill-preparedness in the area of EoLC. University of Cape Town in South Africa has a postgraduate palliative care distance education programme for doctors (Ens, 2011). It offers a diploma and a master's of philosophy degree. A survey done to assess the programme showed that curriculum strengths were in communication and dealing with challenging encounters (Ens, 2011). However, it noted the need to incorporate practical training with patients (Ens, 2011). These highlight the important role played by advocacy bodies and specialised training in palliative care.

In Kenya, there have been initiatives to strengthen palliative care training and improve health professionals' knowledge and skills in matters palliative care. For instance, a national palliative care training curriculum for HIV & AIDS, cancer and other life-threatening illnesses was launched in 2013 (Ministry of Health, 2013). In the same year, a higher diploma palliative nursing course was launched in one of the national medical training colleges. There have also been efforts to incorporate palliative care training in undergraduate medical training. However, few hours allocated for the unit, inadequately prepared clinical staff and limited institutional support have been identified as some of key challenges faced by institutions offering training in palliative care in Kenya (Cheptum, 2016).

The Kenya Hospices and Palliative Care Association (KEHPCA) undertook advocacy to integrate palliative care in public hospitals in Kenya (Ali, 2016). The advocacy involved engaging leaders at national and institutional levels. They also sought to train healthcare professionals and develop palliative care units within hospitals. Consequently, 11 county referral hospitals incorporated palliative care units, over 220 health workers were trained and oral morphine was made available in the hospitals (Ali, 2016). This is a good

example of the results of strategic advocacy in improving palliative care competency among healthcare workers, including doctors, and hence better care for the patients.

2.5. Doctors' knowledge and attitude in end of life care.

A cross-sectional study conducted to assess knowledge and attitudes toward palliative terminal cancer care among general practitioners in Thailand reported inadequate knowledge on truth telling, pain management, emergency management and fluid intake (Budkaew, 2013). The results of the study showed moderate scores in attitude (84.1%) but inadequate knowledge scores (55.7%). This study was conducted among general practitioners but did not include doctors in other specialties.

A study conducted in Italy to investigate the knowledge, opinions, and activities of Italian General Practitioners (GPs) regarding palliative care reported deficiencies on knowledge as only 25% could correctly define palliative care, 41% the objectives of palliative care, and 66% that palliative care should be provided by a multi-professional team (Beccaro, 2012). The method employed was a telephonic national survey using an ad hoc questionnaire. The poor understanding of definition and objectives of palliative care is significant since understanding this forms the basis for initiating palliative and end of life care.

In addition, another cross-sectional study from Singapore which explored the variation in physician recommendations, knowledge and perceived roles regarding provision of end-of-life care reported deficiencies in understanding of EoLC issues (Malhotra, 2015). Only about one-fourth of the physicians answered all knowledge and attitude questions correctly. Statements regarding pain management had the lowest correct responses. This study incorporated doctors from different specialties which makes it novel since most other studies as quoted above have focussed on general practitioners alone. However, the

poor knowledge on pain management noted is significant since pain is such a common and distressing symptom for end of life patients (Solano, 2005).

In Africa there is paucity of literature on studies looking at doctors' knowledge and attitude in end of life care. In Nigeria, an interventional study on medical interns' knowledge of palliative care showed that there was poor knowledge due to ignorance (Nnadi, 2016). The knowledge scores appreciated significantly after an educational intervention (Nnadi, 2016). Another study from Nigeria looking at knowledge and perception of healthcare providers, including doctors, towards palliative care demonstrated insufficient knowledge on the interdisciplinary facet of palliative care (Ker, 2017). Forty-six percent (46%) of the respondents believed that it was the nurses' responsibility to provide palliative care services, while thirty two percent (32%) believed it was the doctors' role (Ker, 2017). In South Africa a study to evaluate the impact of a postgraduate palliative care programme for doctors showed that the knowledge scores of graduates were significantly higher in five of the six categories in comparison to the continuing students (Ens, 2011). This demonstrated the impact that further training would have on doctors' knowledge in palliative care.

There is much less literature present from a Kenyan context. One study assessing health workers' knowledge and perception on palliative pain control in Western Kenya revealed a reluctance for clinicians in prescribing morphine to palliative patients due to the fear of addiction, dosing and side effects (Zubairi et al, 2016). The authors emphasized the need for education to enable the safe treatment of patients' pain at the end of life. Another study explored palliative care provider self-competence among staff in an inpatient hospice setting in Kenya (Sedillo et al, 2015). It found that the three lowest mean self-competence scores among the clinical staff were: discussing inpatient hospice referral, the use of injectable opioid analgesics, and the assessment of pain in the paediatric

patient. The clinical staff here were clinical officers and nurses but not doctors (Sedillo, 2015).

2.6. Factors associated with end of life care knowledge and attitude among doctors.

A qualitative study was conducted in the UK to explore why newly qualified doctors were unprepared to care for patients at the end of life (Gibbins, 2011). The study which involved face to face interviews with 21 newly qualified doctors reported their experiences as lack of exposure, a culture of ‘clerking and signs’, being kept and keeping away from dying patients, lack of examinations, and theoretical awareness (Gibbins, 2011). The other findings from the study included: realising that patients really do die; learning by doing; the role of seniors; death and dying within the hospital culture; the role of nursing staff, and the role of the palliative care team. This study underscores the major role that undergraduate experience in end of life care has on young doctors. Their knowledge and attitude begin to be shaped in medical school and in their experience as newly qualified doctors.

A survey of 380 graduating students from a medical school in USA found that students who reported personal or professional experience with death had more positive attitudes and higher knowledge scores on end of life care than those who did not (Anderson, 2008). This implies that clinical care of dying patients should be an integral part of undergraduate medical training curriculum to influence both knowledge and attitude towards EoLC. Another study has also implied a hidden or informal curriculum where medical school students learn negative attitudes towards end-of-life care from their supervising residents and faculty (Finns, 2003). This underscores the important role that senior doctors play in shaping the attitudes of the junior doctors towards EoLC.

A study from the UK also demonstrated that a simulated end of life care intervention had a positive impact on the attitudes of undergraduate nursing and medical students towards end of life care (Lewis, 2016). This shows that in the absence of clinical exposure, simulation is a viable alternative to help prepare students for their role in offering end of life care.

In a study conducted to assess knowledge and attitudes toward palliative terminal cancer care among general practitioners in Thailand, knowledge scores were positively associated with being taught palliative care in their medical curriculum (Budkaew, 2013). The study showed that incorporating palliative care in medical curriculum leads to better grasp of palliative concepts. Indeed, lack of training in palliative and end of life care has been cited as a major challenge for doctors in the delivery of care to these patients (Woo, 2006). A study of internal medicine trainees showed that only six percent of their end of life conversations with patients and families were ever supervised by faculty or their seniors (Szmuilowicz, 2005). This is in comparison to ninety percent of invasive procedure trainings that were supervised by faculty (Szmuilowicz, 2005).

Poor remuneration of doctors who provide end of life care has also been cited as a factor that negatively affects their attitude in providing end of life care (Woo, 2006). A higher financial value scale is given to doctors who perform invasive procedures than for doctors who do evaluation and management such as end of life care (Grimaldi, 2002). This disparity leads to resentment among the clinicians who offer end of life care and consequently, they discourage their junior colleagues from entering the field (Woo, 2006).

Another major factor that has been shown to influence doctors' attitude in EoLC is their religiosity. In a cross-sectional survey of 443 Jewish physicians in Israel to describe the

relationship between religiosity and EoLC, very religious physicians were much less likely to believe that life-sustaining treatment should be withdrawn, to approve of prescribing needed pain medication if it will hasten death, or to agree with euthanasia (Wenger, 2004).

2.7. Theoretical Framework

The theoretical framework chosen for this study is the community of practice theory. This is a learning theory coined by Anthropologist Jean Lave and Etienne Wenger in 1991 and further elaborated in 1998 (Wenger-Trayner, 2015). The theory defines Communities of practice as ‘groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly’. The community of practice is constituted by three elements: the domain, the community and the practice. The domain refers to the shared competence that distinguishes members of the community from other people. The community constitutes the shared activities, information and discussions that the members have in pursuit of their domain. The practice refers to the shared experiences, stories, tools and ways of addressing issues developed through sustained interaction.

The community of practice theory has been used in a number of areas: business, organizational design, government, education, professional associations, development projects, and civic life. For example, in education the school is not seen as the locus of learning. ‘It is not a self-contained, closed world in which students acquire knowledge to be applied outside, but a part of a broader learning system. The class is not the primary learning event. It is life itself that is the main learning event. Schools, classrooms, and training sessions still have a role to play in this vision, but they have to be in the service of the learning that happens in the world.’ (Wenger-Trayner, 2015).

In relation to this study, this learning theory is applicable as follows: the domain is the medical specialty; the community is the mission hospitals where the doctors practice; and the practice is end of life care. The doctors' answers to the questionnaire will be influenced by these three elements. Their domain (i.e. being medical specialists and not other health care professionals) influences their knowledge and attitude due to the nature of their training. Their community, being in mission hospitals and not in other public or private hospitals, will also influence their knowledge and attitude. The practice which is their knowledge and skills in palliative care will also influence their knowledge and attitude in end of life care. This may also be influenced by their specialty or level of seniority. These three elements will inform and guide this study.

This community of practice learning theory will form the basis of the Conceptual theory as illustrated in Figure 1.

2.8. Conceptual Framework

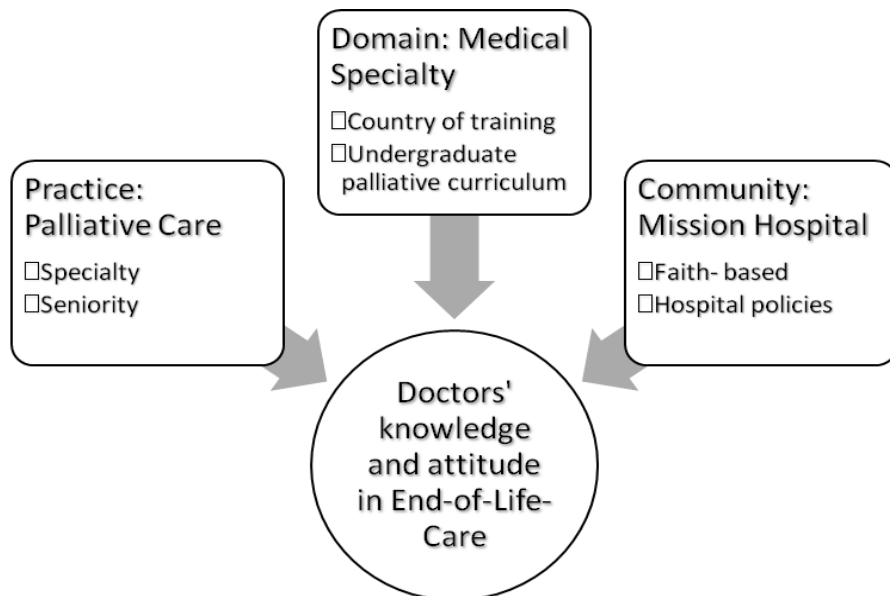


Figure 1- Conceptual framework

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter describes the research design and methodology under the following subheadings: research design; location of the study; population of the study; sampling procedure and sample size; instrumentation; data collection procedure; data analysis; and ethical considerations.

3.2 Research Design

This was a descriptive cross-sectional study. Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation. Cross-sectional studies "provide a clear 'snapshot' of the outcome and the characteristics associated with it, at a specific point in time" (USC Libraries, 2018). The aim of this study was to describe doctors' training, knowledge and attitude in end of life care.

3.3 Study site

The study was conducted in three mission hospitals in Kenya (Kijabe, Tenwek and Chogoria). These hospitals serve as teaching institutions with consultants, surgery residents, family medicine residents, medical officers and undergraduate interns. They also serve as referral facilities, receiving patients from all over the country and a few from across borders. The three mission hospitals have established palliative care units to support patients with life threatening illnesses and as such there was high expectation that EoLC issues would be handled competently. The three mission hospitals currently receive enormous growing number of patients with life threatening illnesses and some come at their advanced stage of disease hence requiring EoLC. For example, Kijabe hospital has a small palliative team of five staff members (one doctor, one clinical officer

and three nurses) with a huge patient load. In 2016, 1,233 palliative in-patients were managed.

3.4. Population of the Study

This study was conducted among all doctors involved with adult inpatient care. The three hospitals had a total of 162 doctors who were involved in adult inpatient care. The total population of doctors were distributed as follows: Kijabe 75, Tenwek 59 and Chogoria 28.

3.5 Sampling Procedure and Sample Size

3.5.1 Sampling Procedure

This was a census study whereby all doctors involved in adult inpatient care were invited to participate in the study. The doctors were recruited through communication by the program coordinators in each of the three sites using social media and announcements made in the joint meeting forums.

3.5.2 Sample Size

All doctors (consultants, residents and interns) involved in adult inpatient care in the three hospitals were invited to participate in the study. All doctors were invited to participate since EoLC is a domain that cuts across the different medical specialties and seniority. All doctors involved in adult inpatient care would have at one time managed a patient with a life limiting illness towards their end of life. Furthermore, including all the doctors would also give allowance for non-response. The three hospitals had a total of 162 doctors who were involved in adult inpatient care (Kijabe- 75; Tenwek- 59; Chogoria- 28). The three hospitals were included to give allowance for non-response and to increase the power of the study.

3.5.3 Inclusion criteria

All doctors (consultants, residents, interns) involved with adult inpatient care, who were not on leave at the time of the study, were invited to participate in the study. The doctors recruited had to have had a minimum of six months clinical working experience. This was to ensure that knowledge and attitude assessed was practical, based on actual interaction with end of life patients.

3.5.4 Exclusion criteria

Doctors who deal purely with children were excluded from the study (i.e. pediatricians and pediatric surgeons). This is because children are a special population with different end of life care needs which also include their parents or guardians. They therefore would require a separate study.

3.6 Instrumentation.

The data collection tool used was a questionnaire (Appendix 1). The questionnaire was designed from three others that have been validated in similar studies (Yamamoto, 2013; Nakazawa, 2009; Budkaew, 2013). The first one is the Palliative Care Knowledge Questionnaire which was designed and validated in Japan in 2013 as useful for evaluating both palliative care knowledge among physicians and education programs in primary palliative care (Yamamoto, 2013). The other one is the Palliative Care Knowledge Test that was also designed and validated in 2009 also in Japan (Nakazawa, 2009). The attitudes questionnaire was based on a similar study done in Thailand in 2013 (Budkaew, 2013). This study was looking at the knowledge and attitudes of Thai generalists towards palliative terminal cancer care. Permission was obtained from the authors to incorporate these questionnaires as evidenced in Appendix 6.

The questionnaire had three sections. The first section had the respondent's demographics including: age, gender, graduation year from medical school, country of medical school training, undergraduate teaching on end of life care, additional training in end of life care, number of end of life patients seen in the past six months of practice and common diseases encountered. These formed the independent variables. The second section had the questionnaire on knowledge in end of life care. There were 19 questions covering seven domains of EoLC: philosophy of palliative care, pain, opioid side effects, dyspnea, psychological distress, delirium and communication. The questions were answered with either 'True' or 'False' and a high score indicated better knowledge.

Section three of the questionnaire had thirteen attitude statements. The statements focused on: willingness to treat palliative patients, truth telling in disclosing terminal illness diagnosis, dealing with fear of death and medical assessment of terminally ill patients. Attitude statements were measured using the 5 item Likert scale (1=Strongly Disagree, 2=Disagree, 3=Uncertain, 4=Agree, 5=Strongly Agree). Seven of the statements were worded positively, and six were worded negatively. The positive statements were scored directly from 1 (Strongly Disagree) to 5 (Strongly Agree) while the negative statements were scored inversely from 1 (Strongly Agree) to 5 (Strongly Disagree). Therefore, the respondents who agreed or strongly agreed with negative attitude statements had lower scores, reflecting negative attitude, while those who agreed or strongly agreed with positive statements had higher scores reflecting more positive attitude towards EoLC. The possible score range was 13/65 to 65/65, equivalent to 20% to 100%.

3.6.1 Validity and Reliability of the Instrument

The questionnaire was designed by incorporating questions from validated questionnaires in three other similar studies:

- The palliative care knowledge questionnaire for PEACE (Yamamoto, 2013) was designed and validated in Japan as useful for evaluating both palliative care knowledge among physicians and education programs in primary palliative care. It was validated among a conveniently sampled population of 801 physicians. It has been used in the development of questionnaires in three other related studies from Brazil (Zalaf, 2017), China (Gu, 2016) and USA (Brock, 2015) demonstrating its validity across diverse countries and cultural backgrounds.
- The palliative care knowledge test (Nakazawa, 2009) was designed to assess a wide range of palliative care knowledge among general physicians and nurses. It has been used in another study done in India (Prem, 2012). It has also been used in the development of questionnaires from three other related studies from Germany (Krautheim 2017), China (Gu, 2016) and USA (Brock, 2015). This once more demonstrates validity across numerous countries with diverse social, cultural and economic backgrounds.
- The knowledge and attitudes questionnaire was based on a study that looked into the knowledge and attitudes of Thai generalists towards palliative terminal cancer care (Budkaew, 2013). It was developed by team of experts and pilot tested for feasibility and clarity.

To ensure validity in our context, the following was undertaken:

- The elements in the questionnaire were selected based on expert opinion from one palliative care professional physician and two other family physicians who had experience with palliative care in our setting thus providing face validity.
- The questionnaire was pretested among doctors who work in AIC Kijabe Hospital. These doctors were excluded from being respondents in the study to avoid bias. Their responses were reviewed to check for internal consistency. In

addition, participants were asked to provide feedback on questions they believed lacked clarity. Following this process minor revisions to the questionnaire were made to take account of these findings.

- It was in English language which is the official national language in Kenya.

3.7 Data Collection Procedure.

First of all, the research proposal was submitted for ethical approval to Kabarak university, Kijabe, Tenwek and Chogoria hospitals. After ethical approval was obtained, the medical education coordinators from the three hospitals were contacted to pass information about the research to the doctors in their respective hospitals. Subsequently, the questionnaires were administered to the doctors after obtaining their signed consent. This was majorly during the various educational and audit conference forums attended by the doctors, while a few were administered in the clinics.

3.8 Data Analysis.

From the questionnaires the general characteristics of the respondents were described including: gender, age, specialty, years of clinical experience, country of medical training, number of patients with terminal illness they had managed in the past six months, and common terminal diseases encountered. The level of end of life care training they had received was also described including: undergraduate training, further training after undergraduate and the forms of training undertaken. The level of training was compared to the respondents' knowledge and attitude scores.

The end of life care knowledge scores was analyzed including comparison with the respondents' general characteristics. The results were presented as means and standard deviations. End of life care attitude scores were also analyzed including comparison with

the respondents' general characteristics. They were presented as frequencies, means and standard deviations.

There has been a longstanding debate as to whether Likert data, which is ordinal data, can be analysed using parametric statistics (Sullivan, 2013). Literature review done concludes that parametric tests not only can be used with ordinal data, such as data from Likert scales, but also that parametric tests are generally more robust than nonparametric tests (Norman, 2010). Therefore, this is how the attitudinal data in this study was analysed.

The results were analyzed using computer software tool, SPSS. Knowledge and attitudes were measured on the categorical scale and tested using independent student t-test to examine the relationships between variables. All analysis was carried out at the $p < 0.05$ significant levels. Data was presented in text, tables and figures.

3.9 Ethical Considerations

Ethical approval was sought from the Institution Review Board (IRB) of the university and respective hospitals before embarking on the study and was granted. An Information sheet was provided and consent forms were signed by the respondents before taking the questionnaire. The information sheet captured the right of the respondent to withdraw from the study. The questionnaires were anonymous and upon completion, they were put in a sealed box and retrieved only at the time of analysis.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the findings, interpretations and discussion according to the objectives of the study as laid out in Chapter one. The objectives of this study were threefold: to assess doctors' level of training with regard to end of life care; to assess doctors' knowledge with regard to end of life care; and to assess the doctors' attitude towards end of life care.

4.2 General and Demographic Information

4.2.1. General Information

Out of the target population of 162 doctors in all the three hospitals, 96 respondents filled out and submitted back their questionnaires giving a response rate of 59.2%.

4.2.2. Demographic Data

The respondent's demographics are summarised in Table 1. In terms of age, majority of the respondents (79%) were aged between 21-40 years while the rest were more than 40 years. Male respondents were the majority at 56%. The majority (62%) were junior doctors (medical officer interns, medical officers and residents), while the rest (38%) were consultants. The respondents who were in surgical specialties were 36% while 26% were in medical specialties. This included both consultants and residents in training. The remaining respondents had not specialised (38%).

Table 1: Respondents' demographics (N=96)

Characteristic		N	%
Age (Years)	≤ 40	76	79.17
	> 40	20	20.83
Gender	Male	54	56.25
	Female	41	42.71
Seniority	Junior (medical officer intern, medical officer, resident)	59	61.46
	Senior (consultant)	36	37.50
Specialty	Medical Specialty (family medicine, internal medicine, emergency medicine)	25	26.04
	Surgical specialty (general surgery, orthopaedics, urology, neurosurgery, obstetrics, ENT, ophthalmology)	35	36.46
	*Not specialised	36	37.50
Country of Undergraduate Training	Kenya	56	58.33
	Africa (other than Kenya) & other developing countries	14	14.58
	USA and other developed countries	26	27.08
Experience (Years)	≤ 10 years	71	73.96
	>10 years	25	26.04
Terminal Disease Patients cared for in last 6 months	None	3	3.13
	≤20 patients	48	50.00
	>20 patients	44	45.83
Common terminal diseases	HIV/AIDS	37	38.54
	Cancer	84	87.50
	Cardiovascular disease	35	36.46
	Chronic respiratory disease	17	17.71
	Diabetes	12	12.50
	Other (Dementia, Renal Failure)	2	2.08

*this included the medical officer interns and medical officers who were generalists.

The majority of the respondents (58%) had trained in Kenya. The rest included 15% who had trained in other African countries (besides Kenya) and other developing countries, while 27% had trained in the USA and other developed countries (UK, Australia,

Canada, Netherlands). Regarding clinical working experience since graduating from undergraduate medical school, majority (74%) had less than 10 years working experience. The respondents who had cared for more than 20 terminal disease patients in their last six months of clinical practice were 46%, while only 3% had not cared for any terminal disease patient. The top three most common terminal diseases of the patients cared for were cancer, HIV/AIDS and cardiovascular diseases.

4.3 Doctors' level of training in end of life care

The results of the doctors' level of training is summarised in Table 2.

Table 2: Respondents' level of training in end of life care (N=96)

Level of Training		N	%
Taught PC/EoLC in undergraduate	Yes	58	60.42
	No	38	39.58
*Form of undergraduate training	Lectures only	41	73.21
	Lectures and Bedside Tutorial	15	26.79
Further training in PC/EoLC after undergraduate	Yes	48	50.00
	No	48	50.00
Form of training	Workshop	31	32.3
	Certificate	2	2.1
	Diploma, Degree, Masters	0	0.0
	Other	18	18.8

PC (palliative care); EoLC (end of life care)

*Two of the respondents who answered 'yes' to having been taught PC/EoLC training in undergraduate did not answer the subsequent question on the form of training.

In terms of undergraduate training, 60% of the doctors had received EoLC training in their undergraduate curriculum. With regard to the form of undergraduate training undertaken, 43% of the respondents had received lectures only while only 16% of them had received lectures plus bedside tutorials. Half of the respondents (50%) had received further training in PC and/or EoLC after undergraduate. Most of them (32.3%) had attended a workshop, while only a few (2%) had undertaken a certificate training.

4.3.1 Comparison of level of training with the respondents' knowledge and attitude scores

Comparison of the level of training with the knowledge and attitude scores is summarised in Table 3.

Table 3: Comparison of level of training with knowledge and attitude scores (N=96, *p value <0.05)

Level of training		N	Knowledge mean score (%)	p value	Attitude means score (%)	p value
Taught PC in undergraduate	Yes	58	78.11	0.422	78.83	0.051
	No	38	76.16		75.75	
Form of undergraduate training	Lectures only	41	75.63	*0.001	79.09	0.672
	Lectures and Bedside Tutorial	15	85.26		78.15	
Further training in PC after undergraduate	Yes	48	79.74	*0.046	78.91	0.094
	No	48	75.00		76.31	

**significant p-value*

With regard to undergraduate training, knowledge mean score for those who had received EoLC training versus those who hadn't was not significant (78% versus 76%; p=0.422). Comparison of their attitude mean scores was also not significant (78.8% versus 75.8%; p=0.051).

In terms of the form of training, knowledge mean scores for those who had received lectures and bedside tutorial was significantly better than those who had lectures only (85.2% versus 75.6%; p= 0.001). However, comparison of their attitude scores did not show a significant difference (78.2% versus 79.1%; p=0.672).

Comparison of knowledge mean scores for those who had received further training versus those who hadn't was significant in favour of those who had received further training (80% versus 75%; p= 0.046). However, comparison of these two groups in terms of their mean attitude scores was not significant (79.0% versus 76.3%; p=0.094).

4.4 Doctors' knowledge in end of life care

A summary of the knowledge mean scores per question is presented in Table 4, while

Figure 2 shows a summary of the seven domain mean scores.

Table 4: Proportion of doctors with correct answers to each of the knowledge questions (N=96)

Domain	True/ False Statement	Answer	No. (Correct)	% (Correct)
Philosophy of PC	1. Palliative care is synonymous with terminal care	F	71	74.0
	2. Palliative care should not be provided along with anti-cancer treatments	F	90	93.8
Pain	3. One of the goals of pain management is to get a good night's sleep	T	85	88.5
	4. When cancer pain is severe, one of the opioids is used as an initial analgesic	T	76	79.2
	5. When opioids are initially prescribed, all non-opioid analgesics should be discontinued	F	87	90.6
	6. Morphine is used safely in a patient with renal failure	F	27	28.1
Opioid side effects	7. Opioid rotation or switching should be considered when it is difficult to increase the dose of opioids due to adverse effects	T	87	90.6
	8. It is necessary to use a laxative together with oral opioids, because most patients who take opioids experience constipation	T	95	99.0
	9. Opioids cause addiction in 0.2% or less of cancer patients under careful monitoring	T	80	83.3
Dyspnoea	10. Morphine can be used to relieve dyspnoea in cancer patients	T	62	64.6
	11. When opioids are taken on a regular basis, respiratory depression will be common	F	67	69.8
	12. Oxygen saturation levels are correlated with dyspnoea	F	59	61.5
Psychological distress	13. When a patient has a high level of psychological distress, clinicians are recommended to examine whether the patient has suicidal ideation	T	91	94.8
	14. Anxiolytics can be prescribed for palliative patients with psychological distress	T	93	96.9
Delirium	15. Delirium occurs due to drugs or physical aetiologies	T	84	87.5
	16. Benzodiazepines are the first line therapy for delirium	F	40	41.7
	17. It is better to make the room pitch black for a patient with delirium, so that he or she can sleep well	F	63	65.6
Communication	18. When physicians convey bad news, they should ask the patient's concern and understanding about the disease	T	95	99.0
	19. It is better to repeatedly use the word 'cancer' when telling the patient about his or her malignancy	F	61	63.5

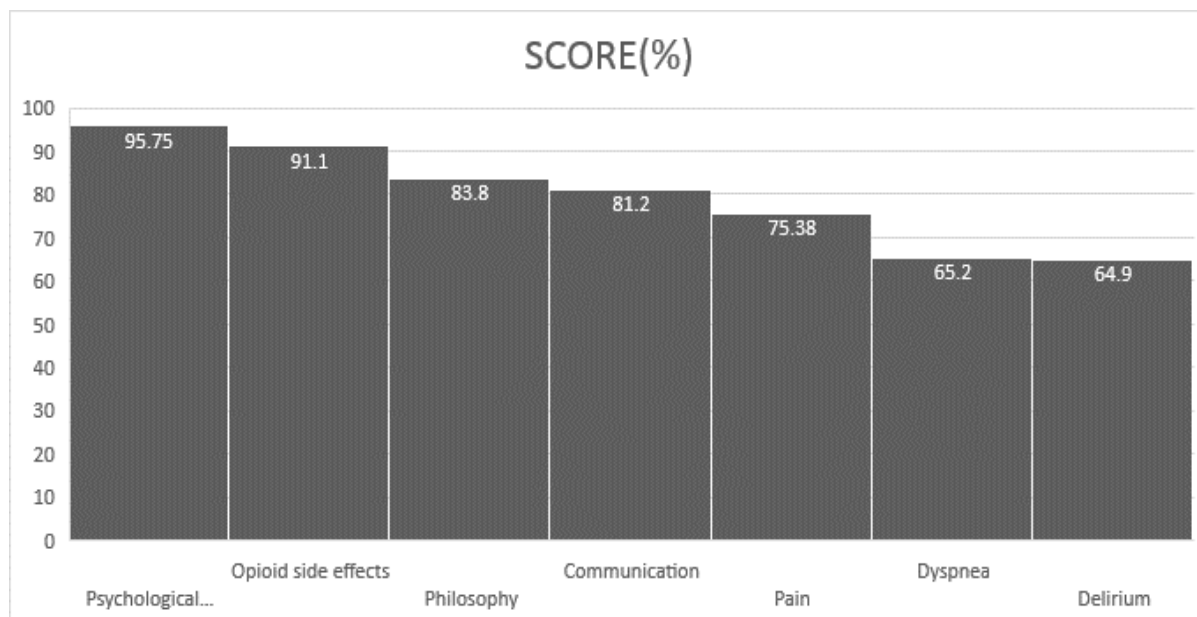


Figure 2: Knowledge mean scores for the seven domains of End of life care

The overall EoLC knowledge mean score for all the respondents was 77.37%. As shown in Figure 2, the doctors were most knowledgeable in the domains of psychological distress (95.75%) and opioid side effects (91.1%) and least knowledgeable in the domains of delirium (64.9%) and dyspnoea (65.2%).

In the domain of philosophy of palliative care, the mean score was 83.8%. Here, 93.8% of them disagreed that palliative care should not be provided along with anti-cancer treatments. However, 26% of the respondents reported that palliative care is synonymous with terminal care.

In the domain of pain, the mean score was 75.38%. Eighty eight percent of the respondents correctly answered that one of the goals of pain management is to get a good night's sleep. Regarding opioid use, 90.6% of them disagreed that when opioids are initially prescribed, all non-opioid analgesics should be discontinued, while 79.2% of them correctly answered that when cancer pain is severe, one of the opioids is used as an

initial analgesic. However, only 28.1% of the respondents disagreed that morphine is used safely in a patient with renal failure. This question had the lowest mean score.

In the domain of opioid side effects, the mean score was 91.1%. 90.6% of the respondents reported that opioid rotation or switching should be considered when it is difficult to increase the dose of opioids due to adverse effects. Furthermore, 99% of them reported that it is necessary to use a laxative together with oral opioids. This question was one of the two with the highest mean score. Eighty three percent of the respondents reported that opioids cause addiction in 0.2% or less of cancer patients under careful monitoring.

In the domain of dyspnoea, the average mean score was 65.2%. Sixty four percent of the respondents reported that morphine can be used to relieve dyspnoea in cancer patients, while 69.8% of them disagreed that when opioids are taken on a regular basis, respiratory depression will be common. Furthermore, only 61.5% disagreed that oxygen saturation levels are correlated with dyspnoea.

The domain of psychological distress had the highest knowledge mean score of 95.75%. Most of the respondents (94.8%) reported that when a patient has a high level of psychological distress, clinicians should examine whether the patient has suicidal ideation. Furthermore, 96.9% of them reported that anxiolytics can be prescribed for palliative patients with psychological distress.

The domain of delirium had the lowest mean score of 64.9%. Eighty seven percent of the respondents reported that delirium occurs due to drugs or physical aetiologies. However, only 41.7% of them disagreed that benzodiazepines are the first line therapy for delirium. This question had the second lowest mean score.

The domain of communication had a mean score of 81.2%. Almost all of the respondents (99%) correctly answered that when physicians convey bad news, they should ask the patient's concern and understanding about the disease. However, only 63.5% of them disagreed that it is better to repeatedly use the word 'cancer' when telling the patient about his or her malignancy.

4.4.1 Comparison of knowledge scores with respondent's demographics

Comparison of the knowledge scores with the respondent's demographics is presented in Table 5.

Table 5: Comparison of respondents' demographics with knowledge scores (N=96; *p value <0.05)

Characteristic	N	Knowledge mean score (%)	Std. Deviation	p-value
Age (Years)				
≤ 40	76	14.39 (75.74)	2.304	
> 40	20	15.85 (83.42)	1.226	*0.008
Gender				
Male	54	14.83 (78.05)	2.448	
Female	41	14.46 (76.11)	1.832	0.420
Seniority				
Junior	59	13.95 (73.42)	2.129	
Senior (Consultant)	36	16.06 (84.53)	1.472	*0.000
Specialty				
Medical Specialty	25	16.08 (84.63)	1.412	
Surgical specialty	35	15.20 (80.00)	1.568	*0.029
Country of undergraduate training				
Kenya	56	14.11 (74.26)	1.775	Kenya vs USA=*0.000
Africa and other developing countries	14	13.57 (71.42)	3.081	Kenya vs Africa=0.394
USA and other developed countries	26	16.58 (87.26)	1.172	
Experience (Years)				
≤ 10 years	71	14.32 (75.37)	2.291	
>10 years	25	15.76 (82.95)	1.508	*0.004
Terminal disease patients cared for in 6 months				
None	3	13.33 (70.16)	1.155	
≤20 patients	48	14.58 (76.74)	2.491	0.396
>20 patients	44	14.93 (78.58)	1.910	0.456

*significant p-value

There was a significant positive association of knowledge scores with the following: age more than 40 years, seniority, medical specialty, having trained in a developed country, and clinical experience more than 10 years. However, there was no significant association with gender, having been taught palliative care in undergraduate or number of terminal disease patients cared for in the last six months.

In terms of seniority, the senior medical doctors scored better than their junior colleagues (84.53% vs 73.42%; $p=0.000$). Those who had more than 10 years clinical experience scored better than those who had less than 10 years clinical experience (82.95% vs 75.37%; $p=0.004$). With regard to specialty, those who had specialised in medical specialties scored better than their colleagues in the surgical specialties (84.63% vs 80%; $p=0.029$).

As pertaining to country of undergraduate training, those who trained in the USA and other developed countries scored significantly better than those who trained in Kenya (87.26% vs 74.26%; $p=0.000$). However, there was no significant difference between those who trained in Kenya and those who trained in other African and developing countries (74.26% versus 71.42%; $p=0.394$).

4.5 Doctors' attitude in end of life care

A summary of the overall attitude scores is presented in Table 6.

Table 6: Response numbers, and frequencies for the attitude statements

1=strongly disagree; 2=disagree; 3=uncertain; 4=agree; 5=strongly agree; *Negative attitude statements

Statement	1(%)	2(%)	3(%)	4(%)	5(%)
1. Medical personnel find more satisfaction to work with patients who are expected to improve than with patients who are likely to die *	4(4.1)	8(8.3)	3(3.1)	45(46.8)	35(36.4)
2. The patient is better off knowing his/her diagnosis even it carries an implication of imminent death	1(1.0)	0(0)	4(4.1)	31(32.2)	58(60.4)
3. Even if they don't ask, relatives should be advised when death is imminent in the terminal disease patients	2(2.0)	0(0)	5(5.2)	41(42.7)	47(48.9)
4. Family members who stay close to a terminal cancer patient often interfere with the professional's work with the patient*	21(21.8)	38(39.5)	18(18.7)	14(14.5)	4(4.1)
5. If given a choice, I prefer to avoid contact with or care for a terminal disease patient*	33(34.3)	33(34.3)	13(13.5)	13(13.5)	3(3.1)
6. Nurses should be the primary professionals equipped to care for a terminal disease patient*	12(12.5)	29(30.2)	25(26.0)	24(25)	6(6.2)
7. It is important for physicians to help patients prepare for terminal stage of disease	1(1.0)	0(0)	3(3.1)	26(27.0)	66(68.7)
8. Terminal disease patients should be allowed to gradually deteriorate without efforts to prolong their life*	26(27.0)	29(30.2)	22(22.9)	13(13.5)	6(6.2)
9. Physicians play a key role in reducing the suffering of patients with advanced terminal disease	0(0)	2(2.0)	1(1.0)	36(37.5)	55(57.2)
10. I would not be concerned about addiction if a member of my family was given morphine for cancer pain	8(8.3)	16(16.6)	8(8.3)	30(31.2)	33(34.3)
11. It is appropriate for terminal disease patients to receive opioid analgesics at any time in their disease course if the indication is present	1(1.0)	4(4.1)	2(2.0)	31(32.2)	57(59.3)
12. Doctors and nurses should be detached emotionally if they are to work in the best interest of terminal disease patients*	21(21.8)	42(43.7)	14(14.5)	9(9.3)	9(9.3)
13. Doctors should be engaged in addressing the spiritual concerns of patients with terminal disease	0(0)	0(0)	4(4.1)	23(23.9)	68(70.8)

The overall attitudes mean score for all the respondents was 77.62%. The top two statements with the highest scores were: ‘doctors should be engaged in addressing the spiritual concerns of patients with terminal disease (90.20%); and ‘it is important for physicians to help patients prepare for terminal stage of disease’ (89.80%). Statements with the lowest scores were: ‘medical personnel find more satisfaction to work with patients who are expected to improve than with patients who are likely to die’ (38%); and ‘nurses should be the primary professionals equipped to care for a terminal disease patient’ (61%).

In terms of their willingness to participate in offering end of life care, majority of the respondents (46.8%) agreed with the statement that medical personnel find more satisfaction to work with patients who are expected to improve than with patients who are likely to die. However, paradoxically, 34.3% disagreed with the statement, ‘if given a choice, I prefer to avoid contact with or care for a terminal disease patient’.

Regarding their role in offering end of life care, majority (57.2%) strongly agreed that ‘physicians play a key role in reducing the suffering of patients with advanced terminal disease’, while 68.7% agreed that ‘it is important for physicians to help patients prepare for terminal stage of disease’. Furthermore, 30.2% disagreed that ‘terminal disease patients should be allowed to gradually deteriorate without efforts to prolong their life’. However, for the statement that ‘nurses should be the primary professionals equipped to care for a terminal disease patient’, 30.2% agreed while only 24% disagreed with this.

In terms of communication to the patient and relatives, most of the respondents (60.4%) strongly agreed that ‘the patient is better off knowing his/her diagnosis even it carries an implication of imminent death’. About half of the respondents (48.9%) also strongly agreed that ‘even if they don’t ask, relatives should be advised when death is imminent

in the terminal disease patients'. Furthermore, 39.5% of them disagreed that family members who stay close to a terminal cancer patient often interfere with the professional's work with the patient.

Regarding pain management, majority (59.3%) strongly agreed that 'it is appropriate for terminal disease patients to receive opioid analgesics at any time in their disease course if the indication is present'. Furthermore, 34.3% strongly agreed that 'I would not be concerned about addiction if a member of my family was given morphine for cancer pain'.

Pertaining to psycho-spiritual issues, majority (70.8%) of the respondents strongly agreed that 'doctors should be engaged in addressing the spiritual concerns of patients with terminal disease'. However, 43.2% agreed that 'doctors and nurses should be detached emotionally if they are to work in the best interest of terminal disease patients'.

4.5.1 Comparison of attitude scores with respondent's demographics

Comparison of the attitude scores with the respondent's demographics is summarised in Table 7.

Table 7: Comparison of respondent's demographics with attitude scores (N=96; *p

Characteristic		N	Attitude mean score (%)	Std. Deviation	p-value
Age (Years)	≤ 40	76	50.04 (76.98)	4.995	0.115
	> 40	20	52.00 (80.00)	4.507	
Gender	Male	54	50.46 (77.63)	5.150	0.963
	Female	41	50.41 (77.55)	4.775	
Seniority	Junior	59	49.32 (75.88)	4.569	*0.005
	Senior (Consultant)	36	52.25 (80.38)	5.107	
Specialty	Medical Specialty	25	51.48 (79.20)	6.417	0.904
	Surgical specialty	35	51.31 (78.94)	4.185	
Country of undergraduate training	Kenya	56	50.34 (77.45)	4.684	Kenya vs USA=0.106 Kenya vs Africa=*0.035
	Africa and other developing countries	14	47.50 (73.08)	3.107	
	USA and other developed countries	26	52.27 (80.42)	5.575	
Experience (Years)	≤ 10 years	71	49.75 (76.54)	5.067	*0.018
	>10 years	25	52.44 (80.68)	4.011	
Terminal disease patients cared for in 6 months	None	3	46.67 (71.80)	6.110	0.539
	≤20 patients	48	49.27 (75.80)	4.311	
	>20 patients	44	52.02 (80.03)	5.169	

<0.05)**significant p-value*

There was a significant positive association of attitude scores with four demographic domains: having more than ten years of clinical experience, seniority, having trained in Kenya versus other developing countries and having cared for more than twenty patients in the last six months of clinical practice. There was no significant association with the other demographic domains: age, gender, specialty, having been taught PC in undergraduate training, the form of training and having further training in PC.

In terms of clinical experience, those who had more than ten years clinical experience scored better than their colleagues who had less than ten years' experience (52.44% vs 49.75%; $p=0.018$). The senior medical doctors also scored better than their junior colleagues (52.25% vs 49.32%; $p=0.005$).

Regarding country of undergraduate training, those who trained in Kenya scored better than those who trained in other African and developing countries (77.45% versus 73.08%; $p=0.035$). However, there was no difference between those who trained in Kenya and those who trained in USA and other developed countries (77.45% versus 80.42%; $p=0.106$)

Pertaining to number of terminal disease patients cared for in the last six months, those who had cared for more than twenty terminal disease patients scored better than their colleagues who had cared for less than twenty patients (52.02% vs 49.27%; $p=0.007$).

4.6 Discussion

To the author's knowledge, this is one of the very few studies focussing on doctors' training, knowledge and attitude in EoLC in sub-Saharan Africa. Previous studies in the region have mostly focussed on nurses' knowledge and attitude towards palliative care (Fadare, 2014; Kasa, 2014; Machira 2013). In light of the growing burden of life limiting illnesses in the region due to HIV/AIDS, cancer and cardiovascular diseases, EoLC is inevitably a priority. Doctors provide a key role in end of life care since they make the diagnosis of a terminal illness, make decisions on patient's care, prescribe medications, and communicate to the patients and their families.

The study results are discussed as per the three objectives of the study, i.e. doctors' previous level of training in EoLC, doctors' knowledge in EoLC and doctors' attitude towards EoLC.

4.6.1 Doctors' level of training in end of life care

The first objective of this study was to assess the doctors' level of training in end of life care. The doctors' level of training was not adequate. In terms of undergraduate training, nearly half (40%) had not received EoLC training. Among those who had received the training, only about a third had bed side tutorials incorporated with lectures, while the rest had lectures only.

EoLC education in undergraduate training is key in preparing doctors to offer this essential service to patients. WHO in 2004 recommended that all governments should incorporate palliative care in training of health workers at all levels (WHO, 2004). However, as reflected in this response, EoLC training is not emphasized in undergraduate training. In Kenya the training mostly involves a few lectures in the last year of medical school. Literature from the West (Gelband, 2001) has also noted that most end-of-life training in undergraduate is provided as lectures only while contact with dying patients is limited.

Focus of undergraduate training on curative care was noted as a reason why newly qualified doctors were unprepared to care for patients at the end of life in the UK (Gibbins, 2011). The respondents described a culture within their medical schools that encouraged 'clerking patients', 'seeing signs' and passing exams. They also perceived the focus of their training to be on curative care. A similar challenge is reported in studies focussing on palliative care training for nurses. Inadequate hours for theory and lack of practicum experience and or clinical areas for students were noted in a study in Kenya (Cheptum, 2016). This is despite WHO's recommendation that palliative care should be incorporated in the training of health workers at all levels (WHO, 2004).

Knowledge mean score for those who had received undergraduate EoLC training versus those who had received no EoLC training was not significantly different. Comparison of their attitude mean scores was also not significantly different. This was unexpected since one would assume that those who had received undergraduate training would score better in at least the knowledge part. One possible explanation for this is that a number of those who said they had not received EoLC training may have actually had some lectures which they didn't interpret to be training. Another possible explanation is that EoLC knowledge and attitude maybe shaped more in clinical practice and postgraduate training rather than in undergraduate training. However, a similar study in Thailand found significant better knowledge scores in favour of those who had received undergraduate palliative care education (Budkaew, 2013). This may imply a difference in the nature of undergraduate training between Kenya and Thailand.

Comparison of knowledge mean scores for those who had bedside tutorial incorporated with lectures versus lectures only showed a significant difference in knowledge scores in favour of the former. This shows that practical experience in EoLC training is vital in reinforcing the knowledge learned in class. Indeed a literature review aimed at improving medical graduates' training in palliative care demonstrated that both educational and clinical PC and EoLC training were paramount in undergraduate training (Head, 2016). The effective training methods were noted to incorporate lectures, seminars, small group discussions, clinical case discussions and hospice visits. However, comparison of the attitude scores between those who had bedside tutorial and lectures only did not show a significant difference. This was an interesting finding that calls for further study on what affects attitude towards EoLC.

Half of the respondents had received further training in PC and or EoLC after undergraduate. Comparison of knowledge mean scores for those who had received

further training versus those who hadn't was significant in favour of those who had received further training. However, comparison of these two groups in terms of their mean attitude scores was not significant. This confirms that pursuing further training in EoLC has an impact on one's knowledge. A prospective study in Germany assessing physician's knowledge and self confidence in PC also found that those who had received a certificate in palliative medicine scored significantly better in both (Krautheim, 2017). However, again it seems that even having further EoLC training does not have an effect on the doctors' attitude. This is a subject for further research.

The doctors who had trained in developed countries, mostly from the USA, scored significantly better than their colleagues who had trained in Kenya. This is most likely due to the nature of palliative care training in the West which is more developed than in Kenya. For example, since 2007 the Medical School Palliative Care Education Project in the USA has been offering faculty development to medical schools in developing elective clinical rotations in the last two years of medical school (Head, 2016). In Kenya, a national palliative care training curriculum was launched in 2013 (MOH, 2013). The use and impact of this curriculum in EoLC training in Kenya needs to be studied.

4.6.2 Doctors knowledge in end of life care

The second objective of this study was to assess doctors' knowledge in EoLC. Having good knowledge in EoLC is key in the management of patients with life limiting illnesses. This study demonstrated that doctors have adequate knowledge in EoLC with a mean knowledge score for all the respondents of 77.37%. The seven key domains of EoLC tested were: philosophy of palliative care, pain, opioid side effects, dyspnea, psychological distress, delirium and communication.

The highest knowledge scores were in the domains of psychological distress and opioid side effects. In the domain of psychological distress, 94% of the doctors correctly answered that when a patient has a high level of psychological distress, clinicians should examine whether the patient has suicidal ideation. This score was higher compared to 80% of doctors in Japan in a study with a similar question (Yamamoto, 2013). Psychological distress, including depression and anxiety, is quite prevalent among patients towards end of life (Solano, 2006). This important domain should not be overlooked while focussing on physical symptoms only. Once diagnosed, appropriate psychological support and drug therapy should be instituted.

The two domains with the lowest knowledge scores were delirium and dyspnoea. With regard to delirium, only 42% disagreed that ‘benzodiazepines are the first line therapy for delirium’. In Japan, the same question had only 52% correct response (Yamamoto, 2013). This points to inadequate knowledge in the management of delirium which is a common problem in terminal disease patients (Bush, 2017). Delirium is defined as a disturbance in attention and awareness developing over a short period of time (DSM-5). Prevalence of delirium is reported as 13–42% on admission to inpatient palliative care units, increasing to 88% in the last week’s hours of life (Bush, 2017). It is a clinical diagnosis that tends to be overlooked or misdiagnosed by health workers (De la Cruz, 2015). This lack of a correct diagnosis of delirium may explain the poor knowledge scores in this domain. To address this gap, delirium assessment tools such as the Memorial Delirium Assessment Scale have been developed (Bush, 2017). These tools should be incorporated in the training of doctors in EoLC.

In the domain of dyspnoea, 38% of the doctors answered that ‘oxygen saturation levels are correlated with dyspnoea’. This is false since dyspnoea is a patient-centred symptom that does not necessarily correlate with findings of hypoxia, hypercarbia, or tachypnoea

(Kamal, 2011). Furthermore, 35% of them did not know that ‘morphine can be used to relieve dyspnoea in cancer patients’. Similarly, in the Japan study 33% of the doctors did not know that morphine can be used to relieve dyspnoea (Yamamoto, 2013). One common fear among health workers is that morphine can cause respiratory depression, hence this could explain why many do not know that it can be used to relieve dyspnoea. Opioids reduce dyspnoea by reducing the workload of breathing, and the application of appropriate doses of opioids does not cause respiratory depression (Gallagher, 2010). Dyspnoea, or breathlessness, is a common distressing symptom for end of life patients. Its prevalence ranges from 60-95% especially among patients with COPD and heart disease (Solano, 2006). Lack of knowledge in this critical domain therefore calls for urgent intervention to improve quality of life of these patients.

Knowledge in the domain of pain management had a moderate mean score of 75.38%. Pain is one of the most frequent symptoms suffered by palliative and end of life care patients (Oeschle, 2013; Solano, 2006). Physicians tend to underestimate the pain experienced by these patients (Oeschle, 2013). This could explain why 21% of the respondents in this study answered incorrectly the statement that ‘when cancer pain is severe, one of the opioids is used as an initial analgesic’. In Japan 47% of the physicians did not answer this statement correctly (Yamamoto, 2013). In a study assessing physician’s knowledge and attitude in end of life care of patients with advanced illness, statements on pain management had the lowest scores (Malhotra, 2015). This deficiency in knowledge in pain management was also highlighted in another study looking at the self-competence and priorities in palliative care providers in a hospice in Kenya (Sedillo, 2015). Furthermore, the clinical staff in this study did not score better than the non-clinical staff with regard to pain management (Sedillo, 2015). Doctors should be

competent and confident in addressing pain for end of life patients as this will improve their quality of life. Therefore, this domain needs to be emphasized in their training.

The question with the lowest score was ‘morphine is used safely in a patient with renal failure’ which only 28% of the doctors knew this to be false. In the Japan study, the correct response rate for this question was 57%. This further points to lack of adequate knowledge in the use of morphine by doctors. Morphine is not safe in renal failure since its metabolite which is renally excreted accumulates and mediates respiratory depression (Dean, 2004). It should therefore be avoided or used with caution with dose adjustment in patients with renal failure (Dean, 2004). Fentanyl and methadone are the recommended opioids in managing pain in these patients (O’connor, 2012). However, implementing this recommendation is a challenge in Africa due to lack of availability of opioids and legal restrictions on their prescription. A report on the availability and accessibility of opioids for the management of cancer pain in 25/52 African countries, including Kenya, found that morphine and codeine were the primary available opioids (Cleary, 2013). This calls for urgent addressing of the knowledge gap in morphine use among doctors and lack of availability of alternative opioids for end of life patients with renal failure.

4.6.3 Doctors’ attitude towards end of life care

The third objective was to assess doctors’ attitude with regard to end of life care. The attitudes mean score for all the respondents was 77.62% reflecting an overall positive attitude towards EoLC.

The statement with the highest score (90.2%) was ‘doctors should be engaged in addressing the spiritual concerns of patients with terminal disease’, reflecting an overall positive attitude towards spiritual care of these patients. This may be explained by the

fact that there were mostly Christian doctors working in the three sites. A study from the USA addressing spirituality within the care of patients at the end of life looked at perspectives of patients with advanced cancer, oncologists, and oncology nurses (Phelps, 2012). Physicians held more negative perceptions of spiritual care than patients ($P < 0.001$) and nurses ($P = 0.008$). Objections to spiritual care mostly related to professional role conflicts. This shows that doctors do acknowledge the need for spiritual care for terminal disease patients, though with some reservations due to professional role conflicts.

The statement with the lowest score was ‘medical personnel find more satisfaction to work with patients who are expected to improve than with patients who are likely to die’. This reflected a negative attitude towards dying and EoLC. However, paradoxically, majority of them (68.6%) disagreed with the statement, ‘if given a choice, I prefer to avoid contact with or care for a terminal disease patient’. This seems contradictory and may reflect the effect of generalisation versus personalisation of the statement. This finding corresponds with a study conducted in Taiwan looking at what influences the willingness of physicians to provide palliative care for patients with terminal cancer (Peng, 2013). While the majority of respondents expressed willingness (92.4%) to provide palliative care, most would limit their services to consultation (83.4%) and referral (86.8%), and were less likely to see patients and prescribe medicine (62.0%). This perhaps reflects the doctors’ personal discomfort with confronting death, or the interpretation of death as a sign of failure rather than a natural part of the life process (Woo, 2006). This negative attitude and an unwillingness among some doctors to interact with patients with terminal illnesses needs to be addressed urgently to improve the experiences of these patients.

The statement ‘nurses should be the primary professionals equipped to care for a terminal disease patient’ had a score of 61% reflecting a moderate attitude. While 42.7% of the doctors disagreed with this statement, 31.2% agreed while 26% were uncertain. This emphasizes the need for doctors to embrace their role as part of the multidisciplinary team taking care of terminal disease patients. Doctors attending to dying patients tend to focus on tangible questions directed toward a nurse such as “Are they eating?” or “How are they sleeping?” rather than on questions directed toward the patient like “How are you doing?” and “What would you like to do?” (Woo, 2006). As a patient requires end of life care there are numerous medical needs, from diagnosing co-morbidities to appropriately managing terminal pain, dyspnoea and agitation. There is the potential concern that if doctors believe the primary care giver should be nurses they may neglect their role in these areas.

There was a significant positive association between the attitude scores and some respondent’s demographics: having more than ten years of clinical experience, seniority and having cared for more than twenty patients in the last six months of clinical practice. This would imply that more years of clinical practice and more contact with terminal disease patients positively influences the doctors’ attitude towards EoLC. A study from Taiwan also demonstrated that physicians’ beliefs and experience in palliative care rather than their knowledge influence their willingness to provide palliative care for patients with terminal cancer (Peng, 2013). However, in the study from Thailand utilising a similar questionnaire (Budkaew, 2013), there was no significant association between the attitude scores and these demographics. There is paucity of literature to further compare this association, hence more studies are needed. It is also worth reflecting that the level of seniority and years of experience often go hand in hand. Therefore, it may be difficult to extract which component of these affects people’s attitude. Is it the further training or

seniority which affects the attitude or is it just years of experience? Further studies would be needed to elucidate this answer.

It is critical to explore the interventions that can affect and improve doctors' attitude towards end of life care. A survey of 380 graduating students from a medical school in USA found that students who reported personal or professional experience with death had more positive attitudes and higher knowledge scores than those who did not (Anderson, 2008). This implies that clinical care of dying patients should be an integral part of undergraduate medical training curriculum to influence both knowledge and attitude towards EoLC. Another study has also implied a hidden or informal curriculum where medical school students learn negative attitudes towards end-of-life care from their supervising residents and faculty (Finns, 2003). This underscores the important role that senior doctors play in shaping the attitudes of the junior doctors towards EoLC.

A study from the UK also demonstrated that a simulated end of life care intervention had a positive impact on the attitudes of undergraduate nursing and medical students towards end of life care (Lewis, 2016). This shows that in the absence of clinical exposure, simulation is a viable alternative to help prepare students for their role in offering end of life care.

Another major factor that has been shown to influence doctors' attitude in EoLC is their religiosity. In a cross-sectional survey of 443 Jewish physicians in Israel to describe relationship between religiosity and EoLC, very religious physicians were much less likely to believe that life-sustaining treatment should be withdrawn, to approve of prescribing needed pain medication if it will hasten death, or to agree with euthanasia (Wenger, 2004). The doctors in the current study were predominantly Christian given

that the three sites were Christian mission hospitals. It would be of interest to compare their attitudes towards EoLC with other doctors working in non-religious hospitals.

4.6.4 Limitations of the study

A few limitations of this study are worth noting. First of all, the study focusses on knowledge and attitude in end of life care, but does not include practice of end of life care. Good knowledge and attitude do not necessarily equate to good practice of end of life care (Peng, 2013). It is therefore recommended that a subsequent study on practice of end of life care among doctors would be useful. Also, the study was conducted in three Christian mission hospitals with a mixture of both local and foreign doctors. Hence the findings of the study may not be generalisable to the Kenyan context. Furthermore, their predominantly Christian faith may have influenced some of the attitudes such as attitude towards psycho-spiritual care of the patients.

Exploring the attitude of doctors using a Likert scale enables many clinicians to be assessed and some comparisons made between other characteristics. However, this method of assessing attitude does not allow much further depth or expansion to understand the underlying factors that may shape doctors attitude. A qualitative study exploring this further would provide extra complementary data to expand on this aspect.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter will cover the summary, conclusions and recommendations from this study

5.2 Summary

The objectives of this study were three-fold: to assess doctors' level of training in end of life care, to assess their knowledge in end of life care and to assess their attitude towards end of life care.

With regard to their training in end of life care, nearly half of the respondents had not received any end of life training as part of their undergraduate curriculum. For those who had received training, only about a quarter had both lectures and bedside training while the rest had lectures only. Half of the respondents had pursued further training in end of life care after undergraduate training. For majority, this further training was in the form of workshops. Good knowledge was significantly associated with having had both lectures and bedside tutorial ($p=0.001$), and having received further training in end of life care after undergraduate ($p=0.046$). There was no significant association between attitude and level of training.

As pertaining to knowledge in end of life care, the respondents' overall knowledge mean score was 77.37%. Knowledge mean scores were highest in the domains of psychological distress (95.75%) and opioid side effects (91.1%). The domains of delirium (64.9%) and dyspnoea (65.2%) had the lowest mean scores. These are the areas that may be most critical in the management of end of life care. There was a significant positive association of knowledge scores with: older age ($p=0.008$), seniority ($p=0.000$),

medical specialty ($p=0.029$), having trained in a developed country ($p=0.000$) and having more than ten years clinical experience ($p=0.004$).

Regarding attitude in end of life care, the respondents average attitude score was 77.62%. The statement with the highest score (90.2%) was: ‘doctors should be engaged in addressing the spiritual concerns of patients with terminal disease’, reflecting positive attitude towards spiritual care. The statement with the lowest score (38%) was ‘medical personnel find more satisfaction to work with patients who are expected to improve than with patients who are likely to die’, reflecting a negative attitude towards being involved in offering end of life care. Good attitude scores were positively associated with having more than 10 years of clinical experience ($p=0.018$), seniority ($p=0.005$), having trained in Kenya versus other developing countries ($p=0.035$) and having cared for more than twenty patients in the last six months of clinical practice ($p=0.007$).

5.3 Conclusions

This study focussed on describing the doctors’ level of training, their knowledge and attitude in end of life care of patients with life limiting illnesses. Doctors level of training in offering end of life care was inadequate with 40% of respondents having not received undergraduate training. For those who had received undergraduate training, the majority of the training was in the form of lectures only. Half of the respondents had pursued further training in end of life care after undergraduate which was most commonly in the form of workshops. Having received both lectures and bedside teaching as an undergraduate as well as undergoing further training in end of life care at postgraduate level associated positively with better knowledge in EoLC. However, higher level of training in EoLC did not correlate with positive attitude in EoLC.

With regard to their knowledge in end of life care, the doctors had overall good knowledge. The domains of end of life care with the highest knowledge scores were psychological distress and opioid side effects while the lowest scores were in the domains of delirium and dyspnoea. Good knowledge scores were positively associated with older age, seniority, medical specialty, having trained in a developed country and having more than ten years clinical experience.

Pertaining to their attitude in end of life care, the overall attitude of the doctors was good. The domain of spiritual care had the best attitude score. However, poor attitude was noted in the doctors' unwillingness to care for patients with terminal disease as compared to other patients who are expected to improve. Good attitude scores were positively associated with having more years of clinical experience, seniority, having trained in Kenya versus other developing countries and having cared for more patients in the last six months of clinical practice

5.4 Recommendations

- i. Curriculum reviewers should consider incorporating EoLC training in undergraduate and postgraduate medical training for all doctors.
- ii. End of life care training in undergraduate and postgraduate should incorporate both classroom teachings and practical bedside tutorials.
- iii. Doctors should be encouraged and supported to pursue further training in end of life care after undergraduate training.
- iv. Teaching on end of life care by universities' faculty should emphasize the gap in doctors' knowledge in the domains of delirium and dyspnoea.
- v. The current training in end of life care does not seem to affect doctors' attitude. This was implied by the findings of this study where there was no difference in attitude between those who had either undergraduate or postgraduate EoLC

training and those who hadn't. This gap in training should be explored by medical institutions to see what means of training should be implemented that would positively impact on attitude in EoLC.

5.4.1 Policy Recommendations

- i. Universities with medical schools in Kenya should consider formulating a standardised curriculum for palliative and end of life care training. The national palliative care training curriculum that was launched in 2013 should be customized for undergraduate training of doctors.
- ii. Medical school/ University faculty should introduce clinical rotation in a palliative care unit as a requirement in undergraduate PC and EoLC training.
- iii. To ensure doctors continuing medical education in palliative and end of life care, the medical board should prescribe minimum annual CPD points allocated to PC and EoLC.

5.4.2 Recommendations for further research

- i. There is a need to study on the practice of end of life care among doctors. This would be a necessary study since good knowledge and attitude in end of life care may not necessarily mean good practice.
- ii. This study found that undergraduate training in EoLC did not seem to affect the doctors' knowledge and attitude. There is need for a bigger study to ascertain if this is the case in all hospital settings in Kenya or if it relates solely to these three mission hospitals.
- iii. This study was conducted in three Christian mission hospitals in Kenya with both local and foreign doctors. The findings may not be representative of the situation in Kenya. There is need for a similar study to be done in other Kenyan hospital sites that would be more representative of the country.

- iv. A qualitative study to explore the underlying factors that influence doctors' attitude in EoLC would be useful.
- v. Studies focussing on management of delirium and dyspnoea in end of life care should be done to explore the knowledge gap in these two domains.

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APPENDICES

Appendix I: Questionnaire

Participant Information Sheet

Dear Doctor,

My name is David Mung'ara and I am a third year Masters of Medicine in Family Medicine resident from Kabarak University (Kenya). For my Master's research project, I am conducting a study on "Doctors' knowledge and attitude with regard to adults' inpatient end of life care". This study is in light of the growing burden of terminally ill patients suffering from HIV / AIDS, cancer and other non- communicable diseases that we care for. The aim of the study is to understand the knowledge and attitude of Doctors with regard to end of life care in our setting.

The study involves a self-administered questionnaire which you will fill within 15-20 minutes. The questionnaire is divided in three parts. Part A contains the respondent's background information. Part B has Knowledge questions which is either True or False. Part C contains Attitude questions which will be measured on a 5 Likert scale. Please answer ALL questions clearly.

Your participation in this study is entirely voluntary and you have the right to withdraw from the study at any point. All responses will be treated confidentially and at no stage will the results be linked to the respondent.

Should you have any queries/ concerns please feel free to contact me, Dr. David Mung'ara (0720803289; davidmungara@gmail.com).

CERTIFICATE OF CONSENT

I have read and understood the above information and do hereby consent to participate in the study.

Name: _____

Signature: _____

Date: _____

Part A: Background Information

1) To which age group (years) do you belong to?

- 20-29 30-39 40-49 50-59 ≥60

2) Your Gender is:

- Male Female

3) What is your current status in the medical profession?

- Medical officer intern Medical officer Resident Consultant

4) What is your area of specialty? Not applicable

5) Where and when did you complete your undergraduate medical school?

Country: _____ Year: _____

6) Did your undergraduate medical curriculum teach end of life or palliative care?

- Yes No

If yes, what form did the teaching involve?

- Lectures only
 Lectures and bed side tutorial

7) Have you had any additional training in end of life or palliative care since completing medical school?

- Yes No

If Yes, what was the form of training?

- Workshop Certificate Diploma Degree Postgraduate
 Other: _____

8) How many terminal disease patients have you cared for in your practice in the last 6 months?

- 1-5 patients 6-10 patients 11-15 patients 16-20 patients
 >20 patients None

9) Which were the most common terminal disease(s) that the patients had?

- HIV/ AIDS Cancer Cardiovascular disease Chronic respiratory disease
 Diabetes Other: _____

Part B: Knowledge on End of Life Care- Please Answer As Either True (T) or False (F)

1) Philosophy

- a) Palliative care is synonymous with terminal care. T F
- b) Palliative care should not be provided along with anti-cancer treatments. T F

2) Pain

- a) One of the goals of pain management is to get a good night's sleep. T F
- b) When cancer pain is severe, one of the opioids is used as an initial analgesic. T F
- c) When opioids are initially prescribed, all non-opioid analgesics should be discontinued. T F
- d) Morphine is used safely in a patient with renal failure. T F
- e) Opioid rotation or switching should be considered when it is difficult to increase the dose of opioids due to adverse effects. T F
- f) It is necessary to use a laxative together with oral opioids, because most patients who take opioids experience constipation. T F
- g) Opioids cause addiction in 0.2% or less of cancer patients under careful monitoring. T F

3) Dyspnoea

- a) Morphine can be used to relieve dyspnoea in cancer patients. T F
- b) When opioids are taken on a regular basis, respiratory depression will be common. T F
- c) Oxygen saturation levels are correlated with dyspnoea. T F

4) Psychological distress

- a) When a patient has a high level of psychological distress, clinicians are recommended to examine whether the patient has suicidal ideation. T F
- b) Anxiolytics can be prescribed for palliative patients with psychological distress. T F

5) Delirium

- a) Delirium occurs due to drugs or physical aetiologies. T F
- b) Benzodiazepines are the first line therapy for delirium. T F

- c) It is better to make the room pitch black for a patient with delirium, so that he or she can sleep well. T F

6) Communication

- a) When physicians convey bad news, they should ask the patient’s concern and understanding about the disease. T F
- b) It is better to repeatedly use the word ‘cancer’ when telling the patient about his or her malignancy. T F

Part C: Attitude towards End of Life Care

Using the following scale please circle your response to each of the following statements (5=strongly agree, 4=agree, 3=uncertain, 2=disagree, and 1=strongly disagree)

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1. Medical personnel find more satisfaction to work with patients who are expected to improve than with patients who are likely to die.	1	2	3	4	5
2. The patient is better off knowing his/her diagnosis even it carries an implication of imminent death.	1	2	3	4	5
3. Even if they don’t ask, relatives should be advised when death is imminent in the terminal disease patients.	1	2	3	4	5
4. Family members who stay close to a terminal cancer patient often interfere with the professional’s work with the patient.	1	2	3	4	5
5. If given a choice, I prefer to avoid contact with or care for a terminal disease patient.	1	2	3	4	5
6. Nurses should be the primary professionals equipped to care for a terminal disease patient.	1	2	3	4	5
7. It is important for physicians to help patients prepare for terminal stage of disease.	1	2	3	4	5
8. Terminal disease patients	1	2	3	4	5

should be allowed to gradually deteriorate without efforts to prolong their life.					
9. Physicians play a key role in reducing the suffering of patients with advanced terminal disease	1	2	3	4	5
10. I would not be concerned about addiction if a member of my family was given morphine for cancer pain.	1	2	3	4	5
11. It is appropriate for terminal disease patients to receive opioid analgesics at any time in their disease course if the indication is present.	1	2	3	4	5
12. Doctors and nurses should be detached emotionally if they are to work in the best interest of terminal disease patients.	1	2	3	4	5
13. Doctors should be engaged in addressing the spiritual concerns of patients with terminal disease	1	2	3	4	5

Thank you for your participation.

Appendix IV- Letter of endorsement

*Robert A. Carter MD, MPH
Palliative Care Unit, AIC Kijabe Hospital
PO Box 20, Kijabe 00220, KENYA*

23rd October 2017

To Whom it May Concern
MicroResearch
5850 University Ave.
Halifax, NS, B3K 6R8, CANADA

Ref: Endorsement of Proposed Research to be undertaken by Dr. David Mung'ara

Dear Sir / Madam,

As the medical advisor for the Palliative Care Unit at AIC Kijabe Hospital, Kijabe, Kenya, and as a member of the Kenya Hospices and Palliative Care Association (KEHPCA) and of the African Palliative Care Association (APCA), it is my pleasure to enthusiastically endorse the proposed research study to be undertaken by Dr. David Mung'ara.

In our experience, an inadequate knowledge base and inappropriate attitudes among potential referring physicians are common barriers that delay or even prevent appropriate and timely referrals for palliative care and may even obstruct vitally important end-of-life conversations with patients and family members. Identifying and understanding those knowledge gaps and attitudes are important first steps in overcoming these barriers, enhancing access to effective hospice and palliative care services, and achieving better end-of-life outcomes on a broader scale.


The focus of the study proposed by Dr. Mung'ara, which is to be conducted at three different sites in Kenya, is therefore one that will be of great practical value. As not only Kenyan but also other African ministries of health are actively engaged in producing strategies to improve access to effective palliative and end-of-life care, the findings of this study will, in fact, be of interest far beyond the borders of Kenya. It is well-designed and uses already-validated questions and measures to ensure relevance, reliability and interpretability. Its results will be publishable and reportable at relevant international

conferences such as the next triennial conference of the African Palliative Care Association, scheduled to be held in August of 2019.

As our palliative care services are located in the context of a teaching and training hospital, this research will also be of great local interest and practical value. It will help us to identify “training targets” as we adjust our teaching strategies in line with the knowledge gaps and hindering attitudes identified by the research results. The research results should assist us to produce better-trained physicians who are better equipped to help their patients facing life-limiting disease processes to make better, more appropriate and timelier decisions concerning their end-of-life care, achieving better outcomes for these patients and their families.

I will therefore be most grateful if you would give Dr. David Mung’ara and his research proposal your serious consideration.

Kind Regards,

A handwritten signature in black ink, appearing to read "R Carter MD". The signature is fluid and cursive, with a large, sweeping flourish at the end.

Robert A. Carter MD, MPH
Medical Advisor, Palliative Care Unit
AIC Kijabe Hospital
PO Box 20, Kijabe 00220, KENYA

Appendix V- Permission email correspondence to incorporate questionnaires

Dear Dr. Yamamoto and research team,

Greetings.

My name is David Mung'ara. I am a medical doctor currently in 3rd year of residency in Family Medicine, Kabarak University located in Kenya (Africa). I am preparing my thesis proposal on the subject 'What is the doctors' knowledge and attitude with regard to adult inpatient end of life care'. During my literature search i came across your published paper: 'The Palliative Care Knowledge Questionnaire for PEACE: Reliability and Validity of an Instrument To Measure Palliative Care Knowledge among Physicians'.

I found your study quite enlightening and relevant to my research question. I especially found the questionnaire to be a great tool. I am kindly requesting your permission to incorporate some of the questions in my study.

Would you kindly allow me to use it and maybe send me a copy of the full questionnaire?

David.

Ryo Yamamoto <sakupct@sakuhp.or.jp>

Thu, Oct 12, 2017,
3:38 PM

to me

Dear David Mung'ra

Thank you for your e-mail.

Of course I permit to use our questionnaires.

I have attached the file to this e-mail.

Best regards,

Ryo Yamamoto, M.D.

David Mung'ara <davidmungara@gmail.com>

Tue, Oct 10,
2017, 3:48 PM

to yokonakazawa-ky

Dear Dr. Nakazawa and research team,

Greetings.

My name is David Mung'ara. I am a medical doctor currently in 3rd year of residency in Family Medicine, Kabarak University located in Kenya (Africa). I am preparing my thesis proposal on the subject 'What is the doctors' knowledge and attitude with regard to adult inpatient end of life care'. During my literature search i came across your published paper: 'the palliative care knowledge test: reliability and validity of an instrument to measure palliative care knowledge among health professionals'.

I found your study quite enlightening and relevant to my research question. I especially found the questionnaire to be a great tool. I am kindly requesting your permission to incorporate some of the questions in my study.

Would you kindly allow me to use it and maybe send me a copy of the full questionnaire?

Thank you.

David.

M.Miyashita <miya@med.tohoku.ac.jp>

Wed, Oct 11,
2017, 7:49 PM

to Yoko, me

Dear David,

Thank you for your email. I am Mitsunori Miyashita, Tohoku University, Sendai, Japan. I was forwarded your email from Dr.Nakazawa because I manage this scale now.

Although you can use this scale without permission, if you want, I give you permission. In accordance with most recent findings, we think that following two questions are not appropriate now. Anticholinergic drugs or scopolamine hydrobromide are effective for alleviating bronchial secretions of dying patients. Benzodiazepines should be effective for controlling delirium. If you have any question, please send me an email.

PS.

Now, I have a Kenyan nurse in my lab as a master course student. If you

hope, I will introduce her to you. She has conducted a survey about pain management in Kenya on past August and come back to Japan. Although she hopes to enter a doctoral course in Japan, She could be a good research partner for you.

Mitsunori

David Mung'ara <davidmungara@gmail.com>

Tue, Oct 10,
2017, 3:23 PM

to bchumworathayi

Dear Dr. Chumworathayi,

Greetings.

My name is David Mung'ara, I am a medical doctor currently in 3rd year of residency in Family Medicine, Kabarak University located in Kenya. I am preparing my thesis proposal on the subject 'What is the doctors' knowledge and attitude with regard to adult inpatient end of life care'. During my literature search i came across your published paper 'Knowledge and Attitudes toward Palliative Terminal Cancer Care among Thai Generalists'.

I found your study quite enlightening and relevant to my research question. I especially found the questionnaire to be a great tool. I am kindly requesting your permission to incorporate some of the questions in my study.

Would you kindly allow me to use it and maybe send me a copy of the full questionnaire?

David.

Jiratha Budkaew <jbudkaew@gmail.com>

Sat, Oct 14, 2017,
5:36 AM

to me

Dear David.

Thank you very much for let us know that our work is very interesting. This is our full questionnaire. Hope it is useful for you.

Regards,

Jiratha Budkaew, MD

APPENDIX VI: CLEARANCE FROM IPGS



INSTITUTE OF POST GRADUATE STUDIES

Private Bag - 20157
KABARAK, KENYA
E-mail: directorpostgraduate@kabarak.ac.ke

Tel: 0203511275
Fax: 254-51-343012
www.kabarak.ac.ke

21st Jan, 2018

The Director General
National Commission for Science, Technology & Innovation (NACOSTI)
P.O. Box 30623 - 00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH BY DAVID MUNGARA - REG. NO. GMMF/M/1193/9/15

The above named is a Master of Medicine in Family Medicine student at Kabarak University in the School Medicine and Health Sciences. He is carrying out research entitled "**Doctor's training, knowledge and attitude in adult inpatient end of life care: A case study of three mission hospitals in Kenya**". He has defended his proposal and has been authorized to proceed with field research.

The information obtained in the course of this research will be used for academic purposes only and will be treated with utmost confidentiality.

Please assist him to obtain a research permit.

Thank you.

Yours faithfully,

Dr. Betty Tikoko
DIRECTOR - (POST-GRADUATE STUDIES)



Kabarak University Moral Code

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)



Appendix V: KABARAK UNIVERSITY IREC APPROVAL



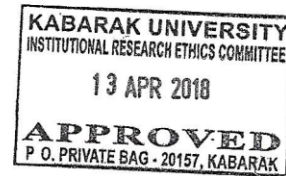
KABARAK UNIVERSITY
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE
P.O. Private Bag – 20157 Kabarak M: +254 724 887 431 F: +254 51 343 529
www.kabarak.ac.ke/irecsecretariat.html E: irecsecretariat@kabarak.ac.ke

4th April 2018

Reference: KABU01/IREC/002/VoL1/2018
Formal Approval Number: KABU/IREC/001

Dr. David Mungara GMMF/M/1193/09/15
Department of Family Medicine and Community Care
Kabarak University. KABARAK. KENYA.

Dear Dr Mungara,



FORMAL APPROVAL.

The Institutional Research and Ethics Committee reviewed your research proposal titled:

"Doctors' Knowledge and Attitude with regard to In-patient end of life care (A study in three Mission Hospitals in Kenya)."

Your proposal has been granted a Formal Approval Number: **KABU/IREC/001** on 4th April 2018. You are therefore permitted to start your study.

Note that this approval is for 1 year; it will thus expire on 3rd April 2019. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to KABU IREC secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you MUST notify the committee of any proposal change(s) or amendment(s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The committee expects to receive a final report at the end of the study.

Yours faithfully,

Dr Wesley Too,

Chairman

KABU Institutional Research and Ethics Committee.

C.C: Registrar- Academic Affairs and Research
Dean SMHS

- Director, Institute of Postgraduate Studies
- HoD, Family Medicine

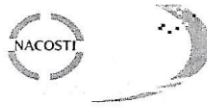
Kabarak University Moral Code

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)



Kabarak University is ISO 9001:2015 Certified

Appendix VI: Letter from NACOSTI



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/19/49844/27703**

Date: **14th February, 2019**

Dr. David Mungara Mungara
Kabarak University
Private Bag - 20157
KABARAK.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Doctors’ training, knowledge and attitude in adult inpatient end of life care: Case study of three mission hospitals in Kenya”* I am pleased to inform you that you have been authorized to undertake research in **Kiambu County** for the period ending **13th February, 2020**.

You are advised to report to **the County Commissioner, the County Director of Education and the County Director of Health Services, Kiambu County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.


GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kiambu County.

The County Director of Education
Kiambu County.