QUALITY OF LIFE FOR CANCER SURVIVORS AT AFRICA INLAND CHURCH KIJABE HOSPITAL, KIAMBU COUNTY, KENYA.

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN NURSING (ONCOLOGY) IN THE SCHOOL OF NURSING-KENYATTA UNIVERSITY

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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This thesis has been submitted for review with my approval as the University Supervisor.

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DEDICATION

For I know the plans I have for you, declares the Lord, plans to prosper you.....to give hope and a future. He has delivered His promises. I am thankful to Almighty God for making this entire process a success. I also dedicate this work to my caring family and friends for their encouragement, patients and support during the whole study.

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ABBREVIATIONS AND ACRONYMS

ADL	- Activities of Daily Living
AKH	-AIC Kijabe Hospital
BCS	-Breast Cancer Survivors
CDC	-Centers for Disease Control
CSSN	-Cancer Survivor Social Network
BCS	-Breast Cancer Survivors
CDC	-Centers for Disease Control
CSSN	-Cancer Survivor Social Network
EORTC	- European Organization for Research and Treatment of Cancer.
GLOBOCAN	-Global Cancer Incidence, Mortality and Prevalence
HIV	-Human Immunodeficiency Virus
KUERC	Kenyatta University Ethical Review Committee
NACOSTI	-National Commission for Science Technology and Innovation
NHMS	-National Health Mental Survey
PhWB	-Physical Wellbeing
PsWB	-Psychological Wellbeing
QoL-CS	-Quality of Life Cancer Survivors
QoL	-Quality of life
SoWB	-Social Wellbeing
SPSS	- Statistical Package for Social Sciences
SpWB	-Spiritual Wellbeing

TMH	-Tenwek Mission Hospital
WHO	**-** World Health Organization
WHOQOL-	World Health Organization Quality of Life
SD	Standard Deviation

OPERATIONAL DEFINATION OF TERMS

Cancer	- A malignant growth or tumors resulting from an uncontrolled division of cells
Cancer survivor	- An individual from the time of diagnosis with cancer, living with, through and beyond the disease including all living with chronic cancers and also those with recurrent tumors.
Health	- State of well-being.
Physical wellbeing	-Control or relief of symptoms and the maintenance of function and independence.
Quality of life	-Refers to a patient's ability to enjoy life and carry out daily activities in relation to their physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment.
Social well-being	- Effort to deal with the impact of cancer on individuals, their roles, and relationships
Spiritual well-being	-Ability to maintain hope and derive meaning from the cancer experience which is characterized by uncertainty.
Psychological well-being	. - Inter- and intra-individual levels of positive functioning that can include one's relatedness with others and self- referent attitudes
Survivorship	- Having lived with, through and beyond cancer

ABSTRACT

Following recent advances in cancer detection, treatment and supportive care, numbers of cancer survivors have been increasingly rising both locally and globally. With this increases, their quality of life is also affected. Few studies have explored the quality of life of cancer survivor in relation to socio-demographic, disease characteristics and spiritual factors. This study aimed to determine the relationship between socio-demographic variables, disease characteristics and spiritual factors and quality of life of cancer survivors. A descriptive cross-sectional research design was used in the study with closed self-administered and interviewed questionnaire being the method of data collection. Quality of Life Patient/Cancer Survivor Version (QOL-CSV) questionnaire was adopted and modified for the study. The study involved 108 study participants, both male and female, 21-86 years. Responses were statistically analyzed with bivariate (Spearman rho) and multivariate analysis (step wide multiple regression) conducted. Descriptive statistics showed that majority of the participants were female, married, having secondary level of education and with stage II cancer. In the bivariate analysis, relationship between socio-demographic factors and quality of life revealed that there was a statistical significant correlation of quality of life with age, gender, education level, marital status and income of the cancer patients. Also, there was a statistical significant relationship between quality of life with stage of cancer diagnosis and year of cancer diagnosis. The comparison between spiritual/religious variables and quality of life showed statistical significant correlation in relation to religious affiliation, the religion one belonged to and how contented with faith in God one was. In the multivariate analysis, age, stage of cancer diagnosis, time off treatment, educational level and religious affiliation were identified as predictors of quality of life of the cancer patients. Healthcare providers' interventions should focus on early cancer detection and treatment as stage of cancer diagnosis is a key determinant of patients' quality of life. Spiritual therapy should be part of holistic care provided to cancer patients to boost their quality of life.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Cancer is a serious problem in all populations regardless of age, sex, and race, social or economic status. Globally, it's the second leading cause of death. Breast, prostate, lung, colon, rectum, and pancreas cancers accounts for 47 percent of all cancer deaths in the United States. Deaths from low and middle income countries account for 70% of all deaths (Siegel *et al*., 2020).

In Kenya, cancer is the third leading cause of mortality after infectious and cardiovascular diseases and second among non-communicable diseases. It causes a total of up to 7% mortality. The five most frequent cancers in Kenya includes; breast, cervical, esophageal , prostate and colorectal cancer (Bray *et al*., 2018). Cancer death rates have reduced from 200.5 deaths to 161.4 deaths in every 100,000 people per year globally (Centers for Disease Control and Prevention,(CDC),2015).

According to GLOBOCAN (2018), prevalence of cancer has increased from 41,000 to 47,887 cases in the past six years in Kenya. There is an estimated 39,000 new cases of cancer each year and more than 27,000 deaths per year. In Kenya, the exact number of cancer survivors has not been determined despite the noted improvements in the care provided to the cancer patients.

Following recent advances in early detection, treatment and supportive care for cancer, survivors' number has increasingly been rising both globally and locally. According to

Bennet, *et al*., (2016), there are more than 15.5 million cancer survivors in United States of America most having completed treatment. In England and Wales, cancer survivors survive 10 years or more. The global survival rate has doubled from 24% to 50% (Quaresma, 2014). Most of the incurable cancers have turned to be curable as a results of advances in biomedical research and cancer treatment (Batawi *et al*., 2019).

Several factors have contributed to the increase in cancer survivors. These factors include significant investment in research related to cancer resulting to better outcomes for the cancer patients (Batawi *et al*., 2019), increase in cancer related health education on signs and symptoms of cancer, early diagnosis and treatment, improved scientific knowledge and technology which allows more effective cancer related investigations and staging of cancer hence effectiveness of cancer treatments (Lazenby *et al*, 2013).

As the number of cancer survivors increases, the question of their QoL arises. Despite physical problems dominating the life of cancer patients, there are other concerns in life sphere of the patient that are impacted on by the disease by virtue of the disease being endangering in nature. WHO classified these concerns into four domains of quality of life which includes; physical, psychological, social and environmental domains (WHOQOL, 2020). Each of these domains has a negative or positive impacts on the QoL of a cancer patient. Several studies had noted the increase in the number of cancer survivors questioning their quality of life. Few studies have focused on quality of life and its relationship with socio-demographic, disease characteristics and spiritual factors of the cancer survivors. The study aimed to assess the quality of life of the cancer survivors in AIC Kijabe Hospital, Kiambu County, Kenya. It was to highlight on

relationship between quality of life and socio-demographic, spiritual/religious factors and disease characteristics for cancer survivors in Kijabe Hospital.

1.2 Problem Statement

Cancer is a major problem in sub sub-Saharan Africa accounting for one in every five deaths among the adults (Parkin et al, 2008).Life post-cancer diagnosis is always challenging for cancer survivors due to the impacts of the disease on their QoL. These impacts include the physical, psychological, socio-economic and spiritual. Common physical effects of cancer include pain, nausea and vomiting due to cancer treatment, sleep disturbances, diarrhea and cognitive problems (Weaver *et al*., 2012).Socio-economic factors include economic burden, loss of employment with spiritual effects such as social isolation and religious affiliation affecting cancer patients quality of life (Choi and Park, 2016). Most patients with cancer in Kenya and Africa at large visit hospitals at advance stage of the disease gaining very little benefit from health care workers (Jemal et al., 2012). Most researchers have focused on early cancer detection, cancer staging, incidence and mortality of the cancer patients (Black *and* Richmond, 2019) . Few studies have focused on quality of life with its relation to the cancer patients' sociodemographic and spiritual factors and also cancer disease characteristics. Based on the fact that there are a number of factors impacting on QoL of cancer survivors, the study aimed to determine the relationship between quality of life and socio-demographic, disease characteristics and spiritual factors for cancer survivors in Kijabe Hospital.

1.3 Research Questions

1. What is the relationship between socio-demographic variables and quality of life of cancer survivors in Kijabe Hospital?
2. What is the relationship between disease characteristics and quality of life of cancer survivors in Kijabe Hospital?
3. What is the relationship between religious/spiritual factors and quality of life of cancer survivors in Kijabe Hospital?
4. What are the predictors of quality of life for cancer survivors in Kijabe Hospital?

1.4 Research Objectives

1.4.1 General Objective

To determine the quality of life of cancer survivors in Kijabe Hospital.

1.4.2 Specific Objectives

1. To determine the relationship between socio-demographic characteristics and quality of life of cancer survivors in Kijabe Hospital.
2. To establish the relationship between disease characteristics and quality of life of cancer survivors in Kijabe Hospital.
3. To determine the relationship between religious/spiritual factors and quality of life of cancer survivors in Kijabe Hospital.
4. To explain predictors of quality of life for cancer survivors in Kijabe Hospital

1.5 Significance of the Study

In order to meet the increasing needs of the cancer survivors, it was important to start by understanding the effects of the disease to their quality of life. The study highlighted the relationship between quality of life and socio-demographic, disease characteristics and spiritual factors for the cancer survivors in Kijabe hospital. It shed light on the intensity of socio-economic effects on the quality of life of cancer survivors. The findings of the study helped in identification of key predictors of cancer survivor's quality of life which may help healthcare providers and the cancer survivors' families when providing care and support to the cancer survivors. The findings also contributed to improving the health education given to the cancer survivors during treatment and post-treatment follow up.

1.6 Conceptual framework

The conceptual framework (Figure 1.1), shows the relationship between cancer survivors' socio-demographic variables, disease characteristics and religious factors with their QoL. Quality of life was the dependent variable and is influenced by cancers survivors' socio-demographic variables, disease characteristics and religious factors these being the independent variables under study. Socio-demographic variables include; age; the level of education, marital status, gender and employment status of the cancer survivors. Disease characteristics included: type of cancer, the staging of cancer, duration of illness, type of therapy, age of onset and time since treatment completion. Religious/spiritual factors included; religious affiliation, existentialism and spiritual support.

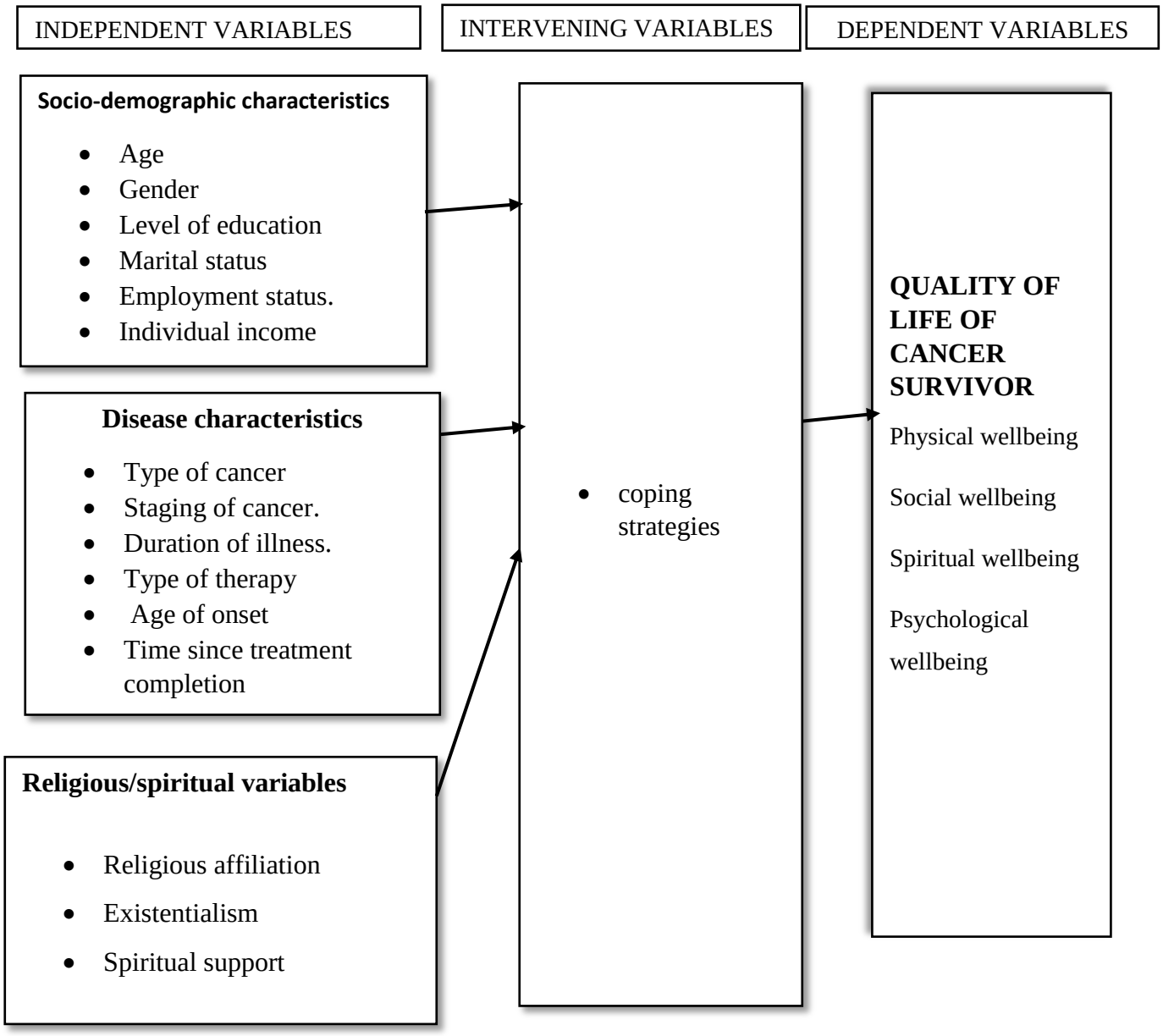


Figure 1.1: Quality of life Conceptual Framework for Cancer Survivor

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter entail literature on the QoL of cancer survivors. The review focused on association of sociodemographic, disease characteristics, religious/spiritual factors and QoL. The gaps are also identified.

2.1 Socio-demographic variables and quality of life of cancer survivors.

Socio-demographic variables that affect Qol includes; age, level of education, marital status, gender and employment status. According to Batawi *et al*., (2019), a study comparing younger patients and older breast cancer patients, age was a significant predictor for quality of life of cancer patients. Young people portray lower social functioning compared to older persons (Ashing-Giwa and Lim, 2010).This is because younger women have issues with sexual impacts and also experience poorer body image compared to older women especially those past menopause. Sharma and Purkayastha,(2017) also found the same results where both genders were involved in their study. They also noted that the QoL of younger age group (30-39years) was significantly worse in all scales apart from the sexual functioning. Sharma and Purkayastha used the EORTC scale to measure the QoL among different age groups.

Gender shows a significant association with QoL on a study of association of demographic variables among older people. Women rated their social relation on quality of life to be higher than that of men. This was attributed to the high social interaction and participation of women than that of men (Ghosh *et al.,* 2014). The

results were consistent with those of Dunneram and Jeewon,(2013) study done in USA on nutrition and health examination survey which also noted that the social function among women contributed greatly in boosting their QoL compared to that of men. The results were contrary to Lee et al., (2020) study which indicated that gender had no significant association with QoL as both male and female experience poor quality of life.

Marital status has a significant association with cancer patients' QoL .A research study done among cancer older patients noted that being alone due to separation, divorce or widower contributed to poor quality of life compared to individuals who were cohabiting or married (Bowling *et al*.,2013). This was because, people who live alone lacked social relation, suffer loneliness and depression hence a source of low satisfaction in their QoL. These results are consistent to those of a study done in Central Europe on determinants of QoL among elderly person (Hoi, Chuc, and Lindholm, 2010). Lee et al., (2020) on the other hand indicated that there is no association between marital status and quality of life but only the social support may have contributed to the married people having better quality of life than single ones.

Various researchers have noted an association between education and quality of life with a few noting no significant association. A study on quality of life of cancer patients on treatment noted no significant association between education and QoL(Stündag and Zencirci, 2015). Cancer patients with lower educational level have worse physical, social and functional roles hence resulting to poor quality of life (Üstündag et al., 2015). Cancer patients with high level of education have better QoL compared to those with

less education due to improved physical and psychological health which contributes greatly to their QoL (Ramasubbu et al., 2020).

Income has a great association with cancer patient's QoL with low income patients demonstrating poor QoL. There is no differences in the QoL for medium and high income earners (Cheng *et al*., 2012). There was significant association between high income and high quality of life among Dutch old cancer patients (Gobben and Remmen, 2019).These results were contrary to those of a study on the perspective of community dwelling adults on QoL which found no significant association between income and quality of life for the older cancer patients (Boggatz, 2019). Gobben research used the WHOQOL-OLD questionnaire while the Boggatz research used the WHO-AGE and older people QoL questionnaire. The difference on tools used may have contributed to the differences in the results. It was reported that housewives and casual laborers experience low quality of life compared to working individuals. The lower QoL noted among housewives might be related to them being distant from social life and also may be due to lack of good social support (Li, Han, and Chen, 2020).

Cancer patients have greatly experienced economic burden as a result of the cancer diagnosis. The burden can be classified into three categories including: direct cost which is any cost incurred directly due to the disease such as consultation cost, treatment, transportation, and special nutrition, indirect cost which include the loss of income due to the disease, early retirement and use of retirement saving on treatment and also psychosocial cost which consist of depression, anxiety, martial constrains, social isolation, and an non predictive future (Akinyemiju *et al.,* 2015). All these

financial constraints are reported to be a major issue to both the patients and the caregivers hence negatively affecting their QoL ((Nayak *et al*., 2017).

A cancer diagnosis is not always received positively due to its effects including the economic effect. An individual once diagnosed with cancer may not be productive as before since the disease make an employee look unsuitable for job opportunities. The diagnosis threaten their promotions as most of the cancer patients time is utilized in hospital while seeking or receiving treatment. A study done among the adolescent's cancer survivors showed that young adults diagnosed with cancer, on treatment or have finished the treatment are less likely to have job security as their employee view them as less productive compared to those free from cancer(DeRouen *et al*., 2017). Individuals with cancer concentrate more on the cancer diagnosis hence utilize most of their time seeking treatment and also recovering from the side effects of cancer treatment (DeRouen *et al*., 2017). This has greatly impacted negatively on their cancers patients' QoL.

Among American's cancer survivors involved in a study, 40% of them stopped working while receiving treatment with 84% of those who stopped working going back to work after four years. More than 50 percent reduction in employment due to the cancer diagnosis occurred during the first year post diagnosis (Ladenburg *et al.*, 2019). These findings show that cancer results to a great economic burden on the cancer patients hence negatively impacting their QoL.

Several socio-demographic variables of cancer patients have been noted to have an association with their quality of life with some noted to have no significant association.

2.2 Disease characteristics and quality of life of cancer survivors

Several disease characteristics affects the QoL of patients. These factors includes the type of cancer, staging of cancer, age of onset, duration of illness, type of therapy and time since treatment completion. The association of each of these disease characteristics with QoL vary from one cancer survivor to the other.

Several studies have portrayed a relationship between types of patients' cancer and their QoL. Patients with breast cancer have the worst social outcomes hence poor QoL compared to patients with head-neck, sarcoma and gynecological cancers (Stündag and Zencirci, 2015). This is due to the side effects of breast cancer such as hair loss and body image disturbance which negatively affects their psychological and social wellbeing. Patients with colorectal cancer portrayed improved social wellbeing. This type of cancer did not affect the patient physical, psychological and general wellbeing (Ramasubbu et al., 2020). Lee et al., (2020), found that patients with breast, gynecological and soft tissue cancer have a poor quality of life while a study by Üstündag et al., (2015) found that colorectal cancer patients have worst QoL compared to lung cancer patients.

Time of onset of the cancer diagnosis have a relationship with cancer survivors' QoL. A research on factors affecting quality among cancer patients in India showed that young breast cancer survivors showed significantly worse QoL outcomes compared with those diagnosed with cancer at a later age group. The younger individuals experienced higher levels of social inhibition while undergoing treatment as compared to the older age group (Sharma and Purkayastha, 2017).The results are contrary to those of a study on

impacts of age on QoL where development of emotion and cognitive function among the older age group differed from that of the younger age group. Younger group portrayed better outcomes with worse outcomes for the older groups (Bantema-Joppe *et al*., 2015). Long term cancer survivors diagnosed at an older age have a significant worse QoL especially on their physical domain while those diagnosed early have a worse QoL on their social domain (Annunziata et al., 2017).

Patients with advance cancer stage perform worse on the symptoms management resulting to poor QoL compared to cancer patients at early stages of cancer. A Study on oropharyngeal cancer patients found that cancer patients on stage III and IV have a poor quality of life due to their low performance in all domains compared to cancer patients at stage I and II (Oates *et al.*, 2014). Patients on advanced stages are prone to receive more treatments and are usually with more advanced symptoms contributing to their poor QoL.

The type of cancer treatment the cancer patients' receives showed an association with their QoL. Cancer patients on radiotherapy portray poor QoL than those on chemotherapy or post-surgery. This is because radiotherapy is more painful than chemotherapy and surgery and also has an advanced perceived stress (Rukshani *et al*., 2018). A study by Scott *et al*., (2010**)** also gives similar results where patients on radiotherapy had significant deterioration in all the domains of QoL with the physical domain being the most affected. Patients on radiotherapy have a high score on the pain, fatigue, insomnia and appetite loss as compared to patients on chemotherapy (Scott *et al*., 2010). Chemotherapy has less side effects compared to radiotherapy hence

chemotherapy improves QoL of cancer patients compared to the radiotherapy. Patients on radiotherapy and chemotherapy combination have poor QoL than those on chemotherapy and surgery. Similarly, Ashing-Giwa and Lim, (2010) reported that patients on surgery have a better QoL and those on chemotherapy, radiotherapy and surgery combination have worst outcomes on their quality of life.

Complimentary therapy is considered to impact on the QoL of the cancer survivors. According to a study by Lee et al., (2020), complementary therapy has no association with QoL. The results are similar to Stündag and Zencirci,(2015) study on QoL of cancer patients. The results are contrary to a study carried out by Annunziataet al., (2017), which shows complementary therapy has no impact on lung cancer patients QoL. Cancer patients who had more complementary therapy had reduced QoL while acupuncture type of complementary therapy resulted to improved quality of life for cancer patients (Bhatnagar & Satija, 2017).

Cancer patients on prolonged therapy period have decreased quality of life compared to those with short term treatment (Ashing-Giwa and Lim, 2010). This also is subject to the type of therapy the patient is on. Diverse therapy with long duration of treatment inhibits social interaction and also increases unwanted symptoms leading to poor quality of life. Diverse therapy results to worse outcome on the physical domain while the long duration of treatment has a negative impact on the social domain hence generally impacting on the cancer patients QoL(Stündag and Zencirci, 2015).Several disease characteristics variables of cancer patients have been noted to have an association with their quality of life with different studies giving diverse opinion.

2.3 Religious/spiritual factors and quality of life of cancer survivors.

A number of researchers have noted a significant association of QoL with spiritual factors with others noting and no association. A study conducted in South America on determinant of QoL for cancer patients noted no significant association between QoL of the cancer patient and spiritual /religious factors as the cancer patients showed no religious affiliation (Rohani et al., 2015). The study focused more on the negative factors of spirituality including spiritual pain which may have contributed to the findings.

Spiritual wellbeing has been identified as a manifestation of individual ego, strength and coping strategies resulting to improved QoL (Assimakopoulos *et al*., 2009). According to Simoni, Martoneb, and Kerwinb, (2002) ,spirituality refers to the feeling of having connections' with others as well as finding meaning in life. Spirituality is broadly divided into two including; religious wellbeing and existential wellbeing. Existentialism refers to having a meaning and purpose in life (Malinakova *et al*.,2017). Individuals with high religious affiliation and practices in the USA were noted to have an improved QoL compared to those who did not have any religious affiliation. The influence of spiritual beliefs on the patients quality of life remained significant even to those who did not profess any religious faith (Levine *et al.*, 2017).

Several researches identified belonging to various religions for the cancer survivors as having a significant relationship with their QoL while others found no significant association. According to a study conducted among African American women, they were more frequently engaged in private religious practice such as in praying and

reading the bible compared to public religious practices such as attending church services (Rohani et al., 2015). This could have been attributed by the fact that individuals with chronic illness frequently feel socially isolated and opt to be involved in their own grouping where they feel they are going through the same hardships. This could also be a way of avoiding stigmatization which may be found in the public religious services as church attendances which may hinder them in achieving spirituality. Spirituality was incorporated by the patients when with their families and also in tackling personal problems. Cancer survivors have identified spirituality as a way of coping with the cancer diagnosis (Torres et al., 2019). This boost their spiritual wellbeing hence improving their Qol.

Spirituality has been considered as a personal search for meaning and purpose of life and their belief on existence. According to Grimmett, (2017) study among African American cancer survivors, most of the patients reported to have encountered spiritual support through prayers, attending church services, being members in their religions and also participating in church related activities. The cancer survivors portrayed to be strong believers who were driven by their faith in God and believed that He knows and cares for them despite what they were going through. They stated God being their comforter and director of the health care workers providing services to them. Others stated the cancer diagnosis to be a test of their faith in God and hence kept praying to overcome the temptation. Individual with spiritual support portrayed better QoL than those who didn't have any spiritual related support (Roff *et al*., 2009). According to Torres et al.,(2019) cancer patients viewed the disease as a way of getting closer to their

God and also helping others believe in their God who heals.This contributed greatly to improving their QoL.

Spiritual pain refers to an entity of suffering and spiritual distress which is a pain deep in the individual soul that is not physical. Spiritual pain was noted to be a spiritual variables that significantly impacted on the cancer patients QoL. This was according to a study by Delgado-Guay *et al*.,(2011)among cancer patients where they expressed to experience moderate to high spiritual pain which consequently had an impact on their contentment in faith with their spiritual being hence having effects on their spiritual wellbeing. The pain also contributed adversely to their physical and emotional symptoms.

Few studies had focused on the spiritual factors in relation to QoL. More research was needed to explore on spiritual factors that significantly impacts on the QoL of cancer patients.

2.4 Predictors of Qol

Quality of life domain has been predicted by several factors. According to Al-Azri *et al*., (2014) study among breast cancer patients, psychosocial domain of the patients was affected by several factors including: stress, uncertainty, family members reactions, and perception of women with the breast cancer. The study was qualitative in nature hence the patients were able to express themselves. The results of the study were similar to those of Rottmann *et al*.,(2010) study where body image and depression were noted to be the major predictors of the psychological wellbeing of the cancer patients. Poor body

image was identified as a major predictor of QoL after 2 years in a longitudinal research on QoL among cancer patients (Taira *et al*., 2011).

Major predictors of QoL function and symptom scales include global health status and financial difficulties. This was according to Moodi, Mohammadifard, and Miri,(2017) study where 23-item EORTC Breast cancer quality of life questionnaire was used. QoL is influenced by type of therapy, depression, age and fatigue(Levine *et al*., 2017). According to Ashing-Giwa and Lim,(2010), quality of life is moderated by its relationship with the cultural practices especially for the low income earners.

A longitudinal study done among breast cancer patients to predict their QoL, showed that QoL of the cancer patients improved over time with no significant differences noted (Levine *et al*., 2017). Demographic variables that predicted QoL over four year's period included age and self-rated health. Psychosocial dimensions that predicted the Qol included mood, vigor and social support. Functional wellbeing related to anxiety and physical wellbeing was only associated with social support. The study included spirituality in the social wellbeing and was identified as one of the predictors of QoL including anxiety and fatigue (Levine *et al*., 2017).

Other predictors of social wellbeing include appraisal and positive social interaction especially for newly diagnosed cancer patients (Kwan *et al*., 2010). Study by Kwan *et al*., (2010) was cross-sectional in nature and included newly diagnosed patients which could have contributed to various social wellbeing dimensions being identified as predictors of QoL. Social support and good relationships results to improved social wellbeing of cancer patients resulting to better QoL (Love and Sabiston, 2011).

Individuals with life-threatening illness often seek social support from various social networks. The networks encourage empowerment by enhancing the survivors attitude to remain positive and encouraging them to participate in making decision concerning their health (Uden-Kraan *et al*., 2009). There exist very few formal social networks for the survivors with most utilizing the informal networks such as seeking supports from friends, churches and family members.

Spirituality was identified as a predictor of overall QoL .Most patients with cancer diagnosis use spirituality as a means of coping with the diagnosis (Assimakopoulos *let al*., 2009). Janz *et al*., (2009), identified spiritual beliefs to be predictive of the decline in emotional wellbeing of the cancer patients. The study was cross-sectional and considered a few aspects of spirituality. Various aspects of spirituality had been left out contributing to a different view of spirituality among cancer patients. Existentialism was identified to be a predictor of overall Qol (Meunier *et al*., 2007)

Overall predictors of QoL in a four years study included vigor, tangible support, emotional support and the levels of Qol(Levine *et al*., 2017). The results were contrary to those of Leung, Pachana, and McLaughlin,(2014) longitudinal study which noted a significant correlation of overall QoL and social interaction but found social support not among the predictor of QoL.

Several predictors of QoL have been identified by different researchers due to the different QoL questionnaires used in the studies. The differences in the type of research involved also determines the results from the study. Predictors of quality of life in

cross-sectional study differ from those of longitudinal studies as over time the priorities of the cancer patients' change.

Few studies have focused on QoL predictors especially the predictors of spiritual wellbeing which is a domain of QoL. Further research on spirituality and other predictors of each of the cancer domain needed to be done. Depending on the measure used to assess QoL, different predictors may be identified. There was a need to research more on the predictors of QoL with the aim of developing strategies to combat long term health effects. There was little information on relationship between QoL of cancer survivors and their socio-demographic, disease characteristics and spiritual factors. Literature dealing with the QoL and its domains was scarce. This brought the need to research more the association of QoL with cancer patients' socio-demographic, disease characteristics and spiritual factors.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the research design, sampling technique, study variables, data collection procedure and ethical considerations.

3.2 Study Design

The descriptive cross-sectional study design was used for the study. It was a descriptive cross-sectional study as it attempts to establish the relationship of the subject characteristics with their QoL. The data was collected at one given time. The selection of this design was based on its scientific rigor, being cost effective, efficient and practical.

3.3 Study Area and Setting

The study was conducted at Kijabe Hospital in Kijabe within the Rift Valley escarpment, Kiambu County, Kenya .The hospital has over 350 bed capacity. The hospital was chosen because it offers oncology services to patients on remission, maintenance or follows up phases among other patients. These patients had gone through the cancer experience hence able to express the disease's impacts to their QoL. The hospital also offered spiritual support to the cancer patient which may impact on their quality of life. Other services offered by the hospital include: Internal medicine, Intensive Care Unit services, Pediatrics, maternity, nutrition, physiotherapy and diagnostic services. The hospital receives an estimated 150 adult cancer patients per month and 130 pediatric cancer patients per month.

3.4 Study Population and Sample

The population for the study were the patients treated at Kijabe Hospital either on chemotherapy or follow up post-treatment. The research sample for the study was drawn from a target population of all individuals who received treatment or post-treatments follow up in the above research setting. The target population was approximately 150 patients per month.

3.5 Sampling Procedure

3.5.1 Inclusion Criteria

1. At least 18 years of age,
2. Self-reported diagnosis of any type of cancer at least in remission or on maintenance therapy,
3. Stable patients who were able to express themselves freely and could understand English or Kiswahili language.

3.5.2 Exclusion Criteria

1. Patients who were critically ill.
2. Patients who could not consent to the study.
3. Patients who could not understand English or Kiswahili language.

3.5.3 Sample Size Determination

Fishers' formula was used to obtain minimum sample size (Fishers et al., 1998)

n=desired sample size (target population ≥10,000)

Z= Standard normal deviant at the required confidence level (1.96)

P=the proportion in the target population estimated to have particular characteristics being measured -50%.

q=1-p d=precision level set at 0.05

p=50% Z=1.96

d=0.05

q=1-0.5=0.5

n= $(1.96)^2$ $(0.5)^2$ $(0.5)^2$=385

nf=desired sample size when the population size is less than 10,000

n=desired sample size when the population is more than 10,000

nf= n (1+n/N)

N=estimate of the population size=150

nf =384/ (1+384/150)

nf=107.231

nf=108, Therefore, 108 people were sampled**.**

3.5.4 Sampling Technique

Systematic random sampling technique was used to recruit a total of 108 cancer survivors to participate in the research study. The total population was divided by the sample size required which gave 2. Every 2nd participant was picked to be part of the sample until the desired sample size was achieved. The researcher went through the medical records of the patients due for review in the facility to identify the patients eligible for the study. On arrival to the clinic, every 2nd patient was introduced to the study and explained what the study was about including the benefits and the risk of participating. This was done using English and Kiswahili language. Only the patients who consented to the study were given the questionnaire for filling. Face to face

interview was performed for illiterate participants. Before filling the questionnaire, the subjects were assigned a unique code to serve as their study identifiers.

3.6 Study Variables

3.6.1 Independent Variable

Socio-demographic variables including: age; level of education, marital status, gender and employment status of the cancer survivors. Disease characteristics including: type of cancer, staging of cancer, duration of illness, type of therapy, age of onset and time since treatment completion. Religious/spiritual factors including; supernatural beliefs, religious affiliation, existentialism and spiritual support.

3.6.2 Dependent Variable

Quality of life of cancer survivors.

3.7 Data collection method

3.7.1 Collection of data process

A self-administered questionnaire with five sections was used for data collection. The sections included questions related to demographic data, physical, psychological, social and spiritual factors in relation to quality of life. The questionnaire was adapted from the Ferrell *et al*. (2012) Quality of Life Patient/Cancer Survivor Version (QOL-CSV) questionnaire and modified to fit the study. The QoL domains including physical, psychological, social and spiritual domain were evaluated using 0-10 ordinal likerts scale. Participants who consented to the study were given the questionnaire for filling.

3.7.2 Pre-testing

The questionnaire was pretested in Tenwek Mission Hospital on 11 patients with a cancer diagnosis and on remission or maintenance therapy. They were not included in the sample but were used to assess the suitability of the questionnaire. They enabled the researcher to determine question validity and data reliability. The pre-testing also helped to establish the time it would take to administer the questionnaire and the cost involved.

3.7.3 Validity

The validity of the questionnaire was ensured through the use of a well-designed questionnaire. It was also ensured through pretesting of questionnaire where accuracy of the questionnaire was determined so as to obtain true and accurate results.

3.7.4 Reliability

Reliability was ensured through having the questionnaire designed to ensure that consistent results were achieved and also close supervision during data collection. Data checking and cleaning was simultaneously done during data collection.

3.7.6 Data Analysis

The questionnaires were collected, coded and then entered into a computer for analysis through SPSS version 25.0 statistical tool. The demographic and disease-related characteristics of the participants were analyzed using frequency, percentages, means, and standard deviations. Domains of QoL and the overall QoL was estimated as means and standard deviations. Spearman's rho was conducted to determine the relationship

between demographic, disease characteristics, spiritual variable and QoL. Stepwise multiple regressions was conducted to predict QoL.

3.8 Ethical Considerations

Ethical approval for the study was sought from Kenyatta University Ethical Review Committee (KUERC). A research permit and authorization was sought from the National Commission for Science Technology and Innovation (NACOSTI) and also from AIC Kijabe Hospital Ethical Committee. The subjects were provided with the purpose of the study. The rights provided to them included; their decision to participate voluntarily can withdraw at any time without giving a reason for their withdrawal and that their decision to refuse to participate in the study would not affect the services they were to receive. The patients who consented to the study were handed a questionnaire to fill. Anonymised codes were used to conceal participants' names so as to ensure confidentiality. All data collected was stored under lock and key and access exclusively provided to the investigator and supervisor.

CHAPTER FOUR

RESULTS

4.0 Sociodemographic characteristics

Demographic characteristics from this sample consisted of 108 cancer survivors with a response rate of 100%. The mean age of this sample was 51 years (SD =15.98) with a range of 21-86years (Table 4.0.1). Majority of the respondents were female (52.8%).The mean age for women was 42.5 years while for men was 55.42 years. Of them, 15.7% were single, 45.4% were married, 11.2% were separated and 28.7 % were widowed. Majority of them had their education up to secondary level n =41 (38%), (Table 4.0.2).

Of the respondents 35% were employed and earning a salary, 31.5 % were self-employed while 32.4 % of them were not working hence had no income. Most of those with income, about 30.6%, had an income of between Ksh.30, 000 to 60,000 with less than 5% earning above ksh.60, 000, (Table 4.0.2).

Majority of the cancer patients n=50 (46.3%) had stage II cancer. 44.4% of the participants had received chemotherapy and surgery combination therapy with a few (13%) receiving radiotherapy, chemotherapy and surgery combination therapy. Majority n=41(38%) of the patients have been with the cancer for 3 years, with approximately 38% having been off treatment for about 2 to 4 months, (Table 4.0.3).

Majority n=94 (87%) of the cancer patients had a religious affiliation. Among patients with religious affiliation, n=79 (84%) were Christians, n=13 (13.9%) were Muslims and n=2 (2.1%) did not belong to any religion. Majority n=36 (33.3%) of the participants

were extremely contented with faith in God. Most of the respondents (28.7%) did not at all have any change in their spiritual life as a result of the diagnosis. 30 (27.8%) of the respondents were just members of a religion that gave them ample spiritual support, 26 (24.1%) were active participants in religious activities, 28(25.9%) minimally participated in religious activities and 24 (22.1%) had felt lack of spiritual support despite being members of the religion, (Table 4.0.4).

The mean QoL of the sample was 183.81 (SD=45.13) with a range of 97 to 285, PhWB mean 46.24 (SD=14.31), PsWB mean 59.47(SD=29.48), SoWB mean of 38.93(SD=17.25) and SpWB mean 39.35(SD=17.78), (Table 4.0.1).

Table 4.0.1: Participants level of wellbeing (n=108)

Variables	***Mean***	***SD***
AGE	50.64	15.972
PhWB	46.2407	14.31023
PsWB	59.4722	29.47752
SoWB	38.9352	17.24495
SpWB	39.3458	17.78122
Overall QOL	183.8148	45.13783

Key: SD-Std. Deviation, PhWB –Physical Wellbeing, SoWB –Social wellbeing, PsWB-Psychological Wellbeing, SpWB-Spiritual Wellbeing.

Table 4.0.2: Sociodemographic characteristics (n=108)

Variables		*N (%)*
Gender	Male	51(47.2)
	Female	57(52.8)
Marital status	Single	17(15.7)
	Married	49 (45.4)
	Separated	11(10.2)
	Widowed	31(28.7)
Education level	Non-basic	17(15.7)
	Primary	18(16.7)
	Secondary	41(38.0)
	College	21(19.4)
	University	11(10.2)
Employment status	Employed	39(36.1)
	Self-employed	34(31.5)
	Not working	35(32.4)
Income	No income	35(32.4)
	Below ksh.10,000	11(10.2)
	ksh.10,001-30,000	24(22.2)
	ksh.30,001-60,000	33(30.6)
	ksh.60,001-100,000	5(4.6)

Key: n=frequency, %-percentage

Table 4.0.3 Disease characteristics (n=108)

	variables	*n (%)*
Cancer stage	I	4(3.7)
	II	50(46.3)
	III	25(23.1)
	IV	29(26.9)
Treatment	Chemotherapy	18(16.7)
	Chemotherapy and surgery	48(44.4)
	Radiotherapy and chemotherapy	28(25.9)
	Radiotherapy, surgery and chemotherapy	14(13.0)
Year of ca diagnosis	>4years	18(16.7)
	4years	24(22.2)
	3years	41(38.0)
	2year	18(16.7)
	1year	7(6.50)
Time off treatment	<2months	9(8.30)
	2-4months	41(38.0)
	4.1-6months	27(25.0)
	>6months	31(28.7)

Key: n=frequency, %-percentage

Table 4.0.4: Religious variables (n=108)

Variables	*Groups*	*Frequency n (%)*
Religious affiliation	Yes	94(87)
	No	14(13)
Religion	Christians	79(84.0)
	Muslims	13(13.9)
	None	2(2.1)
Contented with faith in God	Extremely contented	36(33.3)
	Very much contented	29(26.9)
	Moderately contented	14(13.0)
	A Little contented	15(13.9)
	Not at all	14(13.0)
Spiritual life change	Extremely changed	11(10.2)
	Very much changed	30(27.8)
	Moderately changed	11(10.2)
	A little changed	25(23.1)
	Not at all	31(28.7)

Key: n=frequency, %-percentage

As shown in Figure 4.1, majority of the patients (29.6%) had breast cancer followed by prostate cancer (18.5%) and cervical cancer (13.5 %). Most of the other cancers cases constituted less than 10 % of the cancer patients.

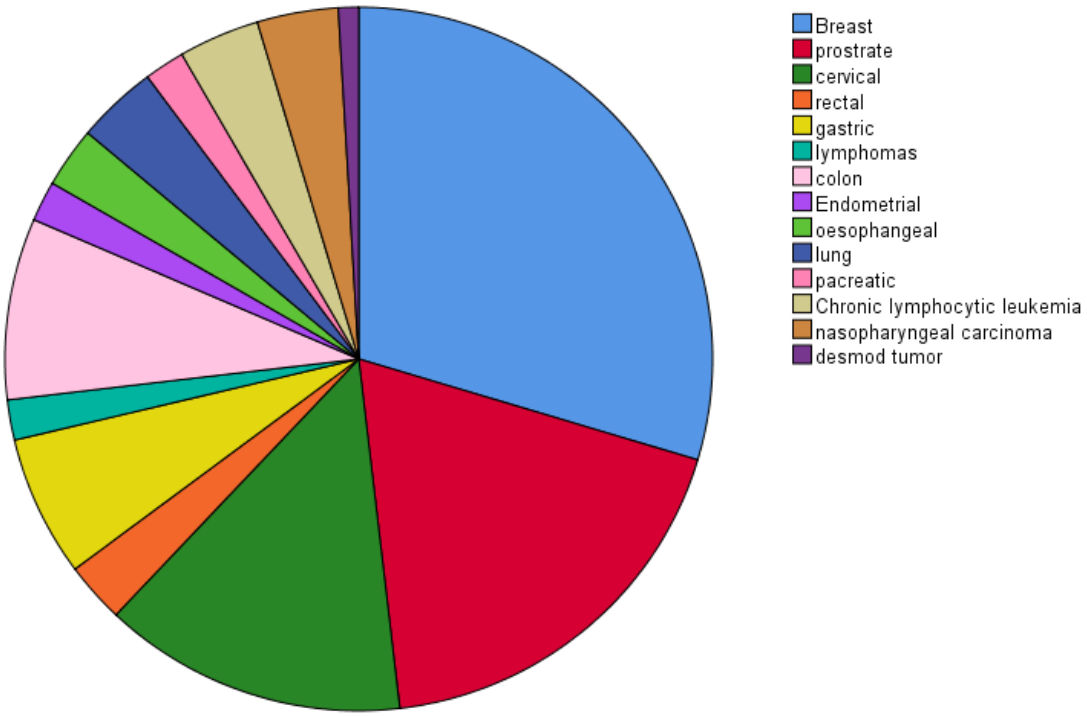


Figure 4.1: Types of cancer.

4.1 Relationship between sociodemographic variables and QoL domains

Spearman rank order correlation was conducted to examine the relationship between socio-demographic variables and QoL. The comparison between QoL and sociodemographic factors revealed that there was a statistical significant correlation in relation to the variables of age, gender, education level, marital status and income. Younger individuals portrayed to have better PhWB, PsWB and overall QoL compared to the older participants (r_s=-.223, p<.05, r_s = -.248 p<.05, r_s = -.055 p<.05). In terms of

gender, women experienced worse PhWB compared to men (r_s =-.253, p<0.01), (Table 4.1)

Increase in the level of education showed a significant positive correlation with the individuals' QoL where individual who had attained university education portrayed better PhWB, PsWB and SoWB compared with individuals with non-basic education (r_s =.219 p<.05, r_s =.226 p<.05, r_s =.234 p<.05 respectively). Married participants had better PsWB, SoWB, SpWB and overall QoL compared to single participants (r_s=.406 p<.01, r_s=.500 p<.01, r_s=.210 p<.05 r_s=.490 p<.01 respectively). Participants with high income had a better PsWB, SoWB and overall QoL (r_s =.271 p<.01, r_s = .246 p<.05, r_s =.228 p<.05 respectively). Treatment cost had no significant correlation with the quality of life domains (p>.05). (Table 4.1).

Table 4.1 Variable Correlation of socio demographic variables and QoL domains (n=108)

Variable	***QOL***	***PhWB***	***PsWB***	***SoWB***	***SpWB***
Age	-.055*	-.223*	-.248*	-.040	072
Gender	-.167	-.253**	.072	.062	.107
Education	.189	.219*	.226*	.234*	-.065
Marital status	.490**	-.216*	.406**	.500**	.210*
Monthly income	.228*	.183	.271**	.246*	.110
Treatment cost	-.070	.042	-.143	.037	-.011

Key: * $p < .05$ $p < .01$*** $p < .001$.** Gender (1=male; 2=female),), education (1=non basic, 2=primary, 3=secondary, 4=college, 5=university), marital status (1=single, 2=divorced, 3= married)

4.2 Relationship between disease characteristics and QoL domains

The relationship between disease related variables with Qol was assessed using spearman rank order Correlation (Table 4.2). There was a statistical significant relationship between QoL with stage of cancer diagnosis and year of cancer diagnosis. Patients with stage one cancer had better PhWB and overall QoL compared to patient with advance cancer (r_s = -.498. p<.01, r_s= -269. p<.01), (Table 4.2). Individuals with advanced cancer had better PsWB and SpWB compared to individuals with stage one cancer (r_s =.342 p<.05, r_s =.207 p<.05). Individuals with recent diagnosis had better QoL compared to individuals with long term diagnosis (r_s =-295 p<.01). Subsequently, those who were diagnosed earlier had better PsWB and SpWB compared to those with recent diagnosis (r_s =.241 p<.05, r_s=.337 p<.01). There was no statistical significance relationship between type of cancer the patient had and the complementary therapy used (P>0.05). However significant differences were noted when comparing different subgroups where patients on chemotherapy and surgery combination therapy showed to have better QoL compared to all other combination therapy offered. (Table 4.2).

Table 4.2 Variable Correlation of disease characteristics and QoL domains (n=108)

	QOL	***PhWB***	***SoWB***	***PsWB***	***SpWB***
Cancer type	.091	-.110	-.062	.111	.123
Cancer stage	-.269**	-.498**	- .320**	.342**	.207*
Years with cancer dx	-.295**	-.116	-.118	.241*	.337**
Treatment used	.011	-.125	.162	-.035	.002
Complentary therapy	-.081	-.015	-.142	-.028	.074

Key: $*\ p < .05$ $**\ p < .01$ $***\ p < .001$.Treatment used (1=surgery; 2=chemotherapy, 3=radiotherapy, 4=chemotherapy, radiotherapy and surgery,), years with cancer diagnosis (1=1-2yrs, 2=2.1-3yrs, 3=3.1-5yrs, 4=above 5yrs).

4.3 Relationship between spiritual/religious variables and QoL domains

Spearman rho correlation was also used to examine the relationship between spiritual variables and QoL domains. The comparison between QoL and spiritual variables revealed that there was statistical significant correlation in relation to the variables; religious affiliation, the religion you belong to and how contented with faith in God one was. Table 4.3, shows that participants with religious affiliation had a better overall QoL, SoWB and SpWB compared to participant with no religious affiliation (r_s =-.279, p<.01, r_s = -.230 p<.05, r_s= .346 p<.01). It also indicated that Christians had better overall QoL and better SpWB compared to Muslim participants and those who did not belong to any religion (r_s = -.198 p<.05, r_s = -.295 p< .01). Individuals who were extremely contented with God had better QoL and SpWB compared to those who were not at all contented (r_s =-.215 p< .05, r_s =-.263 p<.01). There was no statistical significance relationship in relation to the spiritual life change experiences and the social support provided (P>0.05). However significant differences were noted when

comparing different subgroups where patients who had experienced extreme spiritual changes had worse spiritual wellbeing compared to those who did not experience any change. (Table 4.3).

Table 4.3 Variable Correlation of spiritual/religious variables and QoL domains (n=108)

	TOTALQOL	***PhWB***	***PsWB***	***SoWB***	***SpWB***
Member of religious affiliation	-.279**	.169	-.151	-.230*	-.346**
The religion you belong to	-.198*	.125	-.103	-.131	-.295**
Spiritual support	.141	.013	.002	.075	.290**
Contented with faith in God	-.215*	.037	.178	.179	-263**
Spiritual life change	-.091	.074	-.087	.001	-.149
Source of social support	.155	-.129	.174	.102	.110

Key: $*\ p < .05 **\ p < .01 ***\ p < .001$.Religious affiliation (1=yes, 2=no), the religion you belong to (1=Christians, 2=Muslims, 3=none), Contented with faith in God (1=extremely contented, 2=very much contented, 3=moderately contented, 4=a little contented, 5=not at all).

4.4 Predictors of QoL

Using variables that were significantly correlated with QoL, stepwise regression predicting overall QoL as well as each of the QoL domains was done. Because many of the variables were inter-correlated collinearly, collinearity diagnosis was done with all the VIF levels noted to be below 3. This indicated lack of significant multi-collinearity.

Table 4.4.1 shows that 32.6% of variance in the physical wellbeing domain can be accounted by 2 predictors collectively f (2,106) =26.91, p<.001). The predicted PhWB score is equal to 74.871+ -7.084 (cancer stage) +-3.658 (age of the patient) per unit

increase in each factor. Cancer stage was noted to be a highest predictor of cancer patients PhWB.

Table 4.4.1: Predictors of Physical wellbeing domain

Variables	***B***	***β***	***Df 1***	***Df2***	***Adj. R^2***	***t***	***p***	***F***
(Constant)	74.871		*2*	106	.326	18.423	.0002	26.91
Cancer stage	-7.084	-.447				-5.446	.0002	
Age	-3.658	-.276				-3.365	.001	

Key: sig p < .05 while CI 95%, CI: Confidence Interval, β: Beta coefficient, t: t value while B coefficient is significant, Adj. R^2: Adjusted coefficient of determination.

Table 4.4.2 shows a significant effect on the PsWB (f (4,103) =17.89, p<.001) suggesting that 38.7% of variance was predicted by four predictors collectively. Checking on individual contribution of the predictors, the results show age *(β=.400, t=4.8876, p<.001),* cancer stage *(β=*.256, *t=*3.265, *p=.001),* time off cancer treatment *(β=*.158, *t=*2.000, *p =.048)* and years with cancer diagnosis *(β=*.227, *t=*2.971, *p=.004)* positively predict QoL.

Table 4.4.2: Predictors of Psychological wellbeing domain

Variables	***B***	***β***	***Df1***	***Df2***	***Adj. R^2***	***t***	***p***	***F***
(Constant)	-25.706		*4*	103	.387	-2.184	.031	17.884
Age	10.905	.400				4.887	.001	
Cancer stage	8.375	.256				3.265	.001	
Year with cancer DX	5.775	.227				2.971	.004	
Time off ca treatment	4.794	.158				2.000	.048	

Key: sig p < .05 while CI 95%, CI: Confidence Interval, β: Beta coefficient, t: t value while B coefficient is significant, Adj. R^2: Adjusted coefficient of determination.

As shown in Table 4.4.3, 31.7% of variance in the SoWB domain can be accounted by three predictors collectively f (3,104) =17.53, p<.001).The predicted SoWB score is equal to -4.827+ --8.352 (age) +8.053 (gender) + -3.651 (cancer stage) per unit increase in each factor. Age was noted to be a highest predictor of cancer patients SoWB.

Table 4.4.3: Predictors of Social wellbeing domain

Variables	***B***	***β***	***Df1***	***Df2***	***Adj.R^2***	***t***	***p***	***F***
(Constant)	-4.827		*3*	104	.317	-.647	.519	17.530
Age	-8.352	-.523				-6.083	.000	
Gender	8.053	.233				2.784	.006	
Cancer stage	-3.651	-.191				-2.312	.023	

Key: sig p < .05 while CI 95%, CI: Confidence Interval, β: Beta coefficient, t: t value while B coefficient is significant, Adj. R^2: Adjusted coefficient of determination.

Results as shown on table 4.4.4 indicate a significant effect on the SpWB (f (4,102) =18.8, p<.001) suggesting that 40.2% of variance is predicted by four predictors collectively. Checking on individual contribution of the predictors, the results show that

age *(β=.484, t=5.418, p<.01)* and years with ca diagnosis *(β=*.252, *t*=3.305, *p <0.*05 positively predicted QoL while the religion you belong to *(β=*.369,*t*=4.780,*p=.001),* and religious affiliation *(β=*..227, *t*=2.545, *p=.012)* negatively predicted QoL, (Table 4.4.4).

Table 4.4.4: Predictors of spiritual wellbeing domain

Variables	*B*	*β*	*Df1*	*Df2*	*Adj. R^2*	*t*	*p*	*F*
(Constant)	4.207		*4*	102	. 402	.545	.587	18.804
Age	8.005	.484				5.418	.000	
The religion you belong	-6.114	.369				4.870	.000	
Years with cancer Dx	3.853	.252				3.305	.001	
Religious affiliation	-3.447	.227				2.545	.012	

Key: sig p < .05 while CI 95%, CI: Confidence Interval, β: Beta coefficient, t: t-value while B coefficient is significant, Adj. R^2: Adjusted coefficient of determination.

Table 4.4.5 show that of 50% of variance in the Qol can be accounted by five predictors collectively (F *(5,102) =22.41, P<.001).* Looking at individual contribution of the predictors, the results show that time off cancer treatment *(β=.217, t=3.164, p=.002),* educational level *(β=.195, t=2.739, p=.007)* and religious affiliation *(β=.173, t=2.523, p=.013)* positively predict QoL. The results also show that young individuals with longer time off treatment, has attained tertiary education and have religious affiliation are more likely to report better Qol *(β=.502, t=-6.990, p<.001).*

Table 4.4.5: Predictors of overall QoL

Variables	*B*	*β*	*Df1*	*Df2*	*Adj. R^2*	*t*	*p*	*F*
(Constant)	57.166		*5*	102	. 500	3.025	.003	22.411
Age	-11.972	-.502				-6.990	.000	
Stage of cancer diagnosis	-9.062	-.233				-3.379	.001	
Time off treatment	9.169	.217				3.164	.002	
Educational level	9.078	.195				2.739	.007	
Religious affiliation	3.297	.173				2.523	.013	

Key: Sig p < .05 while CI 95%, CI: Confidence Interval, β: Beta coefficient, t: t value while B coefficient is significant, Adj. R^2: Adjusted coefficient of determination.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 DISCUSSION

The results of the study shows that majority (51%) of the cancer survivors had good QoL. This results are consistent with Abdollahzadeh *et al.,* (2012) study done among breast cancer patients in Tehran. This was contrary to Hasanpour-Dehkordi,(2016) study where majority (66%) of the cancer patients in the study had moderate QoL. This was also contrary to a study by Maratia *et al.*,(2018) that showed QoL of the cancer patients to be low. The differences noted may be attributed to the accuracy of the studies and also the different spectrum of cancer patients present in the studies. The differences in the time of diagnosis and treatment modalities for the selected patients may contribute to the differences in the Qol for the different studies.

5.1.1 Relationship between sociodemographic variables and QoL domains

In determining the relationship between sociodemographic variables and QoL, the results portray a statistical significant relationship in relation to the variables of age, gender, education level, marital status and income. Younger individuals had better QoL compared to the older patients. Older age group had better PsWB and SpWB with worse PhWB. These results were similar to those of a study by Cimprich and Ronis (2001) where breast cancer survivors diagnosed at older age had worse PhWB and the general QoL. This was contrary to a study by Bantema-Joppe *et al*., (2015) which showed older individuals had better QoL than the younger individuals in the study.

The results also showed that female cancer survivors had worse PhWB as compared to the male counterparts. Gender did not have a significant effects on the SpWB, SoWB and the QoL of the cancer patients (P>.05) .The results were similar to a study done among patients with brain tumor which showed gender not having a significant association with Qol (Bunevičius *et al.*, 2012). This was contrary to studies by Ghosh *et al*., (2014) and Güner *et al*.,(2006) where women had better SoWB due to their high interaction and social support.

In this study, marital status has a significant association with overall QoL where patients who were single had worse QoL, PsWB, SoWB and SpWB compared to the married participants. Marital status did not affect the PhWB of the cancer patients. Previous studies indicate married patients to have better Qol, PsWB, SoWB and SpWB (Bowling *et al*., 2013). (Armstrong *et al*.,(2006) and (Lis *et al*., (2006) study on contrary indicate marital status did not have any influence on the QoL and only individuals with good social support had better QoL.

Education had a significant correlation with QoL where individuals with tertiary education portrayed better PsWB, SoWB, SpWB and overall QoL compared with individuals with non-basic education. This was similar to studies by Can *et al*., (2009) and Knight *et al*.,(2007). The results were contrary to those of a study by Lis *et al*., (2006) where level of education did not affect the QoL of the patients.

Income had a significant correlation with the Qol. Participants with high income had better PsWB, SoWB and overall QoL. This was similar to Can *et al*., (2009) study where housewives portrayed worse SoWB and QoL than other occupations. Lower QoL

among those not working might be associated with them being isolated from social life and having less social and economic support.

5.1.2 Relationship between disease characteristics and QoL domains

The results show a statistical significant correlation between QoL domains with stage of cancer diagnosis and years with cancer diagnosis. In this study. Patients with stage one cancer had better PhWB, SoWB and QoL compared to patient with advance cancer. The results were similar to those of a study done among oropharyngeal cancer patients (Oates *et al*., 2014). This may be attributed by worse symptoms portrayed by patients with advance cancer and also the several combination of treatments given to them.

In this study, the results shows that cancer patients recently diagnosed with cancer had better QoL compared with individuals with long term diagnosis. Those who were diagnosed earlier had better PsWB and SpWB compared to those with recent diagnosis. This was similar to a study by Chandwani *et al*. (2012) where cancer patients with long term diagnosis portrayed poor QoL. This may be due to the negative outcomes of cancer on all Qol domains, the several therapies given and also the progression of the disease. The results were contrary to Rukshani *et al*., (2018) study, which found that high QoL was associated with patients with long duration on illness. Their argument was that long term diagnosed patients may have been successfully treated or may have learnt how to manage some of the social and psychological problems associated with cancer diagnosis leading to better QoL.

The results also shows no significant association between QoL and time off treatment ($p>.05$).This was contrary to other studies which shows a positive association between

QoL and time off cancer treatment. Cancer patients with increased time off treatment had better QoL than those who had just finished their treatment (Rukshani *et al*., 2018).

The findings found that there was no statistical significance relation to the type of cancer the patient had and the complementary therapy used (P>.05). This results were contrary to those of Rukshani *et al*.,(2018) where breast cancer patients had higher QoL compared with those with all other reproductive system cancers. The results may be due to inclusion of all types of cancers in the study and not classifying them in any major groups. Similarly Ahn *et al*., (2007) reported better PsWB and SoWB among breast cancer patients than patients with other cancers.

The study found significant differences when comparing patients on different subgroups in terms of the treatment modality used where patient on chemotherapy and surgery combination therapy had better QoL while radiotherapy patients portrayed worse QoL. The results were similar those of a study by Scott *et al*., (2010) and Rukshani *et al*.,(2018).The poor Qol portrayed by patients on radiotherapy may be due to the many side effects of radiotherapy to the patients. This side effects include fatigue, pain, insomnia and loss of appetite.

5.1.3 Relationship between Spiritual/religious variables and Qol domains

The findings of the study revealed a statistical significant relationship of QoL domains in relation to religious affiliation, the religion the patients belong to and how contented with faith in God one was. Participants with religious affiliation had a better a QoL, SoWB and SpWB compared to participant with no religious affiliation. Religious affiliation was in relation to having faith in a spiritual being and not necessarily

belonging to a particular religion or doctrine. The findings of the study were similar to those of a study done in the United States of America among cancer survivors where spiritual beliefs remained relevant even to those who did not profess any religious faith (Levine *et al*., 2017).

The results also showed that Christians had better QoL and better SpWB compared to Muslim participants and those who did not belong to any religion. The results were contrary to those of (Jafari *et al*.,(2013) and Lazenby *et al*.,(2013) which showed being a Muslim was associated with better SpWB subscale. Islamic faith and beliefs contributed greatly to the overall spiritual wellbeing and having any psychological problem is a test to one's faith (Lazenby *et al*.,2013),. The difference in the results may have been contributed by the low number of Muslim patients included in the study as participants.

The results also show that individuals who were extremely contented with God had better SpWB compared to those who were not at all contented. The results also shows that cancer patients who were active participants in the religion they belonged too had better SpWB compared to those who did not at all participate in religious activities. This was similar to a study by Cigno, Bourn, and Sheldon, (2018) conducted among participants with chronic illnesses where those who portrayed hopefulness and contentment in God equivalently had better QoL. This was also consistent with Delgado-Guay *et al*.,(2011) study where majority of participants reported their involvement in religious activity improved their spirituality hence helped them cope with the cancer disease resulting to better QoL.

5.1.4 Predictors of QoL

The results of the study portrayed PhWB domain in QoL to be predicted by age of the patient and stage of cancer diagnosis. Other disease variables and socio-demographic factors including gender, marital status and education did not predict PhWB of the patient. This was similar to Gobbens and Remmen, (2019) study where gender was not a predictor of physical health. The results may be due to difference in operationalization of physical health in the QoL tools used.

According to the study, SoWB was predicted by four predictors collectively including age, cancer stage, year of cancer diagnosis and time off treatment. According to Levine *et al*.,(2017), SoWB predictors include anxiety, fatigue and social support. The differences in predictors was because of different tools used to measure SoWB and general QoL on the different studies.

The results of the study also indicate spirituality as a predictor of Qol with age, religion affiliation and religious support positively predicting SpWB. The results were consistent with those of other researchers including Rohani et al.,(2015) and Levine *et al*., (2017).

The study finding shows that overall Qol was predicted by five variables including; age, education level, religious affiliation, stage of cancer diagnosis and time off cancer treatment. Education level, and time off cancer treatment positively predict QoL while age and year of cancer diagnosis negatively predicted QoL. According to Levine *et al*.,(2017) and Leung *et al*., (2014) longitudinal study, only self-rated health and age predicted Qol. According to Boatemaa *et al*.,(2020) cross-sectional study, positive

social interactions was the overall predictor of QoL and age did not at all predict Qol. The difference noted may be attributed to differences in measures of QoL used and the type of study conducted.

5.2 CONCLUSION

The study demonstrates the strength of the relationship between sociodemographic factors, disease characteristics, spiritual factors and cancer patients QoL. The study demonstrates financial, psychological and spiritual support significantly improving the Qol of the cancer patients. The results on relationship between disease characteristics and QoL supports the clinical findings and may help in designing more specific strategies to help improve cancer patients QoL. The study fills the gap in literature related to QoL among cancer patients in Kenya. The results also shows that due to the large effects on physical and psychological health in cancer patients, enhancing QoL of cancer patients must be of priorities to healthcare providers.

5.3 RECOMMENDATION

In determining the relationship between sociodemographic factors and QoL, income was noted to have a significant association with QoL hence it is recommended that healthcare workers should focus on cancer patients with low income and carry out intervention aimed at improving their QoL.

In determining the relationship between disease characteristics and QoL, time of cancer diagnosis was noted to have a significant association with QoL hence would recommend for early screening which will allow early cancer detection and treatment for cancer. This will help in improving the QoL of cancer patients.

In determining the relationship between spiritual variables and QoL, spiritual support was identified to have significant association with QoL hence would recommend holistic approach in care of the cancer patients. This will include the spiritual therapy needed by the cancer patients to boost their wellbeing.

Education was noted to be one of the predictor of cancer patients Qol hence recommend provision of community based health education to create more awareness of cancer and also reduce stigmatization among cancer patients.

5.4 LIMITATION OF THE STUDY

The limitation of the results of the study are related to the cross-sectional design used which does not allow establishing relations of cause and effects making the study restricted to one centre. The study did not focus on the possibilities of other comorbidities on the cancer patients that could possibly influence their QoL. Future research should focus on effects of comorbidities on cancer patients QoL.

REFERENCES

Abdollahzadeh, F., Sadat Aghahossini, S., Rahmani, A., and Asvadi Kermani, I. (2012). Quality of life in cancer patients and its related factors. *Journal of Caring Sciences*, *1*(2), 109–114. https://doi.org/10.5681/jcs.2012.016

Ahn, S. H., Park, B. W., Noh, D. Y., Nam, S. J., Lee, E. S., Lee, M. K., and Yun, Y. H. (2007). Health-related quality of life in disease-free survivors of breast cancer with the general population. *Annals of Oncology*, *18*(1), 173–182. https://doi.org/10.1093/annonc/mdl333

Annunziata, M. A., Muzzatti, B., Flaiban, C., Gipponi, K., Carnaghi, C., Tralongo, P., Caruso, M., Cavina, R., & Tirelli, U. (2017). Long-term quality of life profile in oncology: A comparison between cancer survivors and the general population. *Supportive Care in Cancer*, *26*(2), 651-656. https://doi.org/10.1007/s00520-017-3880-8

Akinyemiju, T. F., Pisu, M., Waterbor, J. W., and Altekruse, S. F. (2015). Socioeconomic status and incidence of breast cancer by hormone receptor subtype. *SpringerPlus*, *4*(1). https://doi.org/10.1186/s40064-015-1282-2

Al-Azri, M., Al-Awisi, H., Al-Rasbi, S., El-Shafie, K., Al-Hinai, M., Al-Habsi, H., and Al-Moundhri, M. (2014). Psychosocial impact of breast cancer diagnosis among Omani women. *Oman Medical Journal*, *29*(6), 437–444. https://doi.org/10.5001/omj.2014.115

Ashing-Giwa, K. T., and Lim, J. W. (2010). Predicting physical quality of life among a multiethnic sample of breast cancer survivors. *Quality of Life Research*, *19*(6), 789–802. https://doi.org/10.1007/s11136-010-9642-4

Bantema-Joppe, E. J., De Bock, G. H., Woltman-Van Iersel, M., Busz, D. M., Ranchor, A. V., Langendijk, J. A., and Van Den Heuvel, E. R. (2015). The impact of age on changes in quality of life among breast cancer survivors treated with breast-conserving surgery and radiotherapy. *British Journal of Cancer*, *112*(4), 636–643. https://doi.org/10.1038/bjc.2014.632

Batawi, S., Tarazan, N., Al-Raddadi, R., Al Qasim, E., Sindi, A., Al Johni, S., and Alraddadi, B. M. (2019). Quality of life reported by survivors after hospitalization for Middle East respiratory syndrome (MERS). *Health and Quality of Life Outcomes*, *17*(1), 1–7. https://doi.org/10.1186/s12955-019-1165-2

Beasley, J. M., Newcomb, P. A., Trentham-Dietz, A., Hampton, J. M., Ceballos, R. M., Titus-Ernstoff, L., and Holmes, M. D. (2010). Social networks and survival after breast cancer diagnosis. *Journal of Cancer Survivorship*, *4*(4), 372–380. https://doi.org/10.1007/s11764-010-0139-5

Bennet, N. (2012). US cancer survivors to number 18 million by 2022. *T*he Lancet Oncology, 13(7), e291. https://doi.org/10.1016/s1470-2045(12)70288-7

Bhatnagar, S., & Satija, A. (2017). undefined. *Indian Journal of Palliative Care*, *23*(4), 468. https://doi.org/10.4103/ijpc.ijpc_100_17

Black, E., and Richmond, R. (2019). Improving early detection of breast cancer in sub-Saharan Africa: Why mammography may not be the way forward. *Globalization and Health*, *15*(1), 1–12. https://doi.org/10.1186/s12992-018-0446-6

Blinov, N. N., Komiakov, I. P., Chulkova, V. A., Priputin, A. S., and Dunaevskiĭ, I. V. (2002). [Way for improving the quality of life of elderly oncology patients]. *Advances in Gerontology = Uspekhi Gerontologii*, *9*, 42—48. Retrieved from http://europepmc.org/abstract/MED/12096437.

Boatemaa Benson, R., Cobbold, B., Opoku Boamah, E., Akuoko, C. P., and Boateng, D. (2020). Challenges, Coping Strategies, and Social Support among Breast Cancer Patients in Ghana. *Advances in Public Health*, *2020*, 1–11. https://doi.org/10.1155/2020/4817932

Boggatz, T. (2019). Quality of life and person-centered care for older people. In *Quality of Life and Person-Centered Care for Older People*. https://doi.org/10.1007/978-3-030-29990-3

Bowling, A., Hankins, M., Windle, G., Bilotta, C., and Grant, R. (2013). A short measure of quality of life in older age: the performance of the brief Older People's Quality of Life questionnaire (OPQOL-brief). *Archives of Gerontology and Geriatrics*, *56*(1), 181–187. https://doi.org/10.1016/j.archger.2012.08.012

Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R. L., Torre, L. A., and Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*, *68*(6), 394–424. https://doi.org/10.3322/caac.21492

Bunevičius, A., Tamašauskas, Š., Tamašauskas, A., and Deltuva, V. (2012). Evaluation of health-related quality of life in lithuanian brain tumor patients using the EORTC brain cancer module. *Medicina (Lithuania)*, *48*(11), 588–594. https://doi.org/10.3390/medicina48110086

CDC (Centers for Disease Control and Prevention). (2015). Principles of epidemiology in public health practice. 3rd edition. An introduction to applied epidemiology and biostatistics. *Atlanta, Georgia: CDC.*, *11*(May), Glossary of Epidemiology Terms. https://doi.org/10.1371/journal.pmed.1001701

Cheng, S. Y., Lai, Y. H., Chen, S. C., Shun, S. C., Liao, Y. M., Tu, S. H.,and Chen, C. M. (2012). Changes in quality of life among newly diagnosed breast cancer patients in Taiwan. *Journal of Clinical Nursing*, *21*(1–2), 70–79. https://doi.org/10.1111/j.1365-2702.2011.03735.x

Choi, K. H., and Park, S. M. (2016). Psychological status and associated factors among Korean cancer survivors: A cross-sectional analysis of the Fourth *and* Fifth Korea National Health and Nutrition Examination Surveys. *Journal of Korean Medical Science*, *31*(7), 1105–1113. https://doi.org/10.3346/jkms.2016.31.7.1105.

Cigno, K., Bourn, D., and Sheldon, B. (2018). Research and theory. *Cognitive-Behavioural Social Work in Practice*, *46*(April), 1–38. https://doi.org/10.4324/9781315259994-1.

Cimprich, B., and Ronis, D. L. (2001). Attention and symptom distress in women with

and without breast cancer. *Nursing Research*, *50*(2), 86–94. https://doi.org/10.1097/00006199-200103000-00004.

Delgado-Guay, M. O., Hui, D., Parsons, H. A., Govan, K., De La Cruz, M., Thorney, S., and Bruera, E. (2011). Spirituality, religiosity, and spiritual pain in advanced cancer patients. *Journal of Pain and Symptom Management*, *41*(6), 986–994. https://doi.org/10.1016/j.jpainsymman.2010.09.017.

DeRouen, M. C., Parsons, H. M., Kent, E. E., Pollock, B. H., and Keegan, T. H. M. (2017). Sociodemographic disparities in survival for adolescents and young adults with cancer differ by health insurance status. *Cancer Causes and Control*, *28*(8), 841–851. https://doi.org/10.1007/s10552-017-0914-y.

Dunneram, Y., and Jeewon, R. (2013). A scientific assessment of sociodemographic factors, physical activity level, and nutritional knowledge as determinants of dietary quality among indo-mauritian women. *Journal of Nutrition and Metabolism*, *2013*. https://doi.org/10.1155/2013/572132.

Ferrell L, and M Grant. (2012). *Instrument Title : Quality of Life Patient / Cancer Survivor Version Instrument (QOL-CSV)*. 1–5.

Fisher, L. D. (1998). Self-designing clinical trials. *Statistics in Medicine*, *17*(14), 1551-1562. doi:10.1002/(sici)1097-0258(19980730)17:14<1551::aid-sim868>3.0.co;2-e

Ghosh, S., Bandyopadhyay, S., Bhattacharya, S., Misra, R., and Das, S. (2014). Quality of life of older people in an urban slum of India. *Psychogeriatrics : The Official Journal of the Japanese Psychogeriatric Society*, *14*(4), 241–246. https://doi.org/10.1111/psyg.12073.

Gobbens, R. J., and Remmen, R. (2019). The effects of sociodemographic factors on quality of life among people aged 50 years or older are not unequivocal: comparing SF-12, WHOQOL-BREF, and WHOQOL-OLD. *Clinical Interventions in Aging*, *14*, 231–239. https://doi.org/10.2147/CIA.S189560.

Grimmett, A. L. (2017). The experience of survivorship: Quality of life for African

American breast cancer survivors. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, *78*(4-B(E)), No-Specified. Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS*and*PAGE=reference*and*D=psyc14*and*NEWS=N*and*AN=2017-05720-043.

Hasanpour-Dehkordi, A. (2016). Self-care concept analysis in cancer patients: An evolutionary concept analysis. *Indian Journal of Palliative Care*, *22*(4), 388–394. https://doi.org/10.4103/0973-1075.191753.

Hoi, L. V., Chuc, N. T., and Lindholm, L. (2010). Health-related quality of life, and its determinants, among older people in rural Vietnam. *BMC Public Health*, *10*, 1–10. https://doi.org/10.1186/1471-2458-10-549.

Jafari, N., Zamani, A., Farajzadegan, Z., Bahrami, F., Emami, H., and Loghmani, A. (2013). The effect of spiritual therapy for improving the quality of life of women with breast cancer: A randomized controlled trial. *Psychology, Health and Medicine*, *18*(1), 56–69. https://doi.org/10.1080/13548506.2012.679738.

Jankowski, J., & Franklin, J. (2020). Faculty opinions recommendation of global cancer statistics 2018: Globocan estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *Faculty Opinions – Post-Publication Peer Review of the Biomedical Literature*. https://doi.org/10.3410/f.734004835.793572727

Janz, N. K., Mujahid, M. S., Hawley, S. T., Griggs, J. J., Alderman, A., Hamilton, A. S.,and Katz, S. J. (2009). Racial/ethnic differences in quality of life after diagnosis of breast cancer. *Journal of Cancer Survivorship : Research and Practice*, *3*(4), 212–222. https://doi.org/10.1007/s11764-009-0097-y.

Jemal, A., Bray, F., Forman, D., O'Brien, M., Ferlay, J., Center, M., & Parkin, D. M. (2012). Cancer burden in Africa and opportunities for prevention. *Cancer*, *118*(18), 4372-4384. https://doi.org/10.1002/cncr.27410

Kwan, M. L., Ergas, I. J., Somkin, C. P., Quesenberry, C. P. J., Neugut, A. I., Hershman, D. L.,and Kushi, L. H. (2010). Quality of life among women recently diagnosed with invasive breast cancer: the Pathways Study. *Breast Cancer*

Research and Treatment, *123*(2), 507–524. https://doi.org/10.1007/s10549-010-0764-8.

Ladenburg, J., Foundation, T. R., Heinesen, E., Foundation, T. R., and Kolodziejczyk, C. (2019). *The importance of workplace accommodation for cancer survivors – the role of flexible work schedules and psychological help in returning to work 12*. (December).

Lazenby, M., Khatib, J., Al-Khair, F., and Neamat, M. (2013). Psychometric properties of the Functional Assessment of Chronic Illness Therapy--Spiritual Well-being (FACIT-Sp) in an Arabic-speaking, predominantly Muslim population. *Psycho-Oncology*, *22*(1), 220–227. https://doi.org/10.1002/pon.2062.

Lee, K. H., Xu, H., & Wu, B. (2020). Gender differences in quality of life among community-dwelling older adults in low- and middle-income countries: Results from the study on global ageing and adult health (SAGE). *BMC Public Health*, *20*(1). https://doi.org/10.1186/s12889-020-8212-0

Leung, J., Pachana, N. A., and McLaughlin, D. (2014). Social support and health-related quality of life in women with breast cancer: a longitudinal study. *Psycho-Oncology*, *23*(9), 1014–1020. https://doi.org/10.1002/pon.3523.

Levine, E. G., Yoo, G. J., and Aviv, C. (2017). Predictors of Quality of Life among Ethnically Diverse Breast Cancer Survivors. *Applied Research in Quality of Life*, *12*(1), 1–16. https://doi.org/10.1007/s11482-016-9447-x.

Li, Q., Han, B., and Chen, X. (2020). The association between sociodemographic factors, frailty, and health-related quality of life in older inpatients: a cross-sectional study. *Quality of Life Research : An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, *29*(12), 3233—3241. https://doi.org/10.1007/s11136-020-02559-6.

Love, C., and Sabiston, C. M. (2011). Exploring the links between physical activity and posttraumatic growth in young adult cancer survivors. *Psycho-Oncology*, *20*(3), 278–286. https://doi.org/10.1002/pon.1733.

Malinakova, K., Kopcakova, J., Kolarcik, P., Geckova, A. M., Solcova, I. P., Husek, V.,and Tavel, P. (2017). The Spiritual Well-Being Scale: Psychometric Evaluation of the Shortened Version in Czech Adolescents. *Journal of Religion and Health, 56*(2), 697–705. https://doi.org/10.1007/s10943-016-0318-4.

Maratia, S., Cedillo, S., and Rejas, J. (2018, October). Assessing health-related quality of life in patients with breast cancer: a reply to Ribi *et alet al*. *Quality of Life Research : An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, Vol. 27, pp. 2757–2758. https://doi.org/10.1007/s11136-018-1927-z.

Meunier, J., Libert, Y., Delvaux, N., Marchal, S., Etienne, A., Lienard, A., and Razavi, D. (2017). Psychobiological correlates of communication skills use and learning: Preliminary results. *Psycho-Oncology : Journal of the Psychological, Social and Behavioral Dimensions of Cancer*, *16*(9), S25–S25. https://doi.org/10.1002/pon.

Moodi, M., Mohammadifard, M., and Miri, M. (2017). Quality of Life and Its Contributing Factors Among Patients with Breast Cancer: A Descriptive-Analytical Study. *Modern Care Journal*, *14*(3), 0–5. https://doi.org/10.5812/modernc.67053.

Nayak, M. G., George, A., Vidyasagar, M. S., Mathew, S., Nayak, S., Nayak, B. S., and Kamath, A. (2017). Quality of life among cancer patients. *Indian Journal of Palliative Care*, *23*(4), 445–450. https://doi.org/10.4103/IJPC.IJPC_82_17.

Ni, X., Zhang, B., Xu, N., Zeng, X., & Wang, Q. (2020). Trends and regional distribution pattern of female lung cancer — China, 1992–2016. *China CDC Weekly*, *2*(32), 614-618. https://doi.org/10.46234/ccdcw2020.166

Oates, J., Davies, S., Roydhouse, J. K., Fethney, J., *and* White, K. (2014). The effect of cancer stage and treatment modality on quality of life in oropharyngeal cancer. *The Laryngoscope*, *124*(1), 151–158. https://doi.org/10.1002/lary.24136.

Rohani, C., Abedi, H., Omranipour, R., & Langius-Eklöf, A. (2015). Health-related

quality of life and the predictive role of sense of coherence, spirituality and religious coping in a sample of Iranian women with breast cancer: A prospective study with comparative design. *Health and Quality of Life Outcomes*, *13*(1). https://doi.org/10.1186/s12955-015-0229-1

Rottmann, N., Dalton, S. O., Christensen, J., Frederiksen, K., and Johansen, C. (2010). Self-efficacy, adjustment style and well-being in breast cancer patients: a longitudinal study. *Quality of Life Research : An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, *19*(6), 827–836. https://doi.org/10.1007/s11136-010-9653-1.

Rukshani, D., Kahandawala, P., Jayawardana, K., Karunarathne, D., Galgamuwa, L. S., Kumara, C., and Gamage, C. (2018). *Factors associated with quality of life among cancer patients in Sri Lanka*. *5*(7), 2705–2713.

Scott, N. W., Fayers, P. M., Aaronson, N. K., Bottomley, A., de Graeff, A., Groenvold, M., and Sprangers, M. A. G. (2010). Differential item functioning (DIF) analyses of health-related quality of life instruments using logistic regression. *Health and Quality of Life Outcomes*, *8*, 1–9. https://doi.org/10.1186/1477-7525-8-81.

Sharma, N., and Purkayastha, A. (2017). Factors Affecting Quality of Life in Breast Cancer Patients: A Descriptive and Cross-sectional Study with Review of Literature. *Journal of Mid-Life Health*, *8*(2), 75–83. https://doi.org/10.4103/jmh.JMH_15_17.

Siegel, R. L., Miller, K. D., and Jemal, A. (2020). Cancer statistics, 2020. *CA: A Cancer Journal for Clinicians*, *70*(1), 7—30. https://doi.org/10.3322/caac.21590.

Taira, N., Shimozuma, K., Shiroiwa, T., Ohsumi, S., Kuroi, K., Saji, S., and Katsumata, N. (2011). Associations among baseline variables, treatment-related factors and health-related quality of life 2 years after breast cancer surgery. *Breast Cancer Research and Treatment*, *128*(3), 735–747. https://doi.org/10.1007/s10549-011-1631-y.

Torres L, M. (2019). Ion's Spiritual Journey. *Apuntes Universitarios*, *5*(2), 87–112. https://doi.org/10.17162/au.v5i2.82.

Üstündag, S., & Zencirci, A. D. (2015). Factors affecting the quality of life of cancer patients undergoing chemotherapy: A questionnaire study. *Asia-Pacific Journal of Oncology Nursing*, *2*(1), 17-25. https://doi.org/10.4103/2347-5625.152402

Van Uden-Kraan, C. F., Drossaert, C. H. C., Taal, E., Seydel, E. R., and van de Laar, M. A. F. J. (2009). Participation in online patient support groups endorses patients' empowerment. *Patient Education and Counseling*, *74*(1), 61—69. https://doi.org/10.1016/j.pec.2008.07.044.

Weaver, K. E., Forsythe, L. P., Reeve, B. B., Alfano, C. M., Rodriguez, J. L., Sabatino, S. A.,and Rowland, J. H. (2012). Mental and physical health-related quality of life among U.S. cancer survivors: Population estimates from the 2010 National Health Interview Survey. *Cancer Epidemiology Biomarkers and Prevention*, *21*(11), 2108–2117. https://doi.org/10.1158/1055-9965.EPI-12-0740.

World Health Organization quality of life (WHOQOL). (2020). *A Compendium of Tests, Scales and Questionnaires*, 671-678. https://doi.org/10.4324/9781003076391-184

Stündag, S., and Zencirci, A. (2015). Factors affecting the quality of life of cancer patients undergoing chemotherapy: A questionnaire study. *Asia-Pacific Journal of Oncology Nursing*, *2*(1), 17. https://doi.org/10.4103/2347-5625.152402.

APPENDIX 1: PARTICIPANT INFORMATION AND CONSENT FORM

Introduction:

My name is Mary Kung'u, a student doing a Master of Science in Nursing (Oncology) in the school of nursing, Kenyatta University. As a requirement by the university, for the completion and award of my degree, I am conducting a study titled: quality of life of cancer survivors at AIC kijabe hospital, Kiambu County, Kenya. This is my individual research study and not part of kijabe hospital researches.

Purpose: The researcher listed above is requesting individuals who have being diagnosed with cancer to fill the questionnaire. The purpose of the questionnaire is to determine the quality of life of cancer survivors in AIC Kijabe hospital. The information you provide will help us better understand the impacts of cancer diagnosis and treatment to cancer patients' quality of life. This information will also contribute to improvement of care and support given to cancer survivors by health care providers and their families.

Voluntarism: You have the right to refuse participation in this study. You will get the same services and care whether you agree to join the study or not and your decision will not change the care you will receive. Please remember the participation in this study is voluntarily. You may ask questions related to the study at any time.

You may refuse to respond to any questions and you may stop an interview at any time. You may also stop being in the study at any time without any consequences to the services you receive here or any other organization now or in the future.

Discomforts and Risks

Some of the questions you will be asked are on intimate subject and may be embarrassing or make you uncomfortable. If this happens, you may refuse to answer these questions if you so choose. You may also stop the interview at any time. The interview may add approximately half an hour to the time you wait before you receive your routine services.

Benefits: There are no direct benefits for you as an individual in monetary form. You may benefit by receiving free counselling and health information regarding coping with cancer treatments emotionally, spiritually and socially.

Procedure: I am going to explain about this research and invite you to voluntarily participate in this research. A questionnaire will be filled only once. You are free to consult before making any decision. You are free to ask any question or clarification about the research during or after data collection using the contact address provided at the end of this document.

Risks: There are no identified potential risks in the study.

Confidentiality: Your identity will not be disclosed or shared with anyone. Anonymise codes will used to conceal participants' names so as to ensure confidentiality. All data collected will be stored under lock and key and access exclusively provided to investigator and supervisor. All the data and the information obtained during the study will be used for the sole purpose of meeting the objectives of the study.

Contact Information

If you have any questions, you may contact Dr.Lister Onsongo -0700004288 or Mary Kung'u-0727321614. However, if you have questions about your rights as a study participant: You may contact ETHICS AND REVIEW BOARD: Secretary/Chairman/research coordinator. KH IERC Office P.O BOX 20- 00220 KIJABE. Email; researcher.kh@gmail.com

STATEMENT OF CONSENT

I have read this consent form or had the information read to me. I have discussed about the study and all my questions have been answered. I have been explained the benefits and possible risks pertaining the study. I understand that my participation is voluntary and I can opt to withdraw. I understand all the efforts will be taken to ensure my information and personal identity is kept confidential.

By signing this consent form, I have not given up any of the legal rights that I have as a participant in a research study.

I agree to participate in this research study: Yes ☐ No ☐

Participant anonymise code_____

Participant signature: _____ Date _____

_____ Date _____

Name of Representative/Witness (where necessary)

Investigators statement

I, the undersigned, have explained to the volunteer in a language s/he understands, the procedures to be followed in the study and the risks and benefits involved

_____

Name of Interviewer

_____ _____

Signature Date

APPENDIX 2: QUESTIONNNAIRE
TITLE OF THE STUDY

Quality of life of cancer survivors in AIC Kijabe hospital, Kiambu County, Kenya.

Investigator

Mary kung'u

The information gathered in the questionnaire will be treated with confidentiality. Participation is voluntary. Please answer truthfully.

SECTION A

DEMOGRAPHIC DATA

1. What is your date of birth? _____ / _____ / _____

Day Month Year

2. What is your gender?

☐ Male ☐ Female

3. What is your level of education?

☐ Primary ☐ secondary ☐ College

☐ University ☐ Non basic education

4. What is your marital status?

☐ Single ☐ Married ☐ Divorced/ Separated ☐ Widowed

5. What is your diagnosis (Type of cancer)?

_____

6. Stage of cancer _____

7. Date of cancer diagnosis _____

8. Which treatment have you used?

☐ Surgery ☐ Chemotherapy

☐ Radiotherapy ☐ Other (e.g. stem cell transplant, hormone therapy)

9. Which complementary therapy are you on?

☐ Traditional medicine ☐ Nutrition therapy ☐ ☐ a other(specify)… ☐

☐ Acupuncture Massage ☐ None

10. How long have you been off treatment? _____

11. What's your nature of job?

☐ Employed ☐ self-employed ☐ Not employed

12. What is your monthly income?

☐ No income ☐ Below ksh.10,000

☐ Ksh. 10,000-30,000 ☐ Ksh 30,000-60,000

☐ Ksh.60, 000-100,000 ☐ Above ksh.100, 000

13. How much do you spend on treatment monthly?

☐ Below ksh.5, 000 ☐ Ksh. 5,000-10,000

☐ Ksh 10,000-15,000 ☐ Ksh.15, 000-20,000

☐ Above ksh.20, 000

14. Where do you get most of your treatment money from?

☐ My regular job/work ☐ family

☐ Spouse ☐ Insurance

☐ Social support groups ☐ other . . . . . .

15. Which of the following have you encountered as a result of your current health condition?

☐ Failure to get a job opportunity.

☐ Dismissal from work/termination of contract.

☐ Failure to get a job promotion in your work place

☐ Failure to get customers in your business.

☐ None of the above.

16. How easy do you get permission from your employer to seek health care or to go for follow up care appointments given by your health care provider?

☐ Extremely easy ☐ Very easy ☐ Moderately easy

☐ Slightly easy ☐ Not at all easy

17. How has the cancer diagnosis and treatment affected your ability to meet other non-health related cost such as food, clothing, education among others?

☐ A great deal ☐ A lot ☐ moderately affected

☐ A little affected ☐ Not at all

SPITITUAL/RELIGIOUS FACTOR

18. Do you have of any religious affiliation?

☐ Yes (specify) ……..

☐ No (skip Q19 and Q20)

19. Which of the following religions do you belong to?

☐ Christian ☐ Muslim ☐ Hindu ☐ Others

20. Which of the following best suits you in regard to your spiritual support.

☐ I participate actively in most of the religious activities such as praying and singing.

☐ I participate minimally in most of the religious activities such as praying

☐ Just being a member gives me enough spiritual support

☐ I don't receive any spiritual support despite being a member of the religious affiliation.

21. How contented are you with your faith in God despite the condition you are suffering from?

☐ Extremely contented ☐ Very much contented ☐ Moderately contented

☐ A little contented ☐ Not at all

22. How much has your spiritual life changed as a result of cancer diagnosis?

☐ Extremely changed ☐ Very much changed ☐ Moderately changed

☐ A little changed ☐ Not at all

23. How satisfied are you with health services provided during the previous hospital visit?

☐ Extremely satisfied Very much satisfi ☐ Moderately satisfied

☐ A little satisfied ☐ Not at all

24. How convenient was the previous appointment time given to you by your health care provider?

☐ Extremely convenient ☐ Very conv ☐ nt Moderately convenient

☐ A little convenient ☐ Not at all

25. Where do you get most of your social support from?

☐ Spouse ☐ Family ☐ Friends

☐ Workmates ☐ Others (specify)……

26. How well did your health care provider explain:

	Extremely well	Very well	Somewhat well	Not so well	Not at all well
a. Your current diagnosis					
b. Your treatment options					
c. Your follow up care needed.					

SECTION B - QUALITY OF LIFE PATIENT/ CANCER SURVIVOR VERSION –ADOPTED (Ferrell, and Grant, 2012)

We are interested in knowing how your experience of having cancer affects your Quality of Life. Please answer all of the following questions based on your life at this time.

Please circle the number from 0 - 10 that best describe your experiences:

PHYSICAL WELL BEING

To what extent are the following a problem for you:

1. **Fatigue**

No problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

2. **Appetite changes**

No problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

3. Aches or pain

No problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

4. Sleep changes

No problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

5. Constipation

No problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

6. Nausea

No problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

7. Menstrual changes or fertility

No problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

8. Rate your overall physical health

Extremely poor 0 1 2 3 4 5 6 7 8 9 10 excellent

PSYCHOLOGICAL WELL BEING ITEMS

9. How difficult is it for you to cope today as a result of your disease and treatment?

Not at all 0 1 2 3 4 5 6 7 8 9 10 very difficult

10. How often do you feel in control of your life?

Never 0 2 3 4 5 6 7 8 9 10 always

11. How much **happiness** do you feel?

None at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

12. Do you feel like you are **in control** of things in your life?

Not at all 0 1 2 3 4 5 6 7 8 9 10 completely

13. How **satisfying** is your life?

Not at all 0 1 2 3 4 5 6 7 8 9 10 completely

14. How is your present ability to **concentrate or to remember** things?

Extremely poor 0 1 2 3 4 5 6 7 8 9 10 excellent

15. How **useful** do you feel?

Not at all 0 1 2 3 4 5 6 7 8 9 10 extremely

16. Has your illness or treatment caused changes in your **appearance**?

Not at all 0 1 2 3 4 5 6 7 8 9 10 extremely

Has your illness or treatment caused changes in your **self-concept** (the way you see yourself)?

17. **Initial diagnosis**

Not at all 0 1 2 3 4 5 6 7 8 9 10 extremely distressing

18. **Cancer treatments** (i.e. chemotherapy, radiation, or surgery)

Not at all 0 1 2 3 4 5 6 7 8 9 10 very distressing

19. Time since my treatment was completed

Not at all 0 1 2 3 4 5 6 7 8 9 10 very distressing

20. How much **anxiety** do you have?

None at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

21. How much **depression** do you have?

None at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

To what extent are you fearful of?

22. **Future diagnostic tests**

No fear 0 1 2 3 4 5 6 7 8 9 10 extreme fear

23. **A second cancer**

No fear 0 1 2 3 4 5 6 7 8 9 10 extreme fear

24. **Recurrence** of your cancer

No fear 0 1 2 3 4 5 6 7 8 9 10 extreme fear

25. Spreading (metastasis) of your cancer

No fear 0 1 2 3 4 5 6 7 8 9 10 extreme fear

26. How distressing has illness been for your **family**?

Not at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

27. Is the amount of **support** you receive from others sufficient to meet your needs?

Not at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

28. Is your continuing health care interfering with your **personal relationships**?

Not at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

29. Is your **sexuality** impacted by your illness?

Not at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

30. To what degree has your illness and treatment interfered with your **employment**?

No problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

31. To what degree has your illness and treatment interfered with your **activities at home**?

No problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

32. How much **isolation** do you feel is caused by your illness or treatment?

None at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

33. How much **financial burden** have you incurred as a result of your illness and treatment?

None at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

SPIRITUAL WELL BEING

34. How important to you is your participation in **religious activities** such as praying, going to church?

Not at all 0 1 2 3 4 5 6 7 8 9 10 very important

35. How important to you are other **spiritual activities** such as meditation?

Not at all 0 1 2 3 4 5 6 7 8 9 10 very important

36. How much has your **spiritual life** changed as a result of cancer diagnosis?

Less important 0 1 2 3 4 5 6 7 8 9 10 very important

37. How much **uncertainty** do you feel about your future?

Not at all certain 0 1 2 3 4 5 6 7 8 9 10 very uncertain

38. To what extent has your illness made **positive changes** in your life?

None at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

39. Do you sense a **purpose/mission** for your life or a reason for being alive?

None at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

40. How **hopeful** do you feel?

Not at all hopeful 0 1 2 3 4 5 6 7 8 9 10 very hopeful

APPENDIX 3: ETHICAL APPROVAL

Kenyatta University
P.O Box 43844-00100
Nairobi-Kenya

REF: KU/ERC/APPROVAL/VOL1/1

Date: 18th August, 2020

Mary Kungu
P.0 Box 43844-00100
NAIROBI

Dear Ms. Kungu,

RE: APPLICATION NUMBER: PKU/2015/I1253 QUALITY OF LIFE CANCER SURVIVORS AT AIC KIJABE HOSPITAL, KIAMBU COUNTY, KENYA.

This is to inform you that ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** has reviewed and approved your above research proposal. Your application approval number is **PKU/2015/I1253 .** The approval period is ***18th August, 2020 – 18th August, 2021.***

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE.***
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE.***

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

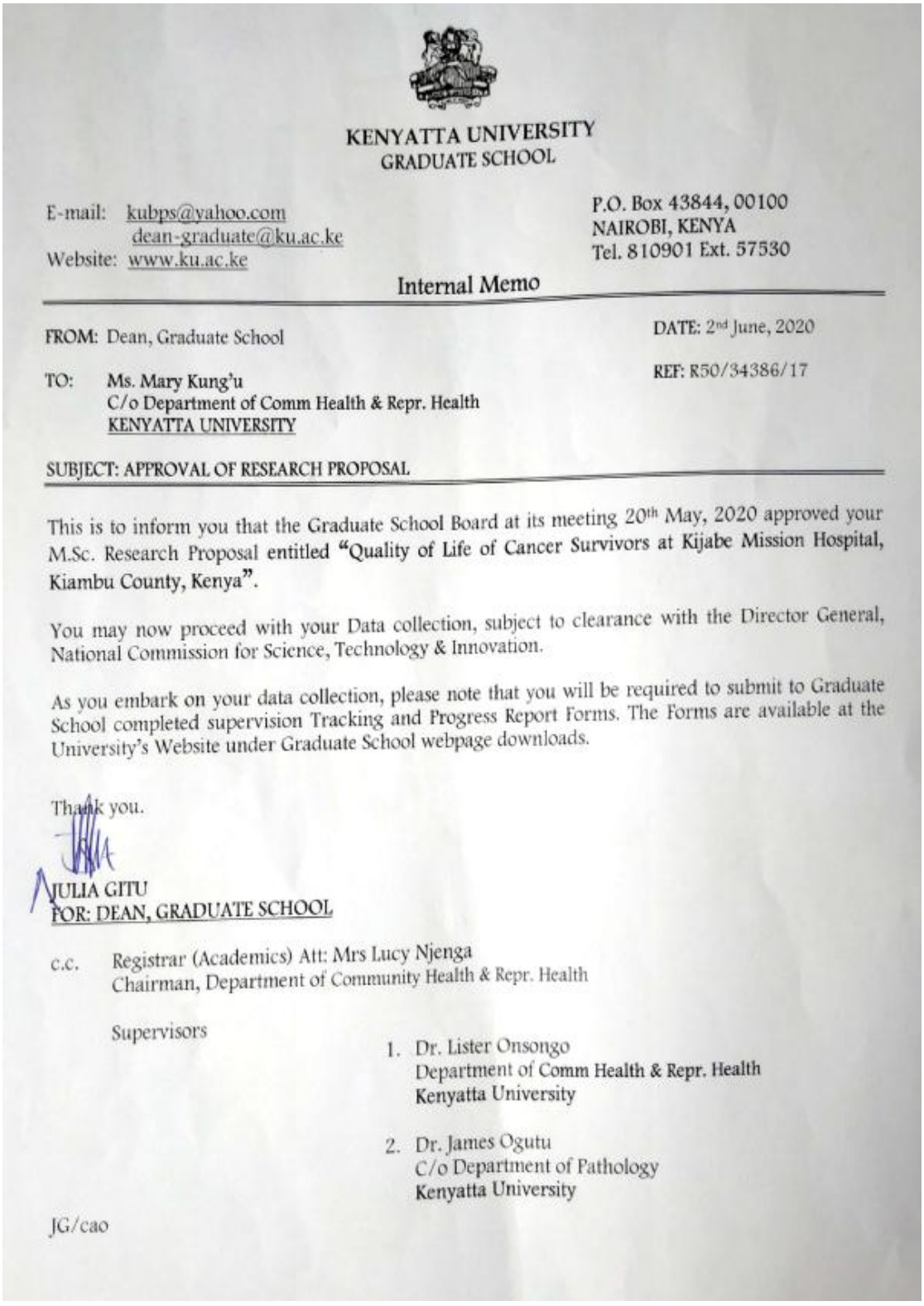
Yours sincerely

18 AUG 2020

Prof. Judith Kimiywe

CHAIRPERSON- KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE.

APPENDIX 4: KU APPROVAL LETTER



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 2nd June, 2020

REF: R50/34386/17

TO: Ms. Mary Kung'u
C/o Department of Comm Health & Repr. Health
KENYATTA UNIVERSITY

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that the Graduate School Board at its meeting 20th May, 2020 approved your M.Sc. Research Proposal entitled "Quality of Life of Cancer Survivors at Kijabe Mission Hospital, Kiambu County, Kenya".

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed supervision Tracking and Progress Report Forms. The Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

JULIA GITU
FOR: DEAN, GRADUATE SCHOOL

c.c. Registrar (Academics) Att: Mrs Lucy Njenga
Chairman, Department of Community Health & Repr. Health

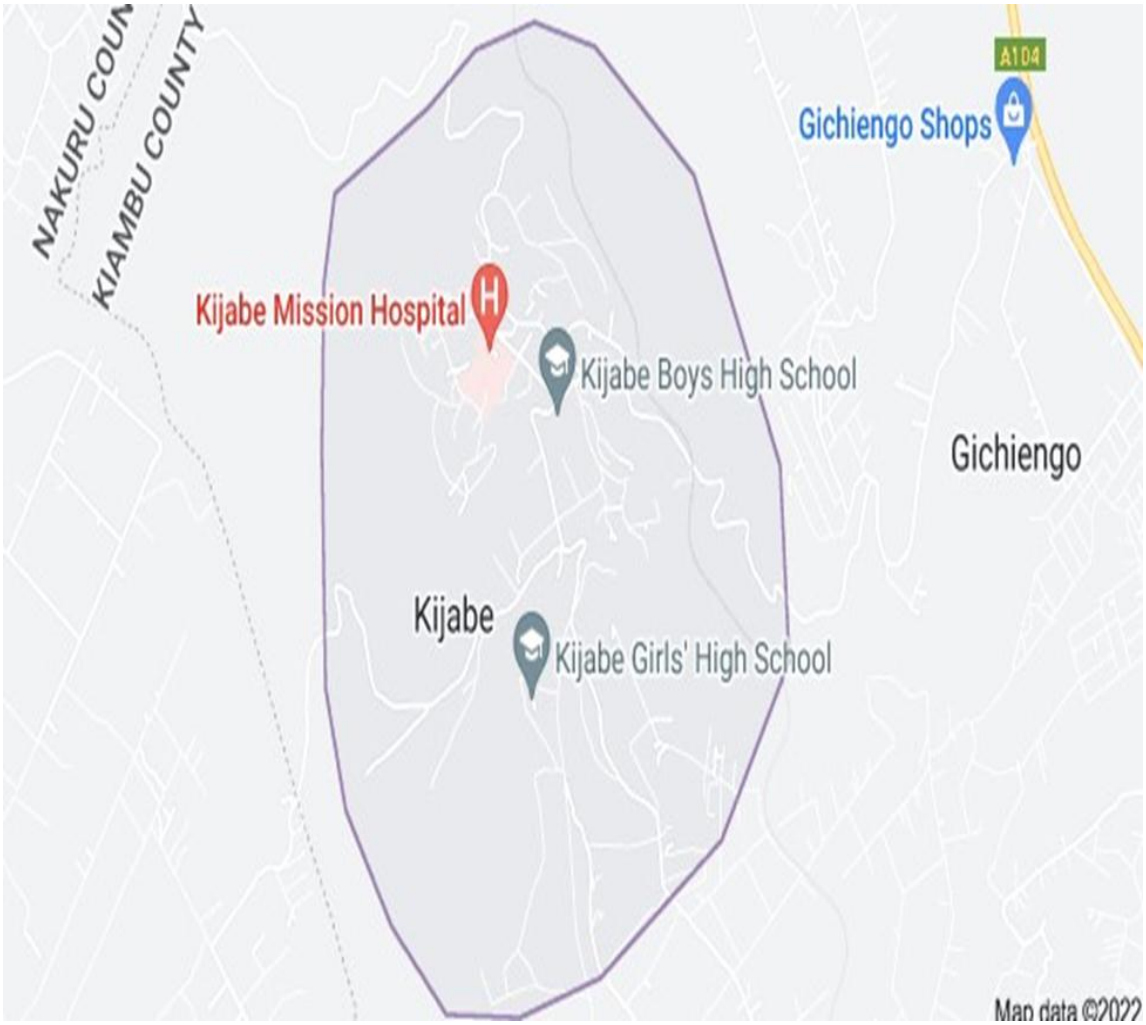
Supervisors

1. Dr. Lister Onsongo
Department of Comm Health & Repr. Health
Kenyatta University

2. Dr. James Ogutu
C/o Department of Pathology
Kenyatta University

JG/cao

APPENDIX 5: MAP OF KIJABE



APPENDIX 6: NACOSTI RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 477515

Date of Issue: 30/August/2020

RESEARCH LICENSE

This is to Certify that Miss.. MARY MUGURE KUNG'U of Kenyatta University, has been licensed to conduct research in Kiambu on the topic: QUALITY OF LIFE OF CANCER SURVIVORS AT AIC KIJABE HOSPITAL, KIAMBU COUNTY, KENYA. for the period ending : 30/August/2021.

License No: NACOSTI/P/20/6366

477515

Applicant Identification Number

Director General

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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