

**FACTORS INFLUENCING
PROGRESSIVE UTILIZATION OF
PALLIATIVE CARE SERVICES AMONG
CANCER PATIENTS IN KENYA: THE
CASE OF NAIROBI HOSPICE**

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DECLARATION

This project is my original work and has not been presented for a degree or any other purposes in any institution.

Signature Date

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This project /thesis has been submitted for examination with my approval as University Supervisor

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DEDICATION

This work is dedicated to the late Shadrack Mutema and Lucy Wangari who have gone before us after fighting bravely and succumbing to cancer.

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I thank the Almighty God for giving me life, strength and allowing me to get this far with my academic life. I wish to thank my friend and husband Samuel Njihia for his support and encouragement during the course of doing this project. I acknowledge the guidance from my supervisor Dr. Urbanus Kioko whose input in my work helped me to put together my ideas and finish this project. I cannot forget the contributions from my lecturers Dr. Muriithi and Dr. Abuya and my colleagues Joseph and Eddy. I wish to also appreciate the staff of Nairobi Hospice for their generous support and hospitality. Lastly, to all the people who helped me in different ways in preparation of this research project. May the Almighty God bless you all.

ABBREVIATION AND ACRONYMS

CAM:	Complementary and alternative medicine
IAEA:	International Atomic Energy Agency
KHHEUS:	Kenya Household Health Expenditure and Utilization Survey
LMIC:	Low and middle income countries
NCD:	Non-communicable diseases
NHIF:	National Hospital Insurance Fund
PEN:	Predisposing, Enabling and Need factors
WHO:	World Health Organization

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ABSTRACT

Introduction: The increasing cases of non-communicable diseases specifically cancer has led to incorporation of palliative care in the management. However, only 10% of these patients have access to palliative care (WHO, 2014). Healthcare utilization is an important step to disease management as it helps provide individuals with opportunities for prevention and treatment of diseases. The study applied the PEN-Andersen behavioural model by use of a binary probit to estimate the progressive utilization of palliative care services by cancer patients.

Objectives: The aim of the study was to determine factors influencing progressive utilization of palliative care by cancer patients.

Methodology: A cross-sectional data survey was conducted for 169 cancer patients seeking palliative care at the Nairobi Hospice in 2013. For each patient, the predisposing, enabling and need (PEN) factors were analysed. Nairobi County is a proxy for distance implying progressive utilization of palliative care compared to those residing in other counties in the study.

Finding: Descriptive statistics showed that 27% of patients reside in Nairobi County, 61% were females, 62% were married, 35% had primary education, 44% were self-employed and 59% had medical insurance. Probit regression and marginal effects showed that age, gender, education level employment and Muslim religion were significant in determining the progressive utilization of palliative care

Conclusion: Age, gender, educational level, employment status and religion are the major factors that both government and health related Non-Governmental Organization need to consider in an effort to increase the probability of progressively utilizing palliative care so as to improve the health status of cancer patients.

CHAPTER ONE

INTRODUCTION

1.0 Background

Globally cancer is one of the major non-communicable diseases (NCDs) with an annual mortality of around 7.9 million people and accounts for about 13% of the total deaths (National Cancer Control Strategy, 2011). The increase in prevalence of cancer cases may be attributed to aging (Cancer Research UK, 2014) and increase in the world population. This has also been amplified with the increase in adoption of cancer causing lifestyles like smoking especially in the developing countries (Jemal, et al., 2011). The result has been a double disease burden in the developing countries as communicable diseases are still a serious health problem that these countries are grappling with.

In Africa, funding cancer is an almost forgotten subject as most of the funds from the western countries are used in the management of infectious diseases and malnutrition. Cancer in Africa is also mystified and left to the traditional medicine men to manage resulting in poor prognosis for the victims (Onyeka, 2011). Poverty, lack of information and an almost non-existent specialized care has also resulted in over 95% of cancer cases being diagnosed at the late or advanced stages of the disease (Loehrer, Greger, & Weinberger, 1991). The increase in incidence of cancer has been exacerbated by increased incidence of HIV, most notably Kaposi's sarcoma (American Cancer Society, 2014) (Maskew, 2014). For most of the cancer patients in Africa, unavailability of anticancer drugs, oncology specialists and radiotherapy centres means limited chances of survival and increased mortality rates.

In Kenya the situation is not different. However, there are more cancer cases being reported today than was the case 10-15 years ago. This may be attributed to availability of better and more complex diagnostic tools and equipment (Ministry of Health, 2013). The burden of cancer in Kenya is however unclear due to unavailability of data. A report by the International Atomic Energy Agency (IAEA) in 2010 nonetheless estimated the annual incidence of cancer to be 28000 people with an annual mortality of 22000. This report cited lack of trained practitioners as the major contributor to the dire situation in the country.

When people become ill there are certain changes that occur in their lives that affect every aspect of their being. Illnesses such as cancer often lead to changes in roles and relationships and may result in loss of opportunities, financial security among others (Canadian Hospice Palliative Care Association, 2002). In responding to these changes by most cancer patients, there is a need to incorporate palliative care in the standard cancer care management of patients together with their families. Figure 1 illustrates the role of palliative care in changing this experience of illness.

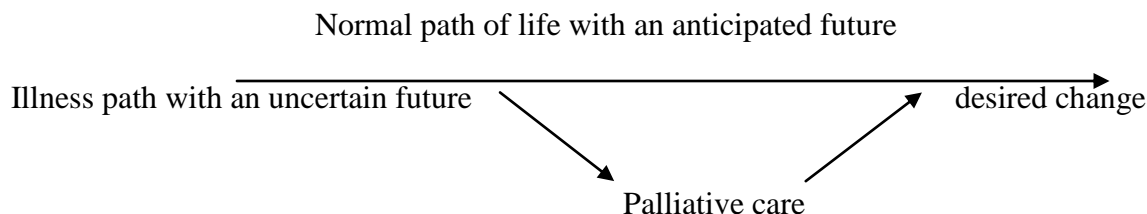


Figure 1: Adapted from the experience of illness (Canadian Hospice Palliative Care Association, 2002)

In figure 1, the normal path with an anticipated future is what most individuals desire. However when illness sets in, there are changes that bring about reduced financial security and changes in roles among others. These changes are perceived by many as threats to a meaningful and valuable life and future. The healthcare system and in this case palliative care is expected to respond to the illness in an attempt to restore the individual’s capacity to live a normal or near-

normal life so that their life and future is close to what was initially anticipated (Canadian Hospice Palliative Care Association, 2002)

Palliative care is defined by the World Health Organization (WHO) as “an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual” (WHO, 2014). This definition illustrates that the goal of palliative care is to improve the quality of life of a terminally ill persons while relieving their suffering and not necessarily curing them of their illness. In addition, palliative care is applicable in the early course of illness in conjunction with other forms of therapy like radiotherapy, chemotherapy that are intended to prolong life (WHO, 2002).

There are a myriad of services offered in the hospices and other palliative care centres based on several models and settings. They include pain and symptom control to ensure patients live comfortable lives, spiritual care to cater for spiritual needs of the dying, home-care, inpatient care or respite care depending on the choice of the patient and relatives. Family conferences are also held on a regular basis to update the families of the patients on the progress of the patient. Hospices also act as coordinating sites for the interdisciplinary team that is looking after the patient. In the event of death the hospice team helps the family to cope with and adjust to the loss (American Cancer Society, 2013). When applied these models help to ensure accessibility of palliative care to all patients who are in need of this type of care (Crawford & Price, 2003). There are currently over 8000 hospices worldwide offering in-patient, day-care services and home-based palliative care services. Kenya has about 32 hospices and palliative care centers (Ministry of Health, 2013).

Worldwide, over 60% of deaths result from non-communicable diseases including cancers which require palliative care for their management. These statistics are projected to rise with the greatest increase in the low and middle income countries (LMIC) (WHO, 2011). The WHO action plan 2008-2013 strategy on prevention and control of non-communicable diseases, noted with concern that cancer is among the conditions in which millions of patients require palliative care. This means that there is need for a comprehensive cancer care program to relieve the suffering of the patients while improving their quality of life. Patients receiving palliative care services have shown remarkable changes in terms of improved quality of life and as such the concept has grown to gain global recognition. Due to these perceived benefits, WHO set up standards for palliative care and pain control. These were first applied in the developed countries and then extended to the developing world.

In Africa, the HIV/AIDS pandemic and the rising prevalence of cancer cases has increased the need of having a more developed palliative care structure. However the concept is neither well understood nor developed and this has led to palliative care being confined to specialist centres which are also scarce in Africa (Richard & Higginson, 2004). The attitudes and beliefs about death and the dying in Africa coupled with challenges like high cost of pain medicine, late presentation and diagnosis, and use of complementary and alternative medicine (CAM) by the patients have also influenced how this care is managed (Onyeka, 2011).

Cancer is currently rated third after infectious diseases and cardiovascular disease in terms of mortality causes in Kenya with an estimated annual mortality of 22,000 (National Guidelines for Cancer Management, Kenya, 2013). A research carried out by Ipsos Synovate in September 2013, showed that 6 out of 7 women in Kenya had not been screened for breast cancer despite the aggressive and sustained awareness campaigns. This implies that majority of cancer patients

are diagnosed in the advanced stage. Results from another research done in the same year also showed that less than 7% of patients with cervical cancer in Kenya received optimum treatment after diagnosis (University of Manchester, 2013). This coupled with inaccurate assessment of the extent of disease and waiting time before receiving treatment has led to a huge difference in the survival rate of patients diagnosed with cancer. Current statistics show that the survival rate of cancer patients in Kenya is less than 30% (Kenya Network of Cancer Organizations, 2013). Due to the limited resources, palliative care remains the mainstay management of cancer.

1.1 Statement of the problem

In 2008 cancer was listed among the four major non-communicable diseases that contribute to majority of mortalities in LMIC worldwide (WHO, 2008). It has also been projected that by the year 2030, over 13.1 million people will have died from cancer and cancer related complications. Despite the introduction of palliative care in Africa, the concept has received little attention as only few countries have been able to fully embrace the concept (APCA, 2012). The challenge in starting palliative care centers is largely due to lack of policy guidelines in most African health policies, poor infrastructure, poor public awareness and understanding of the palliative care concept (Onyeka, 2011).

In Kenya, the situation is not different. Statistics indicate that there are over 39,000 new cancer cases each year of which over 80% of the patients are diagnosed in the advanced stages of the disease and in need of palliative care services (Kenya Network of Cancer Organizations, 2013). Despite the existence of more than 32 palliative care sites in Kenya (Ministry of Health, 2013) the factors influencing progressive utilization of these services remain largely unknown yet the number of patients in need of the services is significantly growing.

Anecdotal evidence indicate that many people with chronic illness avoid visiting the hospices due to beliefs that a hospice is a death sentence and hence choose the hospice as the last option when the situation is beyond any control. Partly this could be due to myths concerning the reasons for seeking palliative care (Awich, 2013). Thus, in order to enhance uptake of palliative care services in Kenya there is need to establish the factors that determine progressive utilization of these services in Kenya. To the best of my knowledge this kind of work has not been done in Kenya; therefore this study aims at bridging the knowledge gap.

1.2 Research questions

- i. What are the socio-economic factors that influence progressive utilization of palliative care by cancer patients?
- ii. What is the effect of socio-economic characteristics on progressive utilization of palliative care by cancer patients?

1.3 Aim of the study

To assess the factors determining progressive utilization of palliative care services by patients with cancer at the Nairobi hospice

1.4 Specific objectives

1. To determine the socio-economic factors that influence progressive utilization of palliative care by patients with cancer
2. To estimate the effect of the socio-economic characteristics on progressive utilization of palliative care by cancer patients
3. To suggest policy implications based on the findings above

1.5 Study justification

According to (WHO, 2014) an estimated 29 million people in the world died from diseases requiring palliative care and this number continues to rise by the day. The number of people currently in need of palliative care is over 20 million with the highest percentage (94%) being adults. At the same time over 90% of patients in need of palliative care suffer from NCDs, and only 1 in 10 are able to access this care. This is so even as the prevalence of NCDs continues to rise. In Africa palliative care has mainly focused on HIV/AIDS patients than any other condition (WHO, 2014). This is probably due to their numbers compared to cancer patients. As such there are few studies done on palliative care with regards to cancer management.

This study also aims at bridging the gap within the social context of cancer and palliative care with regards to utilization as over 30 percent of those in need of palliative care worldwide suffer from cancer and 80% of the patients in Kenya are diagnosed at advanced stages that can only benefit from palliative care services (National Cancer Control Strategy, 2011).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter looks at relevant studies both theoretical and empirical done by other researchers to determining the factors that influence utilization of healthcare services.

2.2. Theoretical literature

Theoretical frameworks for analyzing healthcare utilization are based on three components that include characteristics of health services delivery system, changes in medical technologies and individual determinants. In America the analyses of determinants of healthcare utilization received increasing attention due to emergence of societal related values and perceptions (Andersen & Newman, 1973) with different approaches being used to study the utilization of health services. They include; the socio-cultural approach which views healthcare as part of a cultural complex. In this approach, the organization of hospitals and other healthcare services is based on the cultural setting in the community (Gla701). The socio-psychological approach on the other hand identifies knowledge, belief and attitude towards symptoms experienced by a patient as influences to decision making in healthcare seeking (Stoeckle, Zola, & Davidson, 1963).

Another approach is the socio-demographic that looks at variations in utilization of healthcare services based on age, gender, education level, occupation and socioeconomic status. Some of these factors in relation to healthcare utilization have remained stable but others are deemed to change over time. A good example was illustrated by (Bice, Eichhorn R, & Fox, 1972) in which

children and elderly utilized healthcare services irrespective of socio-economic status due to their increased susceptibility to diseases and disabilities.

The social systems model (Anderson, 1973) consisting of interrelated components in the health service may explain the contributing structures and provide new information to the utilization behaviour of healthcare services. Four basic health care systems have been outlined to summarize the global picture and pattern of health care delivery (Reid, 2009). These systems include the Bismarck, Beveridge, National health insurance and out-of-pocket model. (Vassel & Nguyen, 2012) also demonstrate that inequalities in healthcare delivery and shift of focus to monetary gains as opposed to quality of health care has led to high costs of healthcare and increased cases of missed diagnoses. These studies provide important information in advising the government and public sector during policy development.

Andersen in 1968 developed a model for health care utilization that categorized health care utilization determinants into three categories; predisposing, enabling and need factors. According to this model demographic, socioeconomic and health beliefs play a vital role in determining an individual's likelihood of utilizing health services (Andersen, 1968). This model was later revised to include the health care system which comprises healthcare policies, resources and organization. The inclusion was to demonstrate the role of the health system in understanding the determinants of utilization of healthcare services. A further revision was done on the model to incorporate consumer satisfaction which reflects the use of healthcare services and available healthcare services. This formed the Andersen phase-2 model as illustrated in figure 2.

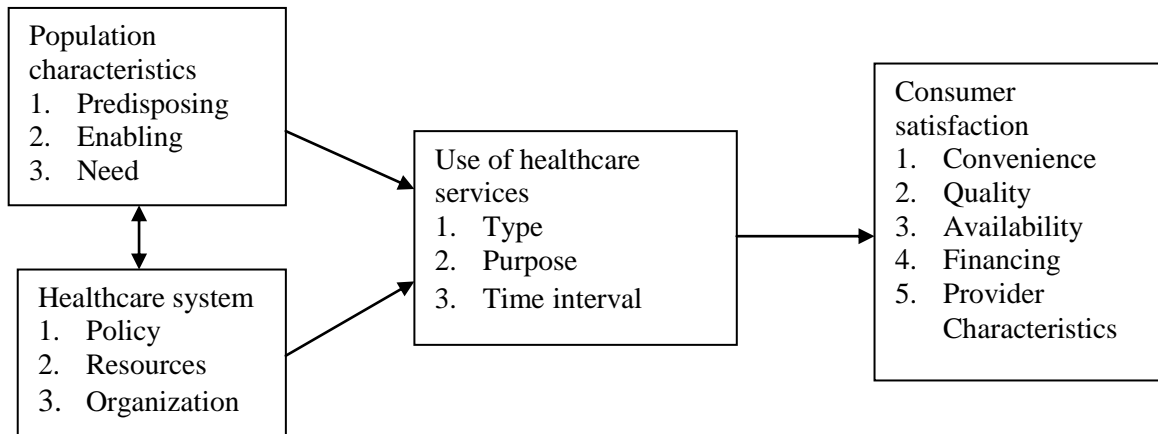


Figure 2: Andersen's phase-2 model of health services utilization (adapted from Andersen 1995)

The model was again revised to form a linear relationship of three components that included the primary determinants which were noted to be the direct causes of health behavior e.g. demographics, politics and the healthcare system. The other components are the health behaviours that consist of the health practices observed by an individual and the health outcomes that include the perceived health status and consumer satisfaction as illustrated in figure 3 (Andersen, 1995).

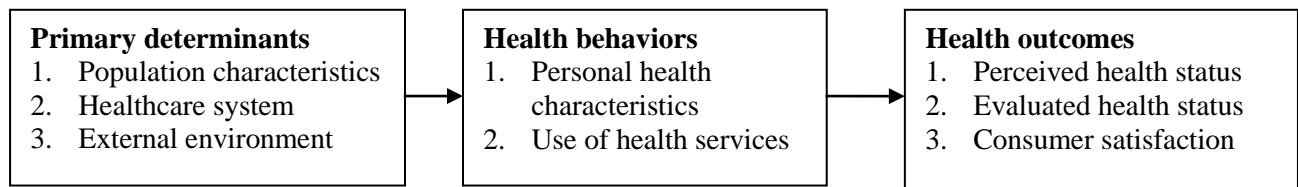


Figure 3: Andersen's phase-3 model of health services utilization (adapted from Andersen 1995)

Health care seeking behaviour remains a crucial concern especially with the targets set by health workers in managing the increasing demands and ensuring appropriate and timely utilization of healthcare services by those who could benefit from this care.

Despite the various studies done using varied methodologies, the residual message that remains is the role played by socio-demographic and socio-economic characteristics of the population in determining health care utilization. Julian (1971) described the inverse care law that was

concerned about the effect of market forces on health care and its utilization. In his study, he is quoted saying that “no market will ever shift corporate investment from where it is most profitable to where it is most needed”. This is true as inequities are a major feature of the health system and utilization of the same (Watt, 2002).

In applying the characteristics put forward by Andersen (1995) several studies have been carried out to test the framework. The factors studied are classified into 3 groups i.e. predisposing, enabling and need factors (PEN). The predisposing factors have focused mainly on the demographic factors like gender, age, the social structures and beliefs; characteristics that exist before the onset of illness. The enabling factors point to the means available to use healthcare services and include the family and community resources. The need-based factors are the perceived needs and clinically evaluated needs that are based on level of illness and perceived health of an individual.

2.3 Empirical evidence

Age is one of the demographic characteristics described under predisposing factors to healthcare utilization (Anderson, 1973). Due to the negative correlation between age and health in which age increases the risk of developing cancer among other diseases (American Society of Clinical Oncology, 2012) then age becomes a predictor to the general utilization of health care services. One such study involved an assessment of healthcare use by the elderly (Evashwick, Rowe, Diehr, & Branch, 1984). In this research, the Andersen model of healthcare utilization was applied to prospectively predict utilization of healthcare services by the elderly and in planning for these services. The results showed that the need factors were the single most important predictor to the use of healthcare services among the elderly.

Another such study on healthcare utilization among the elderly demonstrated that utilization increased with age. It was not however clear if this rate of utilization led to improved quality of life and reduced mortality or not. The research used a retrospective survey of 1 year on utilization of healthcare services by residents aged 65 years and above (Jason, 2007)

Among the adolescents and youth, the cost of healthcare plays a vital role in influencing utilization of health care. In a recent study conducted to describe the association of age and use of health care under the Affordable Care Act in the Military Health System, free healthcare was shown to increase the demand for healthcare among the young female adults in America (Kwabena & Timothy, 2014). Other factors that have been shown to influence utilization of healthcare services by the youth in addition to financial costs include time, accessibility, work and social commitments (Mahin, Khadijah, & Masoud, 2014). A report by (Mathias, 2002) also showed that youth-specific primary care services increased utilization of the same by the youth.

It has also been acknowledged that there are differences between men and women in relation to health and health seeking behaviour. This has been attributed to biological and social differences between the two genders (Bertaksi, 2000) (Redondo-Sendino, Pilar, Guallar-Castillon, Jose, & Fernando, 2006)

A research conducted in Spain in 2006 to assess the determinants to gender difference in utilization of health services among the elderly also employed variables based on Andersen's health behaviour model to establish how these factors contributed to the difference noted (Redondo-Sendino, Pilar, Guallar-Castillon, Jose, & Fernando, 2006). The study was based on earlier studies that concluded that women lived longer lives, reported more morbidity and made use of healthcare services more often than men. However use was pinned to the type of service.

The study methodology involved a cross-sectional survey of elderly persons above 60 years who were not institutionalized. In conclusion the results showed that the number of chronic illnesses and the health related quality of life made significant contribution to the gender difference noted. Another study conducted by (Cleary, Mechanic, & Greenley, 1982) on sex difference in medical care utilization showed that women reported a higher rate of morbidity thus a higher use of healthcare services. The main predictors to sex difference in outpatient healthcare utilization were the number of chronic health problems and giving birth during the study period. Another study by (Bertaksi, 2000) also showed that, women utilise services more and consequently higher associated costs. The study could not however determine the appropriateness of the differences but implications to health were vivid.

In a study on utilization of healthcare in Bangladesh, the reverse was true as elderly women, unmarried women and Hindu women were less likely to visit healthcare facilities compared to the rest of the population (J.T.Young, 2005). This was attributed to lack of empowerment of these groups as a result of their culture. At the same time men were noted to seek care more than women and this utilization increased with age among men. This goes ahead to show that position in society based on gender can also have influence on utilization of health care services. (J.T.Young, 2005).

Marriage has been shown to have important health protective consequences though it is not clear to what extent these effects are due to marriage per se or the less likelihood of married person to live alone. Marriage has also been shown to reduce the use of high cost medical services while increasing the chances of having a medical insurance (U.S Department of Health and Human Services, 2007). Marital status as a component of the predisposing factors has also been studied with the aim of finding out if it has an impact on healthcare utilization. Studies have shown

varied results often after controlling for age and sex. In one such study, the difference in health status contributed to the higher utilization by the divorced and the widowed. This was however not explained by the lower utilization among the never married (Joung, Van der Meer, & Mackenback, 1995).

In a recent study by (Iwashyna & Christakis, 2003), the married population was noted to consistently visit higher quality hospitals and have shorter hospital stay. The choice of the hospital was thought to be influenced by the spouse and the combined economic resources to afford care in higher quality facilities. The study concluded that marital status affected the health care seeking behaviour of the elderly population.

Need as a factor moreover plays a key role in utilization of healthcare services. Once educated it is easy for an individual to identify their needs in health care and therefore seek it. Need is characterized by lack of an ingredient that is important in maintaining desired health status level (Andersen, 1968). Access as a concept in healthcare utilization is further described as a blend of both population characteristics and the healthcare delivery system in a given community. In a study that looked at the role of need and access to health facilities in the utilization of healthcare services (Andersen & Aday, 1978), utilization was describe as a more objective and subjective indicator of the actual use of healthcare compared to access that looks at the entry point of an individual to the healthcare system and which is often prompted by needs and resources available.

Health need and a regular source of care were also noted as the two most important factors related to visiting a doctor in Brazil (Raúl, Jorge, & Sevilla, 2007). Despite the inequities present, years of education did improve the prevalence rates of seeking health care among the

poor. Understanding use of healthcare also requires a measure of the patients' preference for the care given. Demand for a given service may influence the availability of the said service. The preference for care seeking originates from a desire for psychosocial support and information. The doctor-patient communication and compliance to treatment given also affect the utilization services directly or indirectly.

Another aspect of healthcare utilization is the social structure and health beliefs. According to (Anderson, 1973), healthcare is part of a socio-cultural complex and its organization is based on the cultural setting. The causes of disease are based on the assumptions in a given society and this is often originates from the religion in the particular society. Glaser in a survey of 16 countries revealed a positive association between the religious beliefs in a society and the utilization of medical facilities (Glaser, 1970). There were also fundamental differences among societies in the extent to which permission was granted for a person to be hospitalized. These cultural differences also determined how persons interacted in the community, family structure and authority. This in turn affected the sources of medical care.

Religion and spirituality have been studied to determine their influence on healthcare use with evidence showing a relationship between religion and physical health (Reindl & Brown, 2004). A review done by (Schiller & J, 1988) demonstrated significant religious differences in rates of utilization of healthcare. It was however difficult to segregate any consistent trends in the same. At the same time for an individual to use healthcare services offered, a significant level of trust on the system, physician and regimen given should exist. A study on the relationship between religious beliefs and medical trust was investigated using multivariate models. Findings indicated that individuals who were religiously active had higher levels of trust which translated to significantly higher utilization of healthcare (Maureen, 2006)

When we narrow down to the utilization of palliative care, the perceptions to palliative care by patients influence utilization. In a study conducted to assess the perception of women to palliative care, it was established that the earlier palliative care is introduced in the care of a patient with cancer, the less the pain of therapeutic transition. This was however based on the knowledge of the importance of palliative care by the patient. As the participants in this study had less knowledge on the importance of palliative care they stigmatized the palliative care unit as a place where people go to die. (Rugno, Paiva, & Paiva, 2014)

There is limited ability by healthcare systems to meet the needs of patients and especially terminally ill patients while at the same time keeping a balance between costs and quality of care. As such socio-economic status has a significant effect on the utilization of the healthcare services. In a study by Andersen and Benham, results showed that the lower socioeconomic status group was very sensitive to healthcare costs thus used healthcare services less often than those of higher economic status (Andersen & Benham, 1970). This was also demonstrated in a study by (Kwabena & Timothy, 2014) that also shows cost of healthcare as a major hindrance to healthcare utilization. This was illustrated by the increased uptake of free healthcare services by the youth in America.

Eliminations of the cost barriers did not however improve the utilization among the poor. Findings from an earlier study by Suchman showed that the choice of medical care was based on the social group one belonged to which was determined by ones socio-economic status (Suchman, 1965)

The employment status of individuals often dictates their economic status and is an important determinant to healthcare utilization. According to (Sebastian, et al., 2012) utilization of health

care services is robustly associated with employment status with those who have any particular employment status seeking healthcare more than the unemployed. This is particularly so for services with user fees. In a study done in Sweden (Gloria, et al., 2014) the contrary was observed as those who were unemployed used healthcare services more than their employed counterparts. This is as a result of the healthcare system in the country and the economic recession at the time of the study.

When discussing healthcare costs, the concept of healthcare insurance cannot be overlooked. It was introduced in healthcare financing with an aim of cushioning the population from the escalating costs of healthcare while improving utilization. In most countries, lack of a healthcare insurance limits access and use of appropriate healthcare services. A study conducted by (Joseph, Elizabeth, & Susan, 2006) on use of healthcare services by lower-income and higher income uninsured adults concluded that despite high income, lack of healthcare insurance cover resulted in reduced use of recommended healthcare services

Having a health insurance cover did however improve utilization of healthcare and resulted in fewer reported barriers among the homeless population. This was shown in a study that assessed the factors associated with use of healthcare by the homeless persons. The study observed that the homeless persons had high rates of illness in addition to the barriers to access to the needed healthcare services (Margot, Eric, & Jennifer, 2001).

In a study conducted by (Yuri, Giyeon, & David, 2005), and based on Andersen's model of healthcare, health insurance was a significant enabling factor for utilization of health services. Satisfaction with services was observed in individuals with health insurance, English-speaking ability and trust in the western medicine. In addition, preference for care seeking was also shown

to originate from a desire for psychosocial and information. Doctor-patient communication and compliance to treatment given also affects the utilization of these services.

In the United Kingdom, a study carried out on factors associated with utilization of palliative care services showed that cases studied who utilized the services had no significant differences for variables like social class, gender or cancer site. The methodology employed in this particular study involved a retrospective analysis of cancer deaths in 1991. It compared those who had sought care to those who had not. This also allowed for calculation of utilization of palliative care services among cancer cases. (Gray & Foster, 1997). This can be validated by a study conducted earlier on that compared the health status of individuals and utilization of health services. The study showed that there were no difference in the two variables among children and adults with severe disabling diseases like cancers. Other variables studied were race and education which were positively correlated with healthcare utilization (National center for health statistics).

In Taiwan a study conducted on the determinants of hospice utilization, administrative data was retrospectively analyzed and the results showed that only a sixth of cancer patients utilized hospice care in the last years of life (Tang & et.al, 2010). Gender and age had a significant influence on the use of these services. Another similar study on utilization of supportive and palliative care by cancer patients showed that over half of the patients did not utilize the palliative care services due to lack of awareness of their existence and physicians non-referral habits (Pallavi, et al., 2012).

In developing countries like Kenya, access to healthcare is an important part of the health system with a direct impact on the disease burden. Distance is one variable that may interact more or

less with other variables to influence utilization of health services. The willingness to seek medical care by patients is often influenced by the distance the patients have to travel. According to a study by (Müller I, 1998) on the effect of distance from home on attendance at a rural health centre in New Guinea, the utilization rate declined with distance. This was replicated in another study carried out in Ghana where poor access to health services in reference to distance was among the main barriers to utilization (Daniel, 2004).

Distance has also been specifically shown to have an influence on chronic care that includes palliative care. Difficulty in making trips to seek chronic care is significantly affected by distance and transport costs involved (Mattson, 2010). In this study a probit model was used to estimate the frequency and likelihood of attending a healthcare visit.

In Kenya, the two most significant barriers to utilization of healthcare are cost and distance. The 2003 Kenya Household Health Expenditure and Utilization Survey (KHHEUS) showed that 22% of those who were sick did not seek healthcare services due to distance. This was also demonstrated by (Ministry of Health, 2005) where some regions of the country had a coverage of 1 health facility per 50-200 Km making it almost impossible for those in need of care to access it.

2.4 Overview of the literature

The theoretical and empirical literature of utilization of healthcare services has shown considerable differences in variables explored. While most of the studies have applied the PEN-Andersen behavioural model to estimate the utilization of health services, most have concluded that the variables have shown confounding effects on each other. Application of the same model in this study will seek to find if similar results will be yielded.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter describes the methodology and model specification used to examine the determinants for utilization of palliative care by cancer patients in Kenya. The theoretical framework is outlined together with the econometric and model specification and explanation of the variables used in the econometric regression. The estimation procedures and sources of data for estimation are discussed.

3.1 Theoretical framework

Healthcare utilization is associated with quality and cost of services, individual characteristics and availability of the services (Onah, Ikeako, & Iloabachie, 2009). It has also been viewed by behavioural scientists as a type of individual behaviour which is a function of the individual characteristics, the environmental characteristics and the interaction of the individual and the societal forces (Moore, 1969). According to Andersen's conceptual model of health care utilization (Andersen, 1995) access and utilization of health care is related to three main individual factors. They are the predisposing, enabling and need factors; the (PEN) model.

Predisposing factors refer to the socio-cultural characteristics existing prior to the onset of the illness. They include the demographic characteristics like age, sex, education, occupation and social networks, health beliefs which include attitudes and values. In the case of cancer age, gender, occupation and social networks have been shown to increase the risk with which someone has of getting cancer. An example is genetic predisposition in the case of breast cancer (Ministry of Health, 2013). Enabling factors on the other hand determine the logistical aspects of obtaining healthcare. They include personal or family characteristics like income and medical insurance. Cancer patients are in need of both diagnostic and palliative care services and most of these services are expensive especially where user fees are involved. As such medical insurance and a source of income become a necessity (American Cancer Society, 2015). The need factors focuses mainly on the health status of the

individual. Cancer patients have a need for care especially those whose diagnoses are made late. As such health workers should be in a position to advice and direct them for palliative care to fulfil the needs of an individual (Ministry of Health, 2013). The health utilization framework is based on the model by Andersen as illustrated in figure 4.

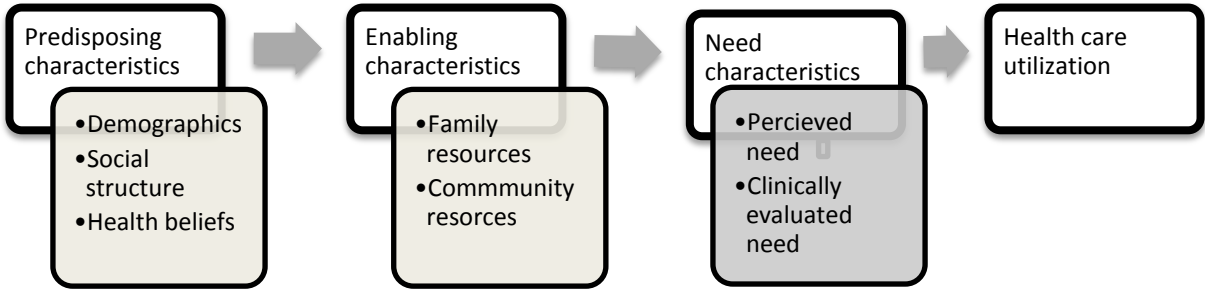


Figure 4: Andersen’s Behavioural Model of Health Services Utilization

3.2 Econometric and model specification

To analyse the determinants to progressive utilization of palliative care services by cancer patients, the study adopts and modifies the model by Andersen (1995) and incorporates the variables illustrated by Andersen and Newman (2005) based on the health services utilization model. The model is a multiple regression model and is estimated by use of a binary probit; in this case we interpret the dependent variable as the probability of either progressively utilizing palliative care or not given the explanatory variables. Binary-choice models assume that individuals are faced with a choice between two alternatives and the choice of any of the two depends on certain factors as explained by Robert & Daniel (1998).

$$Y = \beta_0 + \beta_s X_s + \mu \dots\dots\dots (1)$$

Where Y is the probability of progressively utilizing palliative care given various explanatory factors, β_0 is the constant, β_s are the coefficients, X_s are the explanatory variables and μ is the error term.

In this study we make an assumption that our dependent variable (progressive palliative care utilization) takes the standard normal distribution with mean of 0 and variance of 1. Based on this, we

estimated the cumulative distribution function (CDF) given the probability distribution function (PDF) we expressed it as follows;

$$\Pr (Y=1|X) = \Phi (X\beta) \dots\dots\dots (2)$$

Where Pr is the probability of progressive palliative care utilization, Φ is the cumulative distribution function of the standard normal distribution and β is the parameter to be estimated.

The probit model assumes that Y is a normally distributed variable and therefore Y can be estimated using probability distribution function given as follows;

$$pr(y = 1) = \Phi(X\beta) = \int_{-\infty}^{X\beta} \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}} dz \dots\dots\dots (3)$$

However, for interpretation purposes we estimate the marginal effects which show the change in the probability of the dependent variable given the unit change in explanatory variable. Therefore we shall proceed to interpret our results as the probability of progressively utilizing palliative care given a certain factor holding other factors constant /ceteris paribus.

In specifying our model, an assumption is made of linear relationship between progressive palliative care utilization and the explanatory variables and we express it as indicated below

$$PCUT = \beta_1 + \beta_2AG + \beta_3S + \beta_4ED + \beta_5MS + \beta_6ES + \beta_7MI + \beta_8REL + \mu_i$$

Where;

PCUT represents the probability of progressive utilization of palliative care by cancer patients. This is based on the assumption that patients coming from within Nairobi County utilize palliative care progressively compared to those coming from outside Nairobi county (Mattson, 2010).

AG is the age of the cancer patient seeking palliative care

S is the gender of the cancer patient

ED is the education level of the cancer patient

MS is the marital status of the cancer patient

ES is the employment status of the cancer patient. It is used as a measure of the economic status of the individual

MI is the medical insurance status and is used to measure the ability to afford the palliative care services

REL is the religious affiliation of the individual and it measure the effects of beliefs on palliative care utilization

μ = the stochastic disturbance term

3.3 Data Source and Type

The study employed cross-section data for the year 2013 to capture secondary data of cancer patients seeking palliative care at the Nairobi Hospice. The study site was chosen due to its proximity to the Kenyatta National Hospital (KNH) where most patients with cancer are referred for specialized management. This site was also the first to be established as a palliative care centre in the country. The choice of the study period is informed by the period in which the palliative care policy came into existence. The study is mainly correlational as it does not seek to analyse the cause-effect relationship but aims to look at the relationship between the independent and dependent variables.

3.4 Sampling Methodology

Sampling method employed was the simplified formula for proportions with a 95% confidence level as put forward by (Yamane, 1967) as follows;

$$n = \frac{N}{1+N(e)^2} = 240 = \frac{240}{1+240(0)^2}$$

n = sample size

N = population size

e = acceptable sampling error

The average number of new cancer patients seen in a month is 20. This totals to an estimated 240 new patients per year. The researcher used data for the 169 patients of the study duration.

3.5 Variables used and expected relationships

The dependent variable is denoted by (**PCUT**) which is the probability of progressive utilization of palliative care services. In this case progressive utilization is based on the assumption that patients from within Nairobi County are able to continuously attend the palliative care clinics as compared to those living outside the County (Mattson, 2010). The explanatory variables used and their expected relationships are shown in table 1.

Table 1: Variables used and expected relationships

Variable	Measure	Expected relationship with PCUT
Progressive Palliative care utilization (PCUT)	We made an assumption that patients coming from within Nairobi county utilize palliative care progressively compared to those coming from outside Nairobi county. It takes a value of 1 if residence is Nairobi County and 0 otherwise.	
Age (AG)	Continuous variable	Positive; increase in age leads to increase in utilization (Evashwick, Rowe, Diehr, & Branch, 1984)
Sex (S)	Dichotomous variable; Male = 0 and female =1	Positive; Female utilize more than males (Bertaksi, 2000)
Education level (ED)	Discrete variable; None =0, Adult education= 1, Primary= 2, Secondary= 3, Post-secondary= 4	Positive; increase in number of completed school years leads to increase in utilization of palliative care services (Rugno, Paiva, & Paiva, 2014)
Marital status (MS)	Discrete variable; classified as married= 1, widowed= 2, single= 3 or separated = 4	Marriage increases utilization (Iwashyna & Christakis, 2003)
Employment status (ES)	Dichotomous variable; employed= 1, unemployed=0	Positive; employment increases utilization (Kwabena & Timothy, 2014)
Medical insurance (MI)	Dichotomous variable; insured = 1 uninsured = 0	Positive; Having a medical insurance increases utilization (Margot, Eric, & Jennifer, 2001)

Religion (<i>REL</i>)	Discrete variable; None = 0, Christian = 1, Muslim = 2 and Hindu = 3	Indeterminate; since some religion advocate for general utilization of health care services while others oppose (Schiller & J, 1988)
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3.6 Data analysis

The study used STATA V12.1 software with application of the binary probit model in assessing the factors determining progressive utilization of palliative care services by patients with cancer at the Nairobi hospice.

3.7 Estimation issues

The study considers multicollinearity as the main diagnostic test which investigates whether there exists a relationship between the variables. Variance inflation factor (VIF) for each of the predictors was calculated and if $VIF > 10$, then a problem with multicollinearity exists.

3.8 Ethical Consideration

For purposes of obtaining an informed consent, the Nairobi Hospice was furnished with information concerning the research. It was clarified that:

- The choice to participate in the research is completely voluntary
- The institution shall retain the right to opt out of the research any time they feel like without repercussion against them
- No monetary or other forms of tangible benefits shall be realized in appreciation for participation in the research
- The institution shall be entitled to full information pertaining to the progress and findings of the research
- All information obtained shall strictly be kept confidential and shall only be used for purposes of the said research

Approval was sought from the Nairobi Hospice - Ethics and Research Committee prior to carrying out the study. It was granted in February 2015.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the findings of the analysis using both descriptive and inferential statistics. The first section provides the descriptive statistics followed by the inferential statistics. The chapter concludes by giving a detailed discussion of the results in relation to the literature review.

4.2 Descriptive Statistics

Nairobi County is a proxy of distance implying progressive utilization of palliative care compared to those residing in other counties under study. From Table 4.1 below, the age variable is a continuous variable which indicates the respondent's age in number of years. The oldest respondent was 91 years old while the youngest was four years old. There was a variation of approximately 18 years from the mean which is 54 years. Approximately, 27% of the respondents reside within Nairobi County while about 73% come from other counties within Kenya. Most of the respondents were female (61.9%) compared to men with a variation of 38.7%.

The study further found that majority of the patients were married (62.5%), with 15.5% being widowed, 16.7% being single and 4.2% reported to be separated. Table 2 shows other details;

Table 2: Summary statistics

Variable	Observations	Mean	Std. Dev	Min	Max
Progressive Utilization of palliative care (Distance)	166	0.2710843	0.4458645	0	1
Age	167	54.07784	17.52141	4	91
Gender (Female=1)	168	0.6190476	0.3870727	0	1
Married	168	0.625	0.4855702	0	1
Widowed	168	0.1547619	0.3627588	0	1
Single	168	0.1666667	0.3737921	0	1

Separated	168	0.0416667	0.2004237	0	1
No Education	168	0.1309524	0.3383568	0	1
Adult Education	168	0.0357143	0.1861317	0	1
Primary Education	168	0.3511905	0.4787694	0	1
Secondary Education	168	0.2559524	0.4376998	0	1
Post-Secondary Education	168	0.1964286	0.3984841	0	1
Employed	164	0.7987805	0.4021396	0	1
Medical Insurance	165	0.5878788	0.4937151	0	1
No religion	168	0.047619	0.2135955	0	1
Christian	168	0.8988095	0.3024824	0	1
Muslim	168	0.0297619	0.1704378	0	1
Hindu	168	0.0119048	0.1087818	0	1

Education levels were also assessed in five categories, in which 13.1% of patients had no education, 3.6% of the patients had adult education, 35.1% of the respondents had primary education, 25.6% of the patients had secondary education and 19.6% had post-secondary education. On employment status, generally, approximately 79.9% of the respondents were employed while only 20.1% were unemployed. Also, it was shown that more than half (58.8%) of the patients had medical insurance. Finally, most respondents (89.9%) were Christians while Muslim and Hindus formed approximately (4.2%) of the sampled population similar to the respondents (4.8%) who had no religion.

4.3 Multicollinearity Test

Presence of multicollinearity makes the coefficient of regression to be indeterminate thus rendering the standard errors infinite. Detection involves assessment of the correlation among the predictor variables. Although multicollinearity is common among variables, what matters is the degree of that association. This study utilizes Variance Inflation Factors that shows how the variance of a predictor is

inflated by presence of collinearity. Multicollinearity is said to exist if all VIF values are more than 10 and their tolerance values are less than 0.10. Table 3 below indicates the VIF results whereby values of age, age square, Christian and married are more than 10 with tolerance rate of less than 0.1. This is an indication of Multicollinearity.

Table 3: Variance Inflation Factors

Variable	VIF	Tolerance
Age	200.06	0.004998
Age square	74.69	0.013389
Christian	37.42	0.026724
Married	17.91	0.055842
Education	6.10	0.164068
Widowed	5.19	0.192728
Single	4.75	0.210511
Gender	3.78	0.264889
No religion	3.25	0.307338
Medical insurance	2.96	0.337601
Muslim	2.10	0.476820
Employed	2.10	0.477168
Mean VIF	30.02	

As suggested in the methodology section, in case of detected Multicollinearity, the study dropped the collinear variables with high values of VIF and less values of tolerance to avoid spurious estimates. Table 4 is corrected for Multicollinearity. Details are as indicated.

Table 4: Variance inflation factors (corrected for Multicollinearity)

Variable	VIF	Tolerance
Education	4.64	0.215487
Age	4.41	0.226561
Gender	3.14	0.318276
Medical insurance	2.45	0.407527
Employment	1.93	0.519341
Widowed	1.54	0.651180
Single	1.48	0.673741
Muslim	1.09	0.920393
No religion	1.09	0.920985
Mean VIF	2.42	

Note that high correlation could bias the estimated coefficients implying that such variables should not be considered in the final regression model. Table 4 indicated that the considered variables had VIF of less than a recommended threshold of 10 with a relatively higher tolerance of more than 0.1 and deemed correct in estimation.

4.4 Econometric Results

To understand progressive utilization of palliative care services by patients with cancer at the Nairobi hospice it is important to determine the socio-economic factors that influence progressive utilization of palliative care by patients with cancer. We conducted probit regressions in estimating the effect of these factors on progressive utilization of palliative care by cancer patients.

Table 5: Probit Regression Results

Progressive palliative care utilization	Coefficient	Std. Err.	Z	P>z	[95% Conf. Interval]	
Age	0.0131933	0.007435	1.77	0.076	-0.001379	0.0277656
Gender	0.4917909	0.2742421	1.79	0.073	-0.0457136	1.029295
Single	0.4842417	0.3373119	1.44	0.151	-0.1768776	1.145361
Widowed	-0.1557065	0.338775	-0.46	0.646	-0.8196933	0.5082802
Education	0.1982097	0.1057429	1.87	0.061	-0.0090425	0.405462
Employment	0.5683313	0.2610291	2.18	0.029	0.0567236	1.079939
Medical insurance	-0.143364	0.2423558	-0.59	0.554	-0.6183727	0.3316447
No religion	-0.706086	0.6500753	-1.09	0.277	-1.98021	0.5680383
Muslim	1.45032	0.7431413	1.95	0.051	-0.0062099	2.906851
Constant	-2.340959	0.6012473	-3.89	0.000	-3.519382	-1.162536
Number of Observations =162						
LR chi2(9) = 24.66						
Prob > chi2 = 0.0034						
Log likelihood = -82.417414						
Pseudo R2 = 0.1301						

Having computed the probit indexes, however, we conducted the marginal effects as indicated in Table 6 for interpretation.

Table 6: Marginal Effects

Progressive palliative care utilization	Marginal Effects (ME)	Std. Err.	Z	P>z	[95% Conf. Interval]	
Age	0.0037763	0.0020772*	1.82	0.069	-0.0002949	0.007847
Gender	0.1407649	0.0763362*	1.84	0.065	-0.0088513	0.290381
Single	0.1386041	0.0947258	1.46	0.143	-0.0470552	0.324263
Widowed	-0.0445677	0.0968539	-0.46	0.645	-0.2343979	0.145262
Education	0.0567334	0.0294349*	1.93	0.054	-0.0009579	0.114424
Employment	0.162673	0.0718241**	2.26	0.024	0.0219003	0.303445
Medical insurance	-0.041035	0.0692198	-0.59	0.553	-0.1767032	0.094633
No religion	-0.2021024	0.1842968	-1.10	0.273	-0.5633175	0.159112
Muslim	0.4151239	0.2052956**	2.02	0.043	0.012752	0.817495

**Significant Standard Errors at 5% and *Significant at 10% Significance levels

4.5 Discussion and Interpretation of the results

The results shown in Table 6, show that age, gender, education level, employment and Muslim religion were significant while marital status, unemployed and medical insurance were insignificant. As indicated by (WHO, 2014) the number of people currently in need of progressive palliative care is high with the highest percentage (94%) being adults. The results indicates that as one advances in age, the probability of utilizing palliative care significantly increases by 0.004% holding other factors constant. This concurs with the study findings by (Jason, 2007) that focused on healthcare utilization. Their study showed that among the elderly, utilization increased with age. This was due to the increased prevalence of chronic illnesses like cancer among the elderly. However, it should be noted that this rate of utilization may not lead to improved quality of life and reduced mortality.

The study also found that being a female increased the probability of progressively utilizing palliative care among cancer patients. It was shown that being a female significantly increases the probability of using palliative care by 14% compared to male patients holding other factors constant. This concurs with (Cleary, Mechanic, & Greenley, 1982) that females report more morbidity compared to males

thus seeking healthcare services more. This is also attributed to both biological and social differences between the two genders (Redondo-Sendino, Pilar, Guallar-Castillon, Jose, & Fernando, 2006)

On the other hand, education levels was explored and found to significantly influence progressive palliative health care utilization. The positive relationship established implies that as one move from low level of education to higher level of education, there is a significant increase in utilization of palliative care progressively by 5.6% holding other factors constant. This result concurs with the study findings of (Raúl, Jorge, & Sevilla, 2007) who found out that despite the inequities present; years of education did improve the prevalence rates of seeking health care even among the poor. This is also because as one gets more educated they are able to identify their healthcare needs thus seek them (Andersen, 1968). Education levels have also been shown to often influence the occupation of an individual and this will directly translate to income earned and ability to afford the healthcare services (Muller, 1986)

Being employed was found to positively and significantly influence progressive utilization of palliative health care. The probability of utilizing palliative care increases by 16.2% holding other factors constant. This may be attributed to availability of finances to facilitate healthcare seeking. This concurs with the findings obtained by Kevany, (2012) in a study on socio economic status and health care utilization in rural Zimbabwe in which employed individuals were found to utilize health care more compared to unemployed. Further, it is argued that utilization of health care services is mostly utilized by affluent members of the society who are able to afford the services offered. This is especially so for services with user-fees attached as is the case of palliative care services at the Nairobi Hospice.

Religion was also explored and being Muslim was found to significantly influence progressive utilization of palliative care. The probability of utilizing palliative care services increases by 41% holding other factors constant. As indicated by (Gla701), religion has a positive influence on

healthcare utilization. In this study however being Muslim was shown to positively influence utilization despite the majority of patients being Christians. This may be attributed to the Muslim beliefs in which death and end of life is accepted as the will of God (Queensland Health and Islamic Council of Queensland, 2010). This makes them accept cancer diagnoses easily and subsequently seek palliative care in preparation for death.

Medical insurance was however shown to reduce progressive utilization of palliative care services by 4.1% as shown in table 6. This contradicts researches that have shown the reverse to be true (Joseph, Elizabeth, & Susan, 2006) (Margot, Eric, & Jennifer, 2001). As most patients with insurance cover had the statutory National Health Insurance Fund (NHIF) cover it did not however meet the cost of palliative care offered. This is because palliative care is not one of the benefits offered by the insurance cover. This may have discouraged them from progressively seeking the care due to the cost implications.

CHAPTER FIVE

CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1. Introduction

This chapter makes conclusions based on factors leading to progressive utilization of palliative care services by patients with cancer at the Nairobi hospice in Kenya. Later policy recommendations and areas of further research are suggested as a way of filling the gap.

5.2. Conclusions of the study findings

This study explored the factors that contribute to progressive utilization of palliative care services by patients with cancer at the Nairobi hospice in Kenya. The study has made use of binary probit regression model in estimation and thus establishing the relationship of the various independent variables with progressive utilization of palliative care at the Nairobi Hospice. The study variables used were age, gender, marital status, education, employment status, medical insurance and religion. At 5% significance level, the study shows that age, gender, education level, employment status and being Muslim were statistically significant. This was related to the socio-economic impact that the variables had on utilization of palliative care. Marital status and medical insurance were found not to be statistically significant. Further, the number of people currently in need of progressive palliative care is on the rise.

5.3. Policy Recommendations

Based on the analyzed factors affecting progressive utilization of palliative care services by patients with cancer at the Nairobi hospice in Kenya, it was evident that some cancer patients do not obtain palliative care services from the facilities because of impediments which can be controlled. These facilities are situated in Nairobi County. Based on the results, the government through the Ministry of health and the relevant agencies should consider those factors that

increase the probability of progressively utilizing palliative care services by patients with cancer at Nairobi hospice in Kenya (age, gender, education level, employment and religion). One of the ways of increasing utilization of palliative care services among cancer patients is through building of palliative care services facilities in each county for easy access. This is especially so with the devolution of healthcare. The Ministry of Health should also create awareness on the importance of palliative care services especially to patients with chronic illnesses and in this case cancer. Since religion has been shown to significantly influence progressive palliative care utilization, it is imperative that religious organizations be incorporated in the same. Education and training of health care professionals should also be considered to optimize the delivery of palliative care for cancer patients at all levels of health care delivery.

There is need for improvement in education levels of the population. This is especially so for the higher levels of education i.e. secondary and post-secondary education. This will assist in the understanding of information that is dispensed by the relevant health bodies on palliative care and its importance. At the same time, based on these findings, it is shown that once one is educated, it becomes easy for an individual to identify their needs in health care and ultimately seek and utilize it. Educated individuals increase the utilization of palliative care.

There is also need to incorporate palliative care in the healthcare package that beneficiaries of health insurance get. This is particularly so for NHIF that is currently offering medical insurance for both in-patient and out-patient services of which palliative care is among.

The need for palliative care also needs to be incorporated into Kenya national health care strategies. Therefore, a similar study is recommended in Kenya with the devolved system of

governance and health services in place focusing on ways to evaluate programs in terms of their impact on palliative care.

5.4. Areas for further studies

In this study we mainly considered determinants of utilization of palliative care services among cancer patients at the Nairobi hospice in Kenya. From the literature we noted that the possible explanations of the failure to utilize palliative care services by cancer patients are not only the considered factors in this study, but other factors also contribute. Thus further study need to be done by including factors like availability of that service, awareness among patients and even quality of services offered in that facility.

This study used distance as a proxy to a progressive utilization of palliative care among cancer patients in Nairobi hospice. Further study is required to utilize other measures and / indicators for progressive utilization of palliative care among cancer patients. This can be a comparative study in improving progressive utilization of palliative care among cancer patients in Kenya.

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