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COLLEGE OF HEALTH SCIENCE
DEPARTMENT OF NURSING AND MIDWIFERY

FACTORS ASSOCIATED WITH QUALITY OF LIFE IN ADULT CANCER PATIENTS
UNDERTAKING CHEMOTHERAPY IN BLACK LION SPECIALIZED REFERRAL
HOSPITAL ADDIS ABABA, ETHIOPIA.

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ACRONYMS

AAU	Addis Ababa University
AOR	Adjusted Odds Ratio
BLSRH	Black Lion Specialized Referral Hospital
BSc	Bachelor's of Science
CT	Chemo-Therapy
DX	Diagnosis
EORTC	European Organization for Research and Treatment of Cancer
GI	Gastro Intestine
HRQL	Health-Related Quality of Life
HQLI	Hospice Quality of Life Index
ISOQOL	International Society for Quality of Life research
MIS	Management Information System
QOL	Quality of Life
RS	Raw Score

Abstract

Background: In patients with different type of cancers the quality of life (QoL) improvement is the main goal. A cancer diagnosis is very stressful for people affecting all aspects of their being and quality of life. Up to date knowledge on QoL impairments throughout the entire treatment process, often including several treatment modalities is scarce in Ethiopia.

Objective: To assess the quality of life of cancer patient undertaking chemotherapy.

Methods: A cross-sectional study was conducted in Addis Ababa University Black Lion Specialized Referral Hospital (BLSRH) Addis Ababa, Ethiopia from March 15 to April 15 2016. A total of 200 cancer patients were included. The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QOL C-30) translated in to Amharic, was used to measure Quality of life (QoL). The data was entered in to Epi data version 3.1 and analyzed with SPSS Version 20. Data were analyzed using logical regression analysis. p-value <0.05 at 95% confidence interval (CI) for Odds Ratio (OR) was considered statically significant.

Results: Among the participants, 144(72%) were women and 56(28%) were men and half of the participants were below the age of 18-40 years. Large proportion of patients were diagnosed with GI cancer, 80(40%) followed by breast cancer, 48(24%). The clinical stages during the beginning of therapy were at stage III 80(40%). The mean of global health status/QoL was 66.04(SD=17.22). Quality of life was found to be associated with some functional scales as emotional functioning $p=0.042$, social function, $P=0.000$, and symptom scales as pain, $P=0.000$ loss of appetite, $P=0.000$, dysnea $p=0.003$ and financial impact, $P=0.000$, but no associations were noted in relation to demographic characteristics except sex.

Conclusions and recommendation

In this study the cognitive, physical and role domain of QoL were the least affected, while the social and emotional functional domains were the most badly affected. In the symptom domain of QoL fatigue, nausea and vomiting, constipation and diarrhea were the least affected but pain, loss of appetite, dysnea, and financial domain the most affected QoL in adult cancer patients

undertaking chemotherapy. Also the study showed that QoL improvement in patients took four cycles and more chemotherapy.

Cancer is an important health issue influencing QoL. An appropriate treatment which may provide care to the cancer patients is CT. The obtained results here indicate a strong correlation between QoL and number of CT cycles in cancer patients.

Quality of life assessments should be included in patient treatment protocols to improve their quality of life since being a cancer patient may be associated with a high level of impairment in different aspects of life. Future studies will be important to better identify factors associated with quality of life in adult cancer patients who are under taking chemotherapy.

Key word: Cancer, Quality of life, EORTC QOL C-30

CHAPTER ONE: BACK GROUND

1.1. Introduction

Quality of life is a subjective and multi dimensional concept assessing physical ,social ,psychological and role function domains .Cancer diagnosis and its therapy have a negative impact on quality of life(i.e ,loss of appetite ,sleep disturbance) .One type of cancer treatment is chemotherapy that administered to destroy cancer cells .The studies show that cancer treatment with side effect and toxicity that diminish quality of life (1).

Quality of life (QOL) is a very frequently applying concept nowadays (2). QOL is defined as the subjective evaluation of life as a whole or the patient's appraisal and satisfaction with their current level of functioning compared with what they perceive to be possible or ideal (3). QOL is a construct both positive and negative aspects of dimensions such as physical, emotional, social and cognitive functions, as well as the negative aspects of somatic discomfort and other symptoms produced by a disease or its treatment (3).

Health-related quality of life (HRQL) and its evaluation have become each time more important in health care, especially in the area of chronic diseases. Normally, the evaluations in the health area were focused in the rates of survival, of local control, of complication and under the point of view of the doctor. These evaluations did not have knowledge and understanding of the mental and emotional welfare of the patients. It is considered multidimensional, once it incorporates the physical, psychological, social, emotional and functional domains; and it is subjective, that is, according to the experiences of the patient(4).

Quality of Life (QoL) is one of the most important patient-reported outcomes in cancer therapy. Measurement of QoL at diagnosis may provide useful information regarding patients' preferences and prognosis, while follow-up measurements may indicate acceptance, adaptation and adverse effects of disease and therapy. QoL has been widely explored in many diseases and its change is a primary endpoint of many clinical trials. An increasingly important issue in oncology is to evaluate Quality of Life in cancer patients. The cancer-specific QoL is related to

all stages of this disease. In fact, for all types of cancer patients general QoL instruments can be used to assess the overall impact of patients' health status on their QoL (5).

Cancer, in its process of development, configures a public health concern. Studies reveal an incremental tendency of this disease, with six million new cases in developed countries and 9.3 million in developing countries expected for the year of 2020 (6).

The QoL is related to the health concept proposed by the World Health Organization (WHO) physical, mental and social well-being. It means the individual's perception of his/her own health generally speaking, according to his/her cultural demands, value systems, goals, expectations and concerns. This explains why individuals with similar objective indicators of QoL can have quite different indices in the subjective QoL (7).

While cancer diagnosis has become more prevalent, it is no longer considered to be a death sentence, but rather a disease that patients must manage and live with. Numerous studies have shown that depression, anxiety, stress and poor quality of life are often psychological consequences of living with cancer, and cancer patients face the double challenge of learning to manage the physical as well as psychological effects of cancer. (8).

Cancer is known to reduce quality of life, and it has been evident that decreased QoL has a negative effect not only on physiological symptoms but also on the psychological functioning of the individual.(8,9) It has also been suggested that determining QoL in cancer patients could contribute to improved treatment and could be as prognostic as medical factors (8) and as the survival benefit that a pharmacological treatment may provide (10). In addition, QoL in cancer patients is an important outcome and is now considered a significant end-point in cancer clinical trials, as proposed by the World Health Organization (WHO) (8).

1.2. Statement of the problem

Cancer affects the patients QoL ,QoL is defined as the subjective evaluation of life as a whole or the patient's appraisal and satisfaction with their current level of functioning compared with what they perceive to be possible or ideal (3).

The diagnosis of cancer causes a great emotional impact on patients and their families, especially when it progresses to an advanced stage with no prospect of cure. It is important to mention that,

when the patient reaches a terminal stage, care ceases its aim of preservation of life, and the maximization of comfort in a broader sense and the preservation of this human being's dignity become imperative (11,12). Physical, psychosocial and spiritual discomforts experienced by patients with cancer occur alongside other confrontations, and the endless struggle during the disease decreases quality of life (QoL), deserving health professionals' attention (13).

The main problems facing long-term cancer survivors are related to social/emotional support, health habits, spiritual/ philosophical view of life, and body image concerns (14,17). Many studies have shown good or adequate overall QoL in these cancer patients. However, among long-term survivors, psychosocial issues and physical symptoms such as pain and lymph edema, particularly the adverse effects of systemic adjuvant therapy (chemotherapy) on QoL still persist (15,17).

The individual's perception about cultural, social, political and economic influences in one's life background, which promotes the achievement of his/her goals, projects and expectations and gives an individual the opportunities of free will, is recognized as quality of life(18) .

Although studies over the years show no consensus on the concept of QoL by its inherent subjectivity of individual perceptions, a multicenter project involving different cultures highlighted three aspects of great relevance to the QoL construct: the subjectivity of the human being, who is enhanced by thoughts, feelings and emotions that compose one's internal world, inherent in each human being; the multidimensionality of QoL, which includes dimensions of physical, psychological, social and spiritual order that bring significant repercussions; and the bipolarity caused by positive and negative influences that permeate peoples' daily lives (19).

If the problem does not have addressed properly the QoL of the patient will affected. To resolve those problems cancer patients need to better management of cancer-related symptoms such as appetite loss and sleeping disturbance during the active treatment regimens. There is also cancer has pain and it should be properly managed.

Ethiopia has a population of more than 84 million people, and is expected to become the ninth most populous country in the world by 2050 (20) .The growing population coupled with lifestyle changes will mean an increasing burden of cancer. However, oncology services are wholly

inadequate; no cancer registry exists, and only one cancer centre, with a handful of doctors and nurses, struggles to serve the entire country (20).

In Ethiopia, although few researches have conducted to evaluate QoL in some diseases (21), only one research has been conducted to evaluate QoL in cancer patients but no research found to assess the QoL of cancer patients undertaking chemotherapy. Considering the increasing prevalence of cancer and its destructive effects on QoL and low local reports pertaining to QoL of cancer patients, this study aimed to evaluate QoL of adult cancer patients undertaking chemotherapy.

1.3. Significance of the study

There is a scarcity of research conducted in Ethiopia on the factors association with quality of life in adult cancer patients undertaking chemotherapy.

The aim of this study is to evaluate the QoL in cancer patients at different chemotherapy cycles.

Since quality of life is a powerful force in the guidance, maintenance, and improvement of people's health in all societies and cultures (22), one of the main goals of treatment is to increase the patient's quality of life as much as possible. Therefore, healthcare givers and researcher must initially obtain sufficient information regarding the influencing factors on quality of life and the methods for increasing it (22).

The research topic: factor associated with quality of life in adult cancer patients undertaking chemotherapy in Black Lion Specialized Referral Hospital. The study assumes that understanding and knowledge of any association factor of quality of life can improve the practice of health care providers serving the terminally ill as well as improve the outcomes for these clients.

Results of this investigation are believed to provide a foundation for interventions to improve QoL among patients with cancer and provide base line for future researchers.

CHAPTER TWO: LITERATURE REVIEW

In this chapter, a literature review of quality of life research is presented. The study's conceptual framework is described.

2. 1. Quality of life

Quality of life is a concept relevant to the discipline of nursing. With instrument development and population description oncology nurses have improved the quality of life in cancer patients (23).

Quality of life has been examined from different perspectives. Quality of life assessment has emerged as an outcome variable to be measured in cancer treatment and clinical trials (24) cancer clinical trials have traditionally looked at duration of survival, retardation of the disease process, and control of major physical symptoms (25). However, with the recent attention focused on quality of life versus, the end points or outcomes of treatments are viewed differently. No longer is enough to look merely at survival rate. Therefore, new tools have been developed and research studies conducted in order to attempt to define and measure quality of life.

Kenne et al. (26) put forward that patients with lower coping capacity reported a higher prevalence of cancer symptoms, experienced higher levels of distress and experience encountered worse perceived health, which in turn decreased the quality of their life. Another study (27) found out that, as survival rates for cancer have improved, quality of life issues have increased in importance. The researchers examined how patient perceptions of the side effects of chemotherapy changed from predominantly physical concerns to psychosocial concerns. Patients undergoing chemotherapy were asked to select side effects from physical and non-physical symptoms, and rank them according to how 'troublesome' they were. Despite an extensive list of physical side effects, four of the top six were non-physical (affects my family or partner, loss of hair, constant tiredness, affects my work and/or home duties, affects my social activities, loss of sexual feeling in order of severity) (27).

Research in USA (25) developed a modular approach to quality of life assessment to be used in cancer clinical trials. This approach broke down the construct of quality of life into its component parts for measurement. The following quality of life dimensions were identified from their research study of 750 non-resectable lung cancer patients: (a) functional status, (b) physical malignancies and /or treatment modalities, (c) physiological distress, (d) social interaction, (e) financial/economic impact, (f) perceived health status, and (g) overall quality of life. The development of this modular approach to quality of life assessment contributed to the existing literature on quality of life assessment and further provided attributes that define the content domain of quality of life.

The Iran study that shows directs attention toward the effects of supportive-educative program on the quality of life in adolescents whose parents were diagnosed with cancer during the last year. The main goal of the study was to investigate the quality of life of adolescents before and after presenting supportive-educative program. The results showed that before presenting the program, the quality of life scores of adolescents in many aspects like physical functioning, role limitation due to physical health, role limitation due to emotional problems, and pain were in good range and near 100 score. This finding that families with a parent with cancer may experience more positive family functioning than normal families (28,29).

Iranian research (30) findings showed that there were no differences between age, sex, knowledge, birthrate, and the subcategories of physical health and psychological health before presenting the supportive-educative program. The results showed that after presenting the program, all aspects of quality of life had an increase in scores, and in many aspects, this increase showed significant statistical differences. This finding showed that the program could enhance the aspects of quality of life (30).

The most common psychiatric disorder experienced by cancer patients is major depression, with prevalence rates ranging from 13% to 56% (31). Depressed cancer patients experience more declines in quality of life, more rapid symptom progression, and increased mortality, pain, metastasis, and medical utilization than cancer patients who are not depressed (32).

Brazil research to examine adults with Cancer longitudinally (one year) the QoL, self-efficacy and psychological well-being of patients with cancer. The significant correlations

observed between the QoL, self- efficacy and psychological well-being are congruent with the result of the stability of these variables in the period of one year (33).

Iran research (10) most of the patients (85%) were aware of their disease. Findings about QoL in the rest of four domains are depicted. The most common problems in regard to this category were: fear about future (29%), thinking about the disease and its consequences (26.5%), impatience (24%), and depression (17.5%). The QoL was fairly favorable in majority (66%) of the patients. There was no correlation between the QoL and variables such as age, sex, and marital status, duration of disease, economic conditions, and occupational function. Furthermore, no correlation was found between QoL and the patients' educational level (literate or illiterate).

The relationship between QoL and the number of CT cycles is demonstrated. As shown, majority (66%) of the patients had fairly favorable QoL. A strong correlation was found between QoL and number of CT cycles. Nevertheless, a significant difference was found between the level of QoL in patients with 2 CT cycles and/or with 3-5 cycles ($p < 0.001$). This was also the case for the level of QoL in patients with 6 cycles ($p < 0.001$) (32).

The analysis of 21 studies done in Brazil that were integrated into this review revealed a concern, still quite emphatic, from medical professionals, who sought, through instruments of general and specific measures, to identify predictors that may positively or negatively affect the health related QoL among patients with advanced cancer without therapeutic possibilities of cure. For this reason, it is necessary to intensify palliative care. These studies provided evidence of signs and symptoms of varying intensity that can affect the health related QoL of patients (34).

Patients with advanced malignant disease, especially when the disease affects areas such as the head and neck, often experience dysphasia. This is a symptom recognized as a factor significantly associated with malnutrition and dehydration and, consequently, to decreased survival. Corroborating the analyzed studies (35), a study of 87 patients with head and neck cancer showed that the prevalence of dysphasia was approximately 51% of the sample. Of these, about 62% avoided eating in front of others, and about 37% reported feeling ashamed at mealtimes. As for the QoL evaluation of these patients, a study showed that those with dysphasia symptom showed more impairment in their QoL than those without problems of food intake

(36). Therefore, therapeutic intervention with auto-expandable stents brings considerable relief to the patient and helps one to regain the feeling of pleasure in eating.

Lung cancer can affect the patient's QoL, depending on the stage of the disease, the type and characteristics of the treatment, and the intrinsic aspects of each patient. Similar results in relation to pulmonary resection procedure were also found in a study in Cambridge, with 111 patients who had undergone this intervention and were followed for six months with physiotherapy, having better control of symptoms and complications, with improved QoL (37).

A study with 977 patients with advanced cancer identified that, among physical symptoms, there was a fatigue incidence of 57% reported by patients who were not receiving palliative care, with negative impact on QoL (38). The impact of fatigue in patients with cancer has been evaluated through specific measurement instruments and has demonstrated a strong association between this symptom and the health related QoL(39).

Depression usually affects patients with cancer with significant emotional and physical repercussions that negatively affect their Health Related Quality of life (HRQoL). Studies have reported that depression is more prevalent among hospitalized patients, especially when the end of life approaches, and that the associations of symptoms such as fatigue, depression and sleep disorders cause significant impact on HRQoL of people living with cancer (40).

Symptoms such as pain, nausea and vomiting compromise the nutritional status of about 75% of patients, with or without antineoplastic treatment, implying increased morbidity, mortality, and treatment costs; and decrease the chances of survival, with significant impact on health-related QoL(41). Regarding the burden of symptoms among advanced cancer patients, the severity of symptoms and functional status are important dimensions of HRQoL when the end of life is near. The anguish felt by the severity of symptoms has been recognized as a statistically significant predictor of QoL. Hospitalized patients reported greater severity of distress caused by the symptoms and lower QoL scores, whereas those receiving palliative care in the domicile obtained better scores on the QoL related to functional status, being more capable of performing activities of daily living at home (41).

Research (42) study evaluated the quality of life for 118 cancer patients receiving hospice care. The factors that affect the quality of life of cancer patients were explored using the newly refined

hospice quality of life index (HQLI). The HQLI was administered to the patient and their caregivers within 24 hours of admission and after 3 weeks of hospice care. The results indicated that quality of life remained stable during the study period when measured by the tool. The reliability and validity of this tool were further confirmed. Factor analysis confirmed subscales (a) physical/functional well-being, (b) emotional well being, (c) social well-being and (d) financial well being. The alpha reliability coefficients for the HQLI were considered high. The alphas were the same at admission and after 3 weeks of hospice care with an $r=0.88$ and a $p=.001$ for the total scale. Overall, the findings reveal the quality of life hospice patients to be relatively stable over the course of 3 weeks of cancer, thereby, supporting the outcomes of care in these two hospices. Pain relief was found to be far from adequate in this study, and given that comfort is a main goal of hospice care, this finding suggested the need for greater focus on pain management.

A number of studies have developed tools to measure quality of life in patients managing cancer pain. Research (43) conducted a study to assess the reliability and validity of the City of Hope Medical Center Quality of Life Survey, a tool designed to evaluate quality of life as a measure of pain management outcomes. Three groups were studied each consisting of 50 subjects: (a) cancer patients with pain, (b) cancer patients without pain, and (c) healthy subjects without cancer. The statistical analysis of the results indicated that the instrument had test-retest reliability, internal consistency, and inter-rater reliability, as well as content and construct validity for some of the major factors. The major quality of life constructs represented in this study were: (a) physiological well-being, (b) physical well-being, (c) general and specific symptom control, and (d) degree of social support. These results were part of a four-phase project with the goal of improved pain management for cancer patients at home. Further revision of the instrument was recommended and suggestions for further testing were made.

A research study which developed the Quality of Life Index (QLI) to measure the quality of life for patients with cancer ($N=111$). The construct of quality of life was depicted with four domains: (a) health and functioning, (b) socioeconomic, (c) psychological/spiritual, and (d) family. Each domain was further broken down and conceptualized as a multidimensional construct. Reliability, validity, and internal consistency reliability were supported (44).

In research (45), the majority of the patients (68%) who had completed 3 or more cycles of CT reported a fairly favorable or favorable level of QoL. This may show that QoL is directly related to cancer treatment procedure, i.e. CT. likewise, except for a small group (13.3%) of the patients reported that their sleep pattern was not favorable, the others had good QoL. This implies that CT can lead to the better sleep pattern in cancer patients. The results are consistent with other studies. For instance, Chen et al. found that QoL in lung cancer patients during the fourth cycles of CT improved slightly over the baseline values; the patients perceived more sleep disturbances during the early cycles of CT (44). Similar results have been found in patients suffering from advanced cancer by Mystakidou and from breast cancer by Fortner (46,47).

The findings of the (10) study showed that there was no correlation between QoL and age, gender, social status, marriage, and job. Similar results have been reported by Nematollahi, Vedat et al. and Rustøen studies (48). Furthermore, there was no correlation between the extent of the disease and QoL. In contrast, Rustøen and Holzner in two separate studies found that the extent to which QoL of cancer patients depends on the time elapsed since initial treatment; with an increase in the extent of the disease, a decrease in the QoL was observed. The difference may be due to the duration of the disease; the extent of the disease, in 87% of the patients from the current study was less than two years whilst it was more than 2 years in Rustøen and Holzner studies (49).

The results of a study (50) that evaluated the impact of nausea and vomiting on quality of life in patients undergoing chemotherapy showed that the symptoms of fatigue, nausea and vomiting had the greatest impact on the health related QoL of patients undergoing chemotherapy. In this study, there were eight of the patients in this study significant difference in symptoms of nausea and vomiting between patients beginning of treatment early compared with patients beginning treatment later, i.e., such symptoms were more frequently found in patients who had begun chemotherapy after four months.

A study performed in the clinic of the Association against Cancer of Central Brazil (51) highlighted that the fatigue related to cancer is a clinical problem that requires a complex, multifactorial and multidimensional approach. Until then, there was no standard method to

measure fatigue related to cancer, making it difficult to determine how to compare the results already found in studies. In this study, fatigue had a relatively high average of 64.57.

Sub-Saharan Africa is characterized by a significant disease burden. By 2011, 23.5 million people in sub-Saharan Africa were living with HIV/AIDS, 69% of the global disease burden (52) Cancer is an emerging public health problem in the region (53). In 2008, there was an estimated 715,000 new cancer cases and 542,000 cancer-related deaths in Africa, (54) with cancer rates on the continent expected to grow by 400% over the next 50 years (55). Approximately 36% of cancers in Africa are infection related, twice the global average (56).

One research done in Ethiopia for the evaluation of quality of life in adult cancer patients, those in the second cycle of chemotherapy ($P=0.04$) showed significant association with QoL, but no associations were noted with type of therapy, time since diagnosis, stage at diagnosis and presence of other co-morbidities. Significant association was noted between role functioning ($P=0.01$, $AOR=0.38(0.19, 0.76\ 95\%CI)$) like limited in doing work or other daily activities and pursuing hobbies or other leisure time activities (57).

Association was also noted with social functioning ($P\ 0.001$, $AOR=0.26\ (0.15-0.45\ 95\% CI)$) in which physical conditions or medical treatment interfered with family life and social activities but no associations were observed between physical, emotional and cognitive functioning (58).

Quality of life and symptom scales Symptom scales like dyspnea and diarrhea showed no association at all, but pain ($P\ 0.001$), appetite loss ($P=0.004$) and financial difficulties ($P=0.02$) were shown to be associated with QoL. Symptom scales like fatigue, nausea and vomiting, sleep disturbance and constipation showed no association with QoL (57).

2.2. Conceptual framework

The concept of quality of life is discussed. A conceptual model of the relationship between the variables of quality of life is presented.

The concept of quality of life has been pondered for years and numerous contributions have been made to its definition. Work from such authors as (58), (59), and (60) have discussed life's meaning and the meaning of suffering. Yet the subjectivity of the concept makes it difficult to define the concept (61). Defined quality of life as a personal statement of the positive or negative attributes that characterize one's life.

According to (62): (a) Quality of life is a construct of individual design for each patient, which changes with time and circumstances, (b) it may not be readily not useful measured; and (c) it may be amenable to improvement only for individuals in individual way and therefore it is not useful for policy making, other than a policy which allows for greater flexibility in patient care.

The essential character of any life is difficult to define, and in the case of the terminally ill cancer patients, there exist special considerations (63). For those who are dying, life takes on a new shape, a new focus. Oftentimes it narrows, sometimes to a single room, as working and running a household seen insignificant. Family and friends are seen differently. Values change as what was once important because trivial, while things once ignored become highly valued. Therefore, the concept of quality is viewed dynamically as it constantly changes from week to week, day to day, and possibly minute to minute.

Quality of life is an illusion concept, but it has continued to be the focus in the issue of death with dignity (64). The quality of life can be conceptualized to include both objective and subjective factors. Objective factors include the amount of physical activity, capacity for self-care, degree of pain, energy for activities, and socioeconomic factors such as employment and financial security /subjective factors include a sense of personal worth and well-being, and satisfaction in personal life experiences with family, society, occupation, and sexuality. Therefore, to attain or maintain quality of life, the patient need to be able to engage in important

roles that one perceives as worthwhile, achieve a sense of independence, a feeling of satisfaction, and have a sense of well-being.

The growing attention to quality of life with cancer reflects a changing attitude on the part of health care personal. The value of cancer treatment is judged not only on survival and quality, but on the quality of that survival. If one is kept alive by treatment merely to continually suffer from devastating symptoms, one must reevaluate and decide if that treatment is really worth it.

The World Health Organization created a global cancer control program based on knowledge that had a possibility to reduce cancer morbidity and mortality worldwide. The main focus of this program is palliative care and its impacts on quality of life of cancer patients (65).

Furthermore, there were many international professional societies that they have profounder their interest in quality of life. The International Society for Quality of Life research (ISOQOL) was founded in 1994 in order to promote the exchange of information about QOL and its evaluation throughout the world (63). Nowadays it is known that the mission of the International Society for Quality of Life research (ISOQOL) is to advance the scientific study of health related to quality of life and other patients centered outcomes to identify effective intervention, enhance the quality of health care and promote population's health (66).

Over 30 years ago it was created the European Organization for Research and Treatment of cancer (EORTC) quality of life group in order to develop Health Related Quality of Life (HRQOL) measures that could be used in cancer clinical trials. Later a quality department may have created at EORTC headquarters to provide administrative practical and scientific support for implementing the above mentioned measures in EORTC trials (67). Also, it was created EORTC questionnaire in order to evaluate QOL in cancer patient (69).The subsequent version of the core questionnaire has been in use since December 1997 and it has been translated and validated into 81 languages and languages. Nowadays, this is used in more than 3000 studies worldwide (67).

The EORTC QLQ-C30 (see Annex IV), a 30 items questionnaire .This QLQ-C30 version-3 developed by, the European Organization for Research and Treatment of Cancer (68) .This tool had been used previously with cancer patient's .Validity and reliability was performed following

an international field study on the initial core questionnaire, with 300 non-respectable lung cancer patients from 13 countries. Clinical variables assessed included; weight loss, performance status and stage of disease. The internal consistency of the items produced reliability coefficients of 0.52-0.89. With the exception of role function status, the EORTC tool was shown to be reliable in assessing many dimensions of quality of life and it has been proposed that quality of life assessment promotes a patient centered approach and has the ability to influence cancer care. The results of the study concluded that the tool was reliable and a valid measure of quality of life in clinical research settings (68).

Once the questionnaire has been completed the sum of items in each category is added and the total divided by the number of questions in the category. A linear transformation is then undertaken to convert this to a percentage scale with a higher score representing a higher response level. Thus a high score for functional scale represents a high or healthy level of functioning. A high score for the global health status or quality of life represents a high quality of life. In reverse a high score for the symptom scale represents a higher level of symptoms or problems (68).

The conceptual frame work adopted from perspectives in clinical research (69) and rearranged by the researcher.

The EORTC QLQ-C30 is a 30-item questionnaire composed of 5 multi-item **functional subscales**: physical, role, emotional, social and cognitive functioning; three multi-item **symptom scales** measuring fatigue, pain, and emesis; **a global health status subscale**; and six single items to assess **financial impact** and symptoms such as dyspnea, sleep disturbance, appetite, diarrhea, and constipation. Variables related to socio-demography and clinical information as cancer type, time since diagnosis, stage of disease during diagnosis, and numbers of chemotherapy sessions were extracted from charts in the oncology unit.

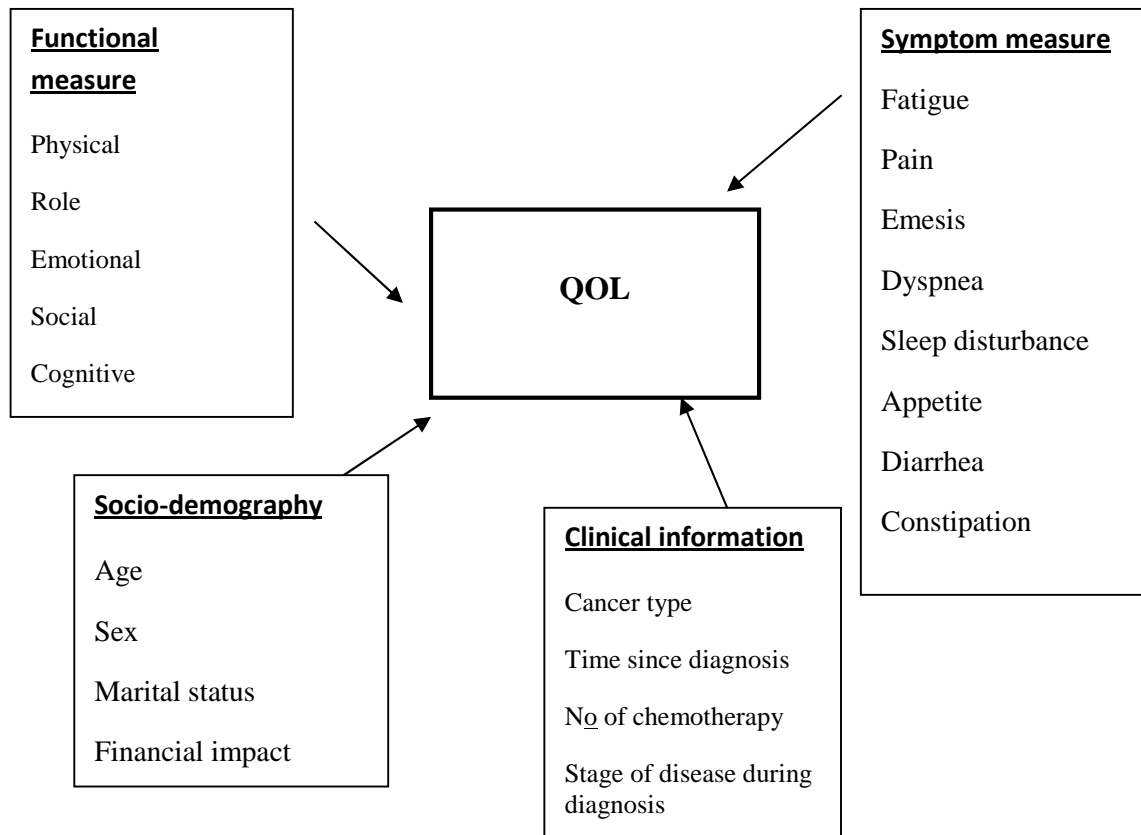


Figure 1. Conceptual frame work of association factors with quality of life in adult cancer patient undertaking chemotherapy.

Note: this conceptual frame work adopted from perspectives in clinical research (70).

Summary

The literature had indicated the enormity of the problem hospice patient face when confronted with cancer and quality of life issues. Quality of life had evolved over the last decade as central themes in hospice and palliative care. Knowledge of cancer and its management had expanded through clinical experience and an abundance of literature. Interest and knowledge of quality of life issues, especially with the advent of many new treatment, procedures, and medications had also escalated .Outcome were being scrutinized and weighed against quality of life issues as technology continues to advance. Quality of life was issues nurses and other health care professionals struggle to balance. The quality of life conceptual framework has provided a means for viewing the relationship, between these variables.

CHAPTER THREE: OBJECTIVES

3.1. General objective:

Describe the quality of life in adult cancer patients undertaking chemotherapy in Black Lion Specialized Referral Hospital.

3.2. Specific objective:

1. To determine the level of quality of life of cancer patients undertaking chemotherapy.
2. To identify factors associated with quality of life in cancer patients.

CHAPTER FOURE: METHODOLOGY

4.1. Study Area and period

The study was conducted from March 15, 2016 to April 15, 2016. This study was conducted at Black Loin Specialized Referral Hospital (BLSRH). BLSRH was chosen since it was currently the only hospital which provides cancer therapy in Ethiopia, which is found in Addis Ababa Ledeta kefele ketema. Addis Ababa is the capital city of Ethiopia. The hospital had different units and department including oncology department which serves for approximately 100 cancer patients weekly, which found in the registration book.

4.2. Study Design

Institutional based cross-sectional quantitative study design was conducted to assess factors associated with quality of life in cancer patients undertaking chemotherapy.

4.3 Population

4.3.1. Source population

The source populations were all adult cancer patients who had follow up for chemotherapy treatment in Black Lion Specialized Referral Hospital oncology department.

4.3.2. Study Population

The study populations were all adult cancer patients who were under chemotherapy follow up appointment during data collection period.

4.3.2.1. Inclusion Criteria

During the study, those patients who have been diagnosed with any type of cancer, 18 years and older, and on chemotherapy, oriented, aware of diagnosis and had no other serious debilitating co-morbidity.

4.3.2.1. Exclusion criteria

Include those who have been experienced respondent burden and those with uncontrolled symptoms, such as dyspnea and sever pain.

4.4. Sampling

4.4. 1.Sample Size Determination

The actual sample size for the study was determined by using the formula for single population proportion by assuming 5% marginal error (d), 95% confidence interval (alpha=0.05) and the proportion of cancer that affect quality of life in cancer patients take 50(p=0.5)because there was no previous research done on this issue. Based on the above information the total initial sample size was calculated by using the formula;

$$n_i = \frac{(Z_{\frac{\alpha}{2}})^2 pq}{d^2}$$

Where;

n_i =require initial sample size,

$Z_{\frac{\alpha}{2}}$ =critical value for normal distribution at 95 % confidence interval which equals to 1.96

(Z value at alpha =0.05)

P=proportion of success, that is the prevalence of cancer affect quality of life.

q= proportion of population cancer not affects the quality of life (1-0.5=0.5).

d= marginal error (0.05).

$$n_i = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} = 384 \quad n_i = 384$$

Since the sampling was calculated from finite population (N<10,000), it was need finite population correction. Therefore; by using correction formula, final (n_f) sample size was:

$$n_f = \frac{n_i}{1 + \frac{n_i}{N}}$$

$$n_f = \frac{384}{1 + \frac{384}{400}} = 195 \quad \longrightarrow n_f = 195$$

Where n_f is the final sample size, n_i is the initial sample size determine using the above formula and N is the size of the source population during data collection 400 By considering 10% non response rate, the total sample size was 215 adult cancer patients on chemotherapy.

(I.e. $n_f = 195 + \frac{195 \times 10}{100} = 214.59 = 215$)

100

4.4.2. Sampling Procedure

Out of 215 eligible participants only 200 voluntary respondents were selected by using simple random sampling technique. The sample frame was based on the number of cancer patients who had an appointment during data collection period in the health institution referring from registration book.

4.5. Method of data collection

This study was involved several procedural steps. The first step was ethical approval from Addis Ababa University institutional review board, college of health science and then approval from Black Lion Specialized Referral Hospital chief executive officer. Permission from oncology department.

Four data collectors (diploma nurses) and two supervisors (BSc. N) were selected from other departments in this Hospital and three day training was given on the objectives of the study and how to approach the study participants , how to select or approach volunteers ,how to assure privacy and confidentiality of patient records and when to start and end data collection process .

Following approval and selection of data collectors, eligible subjects were identifying for inclusion through the appointment date in the data collection period. Once identified, potential subjects were approach and information provided regarding study participation. If the subject agreed to participate, the study was explained, and the subject had the opportunity to ask questions. Sign consent was obtained with a copy given to the subject. Following sign consent to participate, the Demographic information was collected by using a socio-demographic tool (see Annex IV).Data collected through chart review i.e.; type of cancer, time since diagnosis, stage of disease during diagnosis, and number of chemotherapy.

To assess dependent variables which affect quality of life of a patient by using the tool European Organization for Research and Treatment of Cancer QoL Questionnaire version-3 the initial

English version of the questionnaire were translated to the local language Amharic and also translated back to English independently to check for semantic validity. Finally, data was collected through face to face interview.

4.6. Study Variables

4.6.1. Dependent variables

It was measured response and a presumed effect. In this study the dependent variables were:

- I. Quality of life.

4.6.2. Independent variables

It was varied and manipulated by the researcher and a presumed cause. In this study the independent variables were:

- I. Socio-demography(i.e. Age, sex, marital status, ethnicity, religion, and income)
- II. Clinical information(i.e. Cancer type, time since diagnosis, stage of disease during diagnosis ,and No of chemotherapy)
- III. Functioning (i.e. physical, role, emotional, social, and cognitive).
- IV. Symptom(i.e. fatigue, pain, emesis, dyspnea sleep disturbance, appetite, and diarrhea)

4.7. Operational Definition

1. Affected quality of life = EORTC QLQ-C30 version (3) for functional and global health (QoL) scales score below 75.
2. Affected quality of life= EORTC QLQ-C30 version (3) symptom scales scores above 25.
3. Not Affected quality of life= EORTC QLQ-C30 version (3) for functional and global health (QoL) scales score above 75.
4. Not Affected quality of life= EORTC QLQ-C30 version (3) symptom scales scores below 25.

4.8. Data processing and analysis

The collected data was checked visually for its completeness and the response was coded and entered in into the computer using EPI data version 3.1 statistical package and the 10% of the response were randomly selected and check for the consistency of data entry. Then data were exported to windows of Statistical Package for Social Science (SPSS) version 20 for data

analysis. Descriptive statistics was computed to determine the frequencies, percentages and mean of the dependent and or independent variable.

Domain scores in EORTC QLQ-C30 which measures a functional scale and global health status were record so that higher scores reflected better QoL and a high score for a symptom scale represented a high level problem. The raw scores were transformed to scores ranging from 0 to 100. (See Annex V) The use of these transformed scores has several advantages (70). Transformed scores may be difficult to interpret; however, there are a number of ways to ease the interpretation of QLQ-C30 results. It is possible to report the raw scores in addition to the transformed scores. For example, it may be clinically relevant to know the proportion of patients that are ‘Quite a bit’ or ‘Very much’ constipated, but this study was present transformed results. Linear transformation to 0–100 to obtain the score S, was done by using the following formula (70).

Raw score- $RS = (I_1 + I_2 + \dots + I_n) / n$

Linear transformation- Apply the linear transformation to 0–100 to obtain the score S,

Functional scales: $S = \{ 1 - (RS - 1) / range \} \times 100$

Symptom scales/items: $S = \{ (RS - 1) / range \} \times 100$

Global health status/QoL: $S = \{ (RS - 1) / range \} \times 100$

There are no existing data for the EORTC QLQ-C30 scales to indicate the threshold scores that are likely to mean significant impairment. Therefore, in this study, after transformation of each domain was dichotomized into “Affected at any degree” and “Not affected at all” in which a score below 75 for functional and global health (QoL) scales are used as affected and scores above 25 have been used as affected for symptom scales.

Bivariate analysis was performed to assess the predictors of QoL. Multivariable logistic regression analysis was also performed to assess the association between the dependent variables and various explanatory variables. P-value less than or equal to 0.05 was taken as cut of value to be significant. Odds ratio and 95% confidence intervals were also constructed.

4.9. Data quality control

To ensure quality of data, properly designed standardized data collection tool used. Pre-test was conducted using 10% of the sample on cancer patients not included in the main study before two weeks to assess instrument simplicity, flow and consistency and questionnaire modification were made after the pretest accordingly. Four data collectors (diploma nurses) and two supervisors (BSc. N) were selected from other department in this Hospital and three day training was given them about the objectives of the study and how to approach the study participants. Additionally, on each data collection day, the collected data were reviewed and checked for its completeness by principal investigator and incomplete questionnaires were discarded. Appropriate design and sampling procedure was applied. Moreover, data cleaning, editing, missing values were removed and the exclusion criteria were considered.

4.10. Ethical consideration

In order to follow the ethical and legal standards of scientific investigation, this study was conducted after approval of the proposal by Addis Ababa University institutional review board and ethical approval and clearance was obtained from this board. Permission and supportive letter was obtained from respective hospital chief executive officer and oncology department before data collection. Participation was voluntary and information also collected anonymously after obtained verbal consent from each respondent by assuring confidentiality through out data collection period. Participants also were told the objective of the study and their right to refuse answers the questionnaires and have been given the right to stop or withdraw at any time of data collection.

4.11. Dissemination of the results

The primary objective of this study is for partial fulfillment in the requirements to degree of master in adult health nursing; the result will be submitted to the Department of Nursing and Midwifery, College Of Health Science, Addis Ababa University, Ministry of Health, Black Lion Specialized Hospital and other stakeholders. Presentation at professional, local, national, and international meetings and publication in peer reviewed national or international journals will be attempted.

CHAPTER FIVE: RESULTS

5.1. Socio- demographic characteristics

Table 1. displays the socio-demographic variable of the respondents. Of 215 eligible respondents, 15(6.98%) refused to participate, and were excluded from the study (response rate = 93.02 %). Among the participants, 144(72%) were women and 56(28%) were men. The mean age of the respondents was 41.66 ± 14.58 (SD), half of the respondents were the age of 18-40 years with 100(50%). The majority of the respondents were Orthodox Christians 144(72%) and 136(68%) were married followed by 52(26%) singles. In their ethnicity, majority of the respondents 108(54%) were Amhara followed by 44(22) Oromo and 24(12%) Gurage.

Table 1. Socio-demographic characteristics of respondents at BLSRH, Addis Ababa Ethiopia, March 15 –April 15, 2016

variable	category	Frequency N	Percent (%)
Age n=200	18-40	100	50
	41-49	32	16
	50-59	40	20
	60-69	20	10
	70+	8	4
Sex	Male	56	28
	female	144	72
Marital status n=200	married	136	68
	single	52	26
	separated	12	6
Religion	Orthodox	144	72
	Muslim	36	18
	protestant	16	8
	Jova	4	2
Ethnicity	Amhara	108	54

Oromo	44	22
Tigra	8	4
Gurage	24	12
Hadia	8	4
Wolita	8	4

For demographic variables after adjustment, only associations were noted in the gender category female ($p=0.001$), no association showed in marital status. Other variables (i.e age , ethnicity, and religion) omitted in multivariate analysis. Table 2. shows associations between socio-demographic variables and QoL

Table 2: Associations between Socio-demographic variables and quality of life of cancer patients at BLSRH, Addis Ababa Ethiopia, March 15 –April 15, 2016

Variable	Category	Quality of Life		Adjusted OR(95% CI)	P
		Affected N (%)	Not-affected N (%)		
Sex	Male	40(38.5)	16(16.7)	0.323(0.164-0.637)	0.001*
	Female	64(61.5)	80(83.3)		
Marital status n=200	Married	68(65.4)	68(70.8)	0.718(0.365-1.202)	0.220
	Single	32(30.8)	20(19.2)		
	Separated	4(3.8)	8(8.3)		

*Significant association

5.2. Clinical characteristics

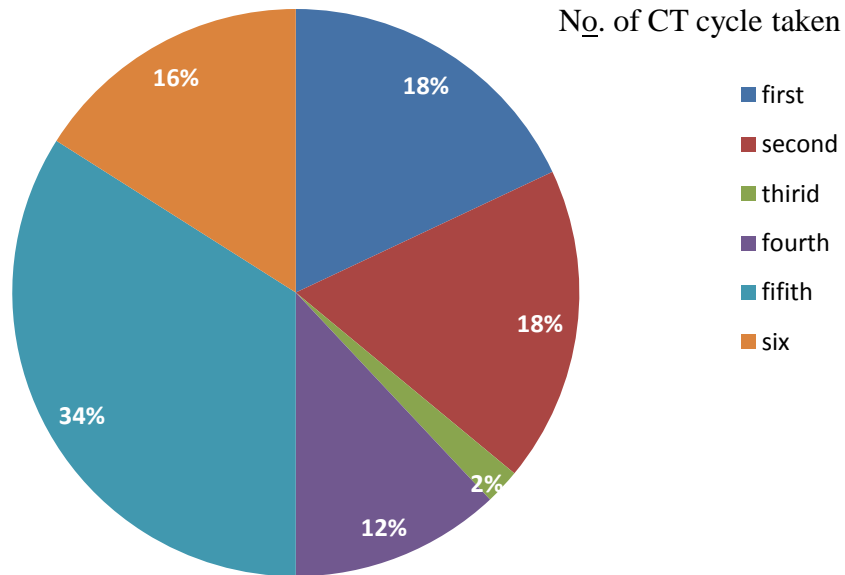
The most prevalent types of cancer were GI cancer 80(40%) followed by Breast cancer 48(24%).The clinical stages during therapy were at stage III 80(40%) and 60(30) were stage IIa. Significant association showed at stage I ,IIa and IIb ($p=0.000$, $p=0.003$, $p=0.000$)respectively. With regard to respondents time since diagnosis most of them were <1 year 120(60%) and 4(2%) were >15 years.

In relation to clinical information, those in first cycle of chemotherapy (P=0.001) showed significant association with QoL. Type of cancer and time of diagnosis omitted in multivariate analysis. Table 4 shows associations between clinical variables and QoL.

Table 3. Characteristics of clinical variables

variable	category	Frequency N	Percent (%)
Time since Diagnosis n=200	< 1 year	120	60
	1– 2 year	16	8
	2–3 year	12	6
	3– 4 year	32	16
	5– 10 year	12	6
	10– 15 year	4	2
	> 15 year	4	2
Primary cancer dx n=200	breast	48	24
	GI	80	40
	Reproductive organ	40	20
	others*	32	16
Stage of disease during diagnosis (n=200)	Stage I	40	20
	Stage IIa	60	30
	Sage IIb	20	10
	Stage III	80	40
Number of CT sessions (n=200)	First	36	18
	Second	36	18
	Third	4	2
	fourth	24	12
	Fifith	68	34
	Sixth	32	16

* Lung , Lymphoma, Maxillary, Sarcoma, Scalp, Sinonasal



Variable	Category	Quality of Life		Adjusted OR(95% CI)	P
		Affected (%)	Not-affected (%)		
Stage of disease during diagnosis n=200	Stage I	24(23)	16(15.3)		0.000*
	Stage II a	44(42)	16(15.3)	3.683(1.559-8.699)	0.03*
	Stage II b	4(3.8)	16(15.3)	5.309(2.142-13.160)	0.000*
	Stage III	32(30.7)	48(46.1)	0.263(0.060-1.159)	0.078
Number of CT sessions n=200	First	24(23.07)	12(12.5)		0.001*
	Second	32(30.76)	4(3.8)	1.586(0.457-5.505)	0.467
	Fourth	12(11.5)	12(12.5)	0.000	0.999
	Fifth	28(26.9)	40(41.66)	0.990(0.274-3.578)	0.988
	Sixth	8(7.69)	24(25)	0.888(0.306-2.578)	0.827

5.3. Quality of life and functional scales

Significant association was noted between emotional functioning (P=0.042, AOR=0.405 (0.170-0.968 95% CI)).

Association was also noted with social functioning (P=0.000, AOR=0.058 (0.026-0.127 95% CI) in which physical conditions or medical treatment interfered with family life and social activities but no associations were observed between cognitive and physical functioning. Role functioning was omitted in the multivariate analysis.

Table 5. Associations between functional scales and quality of life of cancer patients at BLSRH, Addis Ababa Ethiopia, March 15–April 15,2016

Variables	Category	Quality of Life		Adjusted OR AOR(95% CI)	P
		Not affected (%)	Affected (%)		
Physical Functioning	Not affected	60(62.5)	36(34.6)	1.948(0.948-4.175)	0.086
	Affected	36(37.5)	68(56.4)		
Emotional Functioning	Not affected	60(62.5)	80(76.9)	0.405(0.170-0.968)	0.042*
	Affected	36(37.5)	24(23.1)		
Cognitive functioning	Not affected	48(50)	60(57.7)	0.516(0.228-1.165)	0.111
	Affected	48(50)	44(42.3)		
Social functioning	Not affected	16(16.7)	80(76.9)	0.058(0.026-0.127)	0.000*
	Affected	80(83.3)	24(23.1)		

*Significant association

5.4. Quality of life and symptom scales

Symptom scales like pain (P=0.000), dysnea (p=0.003), appetite loss (P=0.000), and financial difficulties (P=0.000) were shown to be associated with QoL and constipation showed no association with QoL .

Symptom scales like fatigue, nausea and vomiting, sleep disturbance, and diarrhea were omitted in the multivariate analysis.

Table 6 .Associations between symptom scales and quality of life of cancer patients BLSRH, Addis Ababa Ethiopia, March15–April 15, 2016

Variables	Quality of Life		Adjusted OR		
	Not affected (%)	Affected (%)	AOR(95% CI)	P	
Pain	No	52(54.2)	24(23.1)	0.102(0.042-0.252)	0.000*
	Yes	44(45.8)	80(76.9)		
Dyspnea	No	76(79.2)	64(61.5)	0.181(0.058-0.566)	0.003*
	Yes	20(20.8)	40(38.5)		
Appetite loss	No	60(62.5)	28(26.9)	0.147(0.065-0.329)	0.000*
	Yes	36(37.5)	76(73.1)		
Constipation	No	76(79.2)	68(65.1)	1.426(0.511-3.974)	0.498
	Yes	20(20.8)	36(34.6)		
Financial Impact	No	56(58.3)	32(30.8)	0.108(0.043-0.273)	0.000*
	Yes	40(40.7)	72(69.2)		

*Significant association

CHAPTER SIX: DISCUSSION

QoL refers to "global well-being," including physical, emotional, mental, social, and behavioral components. In the last few years, a number of informative and valid QoL tools have become available to measure health-related QoL (71). The most widely applicable instrument to measure the QoL in cancer patients is the EORTC QLQ-C30. Using this method, the current study assessed the QoL in cancer patients undergoing CT. Several studies also support these findings on the influence of CT on good or adequate QoL among the cancer patients undergoing CT.

There has been little quantitative and qualitative assessment of QoL of cancer patients in African context including Ethiopia. Assessing QoL dimensions in which cancer patients are lacking is of a remarkable impact in cancer care. This study has tried to address this issue. It has analyzed self-reported QoL of cancer patients in relation to different clinical and socio demographic factors and functional and symptom scales using EORTC-C30 core questionnaire.

The EORTC QLQ-C30 is an integrated system for assessing the QoL of cancer patients participating in clinical trials and other types of research in which patient-reported outcomes are collected. The EORTC QLQ-C30 is designed for use with a wide range of cancer patient populations. The psychometric properties of the questionnaire were tested, and it was found to possess the required standards such as validity, reliability and sensitivity (68). The questionnaire was initially tested in a population of lung cancer patients and subsequently in a variety of cancer patient groups. The Amharic translation was used after repeated forward and backward translations of the questionnaire.

This study like a study done in Iran Tehran hospital (10) showed no correlation between the QoL and variables such as age, marital status, duration of disease (10). Similarly a study done in Athens Hospital, Greece (72) showed marital status, and educational level had no influence on the subjective health condition of the patients. Similarly another study in Iran showed none of the demographic variables (age, education, marital status, and income) was significantly related to QoL (10).

As opposed to these studies, different studies (73,74, 75 and 76) showed associations with socio-demographic differences like educational level, and marital status with QoL. A study conducted at the outpatient and inpatient Oncology Clinics of the Lutfi Kirdar Teaching and Research Hospital in Istanbul, Turkey (73) showed that socio-demographic factors rather than cancer-related factors could contribute to poorer QoL in which age and educational level were associated with particular domains of QoL. Elderly subjects reported lower QoL in all sub-dimensions (73).

In this study, among clinical parameters, stage during diagnosis showed association at stage I, stage IIa ,stage II b but no association showed at stage III.Cycle of chemotherapy showed significant association in the first of chemotherapy were more likely to have affected QoL, but no association were noted between QoL and the second, fourth, fifth and sixth cycle of CT .Also no association noted that time since diagnosis, and type of cancer. This finding is similar with a study conducted in Shahid Ghazi Tabatabaei University Hospital (77) which showed no significant correlation between QoL and the type of cancer diagnosis. Similarly study done in Iran (73) showed duration of the disease and type of cancer, presence of metastasis had no effect on QoL which is similar with this study. Cancer patients who started chemotherapy and were in the first cycle of CT ($p=0.001$) showed association with affected QoL which has some similarity with other studies that showed significant difference between the level of QoL in patients with < 2 CT cycles and/or with 3–5 cycles ($p< 0.001$) (10).

Each of the 15 scale scores of the EORTC QLQ-C30 were analyzed and different dimensions of these scores obtained lower scores. These scale scores were calculated by averaging items within scales and transforming average scores linearly. All of the scales ranged in score from 0 to 100. A high score for a functional scale represents a high/healthy level of functioning whereas a high score for a symptom scale or item represents a high level of problems and all interpretations were done based on this assumption.

The QoL results from this study indicate lower role, physical and social functioning than, cognitive, and emotional functioning. Cognitive functioning had a mean of 77.02(SD=24.30), emotional functioning had a mean of 79.46 (SD=24.85), physical functioning had a mean of 68.18(SD=25.21), social functioning had a mean of 64.42(SD=28.77), role functioning had a mean of 61.54(SD=30.50), , and. The mean of global health status was 66.04(SD=17.22) which

is better than with EORTC (79), relatively similar the study in Sweden (78) and much better than a study in Tanzania (80) with means of 61.3, 63.69 and 49.5, respectively.

In this study, the majority of the patients (38%) who had completed 4 or more cycles of CT reported a good QoL (Table 4). This may show that QoL is directly related to cancer treatment procedure, i.e. CT. The results are consistent with other studies. For instance, Chen et al. found that QoL in lung cancer patients during the fourth cycles of CT improved slightly over the baseline values; the patients perceived more sleep disturbances during the early cycles of CT(81).(14) Similar results have been found in patients suffering from advanced cancer by Mystakidou and from breast cancer by Fortner (82,83).

The findings from this study concerning symptom scales were lower in most aspects from other studies (71,79,80 and 84), except for pain, insomnia and appetite in which Tanzanians (80) suffer more pain and sleep problems than the subjects of this study. On the other hand, the Iranians (84) complained of more nausea and vomiting and diarrhea.

In this study, financial difficulties, pain, fatigue, appetite, and sleeping disturbance had the highest scores, and diarrhea had the lowest score. Financial difficulties had a mean of 42.38(SD=28.96), pain had a mean of 39.32(SD=26.49), fatigue had a mean of 37.72 (SD =26.20), appetite 31.02(SD=28.13), sleeping disturbance 24.60(28.24) and the mean of diarrhea was 3.34 (SD =13.82). As opposed to the findings of this study in which financial impact is of the most affected, a study done in Sweden (71) showed financial difficulties as least affected with a mean 6.54 (SD= 17.31). This difference may be related to differences in economic status of Ethiopia and Sweden.

Chemotherapy itself, cause symptoms in the patients of this study, as pain, fatigue, insomnia and loss of appetite.

In general, disparities between results of this study and other previous studies (71,79, 80 and 84) can be related to the age of the subjects, the size of the sample, difference in recruited group of patients with different types and stages of cancer, and cultural factors.

Cancer patients in Ethiopia who visited BLSRH report different effects related with cancer. Those survey patients report a low level of quality of life, a high level of symptoms, and a large number of unmet needs like emotional support and respected care, financial support and pain relief. Access to the health care specifically to a chemotherapy services was also raised.

Being a cancer patient was associated with a high level of impairment in different aspects of life. Therefore it needs to be considered that QoL assessments should be included in patient treatment protocols.

CHAPTER SEVEN: STRENGTH AND LIMITATION OF THE STUDY

7.1. Strength of the study

This study apply a standardized interview by using European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QOL C-30) to measure Quality of life (QoL) in adult cancer patients undertaking chemotherapy in Black Lion Specialized Referral Hospital which in turn increase the quality of information obtained.

7.2. Limitation of the study

-) Due to the absence of adequate similar studies in our country, comparisons were difficult.
-) Due to shortage of budget, limitation of resource and time constraints this study did not include qualitative design.

CHAPTER EIGHT: CONCLUSION AND RECOMMENDATION

8.1. Conclusion

In this study the cognitive, physical and role domain of QoL were the least affected, while the social and emotional functional domains were the most badly affected. In the symptom domain of QoL fatigue, nausea and vomiting, constipation and diarrhea were the least affected but pain, loss of appetite, dysnea, and financial domain the most affected QoL in adult cancer patients undertaking chemotherapy. Also the study showed that QoL improvement in patients took four and more chemotherapy.

Cancer is an important health issue influencing QoL. An appropriate treatment which may provide care to the cancer patients is CT. The obtained results here indicate a strong correlation between QoL and number of CT cycles in cancer patients.

In conclusion the present study identified many demographic and disease related factors which may contribute affecting the quality of life of cancer patients..

A better health-related QoL in cancer patients with incurable disease is an important outcome of cancer therapy, especially when survival is prolonged. The symptoms scores showed effect on patients with cancer it is therefore, the need for management of cancer-related symptoms such as appetite loss and sleeping disturbance during the active treatment regimens. There is also cancer has pain and it should be properly managed. Majority of the patients reported of financial, social and physical problem. Hence economic, social and physical support to the patients, especially subsidization in treatment is essential for improving their quality of life.

8.2. Implication of this study in nursing

The study finding imply that loss of appetite, sleeping disturbance, pain is the most predominant symptom affecting QOL and was found to be affecting all the cancer patients. Hence this finding emphasizes the need for better management of cancer-related appetite loss, sleeping disturbance during the active treatment regimens (chemotherapy) and also proper pain management should be included in the protocol.

The study findings can be used by all the health care providers for providing care to the people with cancer, as the findings will help to improve the knowledge about areas needing more focus for improving the quality of life of cancer patients.

8.3. Recommendation

The symptoms scores showed effect on patients with cancer it is therefore, recommended that the need for better management of cancer-related symptoms and improve quality of life of patients the following recommendations are suggested.

To: Patients

Have a regular follow up for their treatment and take appropriate management as per the health care provider .And be cooperative and supportive in minimizing risk factors which affect the quality of life.

The health professionals, especially nurses

The nurse can better understand and evaluate the HRQL of patients with cancer, to better evaluate the changes occurred in the HRQL in the course of time, and also to modify the factors associated to these changes and the possible intervention which face their reduction or control.

It is asserted that it is critical that nurses and other health team members adopt, in the care of cancer patients, a broader view on the feelings emerged towards the disease, their consequences and the results achieved in the rehabilitation process.

Ministry of health

- Design a strategy focused on early detection of factors which are affecting quality of life for adult cancer patients.
- Generate accessible, affordable and available care for cancer patients.
- Educating health care providers about associated factors that affected the quality of life of patients during chemotherapy.

Other researchers

- 🌈 Future studies will be important to better identify risk factors for affecting quality of life of a cancer patient by design qualitative study to get new information based on the individual feeling because of quality of life is a subjective concept.
- 🌈 Similar studies should be conducted in various setting (both similar and different settings) to come up with more representative findings, which will be helpful in designing interventional activities targeted at improving quality of life of cancer patients who are under chemotherapy.

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ANNEXES

Annex I: English version information sheet and consent form

Addis Ababa University

College of health sciences

Department of nursing and midwifery

1. Subject information sheet

Here, I the undersigned at Addis Ababa University College of health sciences Department of nursing and midwifery, Graduate program studies, currently I will be undertaking research on a topic entitled assessment of factors associated with quality of life in adult cancer patients who are under taking chemotherapy in black lion specialized referral hospital ,Addis Ababa.

For this study, you will be selected as a participant and before getting your consent or permission of your participation, you need to know all necessary information related to the study. Thus, this information will be detailed as;

Objective: To assess the quality of life of cancer patient who are under taking chemotherapy.

Significance of the study: The study will assess association factors of quality of life in cancer patients. It can be used as an input for stakeholders and concerned bodies (government and non-government organizations) that work in cancer patients. It will be used as a base line data for those who are interested to conduct researches in similar issues. This study will also have a significant input in the formulation of appropriate strategies in order to improve quality of life for cancer patients.

Participants to be included: Any cancer patients who are under chemotherapy during the study period.

Confidentiality: All information you give will be kept confidential and won't be accessible to any third party. Your name won't be registered on the question sheet so that you will not be identified.

Risk and benefits of the study

Risk: The study will be carried out simply by asking you, already prepared and structured questions. The procedure doesn't bear any physical or psychological trauma. Furthermore, you will not be forced to respond to the information you do not know.

Benefits: For your participation in the study no payment will be granted or you have no special privilege to you. But, participating in the study and giving your information to questions asked will have great input in assessing association factors of quality of life in cancer patients.

Consent: your participation is totally based on your willingness. You have the right not to participate from the beginning, or stop any time after starting participation. You will not be forced to respond to the information you do not know.

Name of principal investigator: Asselefech Negewo Seriti

Date:

Signature _____

Address of PI: [Tel:0911183277](tel:0911183277)

Mail: assenege@yahoo.com

2. Consent form

I the undersigned have been informed that the interview is to gather information about assessment of factors associated with quality of life in cancer patients who are under taking chemotherapy. The result of the study will help to identified association factors of quality of life in cancer patients and help the government and health facilities involved in the service provision to improve the quality of life in cancer patients who are under chemotherapy.

I also agree about the confidentiality of the responses to be at a higher possible level.

Signature of participant: _____

Date: _____

Name and signature of data collector: _____

Annex II: English version Questionnaire

1. Socio-demographic data and clinical information.

1. What is your gender?
2. What is your age?
3. What is your marital status?
4. What is your ethnicity?
5. What is your religion?
6. What is your primary cancer diagnosis?
7. How much time since diagnosis?
8. What is your disease stage during diagnosis?
9. How much no of chemotherapy do you have given?

2. EORTC QLQ-C30 (version 3.0)

We are interested in some things about you and your health. Please answer all of the questions yourself by circling the number that best applies to you. There are no "right" or "wrong" answers. The information that you provide will remain strictly confidential.

Please fill in your initials: _____

Your birth date (Day, Month, Year): _____

Today's date (Day, Month, Year): _____

	Not at All	A Little	Quite a Bit	Very Much
1. Do you have any trouble doing strenuous activities? Like carrying a heavy shopping bag or a suitcase?	1	2	3	4
2. Do you have any trouble taking a long walk?	1	2	3	4
3. Do you have any trouble taking a short Walk outside of the house?	1	2	3	4
4. Do you need to stay in bed or a chair during the day?	1	2	3	4
5. Do you need help with eating, dressing, washing Your-self or using the toilet?	1	2	3	4

During the past week:

	Not at All	A Little	Quite a Bit	Very Much
6. Were you limited in doing either your work or other daily activities?	1	2	3	4
7. Were you limited in pursuing your hobbies or other leisure time activities?	1	2	3	4
8. Were you short of breath?	1	2	3	4
9. Have you had pain?	1	2	3	4
10. Did you need to rest?	1	2	3	4
11. Have you had trouble sleeping?	1	2	3	4
12. Have you felt weak?	1	2	3	4
13. Have you lacked appetite?	1	2	3	4
14. Have you felt nauseated?	1	2	3	4

15. Have you vomited? 1 2 3 4
16. Have you been constipated? 1 2 3 4

Please go on to the next page

During the past week:

- | | Not at
All | A
Little | Quite
a Bit | Very
Much |
|---|---------------|-------------|----------------|--------------|
| 17. Have you had diarrhea? | 1 | 2 | 3 | 4 |
| 18. Were you tired? | 1 | 2 | 3 | 4 |
| 19. Did pain interfere with your daily activities? | 1 | 2 | 3 | 4 |
| 20. Have you had difficulty in concentrating on things,
like reading a newspaper or watching television? | 1 | 2 | 3 | 4 |
| 21. Did you feel tense? | 1 | 2 | 3 | 4 |
| 22. Did you worry? | 1 | 2 | 3 | 4 |
| 23. Did you feel irritable? | 1 | 2 | 3 | 4 |
| 24. Did you feel depressed? | 1 | 2 | 3 | 4 |
| 25. Have you had difficulty remembering things? | 1 | 2 | 3 | 4 |
| 26. Has your physical condition or medical treatment
interfered with your family life? | 1 | 2 | 3 | 4 |
| 27. Has your physical condition or medical treatment
interfered with your social activities? | 1 | 2 | 3 | 4 |
| 28. Has your physical condition or medical treatment
caused you financial difficulties? | 1 | 2 | 3 | 4 |

For the following questions please circle the number between 1 and 7 that best applies to you

29. How would you rate your overall health during the past week?

1 2 3 4 5 6 7

Very poor Excellent

30. How would you rate your overall quality of life during the past week?

1 2 3 4 5 6 7

Very poor Excellent

Annex III: Amharic version information sheet and consent form

አዲስ አበባ ዩኒቨርሲቲ

የህክምና ት/ቤት

የነርቪንግና አዋላጅ ነርስ ት/ት ክፍል

ጥናታዊ የመረጃ መሰብሰቢያ ቅጽ

1. የጥናቱ ተሳታፊዎች የመረጃ ቅጽ

የጥናቱ ርዕስ: በአዋቂ የካንሰር ህመማን የጸረ-ካንሰር ህክምና በመወሰድ ላይ ያሉ ህመማን የካንሰር ህመም በህመማኑ የኑሮ ሁኔታ ላይ የሚያስከትለውን ተጽእኖ ዳሰሳ በጥቁር አንበሳ አጠቃላይ ሪፈራል ሆስፒታል።

የጥናቱ አላማ: የዚህ ጥናት ዋና አላማ የካንሰር ህመም በህመማኑ የኑሮ ሁኔታ ላይ የሚያስከትለውን ችግር/ተጽእኖ ለማወቅ ነው። ይህን መሰረት በማድረግ ህመማን የጸረ-ካንሰር ህክምና በሚወስዱበት ወቅት የኑሮ ሁኔታን የሚያወኩ ችግሮችን በመረዳት አፋጣኝ እርምጃ መወሰድ እንዲያስችል አጋዥ የሆኑ ስልቶችን/አሰራሮችን ለመቀየስ የሚጠቅም መረጃ ለማግኘት ነው።

ሊደርስ የሚችል አደጋ: በዚህ ጥናት ውስጥ አደጋ የሚያደርስ ድርጊት የለም።

የሚገኝበት ጥቅም: በዚህ ጥናት ውስጥ የሚሳተፉ የካንሰር ህመማን የተለየ ጥቅም አያገኙም።

ሚስጥራዊነት: ማንኛውም የጥናቱ ተሳታፊዎች መረጃ በሚስጥራዊነት ይያዛል። የያንዳንዱ ግለሰብ መረጃ ከዋናው ተመራማሪ እና አማካሪ በስተቀር ማንም ሊያገኝ አይችልም።

ፈቃደኝነት ስለማቀረጥ: የጥናቱ ተሳታፊዎች መረጃን ያለመስጠት፣ በጥናቱ ለመሳተፍ ፈቃደኝነት የማየት እንዲሁም ናሙና ያለመስጠት መብታቸው የተጠበቀነው።

ለማንኛውም ጥያቄ አድራሻ ማወቅ ካስፈለግዎ

የጤና ሳይንስ ኮሌጅ ህክምና ፋኩሊቲ፣ አዲስ አበባ ዩኒቨርሲቲ

የድህረ ምረቃ ፕሮግራምና ምርምር የተባባሪ ቢሮ።

የመ.ሳ.ቁ 9086

አዲስ አበባ ስ.ቁ +2511155128765

የዋናው ተመራማሪ አድራሻ :-

በአዲስ አበባ ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ በአዋቂ ጤና የድህረ ምረቃ ትምህርት ክፍል

ስልክ 0911183277

2.የስምምነት ቅጽ

እኔ ከዚህ በታች ስሜ የተገለፀውና የፈረምኩ ግለሰብ የሰጠሁት ቃለምልልስ በጥቁር አንበሳ አጠቃላይ ሪፈራል ሆስፒታል በካንሰር ህመማን ላይ የጸረ- ካንሰር ህክምና በሚወስዱ ስለ ኑሮአቸው ሁኔታ በተመለከተ መረጃ ለመሰብሰብ ሲሆን የጥናቱ ወጤትም የመንግስትንና በዘርፉ የተሰማሩ ተቋማትን የአገልግሎት ጥራትን ለማሻሻል የሚረዳ ነው።

በተጨማሪ የሰጠሁት መረጃ ሚስጥራዊነቱ ፈጽሞ የተጠበቀ እንደሚሆን ተነግሮኝ ተስማምቻለሁ።

መረጃውን የሰጠው ሰው ፊርማ _____

መረጃው የተሰበሰበበት ቀን _____

መረጃውን የሰበሰበው ሰው ስምና ፊርማ _____

Annex IV: Amharic version questioner

1.የተጠያቂው አጠቃላይ የማህበራዊና ህክምና መረጃ የተመለከተ መጠይቅ

1.ጾታዎ ምንድነው?

2.እድሜዎ ስንት ነው?

3.የጋብቻ ህኔታ ምንድን ነው?

4.ብሄርዎ ምንድን ነው?

5.ሀይማኖትዎ ምንድን ነው?

6.በሽታዎ ከታወቀ ምንያህል ጊዜ ሆነው?

7. በሽታዎ ሲታወቅ ምን ደረጃ ላይ ነበር?

8. ምንያህል ዙር የጸረ-ካንሰር መድሃኒት ወስደዋል?

2. በጥቁር አንበሳ አጠቃላይ ሪፈራል ሆስፒታል በ ካንሰር ህመማን ላይ የጸረ- ካንሰር ህክማና በሚወስዱ ስለ ኑሮአቸው ሁኔታ በተመለከተ መረጃ የሚሰጥ መጠይቅ

ዛሬ ቀን (ቀን/ወር/አመተ ምህረት)-----/-----/-----

1.ከባድ ስራ ሲሰሩ ይቸገራሉ?	የለም	በመጠኑ	አለ	በጣም አለ
(ከባድ እቃ ወይም ቦርሳ)	1	2	3	4
2.ረጅም የእግር መንገድ ሲሄዱ ይቸገራሉ?	1	2	3	4
3.አጭር የእግር መንገድ ሲሄዱ ይቸገራሉ?	1	2	3	4
4.በቀን አልጋ ላይ ወይም ወንበር ላይ ማረፍ ይፈልጋሉ?	1	2	3	4
5.ሲመገቡ፣ ሲለብሱ፣ ሲታጠቡ ወይም መጸዳጃ ቤት ሲሄዱ የሰው እርዳታ ይፈልጋሉ?	1	2	3	4
ባለፈው ሳምንት ውስጥ:				
6.የእለት ስራዎን ለመስራት ተቸግረው ነበር?	1	2	3	4
7.በመዘናኛ ወይም በትርፍ ጊዜ የሚሰሩትን ለማድረግ ተቸግረው ነበር?	1	2	3	4
8.የትንፋቸሽ ማጠር ገጥሞት ነበር?	1	2	3	4
9.ህመም ነበረዎት?	1	2	3	4
10.ማረፍ ፈልገው ነበር?	1	2	3	4
11.የእንቅልፍ ችግር ነበረት?	1	2	3	4
12.የሰውነት መዛል ነበረት?	1	2	3	4
13.የምግብ ፍላጎት ችግር ነበረት?	1	2	3	4
14.የማቅለሽለሽ ስሜት ነበረት?	1	2	3	4
15.ማስመለስ ነበረት?	1	2	3	4
16.የሆድ ድርቀት ነበረት?	1	2	3	4
17.ተቅማት ነበረት?	1	2	3	4

Annex V: EORTC QLQ-C30 Scoring Sheet

Physical functioning (PF) = $(Q1+Q2+Q3+Q4+Q5)/5$

Linear transformation to convert to a 0 to 100 scale (XPF) = $100 - [(PF-1) \times 100/3]$

Role functioning (RF) = $(Q6+Q7)/2$

Linear transformation to convert to a 0 to 100 scale (XRF) = $100 - [(RF-1) \times 100/3]$

Emotional functioning (EF) = $(Q21+Q22+Q23+Q24)/4$

Linear transformation to convert to a 0 to 100 scale (XEF) = $100 - [(EF-1) \times 100/3]$

Cognitive functioning (CF) = $(Q20+Q25)/2$

Linear transformation to convert to a 0 to 100 scale (XCF) = $100 - [(CF-1) \times 100/3]$

Social functioning (SF) = $(Q26+Q27)/2$

Linear transformation to convert to a 0 to 100 scale (XSF) = $100 - [(SF-1) \times 100/3]$

Quality of Life (QL) = $(Q29+Q30)/2$

Linear transformation to convert to a 0 to 100 scale (XQL) = $(QL-1) \times 100/6$

Fatigue (FA) = $(Q10+Q12+Q18)/3$

Linear transformation to convert to a 0 to 100 scale (XFA) = $(FA-1) \times 100/3$

Nausea and Vomiting (NV) = $(Q14+Q15)/2$

Linear transformation to convert to a 0 to 100 scale (XNV) = $(NV-1) \times 100/3$

Pain (PA) = $(Q9+Q19)/2$

Linear transformation to convert to a 0 to 100 scale (XPA) = $(PA-1) \times 100/3$

The remaining questions are single items and are also converted to a 0-100 scale

Dyspnoea (Q8=DY) Linear transformation (XDY) = $(DY-1) \times 100/3$

Sleep Disturbance (Q11=SL) Linear transformation (XSL) = $(SL-1) \times 100/3$

Appetite loss (Q13=AP) Linear transformation (XAP) = $(AP-1) \times 100/3$

Constipation (Q16=CO) Linear transformation (XCO) = $(CO-1) \times 100/3$

Diarrhoea (Q17=DI) Linear transformation (XDI) = $(DI-1) \times 100/3$

Financial Difficulty (Q28=FI) Linear transformation (XFI) = $(FI-1) \times 100/3$

Annex VI: Dyspnea and Pain rating scale.

A. Numeric rating scale as a measure of clinical dyspnea

On a scale from 0-10

With 0=no shortness of breath

And 10=shortness of breath as bad as can be

0 1 2 3 4 5 6 7 8 9 10

B. Pain Numeric Rating Scale

0 1 2 3 4 5 6 7 8 9 10

No pain

sever pain



**Addis Ababa University
College of Health Sciences
Institutional Review Board**

Study Assessment Form

SOP # AAUMF 008
Version 2.0
Effective date: 1 Feb
2009
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ANNEX 2
Form AAUMF 02-008

Assessment Report & Decision

Review Date (D/M/Y): 03/02/2016 Protocol number: 099/AAUMF

Protocol Title : Protocol Title : Factors associated with quality of life in adult cancer patients who are undertaking chemotherapy in Black Lion Specialized Hospital, Addis Ababa, Ethiopia

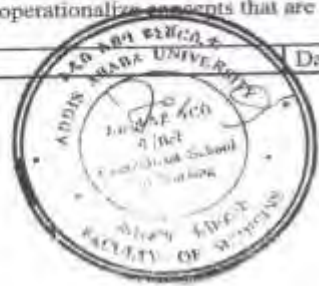
Principal Investigator:	Asseftech Negewo
Institute:	AAU-CHS-Department of Nursing & Midwifery
Elements Reviewed (AAUMF 01-008)	<input checked="" type="checkbox"/> Attached <input type="checkbox"/> Not attached
Review of Revised Application <input type="checkbox"/> Yes <input type="checkbox"/> No	Date of Previous review: 22/01/2016

DECISION : Approved Approved with Recommendation
 Resubmission Disapproved

Comment: Previously given but accommodated

- Rephrase the title
- Explain whether the concepts in the Conceptual framework will all be addressed in EORTCQoLQV-3
- Explain the tool for this research data collection ; EORTCQoLQV-3
- Explain where the CFW came from? Of if developed by the researcher, how it was developed?
- Consider design adjustment(qualitative)
- Consider whether adequate number of patient could be available during the study period/ else could demand an extended period
- Critically look into the inclusion and exclusion criteria
- Revise the sampling procedure
- Clearly operationalize concepts that are going to be measured

Signature : _____ Date: 04/02/2016



Annex VIII: Bibliography of principal investigator

1 .personal information

Name: Asselefech Negewo

Sex: F

Date of birth: Nov17,1976

Place of birth: Gondar

Nationality: Ethiopian

Marital status: Married

Religion: orthodox

Address: Mobil:0911183277

Education background

Field of study	University	Years to complete	Awarded qualification
Nursing	Jima health science	1995/96-1996/97	Diploma
Nursing	AAU	2008/9-2010/11	Degree
computer	Grace computer learning center	Jun17-sep172002	Diploma
Management information system	Unity university	2002/3-2007/8	Degree

High- School

❖ **Year 1992/93-1995/96** :Tewodrose high school(grade 9-12)

❖ **Year 1998/99-1990/91** :Tewodrose Junior secondary school(7-8)

Elementary

❖ Tabore elementary School Debretabor (grade1-6)

2. Working experience and Organization

Fifty years in black lion specialized referral hospital.

3. Short term trainings

S no	Training title	Trainer organization	Training place	Training year(e.c)
1	National comprehensive HIV care/ART	AAU March project	Addis Ababa	Sep19-oct7,2011
2	PMTCT	Johns Hopkins University	Addis Ababa	March23-28,2009

3	Maternal and child health/family planning organized	Family Guidance Association of Ethiopia	Addis Ababa	May 1-291998
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4. Language and computer skills

Language	Speaking	Listening	Reading	Writing
Amharic	Excellent	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent	Excellent
computer	Word		Excel	
	Excellent		Excellent	

5. Hobbies and Interest

-) Participating in the community health service.
-) Reading religious books and other fictions.
-) To see historical areas.

6. References

1. Miss Tsehi Yeman (MA) Personal in AAU HRM division.

Address :tel (office):0111-22-36-69

Mobile:0911-10-88-57

2. Sr Mesert meshesha (Bsc) OR coordinator in black lion specialized referral hospital.

Address: tel (office):011551-12-11

Mobile: 0911-68-07-71

Annex IX: SIGNED DECLARATION

I THE UNDERSIGNED DECLARE THAT THIS MSN THESIS IS MY ORIGINAL WORK AND HAS NOT BEEN PRESENTED FOR A DEGREE IN THIS OR OTHER UNIVERSITY AND THAT ALL SOURCES OF MATERIALS USED FOR THIS THESIS HAVE BEEN DUAL ACKNOWLEDGED.

NAME: ASSELEFECH NEGEWO SERITI (BScN,BScMIS, MScN candidates)

SIGNATURE: -----

PLACE: ADDIS ABABA UNIVERSITY

DATE OF SUBMISSION -----

THIS THESIS HAS BEEN SUBMITTED FOR EXAMINATION WITH MY APPROVAL AS THE UNIVERSITY ADVISOR.

NAME OF THE ADVISOR: ASRAT DEMISSE (RN, BSCN, MScN.Assistant professor)

SIGNATURE _____

DATE _____

