ASSESSMENT OF QUALITY OF LIFE OF CANCER PATIENTS UNDERGOING CHEMOTHERAPY IN A SELECTED DISTRICT HOSPITAL IN RWANDA

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By

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June 2017
DECLARATION

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DECLARATION AND AUTHORITY TO SUBMIT THE DISSERTATION

Surname and First Name of the Student
UWAMAHORO Pauline
Title of the project
ASSESSMENT OF QUALITY OF LIFE OF CANCER PATIENTS UNDERGOING CHEMOTHERAPY IN A SELECTED DISTRICT HOSPITAL IN RWANDA

a. Declaration by the Student

I do hereby declare that this dissertation submitted in partial fulfillment of the requirements for the degree of MASTERS OF SCIENCE in NURSING, at the University of Rwanda/College of Medicine and Health Sciences, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

Date and Signature of the Student

UWAMAHORO Pauline  
August 2017

b. Authority to Submit the dissertation

Surname and First Name of the Supervisor

Dr. MUKESHIMANA Madeleine  
August 2017

In my capacity as a Supervisor, I do hereby authorize the student to submit his/her dissertation.
DEDICATION

I dedicate this research to:

The almighty God,

My parents,

My husband and children,

My sisters and brother,

My lecturers,

My supervisors,

My friends and my colleagues.
ACKNOWLEDGEMENTS

First, I wish to give praise to the almighty GOD, the source of my strength, without whom neither this thesis nor I would have been conceived.

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LIST OF ACRONYMS AND ABBREVIATIONS

CD: Compact Disk

CMHS: College of Medicine and Health Sciences

EORTC: European Organization for Research and Treatment of Cancer

HC: Health center

IRB: Internal Review Board

SD: Standard Deviation

SoNM: School of Nursery and Midwifery

SPSS: Statistical Package for Social Science Software

QOL: Quality of Life

UR: University of Rwanda

WHO: World Health Organization
ABSTRACT

Introduction & Background: Quality of life is the most important patient outcome among patients living with cancer. Quality of life helps in measuring nursing and medical interventions and also provides useful information concerning patients’ preferences, prognosis, unpleasant effects of cancer therapy. Previous research revealed that there is a decrease in quality of life and impact on physiological and psychological functioning of the cancer patients undergoing chemotherapy. This study is aimed at assessing the quality of life of cancer patients undergoing chemotherapy in a selected district hospital in Rwanda. To achieve this, the researcher assessed the quality of life of cancer patients undergoing chemotherapy in selected Hospital basing on level of functional scale, symptoms scale and global health status/QoL scale.

Methods: This study was conducted at Butaro hospital. A quantitative cross-sectional descriptive design was used. 73 cancer patients who met inclusion criteria participated in the study. The QoL-Core 30 vision 3.0 which is a self-administered questionnaire has been used to collect data and adapted to the setting. Data was coded and entered into SPSS version 20 for analysis. Descriptive statistics were calculated and results presented in the tables.

Results: The results indicated that the score of global health status/QoL scale was low with transformed score mean and SD of 28.76(SD=20.03), and score of symptoms scale was high 61.1(SD=17.10); these findings indicated low quality of life in our participants. However the score of functional scale was 51.55(SD=19.12) which indicated good quality of life.

Conclusion: Qol scoring system showed that the quality of life of those patients was seriously impaired whereby majority of them reported financial difficulties, fatigue, pain, loss of appetite, insomnia and constipation. Those symptoms worsen the quality of life and this cause negative perception about chemotherapy. The researcher recommends further researchers to assess the effects of social demographic factors on quality of life.
CHAPTER ONE: INTRODUCTION

1.1. Introduction

Cancer is defined as a result of the uncontrollable tissue cells growth, cancerous growth based on carcinogenesis where genetic mutation cause progressive alterations of normal cells to malignant cells, characterized by both cancer cells and tumors "the hallmarks" of cancer (Rakoff, 2006 Pg123).

The quality of life is a concept that assesses individual holistically including physical, psychological, social, and spiritual. QOL was defined by Üstündag,(2015 ) as ability of patients 'social(social activities ,body image, beneficial ,depression and anxiety),physical (ability to perform activity of daily living, physical activities ,able to succeed family responsibilities and movement ),psychological (life satisfaction, social support need and role function) and spiritual (hope ,suffering) for individual health.

The long-term cancer survivors mostly face harms with social and emotional support, healthy life style, thespiritual, dreamy vision of life, and body image concerns (Damodar et al., 2014 ).
1.2. Background

Cancer is one leading cause of morbidity and mortality worldwide. In 2012, cancer rose to an estimated cancer reported approximately 14 million new cases per year. Within the next dedicate, this figure is projected to rise to 22 million annually. 8.2 million cancer-related death annually are expected to rise to 13 million. Worldwide, the main causes of cancer death were lung (1.6 million, 19.4% of the total), liver (0.8 million, 9.1%) and stomach (0.7 million, 8.8%). The most common cancer diagnosed in 2012 were those of lung cancer (1.8 million cases, 13.0% of the total), breast (1.7 million, 11.9%), and large bowel (1.4 million, 9.7%). Total cases in Africa, Central and South America, Asia are more that 60% of the world's. These regions account for 70% of world's cancer deaths, a condition that is worsened by the lack of early detection and access to treatment (World Cancer Report, 2014). According to Globocan estimates in 2012, 8,263 new cases of cancer and 6,181 cancer related deaths were registered in Rwanda.

Chemotherapy has different side effect which affect the quality of life such as suppression of the bone marrow, nausea, and vomiting, infertility, neurotoxicity, pulmonary toxicity, heart toxicity, renal toxicity and gonad lesions, it is very important to teach patients about the management of those side effects of chemotherapy (Sawuda, 2009). It was expected that one third of patients would abandon chemotherapy early due to these different side effect experienced during the course of treatment (Newell et al. 1999).

According to Brunault et al., (2015) the concept of quality of life, which refers to the patient's health assessment, has become an important outcome measurement in clinical trials (along with morbidity and mortality) because it assesses patient's health and prognostic features.

As noted by (Üstündag, 2015) cancer patients experience some psychological troubles including stress, anxiety and hopelessness; some physiological problems like nausea and vomiting alopecia, pain, and fatigue. Some social problems like social isolation, responsibility and job loss affect their quality of life.
The term quality of life (QoL) is a good instrument used to evaluate the general wellbeing of individuals and societies.

"quality of life is defined as individual perceptions of his or her position in life in the context of culture and value systems in which he/she lives ,and in relation to objectives, interests, expectations, standards and concerns, that's the reason why evaluation of quality of life among cancer patients is a critical issue and very important outcome"(Tadele,2015 Pg 54).

Equally, Üstündag, (2015) defined the quality of life as ability of patients 'social(social activities ,body image, being beneficial, depression and anxiety),physical (ability to perform activity of daily living, physical activities, able to succeed family responsibilities and movement ), and psychological (life satisfaction, social support need and role function) and spiritual (hope, suffering) for individual well-being.

Therefore QoL is a vital outcome reported by the patients who are under cancer treatment; this implies that the measuring of QoL during diagnosis may also provide necessary information about patient’s needs, follow-up and prognosis. The follow-up measurement help patient’s recognition of the disease, it also helps in developing and copying mechanisms as well as tolerating unpleasant effects associated with cancer itself and cancer treatment.

The purpose of cancer therapy is not only to heal cancer and increase the survival but also to diminish or remove the symptoms which results in the improvement of the quality of life. The quality of life can be achieved through the psychological support and palliative care. When the quality of life improves patient adaptation and desire of treatment increase. In contrast when the quality of life is low, it decreases patient’ adaptation and consequently the patient can decline to continue the treatment (Üstündag, 2015).

In a study conducted by Binagwaho et al.,(2014), it was stated that Rwanda has greatly improved the health of its 11 million citizens since the catastrophic 1994 genocide against the Tutsi; Yet cancer care has been extremely limited as recently as 2012, with no oncologist, and merely only one hematopathologist, and three clinical pathologists based in the country.

In July 2012, Butaro cancer Center of Excellence was inaugurated by former US president Bill Clinton and the former minister of health Dr. Agnes Binagwaho (Tapela
et al 2016). This study is aimed to assess the quality of life of cancer patients undergoing chemotherapy at Butaro hospital.

1.3. Problem Statement

Cancer and its treatment are known to reduce the quality of life. It has been proven that a decreased quality of life has negative effects not only on physiological but also on the psychological functioning of the individual (Tadele 2015). Although chemotherapy can be one of the major ways to kill cancer cells that have metastasized to other parts of the body and help diagnosed cancer persons to live longer with a good quality of life; it can also have negative effects on health (El-sayed et al. 2011).

Chemotherapy is linked with physical symptoms as well as nausea, and vomiting, hair loss, fatigue, constipations, pain, difficulty of breathing, diarrhea, loss of appetite, difficulty of breathing and weight changes all those associated physical symptoms worsen quality of life of cancer patients (Newell et al. 1999). Also chemotherapy caused suppression of the bone marrow, infertility, neurotoxicity, pulmonary toxicity, heart toxicity, renal toxicity and gonad lesions, therefore it is very important to teach patients how to manage those side effects of chemotherapy (Sawuda 2009). A study done on assessment of symptoms in cancer patients undergoing chemotherapy in northern Greece involving 200 cancer patients reported that the most physical symptoms were diarrhea (46%), weight loss (52%), constipation (66.5%), difficulty sleeping (41%), change in way food tastes (68%), lack of energy (46%) and feeling nervous (52%) (Lavdaniti, 2015).

Since the inauguration of Butaro cancer center of excellence in January 2012, intended to improve the quality of life of cancer patients in Rwanda, there has been no study on the quality of life of cancer patients undergoing chemotherapy in Rwanda. This study was intended to assess QoL of cancer patients undergoing chemotherapy to improve cancer patient care for good quality of life.

1.4. Aim of the study

The aim of this study was to assess the quality of life of cancer patients undergoing chemotherapy at Butaro Hospital.
1.5. Specific Objective

- To determine the quality of life of cancer patients undergoing chemotherapy at Butaro hospital basing on the level of functional scales, symptoms scales and global health status/QoL scales.

1.6. Research Questions

- What is the quality of life of cancer patients undergoing chemotherapy at Butaro hospital basing on the level of functional scales, symptoms scales and global health status/QoL scales?

1.7. Significance

Nursing practice

We expect the findings of this study to raise awareness of the concept of QoL as well as its value among healthcare professionals in Rwanda. This will be evidence-based to facilitate all oncologist (nurses and physicians) during their clinical practice and planning health care of cancer patients.

The findings will also help in considering the quality of life as an outcome in the evaluation of medical and nursing interventions targeting cancer patients and will help in evaluation of effectiveness of treatment.

Nursing Research

The results found will be guidelines for future researchers and data base for further studies, also will be source of information for medical scientists, policy makers, health care providers, educators, researchers, health managers and other stakeholders writing or searching on the topics with aim of improving QoL among cancer patients.

Nursing education

These study findings may be used in education and elaboration of the curriculum. The findings will also contribute to the planning of the training for health care providers on better management of side effects of chemotherapy and improvement of quality of life of cancer patients.

Management
The findings of this study will raise awareness among decision makers on the gaps found in the overall quality of life of cancer patients undergoing chemotherapy.

1.8. Definition of Key Terms

**Quality of Life:** Quality of life is ability of patients' social (social activities, body image, being beneficial, depression and anxiety), physical (ability to perform activity of daily living, physical activities, able to succeed family responsibilities and movement), psychological (life satisfaction, social support need and role function) and spiritual (hope, suffering) for individual health (Üstündag, 2015).

**Chemotherapy:** Chemotherapy is defined as a drug which has the ability to disrupt the DNA of tumour cells, rendering them unable to replicate and finally killing them, with a befitting corollary: the higher the dose, the better and it has toxicity effect, that way this toxicity effect expressed at several organ sites, which not only diminishes quality of life for the patient but also conspires against a good resolution of the cancer treatment, adding more illness to the already existing one side effect of chemotherapy (Scharovsky et al., 2009 Pg 7).

**Cancer:** Cancer is defined as a result of the uncontrollable tissue cells growth, cancerous growth based on carcinogenesis where genetic mutation cause progressive alterations of normal cells to malignant cells, characterized by both cancer cells and tumors "the hallmarks" of cancer (Rakoff, 2006 Pg123).

**Global Health Scale for cancer patients:** Defined as the rate of overall health and overall quality of life on response scale of very poor (1) to excellent (7) (Aaronson et al., 1993).

1.9. Structure and organization of the study

Chapter one: Introduction
Chapter two: Literature review
Chapter three: Methodology
Chapter four: Result presentation
Chapter five: Discussion
Chapter Six: Conclusion and recommendations
CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

The literature review contains information from different resources Reviewed: articles, journals, books, hinari, google school, google search. The literature review for this study outlined the physical, symptoms, global health status of cancer patients undergoing chemotherapy and factors associated with overall quality of life of cancer patients undergoing chemotherapy, this was used in discussion of the results.

2.1.1. The symptoms experienced by cancer patients undergoing chemotherapy

Cancer is one of the leading causes of morbidity and mortality globally many symptoms experienced by cancer patients are related to the disease and it treatment affect negatively quality of life of individual well-being (Smita Khandelwal, et al. 2015). An individual being treated of cancer experience different side effect of cancer drugs impacting social, physiological and psychological well being (Wagland et al.; 2016).

According to Akin et al.,(2010) The majority of lung cancer patients experience numerous symptoms associated either to treatment side effects or to cancer itself. Most of symptoms experienced by cancer patients are nausea and vomiting, pain, distress, fatigue, anxiety, depression and stress. The presence of any or a combination of these side effects can affect a person’s well-being and a person’s perception of cancer therapy. This also affects the overall quality of life by impacting physiological and psychological well-being of the individual (Sawuda, 2009; Üstündag, 2015). In addition, cancer patients experience bone marrow, immuno-suppression, alopecia, renal toxicity, heart toxicity, pulmonary toxicity, neurotoxicity, gonadal lesions, infertility, chest pain, sickness, stomatitis, diarrhea, constipation, elevation of body temperature, weakness, dyspnea, dermatitis, neurosensory or motor problems, hemorrhage, bruising and extravasations (Theresa, 2015). In a study conducted among 268 cancer patients. It has been reported that the most prevalent psychological problem was trouble sleeping (58.2%) and the most common physical symptom was lack of energy (88.1%) and dry mouth (75%) (Lavdaniti, 2015). These symptoms may vary in time of period of suffering and can continue for a long period of time (Karabulu et al., 2010). Also being diagnosed with cancer is a very unlikable understanding for everyone and can cause economic, social,

On the contrary, cancer therapy is not only causing side effects but is also used to heal cancer and increase the survival. It also helps to diminish or remove the symptoms and improve the quality of life. This implies that when the quality of life improves, patients increase adaptation and the desire to complete treatment with decreasing harm. Patients are also able to manage the side effects of the treatment and overcome the symptoms; on the contrary a low quality of life decreases patients adaptation and cause the decline to the treatment (Üstündağ, 2015).

Based on the individual's quality of life, which is usually associated with different cancer characteristics. Some of those characteristics include fatigue, emotional and psychological problems, sickness disagreement, and cancer pain. Other characteristics of cancer include type of cancer, stage of cancer, early diagnosis, cancer pain, variables and demographic indicators of the patient, and health care provider's behaviors that may affect the QoL of patients with cancer (Amir Musarezaie et al., 2014).

2.1.2. The levels of function in regard to physical, role, cognitive, emotional, and social of cancer patients undergoing chemotherapy

According to Newell et al. (1999) Chemotherapy is linked with physical symptoms among others vomiting, nausea, hair loss, fatigue, constipations, pain, difficulties of breathing, diarrhea, loss of appetite, and weight changes, all those associated physical symptoms worsen the quality of life of cancer patients. "A study done about self-reported cognitive problems in women receiving adjuvant therapy for breast cancer among 142 women it was found that the majority of participants reported problems with their memory (71% overall at 6 months, 60% at 18 months) and concentration (64% and 42%, respectively) "(Shilling et al., 2007) VQOL measurement in oncology started in the 1940s, with a scale to evaluate the patient's physical function and condition of performance (Sawuda, 2009). Quality of life covers individual perceptions of different aspects of cancer patients which can be negative or positive. Those different aspects of cancer patients' symptoms can be emotional, physical, cognitive functions and social. They might be, also side effects of the treatment (Bottomley, 2002).
various aspects of patients' quality of life are reduced including daily living activities and physical functioning are diminished, their relationship with others, social activities and family relationships normally get worse. It has been revealed that financial problems might increase due to cancer. Because of side effects those persons undergoing chemotherapy have energy to perform different activities in addition to that due to hospitalization and cost of drugs, even adherence to treatment which require transport fees while travelling from their homes to the hospital, all those aforementioned factors intensify their financial difficulties (Newell et al. 1999).

2.1.4. Adapted conceptual framework of quality of life basing on four domains

Conceptual framework was designed basing on four domains as designed by Ferrell (1995). There are four domains of quality of life such as physical, social, psychological, and spiritual that were developed in the concept model, this model was used by Ferrell to design conceptual framework. This framework helped to design the conceptual framework of this study on assessment of quality of life of cancer patients undergoing chemotherapy.

Physical well-being

Many studies have discovered that physical well-being is affected by cancer or treatment, it has been evidenced that physical change occurring after cancer therapy, is linked to common side effects of cancer therapy namely hair loss, bone marrow, depression, nausea and vomiting, skin change, loss of appetite, role and lack of performance of daily activities, fatigue, and sleep disturbances. The same effects continue even after the completion of the treatment for weeks, even months (Ferrell, 1995). Similarly in a study conducted by Newell et al., (1999) found that chemotherapy is linked with physical symptoms such as vomiting, nausea, hair loss, fatigue, constipations, pain, breathing difficulties, diarrhea, loss of appetite, and weight changes, all those associated physical symptoms worsen the quality of life of cancer patients.
Psychological well-being

Many studies have explored the fact that psychological well-being is affected by cancer or treatment, it is evidenced that change in psychological well-being occurring after cancer therapy includes depression, cognitive, anxiety, fear of recurrence, mood change. All those affect quality of life of individuals (Ferrell, 1995).

Social well-being

Past studies have explored how the social well-being is affected by cancer or treatment, it is evidenced that change in social well-being occurring after cancer therapy in the social domain such as a decrease in family and friend relationships, financial problems, change in work productivity, discrimination, and problems of health insurance. All those affect quality of life of individuals (Ferrell, 1995).

The conceptual framework adapted to this study was delivered from the quality of life model developed for cancer survivors by Ferrell. This model was used in this study because it addresses our research questions and was operationalized with the questionnaire. The model identifies four most important areas related to the quality of life of cancer patients: physical, psychological, social, and global health status (Ferrell, 1995). This conceptual framework will be adapted to this study of assessment of quality of life of cancer patients undergoing chemotherapy. From this we assessed symptoms in physical well-being, psychological well-being (cognitive) and social (social function, role, finance difficult).
Adapted conceptual framework of quality of life basing on four domains

(Ferrell, 1995; Aaronson et al. 1993; Damodar et al. 2014).

Physical well-being
- symptoms (pain, nausea and vomiting, fatigue, insomnia)
- diarrhea, constipation, dyspnea
- loss of appetite

Psychological well-being
- cognitive

Social well-being
- social function, role, finance difficult

Global health status
CHAPTER THREE: METHODOLOGY

3.1. Introduction
This section describes the overall design that guided this study, the study setting, study population, study design, study sample and sampling strategy, data collection methods and tools, data analysis, problems and limitations of the study and ethical considerations.

3.2. Research design
A non-experimental, descriptive, cross-sectional study was used. According to (Kate, 2006) cross-sectional study is cheap, easy and take a little time to conduct and estimate the prevalence of the outcome of interest because the sample is usually taken from the whole population. In non-experimental design the independent variable can not be manipulated and there is no experimental group (Polit and Beck, 2004). The purpose of the descriptive study is to observe and describe the aspects of a situation as it is naturally and it can describe the present situation of a variable or phenomenon.

3.3. Research approach
The approach used in this study was a quantitative approach. The quantitative approach emphasizes on data collection through questionnaires. It is a systematic process for obtaining quantifiable information about words that are transformed into numerical form by statistical calculation. Those results are analyzed with statistical procedures, the findings from quantitative research can be generalized to the individuals other than those who have participated in the study (Polit and Beck, 2004).

3.4. Study setting
A setting refers to the physical location and conditions in which data collection takes place (Polit and Beck, 2004). Butaro Hospital is a hospital located in Butaro sector of Burera in the Northern Province, in Rwanda. Butaro Hospital was designed by MASS in cooperation with the Rwandan Ministry of Health and Partners in Health. It covers a catchment area of 336 852 individuals and 17 Health Centers (HCs). The construction of the 150-bed hospital begun in December 2008 and was opened on 24 January 2011. The hospital was formally opened by Rwandan President Paul Kagame and became the first hospital in Burera Tapela et al. (2016).
3.5. Study population
In a scientific research “population” refers to the aggregate or totality of those conforming to a set of characteristics (Polit and Beck, 2004). The population of this study was all cancer patients undergoing chemotherapy at Butaro hospital. The population of this study was 90 cancer patients treated with chemotherapy. Therefore, this constituted the population for the present study.

3.5.1 Inclusion Criteria
Patient who are above of 21 years old, received one type of chemotherapy, conscience and able to communicate, cancer positive confirmed by biopsy.

3.5.2 Exclusion Criteria
In this study the following are the exclusion criteria:

Patients with the history of chronic medical-co morbidity such as diabetes mellitus, because their medical condition can be confounding factors as those patients have clinical manifestation which can be the same as those experienced by cancer patients undergoing chemotherapy.

Patients with critical conditions who cannot respond to questions (cognitive impairment or unsound mind) were also excluded.

3.6. Sampling

3.6.1. Sampling methods and strategy
Sampling method refers to the process of selecting the representative size of an entire study population (Polit and Beck, 2004). Non-Probability convenience strategy was used in the study. This implies working with people who are conveniently accessible to the researcher and are ready to be involved in the study. The advantage of a convenience strategy is that it is easy to access the participants. The participants who agreed to participate in this research were approached and received explanations about the purpose of the research before filling out the questionnaire. Questionnaire were designed in English and afterwards translated into Kinyarwanda.

3.6.2. Sample size
As the population of this study was not large; the researcher did not calculate the sample size. We considered all 90 patients to be part of the study.
3.7. Data collection

3.7.1. Data collection tool

"European Organization for Research and Treatment of Cancer" (EORTC) QoL Questionnaire-Core 30 version 3.0 has been used to assess the quality of life of cancer patients undergoing chemotherapy. The questionnaire had 2 parts: Part one comprises 6 questions about demographic characteristics (age, gender, marital status, occupation, residence place, and level of education) and part two which comprises the EORTC QLQ-Questionnaire-Core 30 version 3.0.

The EORTC QLQ-C+30 is an internationally validated instrument that was initially developed in 1986. Questionnaire-Core 30 version 3.0 is a well-known instrument with 30 questions, is a cancer specific tool used to measure health-related quality of life. It comprises three main scales (functional scale, symptom scale and global health scale/ QoL scale). There is 28 items presented on response scale of "Not at all, A little, Quite a bit, and Very much" the scale range from 1 to 4 followed by the 29 items and 30 items on overall QoL on response scale which has 7 points range from (1) "very poor" to (7) "excellent". Those scales were written as follows: an overall global health status /QoL scales; 5 functional scales (cognitive, physical, role, and social function scales and emotional); the 3 multi-item symptom scales (pain, nausea, and vomiting, fatigue); six single item scales (insomnia, diarrhea, constipation, appetite loss, financial difficult and dyspnea). The QLQ-C30 vision3 is composed of both multi-item scales and single-item measures.

These include five functional scales, three symptom scales, a global health status/QoL scale, and six single items. Each of the multi-item scales includes a different set of items - no item occurs in more than one scale. All of the scales and single item measures range in score from 0-100. A high scale represents a high response level. A high score for global health status/QoL scale represents a high health level of quality of life; high score for a functional scale represents a high /healthy level of functioning but high level of symptom scales/item represent high level of symptomatology / problems (Aaronson, 1993). The questionnaire was designed in Kinyarwanda, a language that the patients were able to understand; for not compromising responses because of low level of English literacy of the informants.
3.7.2. Data collection procedure

Before collecting data, the research received the IRB letter from UR-CMHS Research Institutional Review Board; also permission to collect data was obtained from concerned authority of Butaro hospital as well as from EORTC department to use the instrument.

Once the approval letter from Butaro Hospital authorities was received by the researcher. The researcher introduced herself to the health care provider in charge of oncology service. After obtaining authorization from the service, patients were approached in the outpatient clinic and hospitalization. The purpose of the study was explained and they were invited to participate in the study. The patients were given a letter informing them about the study and participant's rights. If a patient wished to withdraw from the study, it was their right to do so. Because the researcher needed to conduct data in comfort and privacy for study participants; privacy and confidentiality were ensured. No patients name appeared on the questionnaire. Patients who agreed to participate were requested to sign an informed consent form. The validated 'European Organization for Research and Treatment of Cancer (EORTC). The EORTC QLQ-C+30 version 3.0 was used after translation into Kinyarwanda language, completing this questionnaire took 20-30 min. Data was collected over a period of 4 weeks successive from Sunday to Wednesday. It started in March until April. After data collection, the collected data were entered into the Statistical Package for Social Science Software "SPSS version 20" for analysis.

3.8. Validity and Reliability

3.8.1. Validity

Validation of the tool after translation into Kinyarwanda language was done by panel of two persons who works in UR/CMHS language center. The first translator translated the questionnaire into Kinyarwanda and back into English and another who is fluent in both language English and Kinyarwanda did the same. Then after those translators together with the researcher compared the translation with the original version to check the clarity, the accuracy, the understanding, of the content of the questionnaire and made change where they found it necessary.
38.2. Reliability
According to Burn & Grove (2007) instrument to be reliable, it must yield the same measure when used on more than one occasion. Many studies done in other countries show high-reliability coefficients of this instrument, for appropriate use of this instrument in our setting, A translated questionnaire was piloted among 5 patients diagnosed with cancer who received chemotherapy who meet inclusion criteria. They were asked to fill in the questionnaire in order to test the feasibility and applicability of instrument so as to determine whether or not they will have difficulties to understand the content of questionnaire ,and few modifications were made accordingly. After pre-testing, only question 29 and 30 were modified in order to make them easily understandable by respondents. Reliability of the Kinyarwanda version of the questionnaire was examined using Cronbach's alpha test. The results of a Cronbach's alpha indicated the results of 0.7 which is an acceptable level of reliability.

3.9. Data analysis
Data analysis was performed using Statistical Package for Social Science (SPSS)-Version 20. After the coding of response and entering data into SPSS, descriptive statistics were calculated. Frequency and percentage, mean, and standard deviation calculations for the scales were calculated. Data were presented in tables.

The general principles of scoring were used to analyse QLQ-30 vision 3.0 instrument. Firstly raw score mean was calculated, secondly linear transformation was calculated to standardise the raw score. The scores ranged from 0 to 100. A high score for global health status/quality of life and functional scale represented a high health level of global health status/quality of life and functional, however high level of symptom scales represented high symptomatology/problems.

The following is formula used in calculation:

- if item I₁, I₂, I₃,......Iₙ
  - Raw score calculate \((RS) = (I₁ +I₂+I₃+........+Iₙ)/n\)
  - Linear transformation apply the linear transformation to 0-100 to obtain the score "S"
    - functional scales : \(S=\{(1-(RS-1/range)}*100\)
    - Symptom scales/item: \(S=\{(RS-1/range)}*100\)
Global health status/ QoL : $S = \{(RS - 1)/\text{range}\} \times 100$

Range is the difference between the maximum possible and minimum possible value.

The QoL-30 version 3.0 has been designed so that all items in any scale take the same range of values. So the range of RS equals the range of the item values, most scored 1 to 4 giving range 3, except item of global health status/ QoL which has 7 point with range range 6 (Aaronson, et al. 1993)

3.10. Ethical considerations
An official IRB letter for the study has been obtained from Ethics Committee of UR/college of medicine and health sciences, and Hospital administration after explaining the aim of the study.

Participant were explained about the purpose and procedures of the study, after those who agreed to participate signed the written consents. Patients were informed about their rights to refuse or withdraw, confidentiality was ensured by avoiding to use any information likely to identify the participant: No patient name, date of birth, or other identifiable information have appeared in any report of results. The data collection has not caused any harmful effect on participants. Professional help was ready to be provided to those in need.

3.11. Data management
Data management includes all actions needed to make research data discoverable, accessible and understandable in the long term: organization, documentation, storage, sharing and archiving. After data collection data were kept in the researcher’s computer under a password which was known by researcher only and the supervisor. Another copy was put in a CD together with questionnaires and locked in cupboard at home. After five years the hard copies will be discarded.

3.12. Data dissemination
The copy of the study will be disseminated to Butaro hospital and UR/CMHS Libraries, further the research findings will be sent to the Ministry of Health and will be published.

3.13. Problems and limitations
The findings of this study not be representative of all cancer patients because the study is confined to one site and the results may not be consistent with the situation in
other health settings. The ideal would be to do a multicentre study involving different hospitals in the country and the lack of up-to-date data and reference source in our country related to the topic may be a limiting factor. Other limitations included the delay to obtain permission from Butaro hospital administration before the start of the data collection.
## CHAPTER FOUR: RESULTS PRESENTATION

Table 1: Demographic characteristic in cancer patients undergoing chemotherapy (n=73)

<table>
<thead>
<tr>
<th>Demographic characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>31-40</td>
<td>14</td>
<td>19.2</td>
</tr>
<tr>
<td>41-50</td>
<td>23</td>
<td>31.5</td>
</tr>
<tr>
<td>51-60</td>
<td>20</td>
<td>27.4</td>
</tr>
<tr>
<td>61-70</td>
<td>12</td>
<td>16.4</td>
</tr>
<tr>
<td>&gt;71 Mean = 37±SD = 21.21</td>
<td>3</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11</td>
<td>15.1</td>
</tr>
<tr>
<td>Female</td>
<td>62</td>
<td>84.9</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>4</td>
<td>5.5</td>
</tr>
<tr>
<td>Married</td>
<td>38</td>
<td>52.1</td>
</tr>
<tr>
<td>Separated</td>
<td>5</td>
<td>6.8</td>
</tr>
<tr>
<td>Widowed</td>
<td>26</td>
<td>35.6</td>
</tr>
<tr>
<td><strong>Level of education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiteracy</td>
<td>34</td>
<td>46.6</td>
</tr>
<tr>
<td>Primary</td>
<td>30</td>
<td>41.1</td>
</tr>
<tr>
<td>Secondary</td>
<td>6</td>
<td>8.2</td>
</tr>
<tr>
<td>University</td>
<td>3</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployment</td>
<td>23</td>
<td>31.5</td>
</tr>
<tr>
<td>Business man/woman</td>
<td>4</td>
<td>5.5</td>
</tr>
<tr>
<td>Employment</td>
<td>5</td>
<td>6.8</td>
</tr>
<tr>
<td>Agriculture</td>
<td>41</td>
<td>56.2</td>
</tr>
</tbody>
</table>

**Place of residence**
The general characteristics of the study participants are shown in (Table 1). The target participants were 90 people, however only 73 were found during data collection making a response rate of 81%. Seventy three respondents, aged above twenty one years old and receiving at least one type of chemotherapy, were included in this study. The participant age ranged between 21-71 years old. The majority of the respondents were females 62(84.9%) and males make up only 11(15.1%). The mean age was 37(SD=21.21, range 31-40). Nearly a half of the study participants were married 38(51.2%) and living with their spouses. Regarding the place of residence, 16(21.9%) came from Eastern province of Rwanda while 2 (2.7%) were from others areas; to specify, one respondent was Uganda national, another came from Burundi. As for the level of education the majority of the participants were illiterate 34(46.6%) and most of participants were working in agriculture sector. 41(56.2%).

<table>
<thead>
<tr>
<th>Location</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eat</td>
<td>16</td>
<td>21.9</td>
</tr>
<tr>
<td>West</td>
<td>11</td>
<td>15.1</td>
</tr>
<tr>
<td>South</td>
<td>17</td>
<td>23.3</td>
</tr>
<tr>
<td>North</td>
<td>17</td>
<td>23.3</td>
</tr>
<tr>
<td>Kigali</td>
<td>10</td>
<td>13.7</td>
</tr>
<tr>
<td>Other To Specify</td>
<td>2</td>
<td>2.7</td>
</tr>
</tbody>
</table>
Table 2: Frequency and percentage of the Respondents on various quality of life scales in cancer patients undergoing chemotherapy (n=73)

<table>
<thead>
<tr>
<th>QoL Questions</th>
<th>Scale</th>
<th>Not all Freq/(%)</th>
<th>A little Freq/(%)</th>
<th>Quite a bit Freq/(%)</th>
<th>Very much Freq/(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or suitcase?</td>
<td>Physical</td>
<td>5(6.8)</td>
<td>4(5.5)</td>
<td>10(13.7)</td>
<td>54(74.0)</td>
</tr>
<tr>
<td>2. Do you have any trouble taking a long walk?</td>
<td>Physical</td>
<td>6(8.2)</td>
<td>10(13.7)</td>
<td>10(13.7)</td>
<td>47(64.4)</td>
</tr>
<tr>
<td>3. Do you have any trouble taking a short walk outside of the house?</td>
<td>Physical</td>
<td>40(54.8)</td>
<td>8(11.0)</td>
<td>7(9.6)</td>
<td>18(24.7)</td>
</tr>
<tr>
<td>4. Do you need to stay in bed or a chair during the day?</td>
<td>Physical</td>
<td>22(30.1)</td>
<td>7(9.6)</td>
<td>11(15.1)</td>
<td>33(45.2)</td>
</tr>
<tr>
<td>5. Do you need help with eating, dressing, washing yourself or using the toilet?</td>
<td>Physical</td>
<td>46(63.0)</td>
<td>7(9.6)</td>
<td>9(12.3)</td>
<td>11(15.1)</td>
</tr>
<tr>
<td>6. Were you limited in doing either your work or other daily activities?</td>
<td>Role</td>
<td>6(8.2)</td>
<td>4(5.5)</td>
<td>3(4.1)</td>
<td>60(82.2)</td>
</tr>
<tr>
<td>7. Were you limited in pursuing your hobbies or other leisure time activities?</td>
<td>Role</td>
<td>40(54.8)</td>
<td>13(17.8)</td>
<td>7(9.6)</td>
<td>13(17.8)</td>
</tr>
<tr>
<td>Question</td>
<td>Experience 1</td>
<td>Experience 2</td>
<td>Experience 3</td>
<td>Loss</td>
<td>Total</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>8. Were you short of breath?</td>
<td>Dyspnöea</td>
<td>28(38.4)</td>
<td>12(16.4)</td>
<td>7(9.6)</td>
<td>26(35.6)</td>
</tr>
<tr>
<td>9. Have you had pain during?</td>
<td>Pain</td>
<td>5(6.8)</td>
<td>7(9.6)</td>
<td>12(16.4)</td>
<td>49(67.1)</td>
</tr>
<tr>
<td>10. Did you need to rest?</td>
<td>Fatigue</td>
<td>0(0.0)</td>
<td>11(15.1)</td>
<td>13(17.8)</td>
<td>49(67.1)</td>
</tr>
<tr>
<td>11. Have you had trouble sleeping?</td>
<td>Insomnia</td>
<td>27(37.0)</td>
<td>6(8.2)</td>
<td>6(8.2)</td>
<td>34(46.6)</td>
</tr>
<tr>
<td>12. Have you felt weak?</td>
<td>Fatigue</td>
<td>1(1.4)</td>
<td>19(26.0)</td>
<td>10(13.7)</td>
<td>43(58.9)</td>
</tr>
<tr>
<td>13. Have you lacked appetite?</td>
<td>Appetite Loss</td>
<td>18(24.7)</td>
<td>5(6.8)</td>
<td>6(8.2)</td>
<td>44(60.3)</td>
</tr>
<tr>
<td>14. Have you felt nauseated?</td>
<td>Nausea</td>
<td>20(27.4)</td>
<td>9(12.3)</td>
<td>8(11.0)</td>
<td>36(49.3)</td>
</tr>
<tr>
<td>15. Have you vomited?</td>
<td>Vomiting</td>
<td>37(50.7)</td>
<td>9(12.3)</td>
<td>2(2.7)</td>
<td>25(34.2)</td>
</tr>
<tr>
<td>16. Have you been constipated?</td>
<td>Constipation</td>
<td>23(31.5)</td>
<td>10(13.7)</td>
<td>7(9.6)</td>
<td>33(45.2)</td>
</tr>
<tr>
<td>17. Have you had diarrhea?</td>
<td>Diarrhoea</td>
<td>56(76.7)</td>
<td>5(6.8)</td>
<td>2(2.7)</td>
<td>10(13.7)</td>
</tr>
<tr>
<td>18. Were you tired?</td>
<td>Fatigue</td>
<td>10(13.7)</td>
<td>5(6.8)</td>
<td>14(19.2)</td>
<td>44(60.3)</td>
</tr>
<tr>
<td>19. Did pain interfere with your daily activities?</td>
<td>Pain</td>
<td>12(16.4)</td>
<td>9(12.3)</td>
<td>8(11.0)</td>
<td>44(60.3)</td>
</tr>
<tr>
<td>20. Have you had difficulty in concentrating on things, like reading a newspaper or watching television?</td>
<td>Cognitive</td>
<td>30(41.1)</td>
<td>8(11.0)</td>
<td>5(6.8)</td>
<td>30(41.1)</td>
</tr>
<tr>
<td>21. Did you feel tense?</td>
<td>Emotional</td>
<td>32(43.8)</td>
<td>10(13.7)</td>
<td>7(9.6)</td>
<td>24(32.9)</td>
</tr>
<tr>
<td>22. Did you worry?</td>
<td>Emotional</td>
<td>33(45.2)</td>
<td>12(16.4)</td>
<td>5(6.8)</td>
<td>23(31.5)</td>
</tr>
<tr>
<td>Questions</td>
<td>Scale</td>
<td>Very poor</td>
<td>Poor</td>
<td>Fair</td>
<td>Very fair</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-----------------</td>
<td>-----------</td>
<td>------</td>
<td>------</td>
<td>-----------</td>
</tr>
<tr>
<td>29. How would you rate your overall health?</td>
<td>Global Health Status</td>
<td>21(28.8)</td>
<td>26(3.6)</td>
<td>6(8.2)</td>
<td>10(13.7)</td>
</tr>
<tr>
<td>30. How would you rate your overall quality of life?</td>
<td>Global Health Status</td>
<td>9(12.3)</td>
<td>17(23.3)</td>
<td>25(3.4.2)</td>
<td>11(15.10)</td>
</tr>
</tbody>
</table>
Findings from this study after calculation of frequency and percentages showed that the majority of participants experienced financial difficulty ("very much") with frequency and percentage of 72(98.6%), also respondents reported difficulties of doing their daily activities 60(82.2%). Most of the respondents expressed memory difficulties 52(71.2).

**Grouped questions of EORTC QoL-C30 Version 3.0 basing on level of scales**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of item (n)</th>
<th>Item range</th>
<th>QoL-C30 Vision3.0 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global health status /QoL Functional scales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotion function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom Scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea and Vomiting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyspnea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insomnia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appetite loss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constipation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diarrhea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6</td>
<td>29&amp;30</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3</td>
<td>1-5</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>6&amp;7</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>3</td>
<td>21-24</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>20&amp;25</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>26&amp;27</td>
</tr>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>10,12&amp;18</td>
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<td></td>
<td>2</td>
<td>3</td>
<td>14&amp;15</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>9&amp;19</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>
Difficulties

According Aaronson ,et al.(1993) before calculation of Raw score and transformed score of QoL -C30 vision 3.0.Basing on level of scales ,the questions were grouped above. After grouping of questions of QoL-C30 vision 3.0 data was entered into SPSS vision 20 for analysis. Then the general principles of scoring was used to analyse QLQ-30 vision 3.0 instrument .Firstly raw score mean was calculated ,secondly linear transformation was calculated to standardise the raw score. The scores range from 0 to 100 A high score for global health status/ QoL and functional scale represent a high /health level of global health status/ QoL and functional , however high level of symptom scales represent high symptomatology /problems.

Here is formula used in calculation:

if item I₁, I₂, I₃,......Iₙ

**Raw score calculate** (RS)= (I₁+I₂+I₃,........+Iₙ)/n

Linear transformation apply the linear transformation to 0-100 to obtain the score "S"

**Functional scales :** S={1-(RS-1/range)}*100

**Symptom scales/item:** S={(RS-1/range)}*100

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

Range is the difference between the maximum possible and minimum possible value.

The QoL-30 vision 3.0 has been designed so that all items in any scale take the same range of values. so the range of RS equals the range of the item values, most scored 1to 4 giving range 3,except item of global health status /QoL which has 7 point with range 6. (Aaronson ,et al.1993).The information provided above was used for the calculation of raw score (table 3) and transformed score(table )
Table 3. Raw Score of the Respondents on various quality of life scales in cancer patients undergoing chemotherapy (n=73)

<table>
<thead>
<tr>
<th>Scales / symptoms</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Raw mean</th>
<th>Raw score</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global health status /QoL</strong></td>
<td>1.00</td>
<td>5.00</td>
<td>2.72</td>
<td>1.20</td>
<td></td>
</tr>
<tr>
<td><strong>Functional scales</strong></td>
<td>1.32</td>
<td>3.48</td>
<td>2.45</td>
<td>0.57</td>
<td></td>
</tr>
<tr>
<td>Physical function</td>
<td>1.00</td>
<td>4.00</td>
<td>2.69</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>Role function</td>
<td>1.00</td>
<td>4.00</td>
<td>2.76</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>Emotion function</td>
<td>1.00</td>
<td>4.00</td>
<td>2.52</td>
<td>1.05</td>
<td></td>
</tr>
<tr>
<td>Cognitive function</td>
<td>1.00</td>
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We calculated the Raw score on quality of life of the instrument (Table :3), the Raw score mean and standard deviation for a total of seventy three cancer patients.

Raw score mean and standard deviation of Global health status and quality of life was 2.72(SD=1.20), Raw score of function scale mean and standard deviation was 2.45(SD=0.57) and Raw score of symptoms scale mean and standard deviation was 2.83(SD=0.51)
Table 4. Descriptive statistic for EORTCQLQ-C30 Transformed Score of the Respondents on various quality of life scales in cancer patients undergoing chemotherapy (n=73)

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<tr>
<th>Scales / Symptoms</th>
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After calculation of score of all major scales and subscales on quality of life tool, the transformed score mean and standard deviation for a total of seventy three cancer participants were identified. The results showed that the global health status and quality of life was low with transformed score mean and standard deviation of 28.76(SD=20.03) which indicate poor quality of life, regarding functional scales we found a good level with transformed score mean and standard deviation of 51.55(SD=19.12). No serious problems were found in these functions, the high score...
among functional scale was emotional function score with transformed score mean and standard deviation of 49.20(SD= 35.00) which shows good quality of life. However, patients appeared to experience diminished social function 28.08(34.11) and transformed score mean and standard deviation of symptoms score was high 61.13(SD=17.10) which indicate the worsen of quality of life. This signifies high symptomatic. As for symptoms scale pain 78.76(SD=35.05) and fatigue 78.08(SD=23.56) were proven to be the major common symptoms, which shows the high level of problems experienced by cancer patients undergoing chemotherapy. Item of financial difficulties with Transformed score mean and standard deviation was 98.63(SD=11.70) this explains a major issue which exacerbates the quality of life.
CHAPTER FIVE: DISCUSSION

In current medicine practice, the assessment of a patient's health is not focused on only laboratory investigation or clinical but also on holistic assessment as well as consequences of treatment and diagnosis; and this reflects the evolution of the quality of life.

Therefore in "cancer care" Quality of life refers to the universal well being as well as physical, spiritual, social, emotional and psychological aspect. Quality of life is the mainly important patient statement outcomes for the period of cancer treatment.

EORTCQLQ-30 is the most common standardized instrument used to assess the quality of life among cancer patients undergoing chemotherapy. The major challenge in research on quality of life is defining the concept of the quality of life. Because quality of life is controversial and a broad concept, so far, there is no universally single definition. That's the reason why various authors define the quality of life in different ways. Different and numerous studies were done and support our findings on assessment of quality of life of cancer patients undergoing chemotherapy.

Findings of this study found a high number of females 84.9% compared to males that make up only 15.1%. This was very similar in a study done by (Hongthong et al. 2015) which found 62% females. This is in contrast with the study done by (Dehkordi et al., 2009) which found that the majority of respondent were males at a percentage of 54.5%.

There are three major scales of quality of life used to assess the quality of life of cancer patients (symptom scales, functional scales, and global health/QoL scale).

In this study; the table (4) describes results of transformed score mean and standard deviation of Global health status/QoL which is low 28.76(SD=20.03); this shows poor quality of life among four participants. The findings are similar to those found in the study done by Alzabaidey, (2012) on the quality of life assessment for patients with breast cancer receiving chemotherapy done among 100 patients; they found that the chemotherapy patients had bad quality of life; their results showed that total mean of QoL was (1.68±0.5029).
In contrast to the study done by Radha et al.,(2015) found better quality of life with a transformed mean and Standard deviation score of Global health status /QoLof85(SD=16.49).

Regarding function scale, the transformed score mean and standard deviation of function scale was almost high 51.55(SD=19.12). This shows good quality of life. This is similar to the study done by (Radha et al. 2015) who found function scale transformed score mean and standard deviation of 77.04(SD=15.62) indicating better quality of life.

Concerning the symptoms scales were transformed score mean and standard deviation of symptoms score which was high 61.1(SD=17.10) indicating a worsened quality of life. This differs from the study done by (Radha et al., 2015) among cancer patients, the study in question found symptom scale with a transformed score of 16.14(SD=13.19) which showed a better quality of life. In this study different symptoms were identified including loss of appetite with score mean 68(SD=43.19), nausea and vomiting 50.45(SD=39.67). This is also similar to a study done by (Alzabaidey, 2012) who found that the majority of patients reported nausea (64%) and anorexia (80%). Nausea experienced by patients undergoing chemotherapy most of the time cause vomiting and appetite loss.

Assessment of Symptoms in Cancer Patients Undergoing Chemotherapy in Northern Greece involving 200 cancer patients reported that the most physical symptoms were diarrhea (46%), weight loss (52%), constipation (66.5%), difficulty sleeping (41%), change in way food tastes (68%), lack of energy (46%) and feeling nervous (52%) (Lavdaniti, 2015). Also (Newell et al., 1999) reported that chemotherapy is linked with physical symptoms as well as vomiting, nausea, hair loss, fatigue, constipations, pain, difficulty of breathing, diarrhea, loss of appetite, difficulty of breathing and weight changes all those associated physical symptoms worsen quality of life of cancer patients.

Most patients experience financial difficulties with mean and standard deviation of 98.63(SD=11.70). It was also found to be the major problem that hits cancer patients. This result can allow health care professionals to think deeply about this problem in order to intervene as soon as possible or to advocate for them so that they can benefit a
financial support. This will help patients to afford travel expenses from their respective homes to the hospital.

This was highlighted by Newell et al. (1999) various aspects of patients' quality of life are reduced including daily living activities and physical functioning are diminished, their relationship with others, social activities and family relationships normally get worse. It has been revealed that financial problems might increase due to cancer. Because of side effects those persons undergoing chemotherapy have energy to perform different activities in addition to that due to hospitalization and cost of drugs, even adherence to treatment which require transport fees while travelling from their homes to the hospital, all those aforementioned factors intensify their financial difficulties.
CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

CONCLUSION

QoL scoring system demonstrated that the quality of life of those patients was seriously impaired where by the majority of them reported that financial difficulties, fatigue, pain, loss of appetite, insomnia and constipation worsen the quality of life. This influences negative perceptions of chemotherapy. Quality of life can be improved by an appropriate management of those different side effects of chemotherapy. Therefore, the researcher suggests close monitoring, follow up and better management of those different symptoms experienced by the participants.

Most of the participants reported financial problems. It is difficult for them to afford travel expenses from their homes to the hospital especially those who are registered in level of ubudehe II and III (economic status levels). Butaro hospital in collaboration with Partners in health provide transport fees to only those registered in ubudehe I (economic status level). The researcher does not know if this support will be long lasting. Therefore there is a need for financial support to help them adhere to the medication regularly.
RECOMMENDATIONS
The researcher recommends further researchers to assess the effects of social demographic factors on quality of life.

The researcher recommends patients to respect the appointment and adhere to chemotherapy regularly as required because even if cancer patients experience different side effect during the course of treatment also chemotherapy kill cancer cells.

Health care professionals should take into consideration the value of quality of life as well as cancer therapy and their side effects experienced by cancer patients undergoing chemotherapy in order to improve the quality of life of cancer patients because most of health care providers tend to focus only on treating cancer and ignore the management of chemotherapy side effects of chemotherapy. Quality of life can be achieved through the psychological support and palliative care. When quality of life improved patients adaptation and desire of treatment increased.

In education, the researcher recommends to plan programs /curriculum which have a focus on quality of life improvement, and an adequate management of cancer and the side effects of cancer therapy.

The recommendations to the Ministry of health include planning the trainings of health care providers in order to increase their knowledge, skills and practice for better management of cancer patients undergoing chemotherapy. Financial difficulties are seen as a serious problem among cancer patients undergoing chemotherapy, consequently we suggest that the Ministry of health should plan financial support for those cancer patients.
REFERENCES


# APPENDICES

## APPENDIX 1. RESEARCH PROJECT GANT CHART

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APPENDIX .3. LETTER REQUEST TO CONDUCT RESEARCH

UWAMAHORO Pauline
Runda- Kamonyi
E-mail paulinuwera@yahoo.fr
Contact 0788607688
December 15th, 2016
To Medical Director of Butaro hospital
Dear Sir.

Re: Quality of life of cancer patients undergoing chemotherapy data collection request

I UWAMAHORO Pauline master's candidate from UR/CMHS in oncology track. It is my pleasure to write to you this letter to request you the permission to collect data among cancer patients undergoing chemotherapy in Butaro Hospital /Rwanda.

I am interested in conducting a study titled "assessment of quality of life of cancer patients undergoing chemotherapy". Cancer and chemotherapy are known to reduce the quality of life among cancer patients. According to my knowledge none study has been conducted in Rwanda. It's from that perspective that I have decided to undertake this research. My eventual objective is to use this research to provide the solution which can raise awareness of the concept of QoL as well as its value among health professionals in Rwanda and help in considering the quality of life as an outcome in the evaluation of medical and nursing interventions targeting cancer patients.

Thank you for your collaboration

Best regards

UWAMAHORO Pauline
APPENDIX. 4. LETTER INFORMING PARTICIPANT ABOUT THE STUDY AND PARTICIPANT'S RIGHTS (CONSENT)

In this study on "Quality of life of cancer patients undergoing chemotherapy at butaro hospital". we really want to know quality of life during this course of chemotherapy.

If you agree to participate in this study, there is 36 questions that you have to answer. It will take 20-30 minutes.

The result from this study will help to improve the quality of life of cancer patients undergoing chemotherapy.

The study maneuvers will not cause problems or any harmful effect to you because you agree to participate in this research.

As it permitted by law, we ensure you that your answer will be kept confidential, your name and resident place is not include on the questionnaire, that why your identification will not appear in this questionnaire.

Participation in this study is entirely voluntary, you have right to withdraw from study, you have right to answer some questions or not answer, you have right to stop any time you want.

Your decision will not affect the service that you receive here even your lifestyle.

Do you want to participate in this research?

Those who are agree to participate will sign informed consent after reading it for them.
APPENDIX .5. URUPAPURO RWO KWEMERA

Muri ubu bushakashatsi “Kureba ubuzima bw 'abarwayi ba cancer bafata shimiyoterapi mu bitaro bya BUTARO” turashaka kumenya mubukuri ubuzima bwanyu uko mwumva bumeze mugihe muri kuri iyi miti ya shimiyoterapi.

Niba wemeye kugiramo uruhare, hari ibibazo 36 uri busubize , biramara iminota 20-30 ugereranyije.

Ibizava mubushakashatsi bigamije kudufasha mukugerageza gufasha abarwayi bari kuri shimiyoterapi kugira ubuzima bwiza

Ntangorane cg ibyago waterwa no kugira uruhare muri ubu bushakashatsi.

Nkuko biteganywa nitegeko, tukwijejeko ibisubizo byawe byose bizakoreshwa kuburyo bwibanga. Amazina yawe naho ubarizwa ntaho biri mubyo ubazwa, bityo ntaho umwirondoro wawe uzagaragara

Kugira uruhare muri ubu bushakashatsi ni ubushake bwawe. Ufite uburenganzira bwo kwanga kugiramo uruhare muri ubu bushakashatsi , kimwe nuburenganzira bwo kwanga gusubiza ibibazo bimwe nabimwe, cg guhagarika ikiganiro igihe yose washakira, umwanzuro wose wafata ntacyo bihindura kuburyo witabwaho mu buvuzi no mumibereho yawe.

Wemeye kugira uruhare muri ubu bushakashatsi?

uwemeye arasinya igipapuro cyo kwemera

MURAKOZE
APPENDIX 6. CONSENT FORM FOR RESEARCH STUDY IN ENGLISH

My signature on this consent form give permission to the researcher to ask me questions as I understand more explanation involves answering questions.

I understand well all information concerning the research, I know that if I need other information I can ask the researchers.

UWAMAHORO Pauline 0788607688

and

MUKEISHIMANA Madeleine 0785256459

I understand that my participation in this study is entirely voluntary, I know that I can withdraw from the study anytime and no harm can cause to me.

Name ..............................................................

Telephone...............................................................

Signature.................................................................

Date.................................................................day/month/year
APPENDIX. 7. ICYEMEZO KIGARAGAZA KWEMERA

Umukono wanjye kuri iki cyemezo uha uruhusa umushakashatsi rwo kumbaza ibibazo nk'uko nabisobanuriwe harimo gusubiza ibibazo.

Amakuru yerekeye ubushakashatsi nayasobanuriwe kuburyo busobanutse nkeneye andi makuru nkaba nabaza abashakashatsi.

UWAMAHORO Pauline 0788607688

na

MUKEHISHINA Madeleine 0785256459

Nemeye kubushake bwanjye kugira uruhare muri ubu bushakashatsi kandi nzi neza ko ntangaruca byangiraho

Amazina..........................................................

Telefone..........................................................

Umukono..........................................................

itariki..........................................................umunsi/ukwezi/umwaka
Fw: QLQ-C30 download request from UWAMAHORO Pauline

On Wed, Aug 3, 2016 at 9:03, qlqc30@eortc.be

<qlqc30@eortc.be> wrote:

Dear Sir/Madam,

Please find below the links where you can download the documents you requested.

Best regards,

Firstname: UWAMAHORO

Lastname: Pauline

Hospital/Institution: UNIVERSITY OF RWANDA

Country: Rwanda

Phone: +250788607688

Email: paulinuwera@yahoo.fr

Protocol: quality of life among cancer patients undergoing chemotherapy

Documents requested: QLQ-C30 Core Questionnaire in Romanian QLQ-C30 Scoring Manual


If the links don't work, you can copy and paste the entire URL (so with .pdf included) into your browser and that should work. If you are having other technical difficulties please contact us by email: qlqc30@eortc.be
APPENDIX. 9. QUESTIONNAIRE Will BE ADDRESSED TO PATIENTS

Questionnaire No
UNIVERSITY OF RWANDA
COLLEGE OF MEDICINE AND HEALTH SCIENCES
SCHOOL OF NURSERY AND MIDWIFERY
Pauline UWAMAHORO
Tel: 0788807688
E-mail :paulinuwera@yahoo.fr

INTRODUCTION:
I’m Pauline UWAMAHORO , student in masters programmer / oncology department, doing a research on "QUALITY OF LIFE OF CANCER PATIENTS UNDERGOING CHEMOTHERAPY AT BUTARO HOSPITAL IN RWANDA " as you have now agree to participate in this research . you can complete this questionnaire answer those questions which will help researcher to assess the level of functions, symptoms global health status and factors that affect your quality of life ".fulfil questionnaire is voluntary. it means that you have right of answers all questions and it is not obligatory to answer that .please write the reality about your experience of suffering cancer and receiving chemotherapy because researcher need to know what is really happening, not what you think "is true ” Do not worry about telling us troubles that you experience . Please keep in mind that your names should not appear anywhere on the questionnaire also the obtaining information will be treated with confidentiality and will not be shared with the staff in the hospital , or with other students. If you don’t mind, be free to fulfil the following questions.

Instructions: Answer all questions, choise the correct response ,write "X" for section A, "circle "the correct response for section B. The all response are true.
SECTION A.

I. Socio demographic characteristic of participants

1. Age: ………………..

2. Gender:  Male  [ ]  Female  [ ]

3. Marital status
   - Single  [ ]
   - Married  [ ]
   - Separated  [ ]
   - Widowed  [ ]

4. Level of education:
   - Illiteracy  [ ]
   - Primary  [ ]
   - Secondary  [ ]
   - University  [ ]

5. Activity:
   - Unemployment  [ ]
   - Business man/woman  [ ]
   - Student  [ ]
   - Agriculture  [ ]
   - Farmers  [ ]
   - Have a job  [ ]
   - Other specify……………………………………………………………………
6. Place of residence

A. EST   [ ]   B. OUEST   [ ]   C. SOUTH [ ]   D. NORTH [ ]

<table>
<thead>
<tr>
<th>Questions</th>
<th>Not at all</th>
<th>A little</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or suitcase</td>
<td>1</td>
<td>2</td>
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<tr>
<td>2. Do you have any trouble taking a long walk?</td>
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<td>2</td>
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<tr>
<td>3. Do you have any trouble taking a short walk outside of the house?</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>4. Do you need to stay in bed or a chair during the day?</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>5. Do you need help with eating, dressing, washing yourself or using the toilet?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Were you limited in doing either your work or other daily activities?</td>
<td>1</td>
<td>2</td>
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<tr>
<td>7. Were you limited in pursuing your hobbies or other leisure time activities?</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>8. Were you short of breath?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Have you had pain?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. Did you need to rest?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Question</td>
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<td>-------------------------------------------------------------------------</td>
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<tr>
<td>11. Have you had trouble sleeping?</td>
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<tr>
<td>12. Have you felt weak?</td>
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<td>13. Have you lacked appetite?</td>
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<td>14. Have you felt nauseated?</td>
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<tr>
<td>15. Have you vomited?</td>
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<td>16. Have you been constipated?</td>
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<tr>
<td><strong>During the past week:</strong></td>
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<tr>
<td>17. Have you had diarrhea?</td>
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<td>18. Were you tired?</td>
<td></td>
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<tr>
<td>19. Did pain interfere with your daily activities?</td>
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<tr>
<td>20. Have you had difficulty in concentrating on things, like reading a newspaper or watching television?</td>
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<tr>
<td>21. Did you feel tense?</td>
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<tr>
<td>22. Did you worry?</td>
<td></td>
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<td>23. Did you feel irritable?</td>
<td></td>
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<td>24. Did you feel depressed?</td>
<td></td>
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<tr>
<td>25. Have you had difficulty remembering things?</td>
<td></td>
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<tr>
<td>26. Has your physical condition or medical treatment interfered with your family life?</td>
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<tr>
<td>27. Has your physical condition or medical treatment interfered with your social activities?</td>
<td></td>
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<tr>
<td>28. Has your physical condition or medical treatment caused you financial difficulties?</td>
<td></td>
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</tbody>
</table>
For the following questions please circle the number between 1 and 7 that best applies to you" GLOBAL HEALTH STATUS "

<table>
<thead>
<tr>
<th></th>
<th>Very poor</th>
<th>Poor</th>
<th>Fair</th>
<th>Very fair</th>
<th>good</th>
<th>Very good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>29. How would you rate your overall health during the past week?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>30. How would you rate your overall quality of life during the past week?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>


THANK YOU FOR YOUR TIME AND COOPERATION.

THANKS A LOT.

Signature of participant..............................................................................................................................................
APPENDIX .8. IBIBAZO BYEREKEYE UBURYO UBUZIMA BW ABARWAYI BA CANCERI BARI KU MITI YA SHIMIYOTERAPI

KAMINUZA Y'URWANDA

ISHURI RIKURU RY'UBUVUZI

Pauline UWAMAHORO

Tel: 0788607688

E-mail:paulinuwera@yahoo.fr

INTANGIRIRO:

Nitwa UWAMAHORO Pauline, ndi umunyeshuri niga mukiciro cya gatatu cya kaminuza mu ishami ry'ubuvuzi bwa canceri, ndi gukora ubushakashatsi bugamije "“Kureba ubuzima bw 'abarwayi ba cancer bafata Shimiyoterapi mu bitaro bya BUTARO" niba munyemereye kugira uruhare rwanyu muri ubu bushakashatsi, muruzuza uru rupapuro ruriho ibibazo mubisubize , bizadufasha akumenya impinduka ziterwa niyi miti ku buzima bwanyu, gusubiza ibi bibazo ni ubushake bwanyu, mushobora kwemera kubisubiza cyangwa kwanga kubisubiza , cyangwa guhagarika uruhare rwanyu igihe cyose mubishatse ntangaruka byagira ku buvuzi muhabwa hano kuri ibi bitaro "turabasaba ko mutubwiza ukuri kwibibabaho", mumumure nta mazina yanyu mwandikaho, amakuru muduha n'ibanga ntabwo tubibwira abakozi b'ibitaro, cyangwa ngo tubibwire abandi banyeshuri, niba mubyemeye mwasubiza ibi bibazo.

Amabwiriza: Musubize ibi bibazo byose, murahitamo igisubizo kiricyo mushyiremo aka kamenyetso "X" kucyicirocyambere A nahokucyiciro "cyAB" urashyiramukaziga igisubizando ukuri. ntagisubizonakimwegipfu ye, ibisubizobyanyubyosetubihaagaciro.
A. IMYIRONDORO.

1. Imyaka: ......

2. Igitsina:
   Gabo
   Gore

3. Imyimerere (Irangamimerere):
   Ingaragu
   Urubatse
   Watandukanye n’uwo mwashakanye
   Umupfakazi

4. Amashuri wize:
   Ntayo
   Abanza
   Ayisumbuye
   Kaminuza

5. Icyo Ukora:
   Nta kazi
   Wikorera ku giti cyawe
   Uri umunyeshuri
   Ufite akazi uhemberwa
   Umuhinzi
   Umworozzi
   Ikindi ukora .................................................................
6. Aho Mutuye

<table>
<thead>
<tr>
<th>Ibisubizo ni ibi bikurikira</th>
<th>Ntakibazo ngira</th>
<th>Gahoro</th>
<th>Biringaniye</th>
<th>Cyane</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ugira ikibazo iyo uteruye ibintu biremereye?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Ugira ikibazo iyoukoze urugendo rurerure n'amaguru?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>3. Ugira ikibazo iyo ukoze urugendo rutoya&quot;nkokuzenguruka murugo iruhande rw'inzu&quot;?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>4. Uba wumva waguma wiryamiye muburiri cyangwa wiycariye ku ntebe?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>5. Ukenera umuraza ugfasha igihe ugiye gufungura(kurya),kugukarabya, kukwambika, no kugutwara mu bwiherero?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>6. Hari byo udashobora gukora mubuzima bwawe bwa burimunsi?</td>
<td>1</td>
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<td>4</td>
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<td>7. Niki kikubuza gukora ibyo wumva wifuza gukora ?</td>
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<td>Question</td>
<td>Choice 1</td>
<td>Choice 2</td>
<td>Choice 3</td>
<td>Choice 4</td>
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<tr>
<td>8. Ujya unanirwaguhumeka?</td>
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<td>4</td>
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<tr>
<td>9. Ujya ugira ububabare?</td>
<td>1</td>
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<tr>
<td>10. Ujya ukenera kuruhuka?</td>
<td>1</td>
<td>2</td>
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<tr>
<td>11. Ujya ubura ibitotsi?</td>
<td>1</td>
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<tr>
<td>12. Ujya wumva unaniwe?</td>
<td>1</td>
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<tr>
<td>13. Ujya ubura apeti/ukumva udashaka kurya?</td>
<td>1</td>
<td>2</td>
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<tr>
<td>14. Ujya ugira iseseme?</td>
<td>1</td>
<td>2</td>
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<tr>
<td>15. Ujya uruka?</td>
<td>1</td>
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<tr>
<td>16. Ujya unanirwa kwituma ibikomeye/ugafunga?</td>
<td>1</td>
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<tr>
<td><strong>Mucyumwerugishize:</strong></td>
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<tr>
<td>17. Wigeze urwara impiswi/gucibwamo?</td>
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<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>18. Wigeze wumva unaniwe?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>19. Wigeze ugira ububabare?</td>
<td>1</td>
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<td>4</td>
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<tr>
<td>20. Wigeze wumva udashaka gusoma cyangwa kureba televiziyo?</td>
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<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>21. Wigeze wumva wigunze?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>22. Wigeze wumva ufite agahinda?</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>23. Wigeze wumva utameze neza?</td>
<td>1</td>
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<tr>
<td>24. Wigeze wumva utishimye?</td>
<td>1</td>
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<tr>
<td>25. Wigeze wibagirwa?</td>
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<tr>
<td>26. Kuri wowe ubwawe cyangwa imiti ufata hari ikibazo bitera umuryango wawe?</td>
<td>1</td>
<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>27. Kuri wowe ubwawe cyangwa imiti ufata hari ikibazo bitera abandi bantu?</td>
<td>1</td>
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<td>4</td>
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<tr>
<td>28. Kuri wowe ubwawe cyangwa imiti ufata hari ingaruka bigira ku mutungo</td>
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</tbody>
</table>
Ubuzuma muri rusange

<table>
<thead>
<tr>
<th></th>
<th>Nabi cyane</th>
<th>Nabi Biringani ye</th>
<th>Ntakibazo nagize</th>
<th>Neza cyane</th>
<th>Neza cyane</th>
<th>Byindash yikirwa</th>
</tr>
</thead>
<tbody>
<tr>
<td>29. wumvaga umeze gute mu cyumweru gishize ?</td>
<td>1</td>
<td>2</td>
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<td>6</td>
</tr>
<tr>
<td>30. Gereranya ubuzima bwawe n'ubwo mu cyumweru gishize ?</td>
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</tbody>
</table>

Tubashimiye umwanya wanyu mwaduhaye

Murakoze

umukono..........................................................
APPENDIX.10. APPROVAL LETTER TO CONDUCT RESEARCH

REPUBLIC OF RWANDA

NORTHERN PROVINCE
BURERA DISTRICT
BUTARO HOSPITAL
P.O Box 39 M/j/SANZE

Butaro, March 02, 2017

Our ref. \text{Hb/MT/EC/2017}

Dear UWAMAHORO Pauline

UR/CMS

Re: Review Approval Notice

In regard to your research project, “Assessment of quality of life of cancer patients undergoing chemotherapy in a selected District Hospital”:

With respect to your application and successful presentation of your research protocol to Butaro Hospital Ethics and Research Committee members on 28 February 2017, I am pleased to confirm that your study has been approved. However, we advise that you amend your title to “A pilot study assessing quality of life of cancer patients undergoing chemotherapy using the EU Validated Scale in a selected District Hospital in Rwanda”

This Approval lasts for 8 months from the date of this notice, after which you will be required to seek further approval if the study is not yet completed.

You are welcome to seek support or report any study related matter to the Research Office at Butaro Hospital during the period of approval.

Note: As a stipulation of your approval, you are required to present the results of your study to the Butaro Hospital Ethics and Research Committee before submitting for publication.

Thank you for your work thus far. We look forward to working with you on your study.

Sincerely,

Ijr. Tharcisse MPUNGA
Butaro Hospital Director
Chairperson of Butaro Hospital Ethics and Research Committee
Ce:

- Director of Nursing and Midwifery Unit
- Head of Oncology Department
TO WHOM IT MAY CONCERN

Dear Sir/Madam,

Re: Request to collect data

Referring to the above subject, I am requesting for permission for UWAMA HORIZON Pauline, a final year student in the Masters of Science in Nursing at the University of Rwanda/College of Medicine and Health Science to collect data for her research dissertation entitled ASSESSMENT OF QUALITY OF LIFE OF CANCER PATIENTS UNDERGOING CHEMOTHERAPY IN A SELECTED DISTRICT HOSPITAL.

This exercise that is going to take a period of 2 months starting from 13th February 2017 to 12th April 2017 will be at BUTARO HOSPITAL.

We are looking forward for your usual cooperation.

Sincerely,

Dr. Donatilla MUKAMANA, RN, PhD
Dean, School of Nursing and Midwifery
College of Medicine and Health Sciences

[Signature]

Email: schoolsofnursingandmidwifery@ur.ac.rw, P.O.Box: 3286 Kigali-Rwanda, Website: www.ur.ac.rw
APPENDIX 12:

UWAMAHORO Pauline  
School of Nursing and Midwifery, CMHS, UR

Dear UWAMAHORO PAULINE

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance of the revised protocol of the study entitled “Assessment Of Quality Of Life Of Cancer Patients Undergoing Chemotherapy In A Selected District Hospital In Rwanda”.

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

For
Professor Kato J. NJUNWA  
Chairperson Institutional Review Board,  
College of Medicine and Health Sciences, UR

Cc:
- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate studies, UR
APPENDIX 13:

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that Pauline UWAMAHORO successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 11/15/2016.

Certification Number: 2237412.