

HEALTH RELATED QUALITY OF LIFE AND ASSOCIATED
FACTORS AMONG ADULT CANCER PATIENTS ON
CHEMOTHERAPY AT TIKUR ANBESSA SPECIALIZED AND
REFERRAL HOSPITAL, ADDIS ABABA, ETHIOPIA.

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A RESEARCH THESIS SUBMITTED TO JIMMA UNIVERSITY,
COLLEGE OF HEALTH SCIENCES, DEPARTMENT OF NURSING
AND MIDWIFERY, IN PARTIAL FULFILLMENT FOR THE
REQUIREMENTS FOR MASTERS OF SCIENCE, DEGREE IN ADULT
HEALTH NURSING.

JUNE, 2016

JIMMA, ETHIOPIA.

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Abstract

Background: *Cancer causes more deaths than Acquired Immune Deficiency Virus, tuberculosis, and malaria combined. Chemotherapy is a concentrated and repeated treatment drug regimen that has many adverse reactions, which can affect the quality of life of cancer patients. Cancer patient response to therapy can be determined through assessing health related quality of life.*

Objective: *This study was designed to assess health related quality of life and associated factors among adult cancer patients on chemotherapy at Tikur Anbessa Specialized and Referral Hospital follow up clinic from March 28–April, 27, 2016.*

Methods: *An institution based Cross sectional study was conducted on 317 adult cancer patients on chemotherapy at Tikur Anbessa Specialized Referral Hospital, from March 28 –April, 27, 2016. The subjects were identified using systematic sampling technique from sampling frame. European Organization for Research and Treatment of Cancer, Quality of life Questionnaire, version 3 instrument were used to measure Health related quality of life. Data were edited, coded and entered using Epi data version 3.1 and exported to SPSS version 20 for analysis. Descriptive statistics were used to organize data and multivariate logistic regression analysis were used to assess factors affecting health related quality of life and results were displayed using charts, graphs and tables.*

Results: *the mean age of respondents were 41.80 (SD=21.06), 252(82.65%) were women, 150(49.2%) were between the age of 18-40 years. Above one fourth (33%) of cancer patients on chemotherapy had poor health related quality of life. According to this study duration of illness 1-5years, $P<0.001$ and >5 years, $p=0.018$, monthly income 301-1200, $p=0.004$, 12001-3199, $p=0.046$ were significantly associated with overall health related quality of life. Emotional functioning, $P=0.030$, loss of appetite, $P=0.002$ and insomnia, $P=0.006$ for global health, 3rd line of chemotherapy $p=0.025$ for functional, drug side effects $p=0.001$ for symptom scale were significantly associated.*

Conclusion & recommendation: *above one-fourth of cancer patient on chemotherapy had poor health related quality of life. Duration of illness and monthly income are independent predictors of health related quality of life. Therefore, palliative care team should be develop treatment strategies for those patients.*

Key words: *cancer, health related quality of life, chemotherapy, EORTC, QLQ-C30.*

Acknowledgments

First of all I would like to extend my great thanks to my advisors Mr. Gugsu Nemera and Mr. Million Abera for their valuable and unlimited help starting from preparation of proposal to this thesis development. Then I thanks to Dr. Dagnachew Hailemariam (Black lion oncology center) for his valuable suggestions, and constant motivation.

I would like also to thanks black lion oncology center staffs, data collectors and participants of the study. Last but not least I wish to express my gratitude to Jimma university department of nursing and midwifery having this opportunity and extend my thanks to my classmate students and my friends for their valuable comments.

Table of contents

Title	page no
Abstract.....	i
Acknowledgments	ii
Table of contents	iii
List of table.....	vi
List of figure.....	vii
List of Abbreviations and acronyms.....	viii
Chapter One: Introduction.....	1
1.1. Back ground.....	1
1.2. Statements of the problem.....	2
Chapter Two: Literature Review	3
2.1. Cancer and health related quality of life.....	3
2.2. Socio-demographic factor and health related quality of life	3
2.3. Medical factors and health related quality of life cancer patient.....	5
2.4. Chemotherapy related factors and health related quality of life.....	6
2.5. Conceptual frame work	7
2.6. Significance of the study	8
Chapter Three: Objective	9
3.1. General objective.....	9
3.2. Specific objectives.....	9
Chapter Four: Methods And Materials.....	10
4.1. Study area and period	10
4.2. Study design	10
4.3. Population.....	10
4.3.1 Source population.....	10
4.3.2. Study population.....	10
4.4. Inclusion and Exclusion Criteria	11
4.3.3. Inclusion criteria.....	11
4.3.4. Exclusion criteria.....	11
4.5 Sample size determination and Sampling technique	11

4.5.1. Sample size determination.....	11
4.5.2. Sampling technique	12
4.6 Study variables	12
4.6.1. Dependent Variable	12
4.6.2. Independent variables.....	12
4.7. Data collection procedures (instrument, personnel, data quality control).....	13
4.7.1. Data collection instrument.....	13
4.7.2. Data collection process.....	15
4.8. Data Analysis Procedures.....	15
4.9. Data Quality Management.....	16
4.10. Operational definition.....	17
4.11. Ethical consideration	18
4.12. Dissemination plan	18
Chapter Five: Results	19
5.1. Socio demographic characteristics	19
5.2. Medical history.....	21
5.3. Chemotherapy related information.....	22
5.4. Binary logistic regression between socio demographic, medical and chemotherapy related factors as predictors of HRQOL.....	23
5.4.1. Binary logistic regression between socio-demographic as predictors of HRQOL.....	23
5.4.2. Binary logistic regression between medical and chemotherapy related factors as predictors of HRQOL.....	25
5.5. Assessing association between HRQOL and its domains.....	28
5.5.1. Functional Scale	28
5.5.2. Symptom scale.....	29
5.5.3. Assessing associated factors and domains of health related quality of life.....	30
5.5.4. Assessing association of functional and symptom scale with global quality of life.....	32
5.6. Factors affecting Health related quality of life of cancer patients under chemotherapy.....	34
Chapter Six.....	35

6.1. Discussion.....	35
Limitation of the study	38
Chapter Seven: Conclusion And Recommendation	39
7.1. Conclusion.....	39
7.2. Recommendation.....	39
References	40
Annexs.....	43
የተሳታፊዎች መረጃ መስጫ መጠይቅ ቅጽ-በአማርኛ	49

List of table

<u>Table no</u>	<u>Page no</u>
Table 1: Socio-demographic characteristics of adult cancer patients on chemotherapy at TASRH, 2016, n= 305.....	19
Table 2: Clinical characteristics among adult cancer patients on chemotherapy at TASRH, 2016. n=305.....	21
Table 3: Chemotherapy related factors among adult cancer patients under chemotherapy at TASRH, 2016. n=305.	22
Table 4: Association between socio demographic variables and HRQOL among adult cancer patients under chemotherapy at TASRH, 2016.	24
Table 5: Associations between clinical characteristics, chemotherapy related factor and HRQOL of adult cancer patients on chemotherapy at TASRH, 2016.	26
Table 6: Associations between functional scales and global health at TASRH, 2016....	28
Table 7: Associations between symptom scales and global health / quality of life of cancer patients on chemotherapy at TASRH, 2016.....	29
Table 8: Association between associated factors and domains of health related quality of life, TASRH, 2016.....	31
Table 9: Assessing association between functional and symptom scale with global health among cancer patients on chemotherapy at TASRH, 2016.	33
Table 10: Association between associated factors and HRQOL at TASRH, 2016.....	34

List of figure

<u>Figure no</u>	<u>Page no</u>
Figure 1: Conceptual framework for assessment of HRQOL among adult cancer patients on chemotherapy at TASRH, 2016	7
Figure 2: HRQOL among cancer patients under chemotherapy at TASRH, 2016.	23

List of Abbreviations and acronyms

AC-Adriamycine & Cyclophosamide

CDC- Center for Diseases Control

CHOP- Cyclophosamide, Hydroxydaunorubicine, Vincristine (oncovin), & Prednisone,

DNA- Deoxyribonucleic acid

EORTC - European Organization for Research and Treatment of Cancer

EORTC QLQ-C30-European Organization for Research and Treatment of Cancer
Quality of Life core Questionnaire

EU-European Union

FAC-Fluorouracil, Adriamycin, Cyclophosamide

GQOL-Global Quality of Life

HRQOL-Health Related Quality of Life

IARC- International Agency for Research on Cancer

IFL –Irinotecan, Folinic acid, & Fluorouracil

NOC- National Oncology Center

QOL-Quality of Life

SPSS-Statistical Package for Social Science

TASRH- TikurAnbessa Specialized and Referral Hospital

WHO- World Health Organization

CHAPTER ONE: INTRODUCTION

1.1. Back ground

Cancer is a group of diseases that begins when abnormal cells are transformed by genetic mutation of cellular deoxyribonucleic acid (DNA) that can affect any part of the body and all human dimensions: physical, psychological, social and spiritual (1-4). There are different predisposing factors, like Viruses, bacteria, genetic or familial factors, dietary factors, physical agents, chemical agents, and hormonal agents (1, 2, 4).

Cancer patients are vulnerable to psychological and emotional morbidities due to metabolic or endocrine alterations, treatment with debilitating chemotherapy regimens, immune response modifiers, chronic pain associated with cancer ,(5-8). Chemotherapy is a concentrated and repeated treatment drug regimen, that has many adverse reactions including hair loss, nausea, vomiting, and diarrhea, which can eventually affect the QoL of cancer patients (8, 9).

Cancer treatment also cause adverse effects to the social function, including work and productive life, relationship with the family, partners and friends, and other interests and social activities (10).

According to the World Health Organization (WHO), quality of life (QoL) defined as individual perception of life, values, objectives, standards, and interests in the framework of culture (11).

Health related quality of life (HRQOL) refers to the value that can be attributed to life, due to changes that may occur by damages to the functional status, perceptions and social factors influenced by diseases or injuries, treatments and health policies (6, 12).The importance of health-related quality of life (HRQOL) is leading to the inclusion of HRQOL instruments in clinical trials.

1.2. Statements of the problem

Due to changes in population demographic the estimated incidence were 12.7 million new cancer cases in 2008 will rise to 21.4 million in 2050 (13). Approximately 16% of all incident cancers worldwide are attributable to infections, one fourth of death in USA, and one tenth of death in Africa were due to cancer (2, 14). Cancer is an emerging public health problem in Africa. According to International Agency for Research on Cancer (IARC) 715,000 new cases 2008 and 542,000 deaths occur in Africa and double in 2030 due to aging and growth of population because of behavioral and life style associated factors (2, 15). According to study done in Kenya the most common malignancy were (56%) cervical followed by (24%) ovarian and in Ethiopia were (47%) gynecological cancer, followed by breast cancer (26%) (13, 16).

The diagnosis and treatment of cancer often has an impact on health-related quality of life (HRQOL) and cause multiple concerns and needs of care and support (17). Ethiopia is home to a growing population of more than 102 million people and is expected to become the ninth most populous country in the world by 2050, with an estimated parallel rise in cancer burden (13, 18).

Low awareness of the scale of the cancer burden among local and international policy makers contributes to the inadequate attention directed towards the disease in Ethiopia and other African countries (18).

There were little knowledge was known and limited study was done about quality of life of cancer patients on chemotherapy in our country. There for, since being a cancer patients and its treatment were associated with a high level of impairment in different aspects of quality of life, this study was aimed to explicit factors that affect health related quality of life among cancer patients on chemotherapy.

CHAPTER TWO: LITERATURE REVIEW

2.1. Cancer and health related quality of life

Health-related quality of life may be considered having a great mental, physical and social function level, as well as real life position (social role), which includes relationships, health perception, abilities, satisfaction with life and well-being (19). Tiredness, anxiety, concern for the future and the family, difficulties to meet basic demands and changes in body image worsen the quality of life of cancer patients (14).

Cancer patients Quality of life worsened by psychological problems (stress, anxiety, depression), physiological side-effects (hair loss, pain, tiredness, nausea, vomiting), social side effects (social isolation, role and function loss), socio demographic (age, sex, level of education, low income and treatment modalities), sleep disturbance and lack of autonomy (6, 14, 20).

2.2. Socio-demographic factor and health related quality of life

According to study done in Gaza, Palestine younger women had greater psychological morbidity and poorer QOL after breast cancer than older women (20), and study done in Nairobi, Kenya older females had better body image score (21) and better future perspective (22). Previous studies suggest that lower education, low income and advanced stage cancer (23), aging and treatment modalities have been known to be significant high risk factors for poor quality of life (20).

According to study done in Iran males had better in body image, higher physical and sexual functioning, emotional functioning score, tolerated chemotherapy side effects, but females had moderate correlation between age and role, social and emotional function and had more loss of appetite, and impairment in role and emotional function. But sexual function and sexual enjoyment impaired in both sex (21, 22).

Patients who have higher educational levels were more likely to better access to information for problem solving as well as better coping skills, which might explain better QOL among women with higher socioeconomics (23, 24). Similarly according to the study done in Iran cervical cancer patient with better socioeconomics (Employed and higher education) had higher scores in terms of physical well-being, social well-being and total quality of life (23). QOL scores were high in educated women (21, 24).

Functional well-being scores were high in patients owning greater than 1,000 Turkish lira monthly income and QOL cancer patients was affected by financial difficulties (24). Patients who have high income levels better accesses to resources for problem solving as well as better coping skills, which might explain better QOL among women with higher socioeconomics (23).

The study done in Iran there was significant association of mean score of fatigue in single were more than married ones and similar to economic status (25). The higher family support increases the quality of life of cancer patient (26). Similarly study done in Iran cervical cancer patients with better socio economic had higher scores in terms of physical wellbeing, social wellbeing and quality of life (23).

Africa has an extraordinarily diverse population with respect to country of origin, religion, language, culture, economic status and other socio demographic characteristics that affect the occurrence of cancer and its outcomes (15). Religious and spiritual practices improve quality of life, physical well-being, hope and general life satisfaction, and diminish anxiety. Religion, a factor to overcome the disease, is related to socio cultural and economic characteristics of individuals (14). According to the study done in Kenya low level of education, age, low annual income, marital status (married), occupation (peasant farmer and casual worker), religion and living in a rural residence impaired quality of life of the patient. Low levels of education have been associated with decreased awareness of the disease, late screening and presentation to health facilities with a resultant poor prognosis hence impaired quality of life (21).

Religious and spiritual practices improve quality of life, physical well-being, hope and general life satisfaction, and diminish anxiety. Religion, a factor to overcome the disease, is related to socio cultural and economic characteristics of individuals (14).

Across sectional study done in Ethiopia, TASRH the majority were women age below 40 years, low income, and low level of education, married and orthodox and the most prevalent types of cancer were breast cancer and cervical cancer and co morbidities were diabetes, hypertension, HIV and kidney problems and clinical stage IIa during therapy (13).

2.3. Medical factors and health related quality of life cancer patient

According to study done in Germany on melanoma patients location of tumor, stage of tumor and type of cancer had impact on quality of life. Similarly insomnia, nausea and vomiting had high level of quality of life impairment (11, 27). The study done in Turkey functional well-being scores were detected to be significantly higher in the patient group that had no co morbid disease (24).

A cross sectional study carried out in Nepal on depression and anxiety in cancer patients found (60%) of cancer patients as having psychiatric morbidity as compared to healthy individuals (16%) and patients of breast cancer had severe anxiety (15.8%), moderate anxiety (48.3%), and mild form of anxiety (25%) ,similarly, patients had severe depression (4.2%), moderate depression (60%), and mild level of depression (29.2%) and depression had significant association with educational (5).

Similarly studies done in china cancer patient had 38% diagnosis of depression and its presence was associated with reduced QOL, increased progression of diseases, nausea and vomiting and reduced survival rate. Depression had risk of decline HRQOL and survival rate during chemotherapy (28).

According to study done in Iran QOL score was significantly associated with social functioning in functional scales and presence of nausea and vomiting, short

breathing, lack of appetite and sleep disorders as well as financial problems in symptom scales (29).

The study done in Kenya type of gynecological cancer, duration of illness, type of cancer treatment was significantly impaired quality of life (21).

2.4. Chemotherapy related factors and health related quality of life

According to study done in Germany HRQOL of breast cancer patients is largely affected by chemotherapy (30). A significant association between CT line and all Functioning scales of the QLQ-C30 (Physical, Role, Social, Emotional, and Cognitive Functioning), Global QOL, Fatigue, Pain, Dyspnoea, and Appetite Loss with worse outcomes for patients in later treatment lines (31).

Cancer patients whether they were treated with radiotherapy or chemotherapy role function and rural residence affect QOL, emotional domain of QOL was the least affected, while the physical domain moderately (47%) affected, social and functional domains were the most badly affected ones (9, 10).

According to the study done in Germany fatigue, the most common side effect (65–90%), can be lasting for years and is regarded as one of the most important therapy burden from the patients' view (30). Similarly a cross sectional study done in Iran 76-99% of patients undergoing chemotherapy experienced fatigue(25). And study done in Tehran University of medical science health related quality of life were significantly affected by low fatigue and under chemotherapy or number of chemotherapy cycles (11). A significant association between CT line and all functioning scales of the QLQ-C30 (Physical, Role, Social, Emotional, and Cognitive Functioning), Global QOL, Fatigue, Pain, Dyspnoea, and Appetite Loss with worse outcomes for patients in later treatment lines (31).

Different studies were done in different parts of the world and with different assessment tools and population, including our country. But in this study variables like drug regimen, chemotherapy line, side effects and complication of chemotherapy were included in my studies.

2.5. Conceptual frame work

The conceptual frame work was adapted from EORTC, QLQ, C30 (3) assessment tool and from literature that done in less developed country and had significant association with health related quality of life. It shows dependent variable with different independent variables. In this study dependent variable was health related quality of life and the independent variables were socio demographic, medical and chemotherapy related factors among cancer patients who were under chemotherapy. The arrows shows that the association between dependent variables and independent variables.

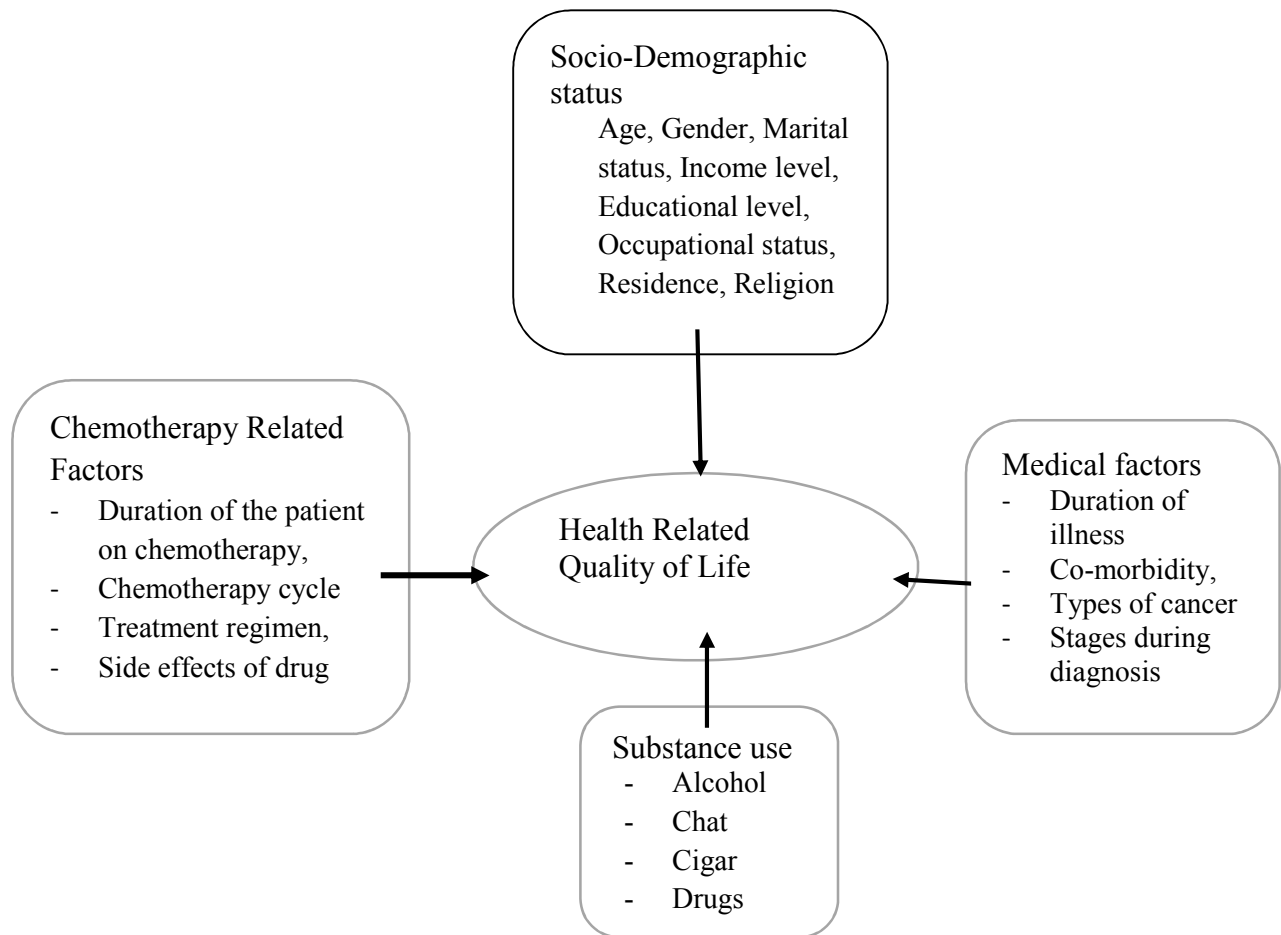


Figure 1: Conceptual framework for assessment of HRQOL among adult cancer patients on chemotherapy at TASRH, 2016. (Adapted from searching for different literature and EORTC assessment tool).

2.6. Significance of the study

This study seeks to examine various factors affecting health related quality of life of cancer patients taking chemotherapy, and studying the associated factors helps for effective interventions and prevention of complication related to side effects chemotherapy and patients health related quality of life.

The result of study can be used by health care planners, police makers and professional to target the factors during health care planning and patient care to maintain their quality of life and also to assess the chemotherapy responses or patients progress.

Accurate assessments and knowing level of health-related quality of life in patients with advanced cancer is also essential to improve our understanding of how cancer and chemotherapy influence patients' life and to adapt treatment strategies for those patients.

CHAPTER THREE: OBJECTIVE

3.1. General objective

To assess health related quality of life and associated factors among adult cancer patients taking chemotherapy in cancer center at Tikur Anbessa Specialized Referral Hospital, Addis Ababa, Ethiopia, 2016.

3.2. Specific objectives

- To assess the level of health related quality of life among adult cancer patients on chemotherapy at TASRH.
- To identify associated factors of health related quality of life among adult cancer patients on chemotherapy at TASRH.

CHAPTER FOUR: METHODS AND MATERIALS

4.1. Study area and period

This study was conducted in Tikur Anbessa Specialized and Referral hospital (TASRH) chronic follow up clinic from March 28- April 27, 2016. TASRH is located in Addis Ababa, is the capital city of Ethiopia. TASRH provides services for approximately 400,000 patients yearly and is the only teaching and referral hospital for oncology center in the country. As one of the outpatient services, the hospital has specialty clinics where patients with specific chronic disease are referred for follow-up. Chronic illness clinic is one of those clinics which give service for patients with cancer patients. The clinic gives service for about 70,000 cancer patients per year. Among those, 1150 patients are on chemotherapy. On average 100 – 150 patients visit the clinic in a day. The clinic has five outpatient and three inpatient wards and new outpatient branch. The clinic is staffed with specialists (doctors), residents, general Practitioners and nurses who are trained in specific chronic disease patient follow-up.

4.2. Study design

An institution based Cross sectional study design.

4.3. Population

4.3.1 Source population

All adult cancer patients who were on chemotherapy at chronic illness clinic of TASRH.

4.3.2. Study population

All sampled adult cancer patients currently on chemotherapy at chronic illness clinic of TASRH who fulfilled the inclusion criteria.

4.4. Inclusion and Exclusion Criteria

4.3.3. Inclusion criteria

- ✓ Who were ≥ 18 years and cancer patients on chemotherapy for a minimum period of at least 2 months (2nd cycle and above).

4.3.4. Exclusion criteria

- ✓ Patients who were seriously sick and unable to give interview at the time of interview.
- ✓ Hospitalized persons with cancer and mentally ill.

4.5 Sample size determination and Sampling technique

4.5.1. Sample size determination

The sample size was determined using the single population proportion formula as follows.

$$n = \frac{(Z_{\alpha/2})^2 P(1-P)}{D^2} = \frac{(1.96)^2 0.5(1-0.5)}{(0.05)^2} = 384$$

Where:

P = Estimate % of cancer patients under chemotherapy who are expected to have good health related quality of life taken 50%.

D = Margin of sampling error tolerated- 5% (0.05).

α = Critical value at 95% confidence interval of certainty (1.96)

Since the source population is 1150 that is below 10,000, finite population correction is needed.

$$nf = \frac{n}{1+n/N} = \frac{384}{1+384/1150} = 288$$

Where, N= total population (1150)

The result after the correction becomes 288 samples and adding non response rate of 10% the total sample size becomes 317.

4.5.2. Sampling technique

Systematic random sampling was used by selecting the first study subject from registration book (sampling frame) through simple random sampling after calculating the interval (Sampling interval is $k = N/n: 1150/317 = 4$) among cancer patients who were visiting the clinic, receiving chemotherapy and appointed at the time of interview that fulfilled the inclusion criteria to obtain the required sample. The patient cards were used to obtain medical information from the patient's document by using their medical record number (MRN).

4.6 Study variables

4.6.1. Dependent Variable

- Health related quality of life (HRQOL)

4.6.2. Independent variables

- Chemotherapy Related Factors: Duration of patients on chemotherapy, chemotherapy cycle, drug side effect and treatment regimen.
- Medical factors: Duration of illness, co-morbidity, types of cancer, and stages of cancer.
- Socio-demographic factors: Age, gender, marital status, income level, education, occupational, religion, residence, substance use.

4.7. Data collection procedures (instrument, personnel, data quality control)

4.7.1. Data collection instrument

The data were collected using structured questionnaires and by reviewing patient chart for medical data. The questionnaire included socio demographic characteristics; medical factors, and chemotherapy related factors. Medical data includes clinical information of patients like type of cancer, stage of cancer, drug regimen, cycle and line of chemotherapy. The European organization for research and treatment of cancer (EORTC) tool was used. The European Organization for Research and Treatment of Cancer (EORTC) quality of life questionnaire (QLQ) is an integrated system for assessing the health related quality of life (QoL) of cancer patients. EORTC version 3.0 is currently the standard version of the QLQ-C30. The questionnaire is designed to assess the patients' physical functioning (PF), role functioning (RF), cognitive functioning (CF), emotional functioning (EF), social functioning (SF), global quality of life (GQL), pain (PA), fatigue (FA), nausea/vomiting (NV) and, means of multi-item scales, and disease- and treatment- related symptoms by means of single items: dyspnea (DY), insomnia (SL), appetite loss (AP), constipation (CO), diarrhea (DI) and financial difficulties (FI).

The score for each item ranges from 1 (not at all) to 4 (very much) for functional scales, or from 1 (very poor) to 7 (excellent) for GQL. The total score ranges from 0 to 100. For functional scales and global quality of life higher scores represent better quality of life, while for symptom-oriented scales higher scores mean more severe symptoms.

The raw scores were transformed to scores ranging from 0 to 100. The use of these transformed scores has several advantages 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. Linear transformation to 0-100 to obtain the score S, has been done by using the following formula .

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,

$$\text{Symptoms scale: } S = \left\{ \frac{(RS - 1)}{\text{range}} \right\} \times 100$$

$$\text{Global health status: } S = \left\{ \frac{(RS - 1)}{\text{range}} \right\} \times 100$$

$$\text{Functional scale: } S = \left\{ 1 - \left(\frac{(RS - 1)}{\text{range}} \right) \right\} \times 100$$

Range is the difference between the maximum possible value of RS and the minimum possible value. The QLQ-C30 has been designed so that all items in any scale take the same range of values. Therefore, the range of RS equals the range of the item values. Most items are scored 1 to 4, giving range = 3. The exceptions are the items contributing to the global health status / QoL, which are 7-point questions with range= 6, and the initial yes/no items on the earlier versions of the QLQ-C30 which have range=1.

There is no existing data for the EORTC QLQC30 scales to indicate the threshold scores that are likely to mean significant impairment. Therefore, in this study, after transformation of each domain is 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 impaired and scores above 25 have been used as impaired for symptom scales (13). The questionnaire were translated from English to Amharic language before training and the data were collected by Amharic language.

4.7.2. Data collection process

Quantitative data was collected by Amharic version questionnaire using face to face interview and medical record review from March 28- April 27, 2016. Socio demographic, medical, chemotherapy and EORTC-QLQ C30 (3) were used to assess health related quality of life of patients on chemotherapy. But medical factors were obtained by reviewing patient's document for medical data from patient card by using their medical record number.

Four nurses with diploma for data collection and one BSc nurse for supervision were selected from other wards. Training were given for both the data collectors and supervisors for one day before the actual work about data collection techniques go through the questionnaire question by question, ways of collecting the data and clarification were given on each doubt.

4.8. Data Analysis Procedures

After data collection, each questionnaire was checked visually for completeness. The responses were coded and entered into epi data version 3.1 and exported to SPSS version 20 for analysis. Frequencies and measures of variation were used to describe the study population in relation to socio-demographic and other variables assessed.

Both descriptive and analytic analysis were performed. In the descriptive analysis, simple frequencies and proportions were calculated. In the analytic statistics, logistic regressions analysis were made by considering patients health related QoL as a binary outcome variable. Multivariate analysis were used to predict the factors which influence the level of health related QoL. Those explanatory variables with a p value < 0.25 in bivariate analysis were considered as a candidate for multivariate analysis and those variables with a p value ≤ 0.05 in multivariate analysis were considered significant. Finally, the results of the analysis are presented in tables, charts and graphs as appropriate.

4.9. Data Quality Management

To assure the quality of the data, properly designed data collection tool was prepared in English and then translated to Amharic and back translated to English to check consistency by fluent speaking person and the data was collected using Amharic version. The questionnaire was pre-tested on 5% (16) of the sample size in TASRH to check the accuracy and validity of the questionnaire prior to the actual study period. The pre-test showed the cronbach's α for the EORTC-QLQ C30 (3) was 0.82. In addition to this, Data collectors and supervisor were oriented on the overall data collection procedures. Training was given to supervisor and data collectors. The principal investigator and supervisor were making supervision on the data collection process. Then Data was checked and entered into Epi-data version 3.1 for double data entry verification. Finally, some adjustments made on socio demographic, medical and chemotherapy related factors and patients who involved on pre-testing were excluded.

4.10. Operational definition

Health related quality of life: is when patients' functional scale, symptom scale and global health or quality of life were not impaired.

Health related quality of life: - cutoff point for clients' overall Health related QOL was classified into two categories:-

- ✓ Not Affected at all: in which a score >75 for functional and global health (QOL) scales and symptoms scale score < 25
- ✓ Affected at any degree: if score <75 for functional and global health and > 25 for symptom scale (13).

Socio-demographic related factors: are those that influence health outcomes. For this study, socio-demographic factors are the determination of health related quality of life patients under chemotherapy. Representative variables: (a) age of the participant in years according to the medical record, (b) gender (male or female) according to the medical record, (c) self-reported marital status (married or unmarried), (d) self-reported educational status, (e) self-reported financial situation (monthly family income in birr), (f) self-reported occupational status, and (g) self-reported financial support.

Medical factors: are factors that influence health outcomes. For this study, medical factors are the determination of HRQoL and representative variables: (a) Duration of illness, (b) Co-morbidity, (c) Types of cancer, and (d) Stages during diagnosis

Chemotherapy Related Factors: are factors that affect health related quality of life patients under chemotherapy, and variables duration of the patient on chemotherapy, chemotherapy line, cycle of chemotherapy, drug regimen, and side effects of drug.

4.11. Ethical consideration

Before the data collection, ethical clearance letter was obtained from ethical review board of Jimma University College of Health Sciences. The letter was submitted to Tikur Anbessa Specialized and Referral Hospital management for permission. The respondents were informed, and their oral consents were obtained. The respondents' right to refuse or withdraw from participating in the interview at any time was fully respected and the information provided by each respondent were kept confidential by making each questionnaire coded and not sharing personal information of any patient to the third party.

4.12. Dissemination plan

The results of the study were communicated to Jimma University College of Health Sciences Graduate School, Department of Nursing and to Tikur Anbessa Specialized and Referral Hospital (TASRH) in the study area. Finally an effort will also be made to publish in a peer reviewed reputable journal.

CHAPTER FIVE: RESULTS

Out of 317 respondents intended to be included in the study, a total of 305 patients participated giving a response rate of 96.2% .The non-respondents were not participate due to unwillingness (due to had no time ,busy for transportation and office work).

5.1. Socio demographic characteristics

In this study the majority of the respondents were female 252 (82.6%), the mean age of the study participants was 41.80 (SD=21.06) years, where the minimum and maximum ages were 18 and 65 years respectively, (49.2%) were between the age of 18 and 40 years, 190 (62.3%) were orthodox religion followers, 127 (41.6%) were house wife, 91 (29.8%) had secondary education, 167 (54.8%) had monthly income of less than or equal to 300 Ethiopian Birr, and 131 (43%) were Addis Ababa residents.(Table 1)

Table 1: Socio-demographic characteristics of adult cancer patients on chemotherapy at TASRH, 2016, n= 305.

Variables	Frequency	Percent
Age		
18-40	150	49.2
41-49	69	22.6
50-59	57	18.7
≥60	29	9.5
Sex		
Male	53	17.4
Female	252	82.6
Religion		
Orthodox	190	62.3
Muslim	57	18.7
Protestant	54	17.7
Catholic	2	0.7
Others	2	0.7
Marital status		
Married	205	67.2
Single	62	20.3
Divorced	24	7.9
Widow	14	4.6
Occupation		

House wife	127	41.6
Gov't worker	63	20.7
Farmer	39	12.8
Daily labor	68	22.3
Others	8	2.6
Educational level		
Illiterate	80	26.2
Read and write	19	6.2
Primary education	66	21.6
Secondary	91	29.8
College and above	49	16.1
Average monthly income		
0-300	167	54.8
301-1200	57	18.7
1201-2000	30	9.8
2001-3199	30	9.8
≥3200	21	6.9
Residence		
Addis Ababa	131	43
Oromia	62	20.3
Amhara	39	12.8
Tigray	17	5.6
SNNPR	45	14.8
Dire dawa	8	2.6
Others	3	1

Others: Religion- Wakefeta, Jehovah witnesses

Occupation- No job, merchant, retired, and students

Residence- Somali, Benishangul Gumuz, and Gambella

5.2. Medical history

Among cancer patients under chemotherapy at TASRH; breast cancer was the leading 223 (73.1%), followed by colorectal cancer 37 (12.1%) and most patients were on advanced stage of cancer (IV) 142 (46.56%). Common comorbid diseases were hypertension 22 (7.21%), HIV/AIDS 19 (6.23%), diabetes 11 (3.61%) and others (Asthma, Anemia, & renal diseases) 4 (1.31%). (Table 2).

Table 2: Clinical characteristics among cancer patients on chemotherapy at TASRH, 2016. n=305.

Variable	Frequency	Percent
Types of cancer		
Breast cancer	223	73.1
Colorectal cancer	37	12.1
Lymphoma	26	8.5
Cervical cancer	10	3.3
Others	9	3.0
Stage of cancer		
I	6	1.9
II	90	29.5
III	67	21.9
IV	142	46.5
Time since diagnosis /duration of illness		
<6months	28	9.2
6months-11months	38	12.5
1year- 5years	208	68.2
<5years	31	10.2
Comorbid diseases		
Hypertension	22	7.2
Heart failure	7	2.3
Diabetes	11	3.6
HIV/AIDS	19	6.2
Others	4	1.3
None	242	79.3

Others= comorbid diseases-asthma, anemia, & renal diseases

5.3. Chemotherapy related information

Around three -fourth of the patients 217 (71.1%) were on 1st line of chemotherapy, 127 (41.6%) 3rd cycle of chemotherapy and 117 (38.4%) on AC (Adriamycin and Cyclophosphamide) of chemotherapy.

Above half of the patients who were under chemotherapy 205(67.21%) had side effects like alopecia, nausea and vomiting.

Table 3: Chemotherapy related factors among cancer patients under chemotherapy at TASRH, 2016. n=305.

Variables	Frequency	Percent
Chemotherapy line		
1 st line	217	71.1
2 nd line	83	27.2
3 rd line	5	1.6
Chemotherapy cycle		
2 nd cycle	41	13.4
3 rd cycle	127	41.6
4 th cycle	87	28.5
≥5 th cycle	50	16.4
Regimen		
AC	117	38.4
FAC	59	19.3
Taxol	57	18.7
ILF	42	13.8
Gemcitabine	15	4.9
Others	15	4.9
Duration on chemotherapy		
<6monthss	238	78.0
6months -11months	37	12.1
≥1year	30	9.8

Others = Regimen- CHOP, Cisplatin, 5FU, methotrexate, VAC, and EC

5.4. Binary logistic regression between socio demographic, medical and chemotherapy related factors as predictors of HRQOL.

The overall health related quality of life was calculated after transformation of the domain (functional scale, symptoms scale and global health) to linear and the sum of all domain and divided by three. Finally categorized as good for greater than 75 and poor for less than 75.

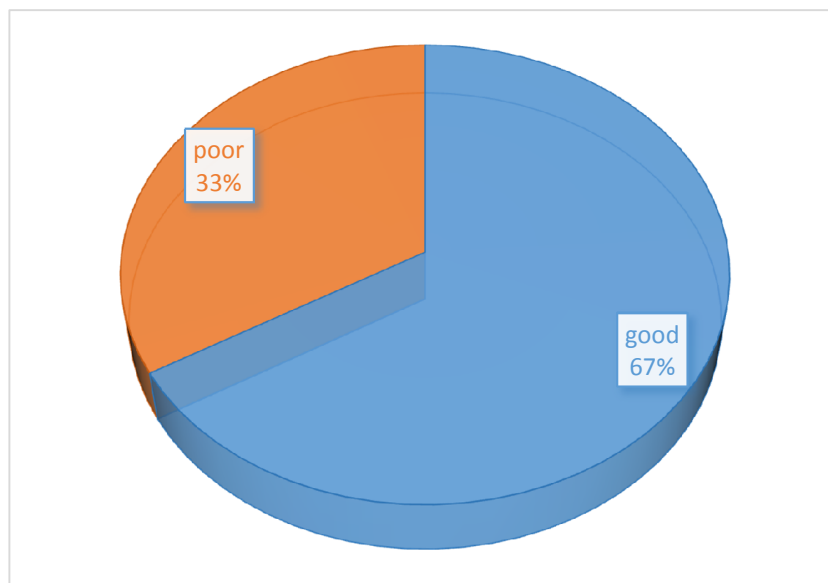


Figure 2: HRQOL among cancer patients under chemotherapy at TASRH, 2016.

5.4.1. Binary logistic regression between socio-demographic as predictors of HRQOL.

Regarding to cancer patients under chemotherapy, 32 % were age 18-40, 32.5% were females, 32.6% were orthodox followers, 42.6 % were widow, 37.4 % had secondary education, 26.9 % had monthly income less than 300 Ethiopian birr, and 37 % were house wife had poor HRQOL. Almost all socio demographic variables were no association noted with health related quality of life of cancer patients under chemotherapy, but those with age 41-49 years were significant at 95% CI, and p-value < 0.25 associated with HRQOL. (Table-4).

Table 4: Association between socio demographic variables and HRQOL among adult cancer patients under chemotherapy at TASRH, 2016.

Variables	HRQOL		Crude	
	Good (N/%)	Poor (N/%)	COR(95%CI)	P
Age				
18-40	102(68.0)	48(32.0)	0.461(0.205, 1.037)	0.061
41-49	51(73.9)	18(26.1)	0.372(0.149, 0.927)	0.034*
50-59	35(61.4)	22(38.6)	0.693(0.281, 1.1713)	0.427
≥60	15(51.7)	14(48.3)	1.00	
Sex				
Female	170(67.5)	82(32.5)	1.00	
Male	33(62.3)	20(37.7)	1.256(0.679, 2.323)	0.467
Religion				
Orthodox	128(67.4)	62(32.6)	1.14(0.599, 2.169)	0.690
Muslim	40(70.2)	17(29.8)	1.00	
Protestant	32(59.3)	22(40.7)	1.618(0.738-3.548)	0.230
Marital status				
Married	133(64.9)	72 (35.1)	1.00	
Single	45(72.6)	17(27.4)	0.698(0.373, 1.307)	0.261
Divorced	17(70.8)	7(29.2)	0.761(0.301, 1.92))	0.562
Widow	8(57.1)	6(42.6)	1.385(0.463, 4.148)	0.560
Educational level				
Illiterate	68(68.7)	31(31.3)	1.00	
Primary	46(69.7)	20(30.3)	0.954(0.485, 1.874)	0.891
Secondary	57(62.6)	34(37.4)	1.308(0.718, 2.386)	0.380
College and above	32(65.3)	17 (34.7)	1.165(0.564, 2.407)	0.679
Average monthly income				
≤300	122(73.1)	45(26.9)	0.922(0.337-2.523)	0.875
301-1200	30(52.6)	27 (47.4)	2.25(0.764-6,626)	0.141

1201-2000	21(70.0)	9 (30.0)	1.071(0.314-3.655)	0.912
2001-3199	15(50.0)	15(50.0)	2.5(0.763-8.192)	0.130
≥3200	15(71.4)	6 (28.6)		
Occupation				
Gov` t worker	41(65.1)	22 (34.9)	1.00	
Farmer	29(74.4)	10(25.6)	0.643(0.265, 1.559)	0.328
House wife	80 (63.0)	47(37.0)	1.095(0.583, 2.058)	0.778
Daily labor	47(69.1)	21(30.9)	0.833(0.401,1.728)	0.623
Residence				
Addis Ababa	89 (67.9)	42 (32.1)	1.00	
Oromia	39 (62.9)	23 (37.1)	1.250(0.664,2.352)	0.490
Amhara	27 (69.2)	12 (30.8)	0.942(0.435,2.040)	0.942
SNNPR	29 (64.4)	16 (35.6)	1.169(0.574,2.383)	0.667
Tigray	14 (82.4)	3 (17.6)	0.454(0.124, 1.666)	0.234

5.4.2. Binary logistic regression between medical and chemotherapy related factors as predictors of HRQOL.

According to clinical information; breast cancer, advanced stage of cancer, and 1year to 5years time since diagnosis or duration of illness were 32.7%, 33.1%, and 26.1% respectively had poor HRQOL. Medical factors like types of cancer, stages of cancer and presence of comorbid diseases were no association with health related quality of life. However, duration of illness had significant association with HRQOL at 95% CI, and p-value < 0.25. (Table-5).

In related to chemotherapy related factors; 33.7 % were 1st line, 35 % were on AC, 32.3 % were 3rd cycle and 38.5 % were less than 6months on chemotherapy had poor HRQOL. Chemotherapy related factors like; line of therapy, cycle of therapy, drug regimen, and duration of patients on chemotherapy had no association but drug side effects had association with HRQOL at 95% CI, and p-value < 0.25. (Table-5).

Table 5: Associations between clinical characteristics, chemotherapy related factor and HRQOL of adult cancer patients on chemotherapy at TASRH, 2016.

Variables	HRQOL		Crude	
	Good (N/%)	Poor (N/%)	COR(95%CI)	P
Types of cancer				
Breast cancer	150(67.3)	73(32.7)	1.00	
Colorectal cancer	22(59.5)	15(40.5)	1.40(0.686-2.859)	0.354
Lymphoma	14(53.8)	12(46.2)	1.76(0.0.776-4.00)	0.176
Stages of cancer				
II	58(64.7)	32(35.6)	1.115(0.640,1.943)	0.700
III	46(68.7)	21(31.3)	0.923(0.495,1.72)	0.800
IV	95(66.9)	47(33.1)	1.00	
Duration of illness				
≤11months	1(3.8)	25(96.2)	1.00	
1year-5years	198(73.9)	70(26.1)	0.014(0.002-0.106)	<0.001*
>5years	4(36.4)	7(63.6)	0.07(0.007- 0.731)	0.026*
Comorbidity				
No	146 (65.2)	78 (34.8)	1.00	
Yes	57 (70.4)	24 (29.6)	1.269(0.732, 2.20)	0.397
Line of chemotherapy				
1 st line	145(66.8)	72(33.2)	1.00	
2 nd line	55(66.3)	28(33.7)	1.025(0.60-1.752)	0.927
Regimen				
AC	76(65.0)	41(35.0)	1.00	
FAC	40(67.8)	19(32.2)	0.88(0.453,1.712)	0.708
Taxol	38(66.7)	19(33.3)	0.927(0.0.475,1.81)	0.824
ILF	26(61.9)	16(38.1)	1.14(0.0.550,2.36)	0.724
Gemcitabin	12(80.0)	3(20.8)	0.463(0.124,1.736)	0.254
Chemotherapy cycle				
2 nd cycle	29(70.7)	12(29.3)	1.152(0.534,2.485)	0.718
3 rd cycle	86(67.7)	41(32.3)	1.030(0.456, 2.326)	0.943

4 th cycle	61(70.1)	26(29.6)	2.06(0.86,4.928)	0.105
5 th and above	27(54.0)	23(46.0)	1.00	
Chemotherapy side effects				
No	58(58)	42(42)	1.00	
Yes	145(70.7)	60(29.3)	0.571(0.347, 0.94)	0.028*
Duration on chemotherapy				
<6months	154(64.7)	84(35.5)	1.00	
6months - 11 months	27(73.0)	10(27.0)	0.679(0.314,1.471)	0.326
≥1year	22(73.3)	8(26.7)	0.667(0.284,1.562)	0.351

5.5. Assessing association between HRQOL and its domains.

5.5.1. Functional Scale

Statistical significant association was noted at 95% CI, and p-value < 0.25, with physical, emotional, and cognitive functioning, but not for social and role functioning. Physical functioning is like having trouble doing strenuous activities, having trouble taking long walk, having trouble taking a short walk outside of the house, stay in bed or a chair for most of the day, and need help with eating, dressing, washing self or using the toilet, cognitive functioning for memory and concentration of the patients. But all were not significant on AOR. However, Emotional functioning is assessed for feeling tense, worry, irritable and depressed had significant association with global health/quality of life. (Table-6).

Table 6: Associations between functional scales and global health at TASRH, 2016.

Variables	Global health		Crude	
	Good N (%)	Poor N (%)	COR(95%CI)	P
Physical functioning				
Not affected	9(12.5)	56(24.0)	1.00	
Affected	63(87.5)	177(76.0)	0.452(0.211,0.966)	0.040
Role functioning				
Not affected	20(27.8)	82(35.2)	1.00	
Affected	52(72.2)	151(64.8)	0.758(0.395,1.267)	0.245
Emotional functioning				
Not affected	34(47.2)	58(63)	1.00	
Affected	38(52.8)	175(82.2)	2.700(1.558,4.678)	<0.001
Cognitive functioning				
Not affected	44(61.1)	93(39.9)	1.00	
Affected	28(38.9)	140(60.1)	2.366(1.376,4.066)	0.002
Social functioning				
Not affected	14(19.4)	64(27.5)	1.00	
Affected	58(80.6)	169(72.5)	0.637(0.333,1.222)	0.175

5.5.2. Symptom scale

More symptom scale fatigue, nausea / vomiting, pain, dyspnea insomnia and appetite loss were eligible for multivariate regression by 95% CI, and p-value < 0.25, but constipation, diarrhea and financial difficulties were not eligible. Yet, only insomnia and loss of appetite were significant associated from symptom scale on AOR. (Table 7)

Table 7: Associations between symptom scales and global health / quality of life of cancer patients on chemotherapy at TASRH, 2016.

Variables	Global health /quality of life		Crude	
	Good N (%)	Poor N (%)	COR(95%CI)	P
Fatigue				
No	20(27.8)	21(9.0)	1.00	
Yes	52(72.2)	212(91.0)	3.883(1.960, 7.690)	<0.001
Nausea/vomiting				
No	16(22.2)	17(7.3)	1.00	
Yes	56(77.8)	216(92.7)	3.630(1.726,7.634)	0.001
Pain				
No	19(26.4)	17(7.3)	1.00	
Yes	53(73.6)	216(93.6)	4.555(2.217,9.358)	<0.001
Dyspnea				
No	51(70.8)	132(56.7)	1.00	
Yes	21(29.2)	101(43.3)	1.858(1.050,3.287)	0.033
Insomnia				
No	29(40.3)	39(16.7)	1.00	
Yes	43(59.7)	194(83.3)	3.355(1.872,6.011)	<0.001
Appetite loss				
No	15(20.8)	11(4.7)	1.00	
Yes	57(79.2)	222(95.3)	5.311(2.314, 12.188)	<0.001
Constipation				
No	36(50.0)	127(54.5)	1.00	
Yes	36(50.0)	106(45.5)	0.835(0.492,1.417)	0.503
Diarrhea				
No	49(68.1)	160(68.7)	1.00	
Yes	23(31.9)	73(31.3)	0.972(0.551,1.714)	0.922
Financial difficulties				
No	13(18.1)	25(10.7)	1.00	
Yes	59(81.9)	208(89.3)	1.833(0.884,3.804)	0.104

5.5.3. *Assessing associated factors and domains of health related quality of life.*

For physical functioning; chemotherapy line and residence were eligible for multivariate logistic regression and only chemotherapy line (3rd line of chemotherapy) OR/CI (0.12/0.19-0.77) P=0.025 was independent predictor. Patients who had 3rd line of chemotherapy had 88% affected of functional scale compared to 1st line of chemotherapy. This indicate that as the line of chemotherapy increases the patient's physical, emotional, social, role and cognitive functioning was impaired. For symptoms scale chemotherapy side effects OR/CI (7.51/2.4-23.7) P=0.001 was the independent predictor. Patients who had chemotherapy side effects had 7.52 more likely affected symptom scale compared to those had no chemotherapy side effect. This indicate that patients who had side effects of chemotherapy had problem of financial difficulties, fatigue, insomnia, loss of appetite, dyspnea, nausea/vomiting, pain, constipation and diarrhea. For global quality of life average monthly income and duration of illness were eligible for multivariate regression and duration of illness were significant for global health. There for, patients who were in category 1 year-5 years duration of illness AOR 4.21(1.726,10.27), P= 0.002 diagnosis for cancer were 4 times more likely to have poor global health in relative to others category (<1year and >5years). (Table 8)

Table 8: Association between associated factors and domains of health related quality of life, TASRH, 2016.

Factors	Functional scale		COR		AOR	
	Not affected N/%	Affected N/%	P	CI	CI	P
Chemotherapy line						
1 st line	16(66.7)	201(71.5)		1.00		
2 nd line	6(25)	77(27.4)	0.966	1.00	1.02 (0.38-2.72)	0.966
3 rd line	2(8.3)	3(1.1)	0.025	1.02 (0.38-2.72)	0.12(0.19-0.77)	0.025
Residence						
A.A	7(29.2)	124(44.1)	1.00			
Oromia	8(33.3)	57(19.2)	0.075	0.38(0.13-1.1)		
Amhara	2(8.3)	37(13.2)	0.958	1.04(0.21-5.2)		
South	3(12.5)	42(14.9)	0.741	0.79(0.19-3.1)		
Tigray	1(4.2)	16(5.7)	0.926	0.90(0.1-7.8)		
Others	3(12.5)	8(2.8)	0.015	0.15(0.03-0.69)		
Factors	Symptom scale		COR		AOR	
	Not affected N/%	Affected N/%	CI	P	CI	P
Chemotherapy side effects						
No	13(76.5)	87(30.2)	1.00		1.00	
Yes	4(23.5)	201(69.8)	0.001	7.51(2.4-23.7)	7.51(2.4-23.7)	0.001
Factors	Global quality of life		COR(95%CI)		AOR	
	Not affected N (%)	Affected N (%)			95% CI	P
Average monthly income						
≤300	30(41.7)	137(58.8)	1.00			
301-1200	20(27.8)	37(15.9)	0.405(0.207,0.79)			
1201-2000	6(8.3)	24(10.3)	0.876(0.329,2.33)			
2001-3199	10(13.9)	20(8.6)	0.438(0.186,1.03)			
≥3200	6(8.3)	15(6.4)	0.547(0.196,1.53)			
Time since diagnosis						
<6months	6(8.3)	3(1.3)	1.00		1.00	
6-11months	6(8.3)	11(4.7)	0.463(0.164,1.07)		1.465(0.50, 4.24)	0.481
1-5years	54(75.0)	214(91.8)	7.926(1.92, 32.7)		4.21(1.726,10.27)	0.002
>5years	6(8.3)	5(2.1)	0.210(0.062,0.71)		0.852(0.283,2.55)	0.776

5.5.4. Assessing association of functional and symptom scale with global quality of life.

From functional scale; physical functioning, emotional functioning, cognitive functioning, and from symptom scale; fatigue, pain, nausea/vomiting, dyspnea, insomnia(sleeping disturbance), and loss of appetite were eligible by binary logistic regression of 95% CI and $p < 0.25$ for multivariate logistic regression global health/ quality of life. Then by multivariate logistic regression and forward stepwise, emotional functioning, loss of appetite and insomnia (sleeping disturbance) had significant association or independent predictors of for global health or quality of life of cancer patients under chemotherapy.

In functional scale; emotional functioning and in symptom scale; insomnia and loss of appetite had significant association with global quality of life. Patients who had affected emotional functioning AOR/CI 1.993(1.070-3.713) had 2 times more likely had poor global health compared to those who had not affected emotional functioning. Similarly, patients who had insomnia AOR/CI (2.427/1.25,4.688) and loss of appetite (5.287/1, 811, 15,437) had 2 and 5 times more likely had poor global health compared to those who had insomnia and loss of appetite respectively. (Table 9)

Table 9: Assessing association between functional and symptom scale with global health among cancer patients on chemotherapy at TASRH, 2016.

Factors	Global health		COR(95%CI)	AOR	
	Good N (%)	Poor N (%)		95% CI	p
Physical functioning					
Not affected	9(12.5)	56(24.0)	1.00		
Affected	63(87.5)	177(76.0)	0.452(0.211,0.96)		
Emotional functioning					
Not affected	34(47.2)	58(63)	1.000	1.00	
Affected	38(52.8)	175(82.2)	2.700(1.558,4.67)	1.993(1.07,3.713)	0.030
Cognitive functioning					
Not affected	44(61.1)	93(39.9)	1.00		
Affected	28(38.9)	140(60.1)	2.366(1.37,4.066)		
Fatigue					
No	20(27.8)	21(9.0)	1.00		
Yes	52(72.2)	212(91.0)	3.88(1.960, 7.69)		
Nausea/vomiting					
No	16(22.2)	17(7.3)	1.00		
Yes	56(77.8)	216(92.7)	3.630(1.73,7.634)		
Pain					
No	19(26.4)	17(7.3)	1.00		
Yes	53(73.6)	216(93.6)	4.555(2.23,9.358)		
Dyspnea					
No	51(70.8)	132(56.7)	1.00		
Yes	21(29.2)	101(43.3)	1.858(1.05,3.287)		
Insomnia					
No	29(40.3)	39(16.7)	1.00	1.00	
Yes	43(59.7)	194(83.3)	3.355(1.87,6.011)	2.427(1.25,4.688)	0.006
Appetite loss					
No	15(20.8)	11(4.7)	1.00	1.00	
Yes	57(79.2)	222(95.3)	5.311(2.31,12.18)	5.287/1, 81, 15,43	0.002

5.6. Factors affecting Health related quality of life of cancer patients under chemotherapy.

For overall health related quality of life three variables age, chemotherapy side effects and duration of illness were eligible for multivariate logistic regression and by multivariate logistic regression and forward stepwise income duration of illness 1year- 5years OR/CI 0.011(0.001,0.009 P=<0.001 and >5 years 0.055(0.005,0.6) P=0.018 were the independent predictors for health related quality of life. Patients who had 1 year to 5 years of duration of illness had 98 % poor health related quality of life compared to those with ≤11 months. And also patients who had greater than 5 years duration of illness had 95% poor health related quality of life in compared to those ≤11 months. (Table 10).

Table 10: Association between associated factors and HRQOL at TASRH, 2016.

Variable	Overall HRQOL		COR	AOR	
	Good N/%	Poor N/%	CI	CI	P
Age					
18-40	102(68.0)	48(32.0)	0.461(0.205, 1.037)		
40-49	51(73.9)	18(26.1)	0.372(0.149, 0.927)		
50-59	35(61.4)	22(38.6)	0.693(0.281, 1.171)		
≥60	15(51.7)	14(48.3)	1.00		
Duration of illness					
≤11months	1(3.8)	25(96.2)	1.00	1.00	
1year-5years	198(73.9)	70(26.1)	0.014(0.002-0.106)	0.011(0.001,0.09)	<0.001*
>5years	4(36.4)	7(63.6)	0.07(0.007- 0.731)	0.055(0.005,0.6)	0.018*
Drug side effects					
No	58(58)	42(42)	1.00	1.00	
Yes	145(70.7)	60(29.3)	0.571(0.347, 0.94)		

CHAPTER SIX

6.1. Discussion.

Quality of life is an important issue for cancer patients under chemotherapy; accurate assessment of health related quality of life in these patients is essential to improve our understanding of how cancer and chemotherapy influence patients, life and to adopt treatment strategies.

This study has attempted to assess health related quality of life and associated factors among cancer patients under chemotherapy at TASRH, Addis Ababa, Ethiopia. Around one-fourth or 33 % of cancer patients under chemotherapy had poor health related quality of life. Regarding to cancer patients under chemotherapy, 32 % were age 18-40, 32.5% were females, 32.6% were orthodox followers, 42.6 % were widow, 37.4 % had secondary education, 26.9 % had monthly income less than 300 Ethiopian Birr, and 37 % were house wife, 32.7% were breast cancer, 33.1% were advanced stage of cancer, and 26.1% were 1 year to 5 years time since diagnosis or duration of illness, 33.7 % were 1st line of chemotherapy, 35 % were on AC, 32.3 % were 3rd cycle of chemotherapy and 38.5 % were less than 6 months on chemotherapy had poor HRQOL.

In this study socio demographic variables such as age, gender, marital status, occupation, educational level, average monthly income and residence had no significant association with HRQOL in line with studies done in Tehran, Iran and Ethiopia (11, 13). Similarly study done in University of Gaza, Palestine socio demographic variables (age and marital status) (20), and study done in Isfahan, Iran socio demographic variables (age, educational level and occupation) (25), had no significant association with HRQOL and studies done in Turkey and china socio demographic variables (age, educational level, occupation, and income) had no significant association with HRQOL (7, 23).

In this study medical characteristics like type of cancer, and stage of cancer had no significant association with HRQOL on patients under chemotherapy (7, 13). But a study done in New York, type of cancer (breast cancer) had negative

significant association with QOL and this may be due to assessment tool (SF 36/2), time frame, sample size and population. (32).

In this study, years after diagnosis had significant association with HRQOL that means patients who had 1 year to 5 years duration of illness had 98 % poor health related quality of life compared to those with ≤ 11 months. And also patients who had greater than 5 years duration of illness had 95% poor health related quality of life in compared to those ≤ 11 months this study was in consistent with study in Nairobi, Kenya and Yemen (21, 33). Therefore prolonged duration of illness or coming to institution with advanced stage of cancer affects patients greater than 95% of overall health related quality of life of patients under chemotherapy.

Line of chemotherapy, drug regimen, duration on chemotherapy, cycle of chemotherapy and who had side effect had no significant association with HRQOL, similar with study done in Turkey and Gaza, Palestine (7, 20).

For physical functioning; chemotherapy line (3rd line of chemotherapy) was independent predictor. Patients who had 3rd line of chemotherapy had 88% were affected of functional scale compared to 1st line of chemotherapy. This indicate that as the line of chemotherapy increases the patient's physical, emotional, social, role and cognitive functioning was impaired. For symptoms scale chemotherapy side effects was the independent predictor. Patients who had chemotherapy side effects had 7.52 more likely affected symptom scale compared to those had no chemotherapy side effect.

For global quality of life (GQOL) functional scale; role, and social functioning were not significant with (10). But physical, emotional and cognitive functioning had significant association on COR and became non-significant during AOR except emotional functioning. The mean and SD of physical functioning were 37.83(SD=18.18). Emotional functioning 62.26(SD =25.68), role functioning 40.05(SD=33.16), social functioning 50.62(SD=35.92) and cognitive functioning 68.46(SD=26.23) which was slight different from studies done in Ethiopia on quality of cancer patients (13). However; other study done in national cancer center in Nepal; social, cognitive and emotional functioning had significant association with global quality of life and emotional functioning was consistence

with this study (34). The difference may be due to sample size, population (breast cancer), time frame and assessment tool.

According to this study; symptoms scales like fatigue, nausea/vomiting, pain, dyspnea, constipation, diarrhea and financial difficulties had no significant association with global quality of life (10, 34). But insomnia (5) and loss of appetite had significant association with GQOL, this is similar with studies done in Shahid, Iran and Turkey (7, 29).

In this study the mean of fatigue was 69.65 (SD=23.24), nausea and vomiting 72.56(SD=32.91), pain 63.60(26.34), and financial difficulties 71.04(SD=34.87) which were greater than population mean this indicates that it has great impairment on health related quality of life. However, others like dyspnea 23.06(SD=32.27), constipation 27.86(SD=35.96), and diarrhea 16.83(SD=28.50) had less impairment on HRQOL similar with others studies (7, 13).

According to this studies; loss of appetite had significant association with global health or quality of life, similar to others studies (5, 7, 13, 29, 31). Patients who were under chemotherapy and had loss of appetite were 5 times more likely to have poor global health compared with who were under chemotherapy and had no loss of appetite. Therefor; patients who were under chemotherapy and had loss of appetite had risk for weight loss, weakened of the body and its defense capability, deficiency of vitamins and mineral and decrease in physical and mental activity.

The means of insomnia and loss of appetite in this study were 56.72(SD=37.55) and 82.51(SD=28.23) respectively which was different from a study done in Turkey (7).

The global health /GQoL had a mean of 39.97(SD=25.593) which was similar with study done in TASRH, Ethiopia (13). In this study 83.3% of patients who had insomnia were poor health related quality of life but study done in Tehran, Iran was 86.7% the difference may be due to sample size, timing frame, population(solid tumor), and no comorbidities (11). According to this study patients who had insomnia and emotional impairment were two times more likely to have poor HRQOL compared with who were under chemotherapy, had no

insomnia and emotional impairment. Therefore insomnia was more significant for HRQOL among cancer patients under chemotherapy, which means patients who had insomnia and were under chemotherapy had risk for impaired daily activity, accidents, overweight/obesity, increased risk and severity of chronic diseases (hypertension, heart diseases, and diabetes), emotional impairment, social functioning(72.5%) and substance abuse psychiatric problems (depression and anxiety/cognitive functioning (60.1%) these indicates that almost three-fourth of social and above half cognitive functioning impairment were due to insomnia.

Limitation of the study

The data was collected by Amharic language, for patients with different language by translator, since quality of life was subjective it is better if collected according to patient's language and cultural context for reliability of the data.

The data was also collected by interview and document review, it is preferable if done by self-administered questioner because of the subjectivity of health related quality of life.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION

7.1. Conclusion

In this study above one-fourth of cancer patients on chemotherapy were poor health related quality of life.

Patients who had greater than 1 year of duration of illness or prolonged illness had 95 % poor health related quality of life compared to those with short duration of illness.

The independent predictors of health related quality of life cancer patients on chemotherapy was duration of illness or prolonged duration of illness.

7.2. Recommendation

Greater than one-fourth of cancer patients on chemotherapy had poor health related quality of life there for health professional (trained nurses (oncology nurses), specialists) were giving specific attention for patients coming with advanced stage of cancer (prolonged duration).

For TASHR as duration of illness (prolonged duration of illness) was independent predictors on patients HRQOL affects different dimension of cancer patients on chemotherapy assessing patients and giving great attention by palliative care team to improve patients health related quality of life.

Therefore health care planner and health care professionals should give attention for cancer patients on chemotherapy with longer duration of illness for chemotherapy response and for improving patients health related quality of life.

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Annexes

Annex one

Document review check list

MRN _____

Please review patient chart and record the data as follows for those options listed please circle the options and if it is not listed put the information on the space provided.

1. Types of cancer _____
2. Stage of cancer during diagnosis _____
3. Line of chemotherapy
 1. 1st line
 2. 2nd line
 2. 3rd line
 3. 4th line
4. Cycle of chemotherapy
 1. 2nd cycle
 2. 3rd cycle
 2. 4th cycle
 3. 5th and above
5. Regimen name(AC, CHOP, FAC, Taxol, Cisplatin, IFL) _____
6. Evidences of previous history of admission for
 1. Hypertension
 2. Heart failure
 3. Diabetes
 4. HIV/AIDS
 5. Others(specify) _____
 6. None

Annex II

A questionnaires on Assessment of Health related quality of life and associated factors among adult cancer patient under chemotherapy at black lion specialized referral hospital

Consent form:

Hello: My name is ----- and I 'm from Jimma University. We are conducting a study on Assessment of Health related quality of life and associated factors among adult cancer patients under chemotherapy. As part of this you are kindly requested to be included in the study which has great importance to improve the medical care which patients receive for cancer and ultimately their quality of life. The interview will take a maximum of 20-25 minutes. It will not cause you any physiological, financial or psychological harm nor affect the health care service you are getting. Your participation will be based on your willingness and you have the right not to participate fully or partially. If you agree to be included in the study, I will start my question by asking general identification questions.

May I continue? 1. Yes -----

2. No-----

Name of the interviewer ----- Date ----- Signature -----

Name of the supervisor ----- Date ----- Signature -----

Part I.: - Socio demographic data

Please ask the respondents the following questions and record the responses for closed ended questions. Please circle the responses of the respondents and put the responses of the respondents for open ended and for semi- closed questions (if the response is not listed) on the space provided.

Q001.Age _____

Q002.Sex 1. Male 2. Female

Q003.What is your Religion?

- | | |
|---------------|--------------------------|
| 1. Muslim | 4. Catholic |
| 2. Orthodox | 5. Other (specify) _____ |
| 3. Protestant | |

Q004.What is your marital status?

- | | |
|------------|-------------|
| 1. Married | 3. Divorced |
| 2. Single | 4. Widowed |

Q005.What is your occupation?

- | | |
|-------------------|----------------|
| 1. Gov't employee | 4. Daily labor |
| 2. Farmer | 5. Others |
| 3. House wife | specify _____ |

Q006.Educational level

- | | |
|-------------------|---------------------|
| 1. Illiterate | 4. High school |
| 2. Read and write | 5. Higher education |
| 3. Elementary | |

Q007.Annual average family income (cash and kind) in Birr per month ____ Birr.

Q008.Who cover cost of your drug?

- | | |
|-----------|--------------------------|
| 1. Myself | 4. Employer organization |
| 2. Family | 5. Other(specify) _____ |
| 3. Free | |

Q009.Where is your Residence? _____

Q010.Have you ever used substance?

- | | |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|

Q011.If yes, for Q010 what do you use?

1. Cigar,
2. Alcohol,
3. Chat,
4. Narcotic/psychoactive drugs
5. Others (specify)_____

Q012.Are you using substance currently? 1. Yes 2. No

Q013.If yes, for Q012 what do you use?

1. Cigar,
2. Alcohol,
3. Chat,
4. Narcotic/psychoactive drugs
5. Others (specify)_____

Part II: Clinical characteristic

Q014.How old were you when you got cancer? _____ Years old.

Q015.How long is the duration of the diseases since its onset? _____ Years

Q016. What health complaints other than cancer do you have currently? (More than one answer can be selected)

1. DM
2. HIV/AIDS
3. Hypertension
4. Heart failure
5. Others (specify)_____

Part III. Chemotherapy related factors

Q017. When did you first start your chemotherapy? _____ Years

Q018. Did you have any chemotherapy related complication in the past?

1. Yes
2. No

Q019. If yes for Q014 what are there? _____

Q020.How many pills are you taking /day? _____.

Q021.How often do you take your medications? _____ times/day.

Q022.Did you encounter any side effects of treatment? 1. Yes 2. No

Q023.If yes for Q018 what side effect you have? _____

Part IV: The EROTIC, QLQ C30 version 3.0 with functional / symptom scales
indicated

S.no	Items	Scales	Scores			
			Not at all	A little	Quite a bit	Very much
Q024	Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?	physical	1	2	3	4
Q025	Do you have any trouble taking a long walk?	Physical	1	2	3	4
Q026	Do you have any trouble take a short walk outside of the house?	Physical	1	2	3	4
Q027	Do have to stay in bed or a chair for most of the day?	physical	1	2	3	4
Q028	Do you need help with eating, dressing, washing yourself or using the toilet?	physical	1	2	3	4
Q029	Are you limited in any way in doing either your work or doing household jobs?	Role	1	2	3	4
Q030	Are you completely unable to work at a job or to do household jobs?	Role	1	2	3	4
During the past week						
Q031	Were you short of breath?	dyspnea	1	2	3	4
Q032	Have you had pain?	Pain	1	2	3	4
Q033	Did you need rest?	Fatigue	1	2	3	4
Q034	Have you had trouble sleeping?	insomnia	1	2	3	4
Q035	Have you felt weak?	Fatigue	1	2	3	4
Q036	Have you lacked appetite?	Appetite loss	1	2	3	4
Q037	Have you felt nauseated?	Nausea and Vomiting	1	2	3	4
Q038	Have you vomited?	Nausea and Vomiting	1	2	3	4
Q039	Have you been constipated?	Constipation	1	2	3	4
Q040	Have you had diarrhoea?	Diarrhoea	1	2	3	4
Q041	Were you tired?	Fatigue	1	2	3	4
Q042	Did pain interfere with you daily activities?	Pain	1	2	3	4
Q043	Have you had difficulty in concentrating on things, like reading a newspaper or watching television?	Cognitive	1	2	3	4
Q044	Did you feel tense?	Emotional	1	2	3	4

Q045	Did you worry?	Emotional	1	2	3	4
Q046	Did you feel irritable?	Emotional	1	2	3	4
Q047	Did you feel depressed?	Emotional	1	2	3	4
Q048	Have you had difficulty remembering things?	Cognitive	1	2	3	4
Q049	Has your physical condition or medical treatment interfered with your family life?	Social	1	2	3	4
Q050	Has your physical condition or medical treatment interfered with your social activities?	Social	1	2	3	4
Q051	Has your physical condition or medical treatment caused you financial difficulties?	Financial Difficulties	1	2	3	4

Global health status

S.no	Items	Scales						
		v. poor						excellent
Q052	How would you rate your overall physical condition during the past week?	1	2	3	4	5	6	7
Q053	How would you rate your overall quality of life during the past week?	1	2	3	4	5	6	7

የተሳታፊዎች መረጃ መስጫ መጠይቅ ቅጽ-በአማርኛ
በጅማ ዩኒቨርሲቲ ፤ የጤና ሳይንስ ኮሌጅ

መግቢያ

ጤና ይስጥልኝ፡ እንደምን አረፈዱ/ ዋሉ _____ እባላለሁ፡

እኔ ከ ጅማ ዩኒቨርሲቲ ስሆን የማካሄደው ጥናት የካንሰር መድሃኒት የምወስዱ ታማሚዎች ጤና እና ተዛማጅ የሆኑ ጉዳዮች ላይ የተመረከዘ ስሆን እርስዎ በዚህ ጥናት የተመረጡት ያለምንም ቅድመ ሁኔታ ሲሆን በእርስዎ ፈቃደኝነት ላይ ብቻ የተመሰረተ ነው። በዚህ ጥናት ላይ የመሳተፍ መብትዎ የተጠበቀ ነው ነገር ግን የእርስዎ ተሳትፎ ለዚህ ጥናት ያለው አስተዋፅኦ የላቀ ስለሆነ በሚኖረን የአፍታ ቆይታ የተወሰኑ ጥያቄዎች እናቀርብሎታለን። የሚቀርብሎት ጥያቄዎች አጠቃላይ መረጃዎች የጤናዎትን ሁኔታ የተመለከቱ ናቸው። በዚህ ጥናት ሳቢያ ልደርስብዎት የሚችል ምንም አይነት ጉዳትም ሆነ ልያሳስብዎ የሚችል ነገር የለም። በዚህ መጠይቅ ላይ የእርስዎን ማንነት ልገልፅ የሚችል መረጃ አይፈጸምም። የሚሰጡት መረጃ ሚስጥራዊነቱ በጥብቅ የተጠበቀ ነው። የዚህ ጥናት ውጤት እንዲስፈላጊነቱ በሚቀርብበት ሁኔታ ሁሉ የእርስዎን የግል ማንነት ሊገልፅ የምችል መረጃ አይቀርብም። በዚህ ጥናት ለመሳተፍ ፈቃደኛ ከሆነ ጥያቄዎቹ በአጠቃላይ ከ 20-25 ደቂቃ ሊወስዱ ይችላሉ። በዚህ መጠይቅ የሚረብሽዎ ወይም ያላመኑበት ነገር ቢኖር በማንኛውም ሰዓት ማቋረጥ ይችላሉ።

በዚህ ጥናት የመሳተፍ መልካም ፈቃዴዎን ሊሰጡኝ ይችላሉ?

1. አዎ..... (ቃለ መጠይቁን መጀመር ይችላሉ)
2. አይሆንም..... (አቁም)

የመረጃ ስብሰባ ስም: _____ ፊርማ: _____ መረጃው የተሰበሰበበት ቀን: _____

የተቆጣጣሪው ስም: _____ ፊርማ: _____ የተመሳከረበት ቀን: _____

ክፍል 1: ማህበራዊ፣ እና ስነ-ህዝባዊ መረጃ ጥያቄዎች

Q001. እዴሜዎ ስንት ዓመት ነው?

Q002. የታ 1.ወንድ 2. ሴት

Q003. ሃይማኖትዎ ምንዴን ነው?

- | | |
|-----------|---------|
| 1. ሙስሊም | 4 ካቶሊክ |
| 2 ኦርቶዶክስ | 5 ሌላ ካለ |
| 3 ፕሮቴስታንት | |

Q004. በአሁኑ ወቅት የጋብቻዎ ሁኔታ?

- | | |
|-----------|----------------------|
| 1. ያገባ/ች | 3. አግብቶ/ታ የፈታ/ች |
| 2. ያላገባ/ች | 4. የትዳር አጋር በሞት ያጣ/ች |

Q005. በአሁኑ ወቅት ስራዎ ምንድን ነው?

- | | |
|----------------|---------------|
| 1. የመንግስት ሰራተኛ | 4. የቀን ሰራተኛ |
| 2. አርሶ አደር | 5. ሌላ ካለ_____ |
| 3. የቤት እመቤት | |

Q006. የትምህርት ደረጃ ስንት ነው?

- | | |
|----------------|-------------------|
| 1. ያልተማረ | 4. ሁለተኛ ደረጃ |
| 2. ማንበብ እና መጻፍ | 5. ኮላጅ ወይም ዩኒቨርሲቲ |
| 3. የመጀመሪያ ደረጃ | |

Q007. ወርሃዊ ገቢዎ ምን ያህል ነው?_____

Q008. የመድሃኒት ዋጋ የሚሸፍንሎት ግለሰብ/ ድርጅት

- | | |
|------------|---------------|
| 1. በራስዎ ገቢ | 4. ቀጣሪ ድርጅት |
| 2. ቤተሰብ | 5. ሌላ ካለ_____ |
| 3. ነፃ | |

Q009. በቋሚነት የሚኖሩበት ቦታ የት ነው?_____

Q010. ንጥረ ነገሮችን (substance) ሁሌ ይጠቀማሉ?

- | | |
|-------|--------|
| 1. አዎ | 2. የለም |
|-------|--------|

Q011. ለጥያቄ ቁጥር Q010 መልሱ አዎ ከሆነ የትኛውን ይጠቀማሉ?

- | | |
|-------------|-------------------------|
| 1. ስጋራ | 4. የሚያነቃቁ/የሚያስተኙ መድሃኒቶች |
| 2. አልኮል መጠጥ | 5. ሌላ ካለ_____ |
| 3. ጫት | |

Q012. ንጥረ ነገሮችን (substance) አሁን ይጠቀማሉ?

- 1. አዎ
- 2. የለም

Q013. ለጥያቄ ቁጥር Q012 መልሱ አዎ ከሆነ የትኛውን ይጠቀማሉ?

- 1. ስጋራ
- 2. አልኮል መጠጥ
- 3. ጫት
- 4. የሚያነቃቁ/የሚያስተኙ መድሃኒቶች
- 5. ሌላ ካለ _____

ክፍል 2: የካንሰር ህመምን የተመለከቱ ጥያቄዎች

Q014. በካንሰር መታመሙን ስያውቁ ስንት አመት ናት? _____

Q015. ህመሙ ከጀመሮት ስንት ጊዜ ይሆናል? _____

Q016. በአሁኑ ሰዓት ከካንሰር ህመም ሌላ ህመም አሉት? (ከ አንድ በላይ መልስ መመለስ ይችላሉ::)

- 1. ስከር
- 2. ኤች አይ ቫ ኤድስ
- 3. ደም ግፍት
- 4. ልብ ህመም
- 5. ሌላ ካለ _____

ክፍል 3: የካንሰር መድሃኒትን የተመለከቱ ጥያቄዎች

Q017. መድሃኒት መቼ ጀመሩ? _____

Q018. ከካንሰር መድሃኒት ጋር የተያያዘ የጤና እክል (complication) ከዚህ በፍት አሉት?

- 1. አለ
- 2. የለም

Q019. ለጥያቄ ቁጥር Q018 መልሱ አለ ከሆነ ምን አይነት የጤና እክል አሉት? _____

Q020. በቀን ምን ያህል ክንን ይወስዳሉ? _____

Q021. በቀን ስንት ጊዜ መድሃኒት ይወስዳሉ? _____

Q022. መድሃኒት ስወስዱ የሚሰመዎት የጎንዮሽ ጉዳት (side effect) አሉት

- 1. አለ
- 2. የለም

Q023. ለጥያቄ ቁጥር Q022 መልሱ አለ ከሆነ ምን አይነት የጎንዮሽ ጉዳት (side effect) አሉት? _____

ክፍል4: በአውሮፓ ተቋም የካንሰር ምርምርና ህክምና መሳሪያ ጤናና አጠቃላይ የኑሮ ሁኔታን የተመለከቱ ጥያቄዎች

ተቁ	ዝርዝር ነገሮች	መለኪያ	ነጥብ			
			የለም	ትንሽ	መጠነኛ	በጣም ብዙ
Q024	ብርቱ እንቅስቃሴ ሰያይርጉ ድካም ይሰሞታል(ትልቅ ከባድ የሱቅ ቦርሳ መያዝ ወይም የልብስ መያዣ ሻንጣ)?	አካላዊ	1	2	3	4
Q025	ረጅም መንገድ ስሄዱ የድካም ይሰሞታል?	አካላዊ	1	2	3	4
Q026	ከቤት ውጭ አጭር መንገድ ስሄዱ ይደክሞታል?	አካላዊ	1	2	3	4
Q027	አብዛኛውን የቀኑን ጊዜ በአልጋ ወይም በወንበር ያሳልፋሉ?	አካላዊ	1	2	3	4
Q028	ስበሉ ስለብሱ ሰታጠቡ ወይም መፀዳጃ ቤት ስሄዱ እርዳታ ይሻሉ?	አካላዊ	1	2	3	4
Q029	የራስዎን ወይም የቤተሰብ ስራ በማነኛውም መንገድ መስራት አቅቶት ነበር?	ሚና ጠቀሜታ	1	2	3	4
Q030	የራስዎን ወይም የቤተሰብ ስራ ሙሉ በሙሉ መስራት አቅቶት ነበር?	ሚና ጠቀሜታ	1	2	3	4
በለፈው ሳምንት ውስጥ						
Q031	የትንፋሽ እጥረት ነበረት?	መታፈን	1	2	3	4
Q032	የህመም ስሜት ነበረት?	ህመም	1	2	3	4
Q033	እረፍት ማረግ አስፈልጎት ነበር?	ድካም	1	2	3	4
Q034	የእንቅልፍ ችግር ነበረት?	የእንቅልፍ እጦት	1	2	3	4
Q035	የድካም ስሜት ይሰሞት ነበር?	ድካም	1	2	3	4
Q036	የምግብ ፍላጎት ማጣት ነበረት?	የምግብ ፍላጎት ማጣት	1	2	3	4
Q037	የማቅለሽለሽ ስሜት ነበረት?	ማቅለሽለሽና ትውከት	1	2	3	4
Q038	ትውከት ነበረት?	ማቅለሽለሽና ትውከት	1	2	3	4
Q039	የሆድ ድርቀት ነበረት?	የሆድ ድርቀት	1	2	3	4
Q040	ተቅመጥ ነበረት?	ተቅመጥ	1	2	3	4

Q041	ድክም ነበሮት?	ድካም	1	2	3	4
Q042	የህመም ስሜት የአለት ተግባሮችን ያውክ ነበር?	ህመም	1	2	3	4
Q043	በነገሮች ላይ ትኩረት የመስጠት ችግር ነበሮት? ለምሳሌ ገዜጣ ማንበብ ቴሌቪዥን ማየት	መገንዘብ	1	2	3	4
Q044	የጭንቀት/ዉጥረት ስሜት ይሰሞታል?	ስሜታው	1	2	3	4
Q045	ጭንቀት/ ስጋት አሎት?	ስሜታው	1	2	3	4
Q046	የብሰጭት ስሜት ይሰሞታል?	ስሜታው	1	2	3	4
Q047	የመተከዝ/ የተጫነ ስሜት የሰሞታል?	ስሜታው	1	2	3	4
Q048	ነገሮችን የማስታዎስ ችግር አሎት?	መገንዘብ	1	2	3	4
Q049	የአካሎዎ ሁኔታ ወይም ህክምናዎ ከቤተሰብ ህይዎት ጋር ጣልቃ ይገባል?	ማህበራዊ	1	2	3	4
Q050	የአካሎዎ ሁኔታ ወይም ህክምናዎ ከመህበራዊ ተግባርዎ ጋር ጣልቃ ይገባል?	ማህበራዊ	1	2	3	4
Q051	በአካሎዎ ሁኔታ ወይም ህክምናዎ የገንዘብ እጥረት አጋጥሞታል?	የገንዘብ እጥረት	1	2	3	4

አጠቃላይ ጤና ሁኔታዎች

ተቁ	ዝርዝር ነገሮች	ልኬት						
		በጣመ ዝቅተኛ	ዝቅተኛ	መጠኛ	በቂ	መካከለኛ	ጥሩ	በጣም ጥሩ
Q052	በባለፈው ሳምንት አጠቃላይ የጤናዎን ሁኔታ (physical condition) እንዴት ይገልጹታል?	1	2	3	4	5	6	7
Q053	በባለፈው ሳምንት አጠቃላይ የጤናዎ የኑሮ ሁኔታን (quality of life) እንዴት ይገልጹታል?	1	2	3	4	5	6	7

እናመሰግናለን!!!!