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ADDIS ABABA UNIVERSITY COLLEGE HEALTH SCIENCE

SCHOOL OF NURSING AND MIDWIFERY

NURSING DEPARTMENT

RELATIONSHIP BETWEEN NUTRITIONAL STATUS AND QUALITY OF LIFE OF CERVICAL CANCER PATIENTS IN PUBLIC HOSPITAL, ADDIS ABABA, ETHIOPIA, 2023.

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A Thesis Submitted to Addis Ababa University, School of Nursing and Midwifery in Partial Fulfillment of the Requirements for the Degree of Master of Sciences in Oncology Nursing

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The full title of the research project	**RELATIONSHIP BETWEEN NUTRITIONAL STATUS AND QUALITY OF LIFE OF CERVICAL CANCER PATIENTS IN PUBLIC HOSPITAL, ADDIS ABABA, ETHIOPIA, 2023.**
Duration of study	**Data Collection: From Feb 20 - Mar 25 / 2023**
Study Area	**TASH and SPHMMC Addis Ababa, Ethiopia**
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APPROVAL/DECLARATION SHEET

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I, the undersigned MSc student, declare that I have submitted my original work a title; RELATIONSHIP BETWEEN NUTRITIONAL STATUS AND QUALITY OF LIFE OF CERVICAL CANCER PATIENTS IN PUBLIC HOSPITAL, ADDIS ABABA, ETHIOPIA, 2023.

Submitted by: Hiwot Tesfaye (BSc)

Signature_____

Date _____

This thesis work has been submitted for examination with my approval as an advisor.

Approved by:

Name of primary Advisor

Mr. Negalign Getahun (Assistant professor)

Signature _____

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List of Abbreviation

HPV: Human papilloma virus

HRQOL: Health-related quality of life

ICC: invasive cervical cancer

LOS: lower overall survival

NS: Nutritional status

PG-SGA: patient-generated subjective global assessment

EORTC-QLQC30: European organization for the research and treatment of cancer quality of life questionnaire

QLQ CX24: Cervical cancer specific quality of life questionnaire

QOL: Quality of life

SPHMMC: Saint Paul's Hospital and Millennium Medical College

SSA: Sub-Saharan Africa

TASH: Tikur Anbessa Specialized Hospital

WHO: World health organization

WHOQOL-OLD: Quality of life instrument in older adults

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Abstract

Introduction: Globally, cervical cancer is the fourth leading cause of cancer death among women in low- and middle-income countries. As global cancer burden 2020 reports mortality rates of cervical cancers, were considerably higher in developing versus developed countries 12.4 vs 5.2 per 100,000 respectively. In Ethiopia, cervical cancer is the most common leading cause of death next to breast cancer among women. World health organization estimates of 7,600 diagnosed and 6,000 women death from cervical cancer each year in Ethiopia. However, there exists a paucity of research examining the impact of nutritional status on quality of life among individuals in Ethiopia diagnosed with cervical cancer. Furthermore, the existing literature is insufficient as it does not delve into the impact of nutritional status on the quality of life of these patients.

Objective: To determine relationship between nutritional status and quality of life among cervical cancer patients in public hospitals, Addis Ababa, Ethiopia, 2023.

Methodology: The study was employed an institution based, cross-sectional study design. A systemic random sampling technique was used to select the respondents from the two hospitals. A continuous variable was described using the mean and standard deviation. The mean difference of variables is done by analysis of variance (ANOVA) and t- test. After that p value less than 0.05 are exported to multiple linear regression. To determine the impact of patients' nutritional condition on quality of life, multivariable linear regression analysis was employed. Variable having a P-value of < 0.25 in Bivariable analysis was considered to have an association with the dependent variable and was enter into multivariable linear regression analysis employed to describe nutritional status of respondents.

Result: A total of 364 cervical cancer patients were included. moderate (31.87%) and severe (26.37%) malnutrition was observed. The context of quality-of-life scores of these patients: The mean of overall quality of life of the study participants was (M=44.12(SD=20.11)). Moderate and severe malnutrition were negatively associated with overall quality of life $\beta = -8.26$ $(-13.61, -2.96)$ and $\beta = -10.14$ $(-16.07, -4.21)$ respectively.

Conclusion: This study revealed that there was a statistically significant associations between all functional scales and the nutritional status of the patients at a 1% level of significance. Among the symptom scales (Symptom experience, Lymph adenoma, and Sexual worry), there was a significant association with the nutritional status of the patients at a 1% level of significance.

Key words: Cervical cancer, malnutrition, Quality of life. Ethiopia.

1. INTRODUCTION

1.1. Background

Cervical cancer is the fourth most frequent malignancy in women worldwide. High rates of cervical cancer are found in low- and middle-income nations (1). According to GLOBOCAN 2020 report, cervical cancer death rates were 12.4 vs. 5.2 per 100,000 in developing countries compared to developed nations. In 2018, there were over 570 000 new cases and 311 000 deaths from the disease (2-4) . Cervical cancer has spread worldwide, with low- and middle-income nations bearing more than 85% of the burden globally. The majority of cancer-related fatalities in eastern, western, middle, and southern Africa were caused by cervical cancer.

Africa would account about one-fifth of the global burden of cervical cancer diagnoses and fatalities (5). In Sub-Saharan Africa (SSA), cervical cancer is the second most prevalent malignancy and the main reason why women die from cancer (6). In Ethiopia, cervical cancer is the second most common malignancy among women (7, 8). According to estimates from 2018, there were an expected 6,294 new cases of cervical cancer each year while 4,884 people died as a result of the disease. The WHO estimates that each year 7,600 Ethiopian women are diagnosed with cervical cancer, and that 6,000 of them die due to disease (9).

Depending on the type of tumor, location, stage, and the type of treatment taken, malnutrition affects cancer patients the incidence rate between 40 and 80 percent while prevalence rate is between 50 and 80 percent (10). A patient's quality of life can be significantly impacted by changes in physiological and psychological processes by cancer and its treatments, which can affect metabolism (10).

Around 75% of cancer patients have malnutrition when they are diagnosed, according to a number of reports in the literature(11). That is also very important related with higher expenditures, decreased chances of survival, decreased responsiveness to and tolerance for therapy, increased morbidity and death, and lower quality of life (QOL). Several factors, including the type of tumor, its stage, and the type of treatment being employed, might contribute to malnutrition (11)

In uterine cervical cancer (UCCa), malnutrition is a prevalent condition that directly affects body weight. Although the causes are unknown, a patient's nutritional condition can have an impact on

treatment options, clinical outcomes, and patient-reported outcomes, including survival rate, functioning, and health-related quality of life (HRQoL).The majority of deaths from cervical cancer are caused by malnutrition and its complications rather than the malignancy by itself, with about 6.5% of women having the condition before the age of 75 (12).

The ability to carry out daily tasks, which reflects physical, psychological, and social well-being, is what is referred to as quality of life (QoL), which is a state of well-being. When a woman receives a cervical cancer diagnosis, both their physical and mental well-being are typically affected. Shock, dread, self-blame, helplessness, and rage are reportedly the most frequent feelings felt by cancer sufferers. Patients with cervical cancer also experience significant social issues and decreased sexual function compared to the general population (13). To be able to deal with the condition and its treatment, these ladies may need therapy, tolerance, and time. They also need financial, familial, social, emotional, and psychological support.

In comparison to all females with cancer and healthy females, cervical cancer patients had a lower overall health condition. Age and advanced cancer stage are significantly associated with quality of life (13). An additional potential risk factor for LOS is acute malnutrition. In several cancer populations, malnutrition is linked to a higher risk of morbidity and mortality, complication rates including wound infections, hospitalization expenditures, and a lower quality of life. Gynecological cancer and malnutrition can significantly affect patients' physical function and psychosocial well-being, both of which are crucial aspects of quality of life (QOL) (14).

1.2. Statements of the Problem

Cervical cancer is type of cancer that develops in the cervix lower part of uterus and it is closely related to factors such as HPV virus infection, sexual behaviors, times of childbirths, infections of pathogens such as Chlamydia trachomatis and trichomoniasis, smoking, malnutrition, and bad sanitation (15).

Cervical cancer is the fourth most common cancer among women globally. The burden faced by low- and middle-income countries is significantly greater than high-income countries (1). In 2018, there were over 570 000 new case of cervical cancer and 311 000 deaths due to the condition (2-4). In sub-Saharan Africa (SSA), cervical cancer is the second most frequent cancer and the primary cause of cancer-related deaths among women(6).

Cancers that are frequently linked to malnutrition account for 50% (8.9 million) of all cancer deaths globally, despite the fact that there are no widespread demographics on cancer malnutrition on a population basis like there are in most other countries.

Some of these are; gastric, esophageal, pancreatic and colorectal cancers (16). Studies on oncology settings reported the occurrence of malnutrition in cervical cancer patients is 12.5% (17). This number could worsen by 50% during treatment (18). Regarding the symptoms that interfered with the patients' food intake, the most prevalent were appetite loss, nausea, vomiting, constipation, dyspepsia, and early satiety (17)

In cancer patients, malnutrition is a multifactorial syndrome that can cause rapid weight loss, acute muscle and fat wasting, and immune system disruption. morbidity and mortality (19). Several studies showed that Cancer patients' quality of life impacted by nutritional status (19). Malnutrition also has a negative impact on antineoplastic treatment response and quality of life significant morbidity, mortality from infection-related complications, high treatment costs, and prolonged hospital stays(20)

Patients' health-related quality of life (HRQoL) is greatly impacted by cervical cancer, hence attempts to improve HRQoL should be made, especially in terms of physical and emotional functioning, discomfort, and symptom experience(21).

The research also investigated a continuous relationship between malnutrition and a lower quality of life of cancer patients. In order to improve the nutritional condition and quality of life of these patients, more study is required to better understand the association between malnutrition and quality of life in cervical cancer patients.

To the best of our knowledge, a number of studies in the Western population have shown a relationship between nutritional status and quality of life, nevertheless, there are relatively few studies focusing on the quality of life experienced by Ethiopian patients afflicted with cervical cancer, as well as the factors associated with it (22) but it not related with nutritional status . It is critical to fill up this research gap in a topic as significant and delicate as the effect of nutrition on quality of life (QoL) of patients with cervical cancer. The current study intends to investigate the relationship between malnutrition and patients' quality of life (QoL) who have cervical cancer.

1.3. Significance of the Study

There are major implications for academics, healthcare providers, policy makers, and patients from the association between nutritional status and quality of life in patients with cervical cancer.

For researchers studying the association between nutritional status and quality of life in cervical cancer patients can help to expand our understanding the factors that influence the well-being of these patients. It can also help determine areas for further research and guide the development of new treatments.

For health care institutions, understanding the association between patients' quality of life and nutrition in those with cervical cancer can inform the development of clinical guide lines and protocols for the management of these patients. It can also help healthcare provider to identify patients at risk of malnutrition and provide early intervention to improve their nutritional status and quality of life.

For policy maker, the study nutritional status and quality of life in cervical cancer patients can inform the development of policies and initiatives to improve the care and outcomes of these patients. It can also help to identify areas for investment and allocate resources to address the needs of these patients.

For patients, understanding the association between patients' quality of life and nutrition in those with cervical cancer can help to improve their care and outcomes. It can also help patients to advocate for their own needs and receive the support and resource they need to maintain a good nutritional status and quality of life.

In summary, the study of the relationship between nutritional status and quality of life in cervical cancer patients is significant because it has the chances of improvement care and outcomes of these patients and inform the development of policies and initiative to address their need.

2. LITERATURE REVIEW

2.1. Introduction

When a person's diet does not supply enough nutrients or the proper balance of nutrients for optimal health, they are considered to be malnourished. Inadequate nutrition in cancer patients is the consequence of a variety of factors, including appetite loss, physical limitations (such as pain, vomiting, or ulcers), malabsorption, and pharmacological therapies. It is related with poor prognosis and poor quality of life. Early identification of sign of malnutrition and prompt nutritional therapy can enhance the quality of life (23).

2.2. Cervical Cancer Burden

Nearly almost 500 000 women worldwide are diagnosed with cervical cancer each year, the disease is a severe health concern. Nearly 80% of cases of cervical cancer occur in less developed nations, making it the second most frequent malignancy among women worldwide (1). Cervical cancer is anticipated to account for 2.5% of all newly confirmed cases of cancer in women (excluding non-melanoma skin cancers) and 2.4% of all cancer-related fatalities in the EU-27 nations in 2020. 80,000 women in Africa are diagnosed with cervical cancer, and over 60,000 of them die from it. Eastern and Southern Africa have the highest rates (ASIR > 40/100,000) in Africa. In sub-Saharan Africa, cervical cancer is the second most frequent cancer in women after breast cancer. It accounts for 22.2% of all female cancers in sub-Saharan Africa, and it is also the leading cause of cancer death in women TASH registry data set, 16,622 new cases of cancer were diagnosed in Ethiopia between 1997 and 2012. 5293 of them (a frequency of 31.8%) had cervical cancer (10).

2.3. Quality Of Life in Cervical Cancer Patients

The global health status median score was 50.0, physical functioning was 66.7, and pain symptoms was 83.3, all of which were below the EORTC reference score for all normal females and those with cancer(24).Tanzanian study states that the global health status and overall quality of life (QOL) of CC patients was 64.4 ± 1.9, which is considered moderately excellent. Over half of 177 people (54.8%) reported being in good global health (25). GQOL of cervical cancer patients at Kenyatta National Hospital (69%) of the patients had a poor overall quality of life while 31% of study participants had a good quality of life(26).

Study in Ghana A satisfactory quality of life was reported by 74.5% of survivors, with an overall QoL score of 79.6 (SD 16.0). There was perceived loss in cognitive and role functioning in almost a fifth (22.2%) to a third (34.5%) of the participants, despite the majority (66.0-84.3%) of the QoL functioning scale remaining unaltered. Peripheral neuropathy, discomfort, and financial troubles were the most often mentioned symptoms. Thirty-three percent of the survivors said they feared having sex might hurt them, and 36.6% said it had an impact on their sexual life(27). Research done at Ethiopia's Black Lion Hospital revealed a mean global health status/quality of life of 48.3 ± 23(28).

Nutritional status and quality of life are important considerations in the management of patients with cervical cancer. Malnutrition is common among patients with cervical cancer, and it can have negative impact on their physical and emotional well-being (11). A number of studies have investigated the association between patients' quality of life and nutritional state in cases of cervical cancer.

A systematic review and meta-analysis analyzed the result of thirteen studies that investigated the relationship between malnutrition and quality of life in women with cervical cancer and found that malnutrition consistently associated with a poorer quality of life in these patients. In Particular, malnutrition has found to be linked to a lower physical and emotional well-being, as well as a higher risk of treatment related side effects. A cross-sectional study investigated that the relationship between malnutrition and quality of life in women with cervical cancer receiving radiation therapy (13). The study showed that malnutrition was significantly associated with higher risk of treatment-related side effects and longer hospital stay.

2.4. Factors Affecting Quality of Life

2.4.1 Socio-Demographic and Economic Factors

Several sociodemographic factors influence the quality of life of cancer patients, including age, education level, marital status, gender, and employment status. Age has been identified as a significant determinant of quality of life among cancer patients, (29) with research showing differences between younger and older patients(30).,. Younger individuals, particularly postmenopausal women, often struggle with sexual issues and body image concerns(31). Studies have found that younger age groups, particularly those between 30-39 years old, tend to have poorer quality of life compared to older individuals. Gender also plays a role in quality of life,

with women often reporting higher social relationship quality compared to men, possibly due to greater social engagement(32). Marital status is another important factor affecting cancer patients' quality of life. Research has shown that individuals who are alone due to separation, divorce, or widowhood may experience lower quality of life compared to those who are married or in a relationship(33) (34). Single individuals may face social isolation, loneliness, and lower life satisfaction, impacting their quality of life negatively (35) (36). Education level has also been linked to quality of life among cancer patients, with lower-educated individuals often reporting poorer physical, social, and functional well-being. In contrast, higher education levels are associated with better quality of life, attributed to improved physical and psychological health(37) (38).

Income level is a significant factor influencing the quality of life of cancer patients, with low-income individuals typically experiencing poorer quality of life compared to medium and high-income earners(39). Studies have shown that high income is associated with better quality of life among older cancer patients. However, (40) some research has found no significant association between income and quality of life among older adults(41). Occupational status also plays a role in quality of life, with housewives and casual laborers often reporting lower quality of life compared to working individuals. Housewives may experience social isolation and lack of social support, contributing to their lower quality of life(42).

Cancer patients often face economic burdens due to their diagnosis, including direct costs related to medical expenses, indirect costs such as loss of income, and psychosocial costs like depression and social isolation. These economic burdens can impact various aspects of patients' lives and overall quality of life(43). Financial constraints pose a significant challenge for both cancer patients and their caregivers, leading to a reduction in their quality of life(44).

A cancer diagnosis can have negative economic implications, affecting an individual's productivity and job prospects. Cancer patients may face challenges in maintaining stable employment due to the time spent on seeking treatment and dealing with treatment side effects(45). Research among adolescent cancer survivors has shown that individuals diagnosed with cancer are less likely to have stable employment, impacting their productivity and career advancement opportunities(45).

The economic burden of cancer is evident in the workforce, with a considerable percentage of cancer survivors ceasing work during treatment and experiencing challenges in returning to work post-treatment(46).This economic strain contributes to a decline in quality of life for cancer patients. Various socio-demographic factors have been observed to influence the quality of life of cancer patients.

Nutritional Status in Cervical Cancer Patients

Malnutrition is a common issue among cancer patients, influenced by the metabolic changes and reduced food intake associated with cancer and its treatment. Studies have highlighted the prevalence of malnutrition among cancer patients, with a significant proportion being classified as moderately malnourished or at risk of malnutrition. Malnutrition has been linked to poorer quality of life in cancer patients, emphasizing the importance of addressing nutritional needs in cancer care.

Research on the nutritional status of cancer patients, particularly those undergoing chemotherapy, has shown a high prevalence of malnutrition. Studies have reported varying degrees of malnutrition among cancer patients, with some indicating a substantial proportion of malnourished individuals(47). The nutritional status of patients with gynecological malignancies, including ovarian cancer, has also been a concern, with malnutrition prevalence varying across different stages of the disease(48) (49). Overall, addressing malnutrition is crucial in improving the quality of life and overall outcomes for cancer patients(50).

2.4.2 Life Style Related Factors

Heavy alcohol consumption has been linked to an increased risk of cancer recurrence and mortality(51). The specific mechanisms underlying the association between alcohol consumption and cervical cancer recurrence are still being studied, with limited literature available on the relationship between alcohol consumption and the development of cervical cancer(52). Studies have shown that alcoholism is associated with a higher risk of developing cervical intraepithelial neoplasia, as seen in research from (53)

2.4.3 Clinical and Cancer Related Factors

Patients with advanced cancer tend to have more difficulty managing their symptoms compared to those in early stages, which can impact their quality of life negatively.

Individuals with oropharyngeal cancer in stages III and IV generally have poorer outcomes than those in stages I and II. Patients in end-stage phases often experience more severe symptoms that further impact their quality of life(54). The type of cancer treatment a patient receives is also linked to their quality of life, with radiotherapy patients typically reporting lower quality of life compared to those undergoing chemotherapy or surgery. Radiotherapy can be more painful and stressful, leading to higher scores in domains like pain, fatigue, insomnia, and appetite loss(55).

Studies (56)have shown that patients undergoing radiotherapy may experience significant deterioration in all aspects of quality of life, with the physical domain being the most affected. Chemotherapy, on the other hand, is often associated with fewer side effects than radiotherapy, leading to improved quality of life for cancer patients(56). Complementary therapy, such as acupuncture, can also impact the quality of life of cancer survivors, with varying results across studies. While some studies have found no significant relationship between complementary therapy and quality of life, others have reported improvements in quality of life with specific types of complementary therapies(57) (58) (59) (60)..

Certain disease characteristics of cancer patients, such as tumor differentiation and size, have been found to influence their quality of life. Well-differentiated tumors and smaller tumor sizes are associated with better overall health, functional scores, and symptom management. However, **(61)**the type of treatment modality, such as chemotherapy or surgery, may not always have a significant impact on quality of life, especially in cases where patients are sexually inactive (62) or sample sizes are limited. These findings highlight the complex interplay of lifestyle, clinical, and cancer-related factors in shaping the quality of life of cancer patients.

Conceptual framework

This conceptual framework adopted from another research(28, 63). Slight arrows are used to indicate relationships that exist between sociodemographic variable, treatment and disease related characteristics with quality of life and directly associated with nutritional status, but the bold arrow indicate relationship between nutritional status and quality of life that mainly assessed in this study.

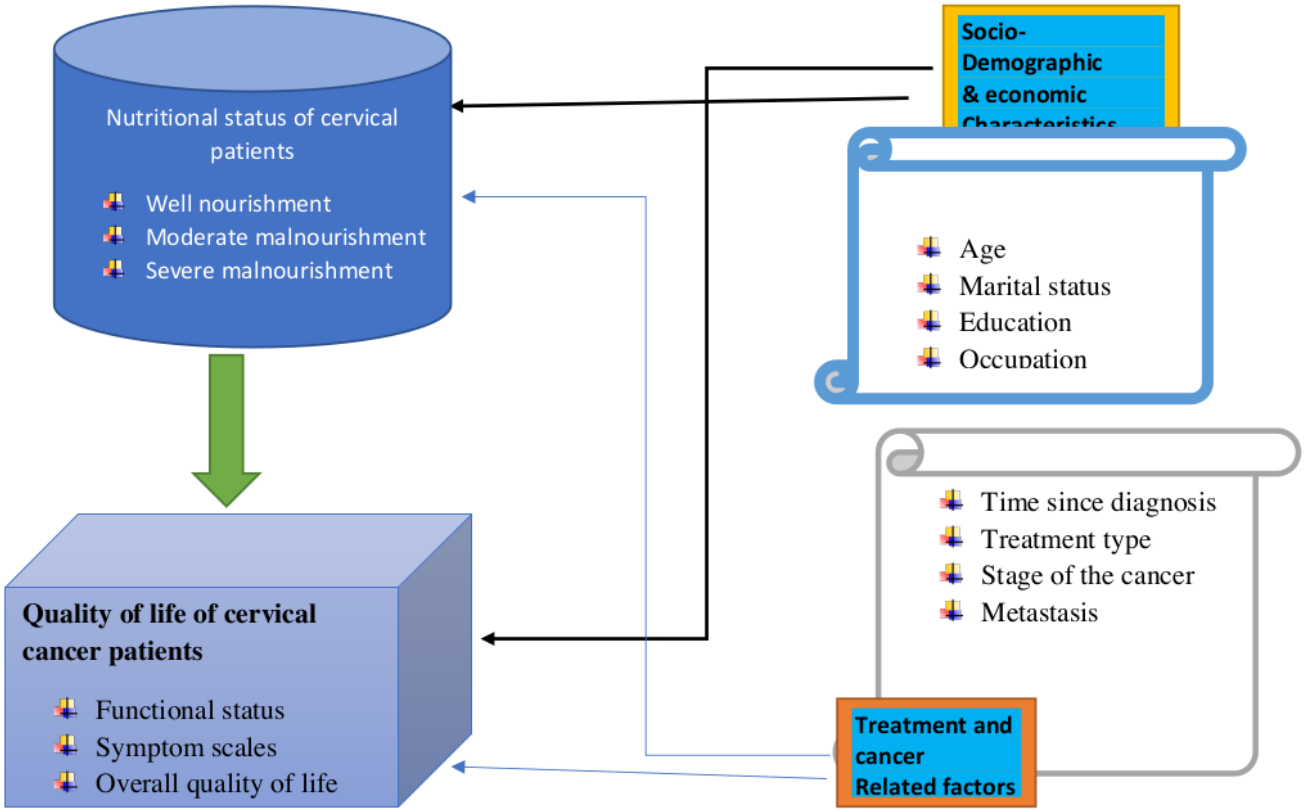

Figure 2.1. Conceptual framework for the relationship between nutritional status and quality of life

3. Objectives

3.1. General Objective

- To assess the relationship between nutritional status and quality of life among cervical cancer patients in public hospitals, Addis Ababa, Ethiopia

3.2. Specific Objective

- To determine the level of quality of life in cervical cancer patients in public hospitals, Addis Ababa, Ethiopia.
- To identify nutritional status of cervical cancer patients in public hospitals, Addis Ababa, Ethiopia

4. Method and Material

4.1. Study Area and Study Period

The study was done at the oncology departments of St. Paul's Hospital Millennium Medical College (SPHMMC) and Tikur Anbessa Specialized Teaching Hospital (TASH). Both of them are public hospitals that treat patients who have been referred to them from all around the nation.

The capital's Tikur Anbessa oncology unit used to be the facility in the nation offering cancer treatment. Patients with cervical cancer make up the majority of the patient population, while the remaining patients come from adjacent regions like Oromia and Amhara. The care given in the unit comprises of giving chemotherapy, doing surgery, and giving radiotherapy (which was previously only given at this facility). In this unit there are 30 nurses, three of them had masters in oncology nursing.

The oncology department at St. Paul's Hospital Millennium Medical College (SPHMMC) was founded recently in 2011 E.C. The facility was developed in response to initiatives by the nation to increase access to cancer treatment facilities in key cities like Gondar, Mekelle, Hawassa, and Harar. 14 nurses, 12 general practitioners, and 1 oncologist made up the initial staff of the unit (64, 65).

4.2. Study Design

The study was employed an institution based cross-sectional study design

4.3. Source Population

All cervical cancer patients who were diagnosed and treated in TASH and SPMMC were considered as source population

4.4 Study population

The study population was all cervical cancer patients who were on treatment at TASH and SPMMC during data collection period.

4.5 Study units

All cervical cancer patients who received treatment in those selected hospitals and who met the inclusion criteria.

4.6 Inclusion criteria

- Those cervical cancer patients who receive treatment in those selected hospital during 1 month data collection time
- Those patients at least take first phase of treatment are recruited to sample
- All patient with a cervical cancer who were willing to participate in the study, able to verbally and cognitively respond the questionnaire and willing for their anthropometric measurements be recorded were included in the study.

4.7 Exclusion criteria

- Those who were severely physically or mentally ill, functionally impaired, or who took medication and were unable to fully participate in the study
- Newly diagnosed cervical cancer patients (which are not start any treatment type)

4.8 Sample size determination

The sample size will be determined by using single population proportion formula and taking 50% proportion. Since there hasn't been any research on relationship between nutritional status and quality of life among cervical cancer patients, so we'll assume p to be 50%, at 95% confidence level and 5 % margin of error.

$$n = \frac{(Z\alpha/2)^2 * p\,(1-p)}{d^2}$$

$$n = (1.96)^2 * 0.5\,(1-0.5)$$

$$\frac{}{(0.05)^2}$$

$$=384$$

Correction formula

n= n/1+(n-1)/N

=384/1+(384-1)/600

= 337

Where: n= sample size

Zα/2 = Z value at 95% CI [1.96]

p = prevalence 50%

d = Margin of error tolerated is (0.05)

N= total population from two hospital

K=interval

10% non- response rate the sample size became **= 371**

K=N/n

=600/370

=1.6

- We will select the study unit every 2-patient interval
- To manage double counting we will take medical record number (MRN) of patients

4.9 Sampling technique

The study areas were selected purposely as TASH being the only cancer treatment and therapy center with both radiotherapy and chemotherapy and St. Paul's Hospital Millennium Medical College (SPHMMC) the second chemotherapy center. A systemic random sampling technique was used to choose the respondents from the two hospitals.

4.10. Data collection instrument

To evaluate sociodemographic status, nutritional status, quality of life, comorbidities, and clinical variables, interviewer-administered questions were used. Patients' weights were measured, and data collection was carried out using a validated and standardized approach. The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC-QLQ-C30), Quality of Life Questionnaire for Cervical Cancer (QLQ-Cx24), and Patient-Generated Subjective Global Assessment (PG-SGA) tools were employed to assess quality of life and nutritional status of the patients respectively, as they have been validated for use in various settings. Prior to data collection, pilot tests were conducted on 5% of the sample size at both data collection sites, with participants from the pilot study excluded from the main study(66).

4.11. Data collection process

Data was collected through face-to-face interviews conducted at the TASH cancer unit and SPHMMC gynecological oncology unit. Three nurses, supervised by the principal investigator, were responsible for gathering the data from patients after they had received the necessary

services. The principal investigator provided training to the data collectors on approaching respondents and asking the relevant questions two days before the data collection period began

4.12. Operational definition

According to EORTC scoring manual EORTC QLQ C-30 and EORTC QLQ-CX24

Global quality of life: sore range fall in between 0-100%. higher score indicating that good quality of life while lower score indicates that poor quality of life.

The raw scores for both EORTC QLQ C-30 and EORTC QLQ-CX24 functional and symptom score were computed to scores ranging from 0 to 100, The scoring of the QOL of the patients was based on the scoring manual provided by the quality-of-life coordinator at the European Quality of Life data Center

Functional scale: with higher scores indicating better functioning and better state of health. Score range from 0- 100%

Symptom scale: with higher scores indicating impaired quality of life and they experience more symptoms. Score range from 0- 100%

Raw score

- For each multi-item scale, calculate the average of the corresponding items.
- Raw score (RS) = (I1 + I2 +...+ In)/ n
- For each single-item measure, the score of the concerning item corresponds to the raw score.
- There are no reverse scoring items.
- $S = \{(RS-1)\}$
- $range \times 100$
- For the symptom and the functional scales / single items.
- Range is the difference between the maximum possible value of RS and the minimum possible value.
- The EORTC QLQ-C30 and EORTC QLQ-CX24 were designed so that all items in any scale take the same range of values; Most items are scored 1 to 4, (Range = 3). The

exceptions were the items contributing to the global health status / QOL, which are 7-point questions with range of 6.

- Therefore, the range of RS equals the range of the item values. High mean scores represent better functioning in the functioning scales and global health status, but a high level of difficulty for symptom scales and single symptom items (67, 68) (Aaronson, 1993).

4.13. Study variable

4.13.1 Dependent variable

The dependent variable of interest was QoL and it was measured using the EORTC QLQ C-30 Instrument. The validity and reliability of this instrument in measuring the QoL of cancer patients in multicultural clinical research settings like Ethiopia have been favorably reported (83). It is designed to be cancer specific, multi-dimensional in structure, applicable across a range of cultural settings and suitable for use with additional site or treatment specific modules. The translated and validated version of EORTC QLQ C-30 in the Amharic language has been adapted in a previous study (83).

4.13.2 Independent variables

- Socio-demographic characteristics (Age, Marital status, Education, Employment, Job type)
- Cancer related Factors (Time since diagnosis, Treatment type, Treatment cycle, The tumor sizes, Stage of the cancer, Metastasis and Recurrence)
- Nutritional status (Well nourishment, Moderate malnourishment and severe malnourishment), BMI, Weight loss and (mid upper arm circumference) MUAC.

4.14. Data processing and analysis

The data collected by the data collectors using the Kobo Toolbox was exported to SPSS version 26 for analysis. Descriptive statistics, such as mean and standard deviation, were used to describe continuous variables. Mean differences between variables were assessed using analysis of variance (ANOVA) and t-tests. Variables with a p-value less than 0.05 were included in multiple linear regression analysis. In the multivariable analysis, a p-value of ≤ 0.01 was considered statistically significant. The results of the analysis were presented in tables.

To determine the impact of patients' nutritional status on quality of life, multivariable linear regression analysis was conducted. Variables with a p-value of < 0.25 in the bivariable analysis were considered associated with the dependent variable and included in the multivariable regression. The strength of the association was assessed using the coefficients of the independent variables, with interpretation based on a 95% confidence interval.

4.15. Data quality as assurance

A pretest involving 5% of the sample size was conducted in both research areas before the main study, and any necessary adjustments were made based on the pretest results. Prior to data collection, three nurses received training from the principal investigator over a two-day period. Additionally, the principal investigator meticulously exported and cleaned the data in SPSS before beginning the analysis.

4.16. Ethical consideration

Ethical approval was obtained from the Institutional Review Board (IRB) of the School of Nursing and Midwifery, College of Health Sciences, Addis Ababa University. Written permission was obtained from SPHMMC and TASH before the start of data collection. Participants were asked to provide written informed consent, or if unable to write, they were requested to use an inked thumbprint on the consent form with a witness present. All participants were informed about the study's objectives and assured of confidentiality, risks, and benefits. Patient data was collected anonymously and solely for research purposes. Paper data collection forms were securely stored in a locked cabinet in the lead investigator's office, and electronic data was stored on a password-protected computer

4.17. Dissemination of finding

Following the completion of the study, the findings report will be presented and defended at the School of Nursing and Midwifery, College of Health Sciences, Addis Ababa University. Subsequently, the report will be submitted to the School of Graduate Studies at Addis Ababa University, as well as to the principal and co-advisors of the thesis, the medical director offices of TASH and SPHMMC, and other relevant stakeholders. The results will be disseminated through seminars and published in an international, high-impact professional journal.

5. RESULTS

5.1. Socio demographic characteristics of patients

From 371 respondents aimed to be included in the study, 364 respondents were completed the interview with a 98.1% response rate. Among 364 cervical cancer patients 182 patients were recruited from TASH and 182 of the patients were from SPHMMC. As indicated table 4.1 below majority 103 (28.3%) of the participants were within the age range of 50-59 years and 172 (47.8%) of the participant were married. In terms of place of residence about 242(66.5%) of the participants were resided urban. The educational level of the participants indicated that the majority 138 (37.9%) of them were unable to read and write. In addition, most of the participants were Housewives 153 (42.0%).

Table 4.1: Socio-demographic characteristics of cervical cancer patients diagnosed at TASH and SPMMC, 2023

Variables	Freq.	Percent	Cum.
Age category			
<40	100	27.47	27.47
40-49	75	20.60	48.08
50-59	103	28.30	76.37
60-69	74	20.33	96.70
>70	12	3.30	100.00
Occupations			
Civil servant	52	14.29	14.29
Farmer	63	17.31	31.59
House wife	153	42.03	73.63
Pension	18	4.95	78.57
Private company employed	22	6.04	84.62
Self employed	56	15.38	100.00
Marital status			
Divorced	69	18.96	18.96
Married	172	47.25	66.21
Single	10	2.75	68.96
Widowed	113	31.04	100.00
Educational level			
Primary level (1-8)	55	15.11	46.15
Secondary level (9-12)	49	13.46	59.62
Technical/vocational)	9	2.47	62.09
Unable to read and write	138	37.91	100.00

5.2. Nutritional status of cervical cancer patients treated at TASH and SPMMC oncology units

Based on the scores obtained from the patient generated subjective global assessment (PG-SGA), the patient's nutritional status is categorized or classified as: well nourished (PG-SGA A), moderately malnourished (PG-SGA B) and severely malnourished (PG-SGA C). Hence, from the figure 4.2 indicted below 152 (41.76%) of the study participants were well nourished (PG-SGA A) this indicate that 152 (41.76%) of patients were adequately nourished and does not show signs of malnutrition based on the subjective global assessment scores. While 116 (31.87%) were moderately malnourished (PG-SGA B) indicating a moderate level of nutritional deficiency or imbalance according to the subjective global assessment scores and 96 (26.37%) of them were severely malnourished (PG-SGA C) indicating that 96 (26.37%) of patients demonstrates significant signs of malnutrition, indicating a severe level of nutritional deficiency or imbalance based on the subjective global assessment scores.

Weight loss can be an important indicator of changes in nutritional status and overall health. In this study, it was observed that the study subjects experienced notable weight loss. Out of the study subjects, 3 individuals, which accounts for 0.82% of the total, experienced a weight loss exceeding 20% of their body weight in the past six months. Additionally, 60 subjects (16.48%) had lost between 6% and 9.9% of their body weight, while 23 subjects (6.32%) had lost between 10% and 19.9% of their previous body weight.

Out of the respondents, 219 individuals, accounting for 60.16% of the total, had a body mass index (BMI) indicating underweight which is <18.5. Additionally, 56 respondents, representing 15.38% of the total, were classified as overweight based on their BMI.

MUAC is a measurement taken around the mid-upper arm and is commonly used as an indicator of nutritional status, particularly for assessing acute malnutrition. Out of the respondents, 235 individuals, representing 64.6% of the total, had a mid-upper arm circumference (MUAC) measurement of 22cm or less. A MUAC measurement of 22cm or less suggests a potential nutritional concern, indicating that a significant proportion of the respondents may have a smaller arm circumference, which can be associated with malnutrition or a deficiency in muscle mass.

Table 4.2: Nutritional status of cervical cancer patients treated at TASH and SPMMC oncology units

Variables	Freq.	Percent	Cum.
Weight loss in 6 month			
0 - 1.9%	130	35.71	35.71
10 - 19.9%	23	6.32	42.03
2 -5.9%	148	40.66	82.69
6 - 9.9%	60	16.48	99.18
> 20%	3	0.82	100.00
Body mass index			
Under Weight	219	60.16	60.16
Normal	89	24.45	84.62
Over weight	56	15.38	100.00
MUAC			
<=22cm	235	64.56	64.56
>22cm	129	35.44	100.00

5.3. Treatment and disease related characteristics of cervical cancer patients treated at TASH and SPMMC, 2023

Out of the study subjects, 198 individuals, representing 54.4% of the total, were taken chemotherapy as part of their treatment. On the other hand, the least number of subjects, specifically 10 individuals, accounted for 2.75% of the total, were taken surgery with radiotherapy. Out of the respondents 251 (74.45%) were diagnosed for the first time this means that these individuals had no previous history of cervical cancer and were undergoing treatment for their initial diagnosis. On the other hand, a smaller proportion of 93 individuals, representing 25.5% of the total, had experienced a recurrence of cervical cancer. Out of the study subjects, 255 individuals, which accounts for 70.05% of the total, received their cervical cancer diagnosis within the past 12 months. This means that these individuals were recently diagnosed with cervical cancer and were still within the first year of their diagnosis. On the other hand, 109 patients, representing 29.95% of the total, had at least 12 months elapsed since their cervical cancer diagnosis. These individuals had been living with their cervical cancer diagnosis for a year or more. In our study 107(29.4%) patients had stage III cervical cancer while only 95 (26.1%) were diagnosed at stage one. 271 (74.5%) had no metastasis at the time of initial diagnosis (Table 4.3).

Table 4.3: Treatment and disease related characteristics of cervical patients treated at TASH and SPMMC, 2023

Variables	Freq.	Percent	Cum.
Time since Dx			
Less than 12 months	255	70.05	70.05
Above 12 Months	109	29.95	100.00
Treatment Type			
Chemotherapy	198	54.40	54.40
Chemotherapy with radiotherapy	16	4.40	58.79
Chemotherapy with surgery	21	5.77	64.56
Radiotherapy	38	10.44	75.00
Surgery	81	22.25	97.25
Surgery and radiotherapy	10	2.75	100.00
Disease Stage			
Stage I	95	26.10	26.10
Stage II	86	23.63	49.73
Stage III	107	29.40	79.12
Stage IV	76	20.88	100.00
Metastasis			
No	271	74.45	74.45
Yes	93	25.55	100.00

5.4. Profile of quality-of-life scale scores of cervical cancer patients treated at TASH and SPMMC

5.4.1. EORTC QLQ -CX24 of cervical patients treated at TASH and SPMMC

The EORTC QLQ-CX24 is a questionnaire designed to assess the quality of life in patients with cervical cancer. It consists of various items that cover different aspects of well-being related to the disease and its treatment.

The mean scores of the EORTC QLQ-CX24 Symptom scales and Functional scales items were reported below in table 4.4. From the functional scales of EORTC QLQ-CX24 questionnaire sexual enjoyment had the least score, with a mean of 23.35± 28.34. This suggests that, on average, patients reported a relatively high level of sexual enjoyment concern. The relatively large standard deviation (28.34) indicates a significant variability in responses, with some patients reporting higher levels of sexual enjoyment while others reported much lower levels. However, the body image had the highest score, with an average of 51.53± 28.04. This indicates

that, on average, patients reported lower levels of body image concerns or issues related to their physical appearance.

Among the symptom scales of the EORTC QLQ-CX24 questionnaire, the lymph adenoma scale had the least affected score, with an average of 28.75± 16.88. This suggests that, on average, patients reported relatively low levels of symptoms related to lymph adenoma. On the other hand, the sexual worry scale had the highest affected score, with an average of 50.46± 26.70. This indicates that patients reported higher levels of worry or concern related to sexual matters on average.

Table 4.4: EORTC QLQ –Cx24 of cervical patients treated at TASH and SPMM, 2023

Variable	Item Numbers	Mean	Std. Dev.
Symptom scales			
Symptom experience	73-79,81, 83-85	37.91	10.09
Lymph adenoma	80	28.75	16.88
Peripheral neuropathy	82	32.33	27.70
Menopausal symptom	82	34.80	22.63
Sexual worry	90	50.46	26.70
Functional scales			
Body image	87-89	51.53	28.04
Sexual activity	91	50.37	32.59
Sexual and vaginal	92-95	38.69	11.44
Sexual enjoyment	96	23.35	28.34

5.4.2. EORTC QLQ –C30 of cervical patients treated at TASH and SPMMC, 2023

5.4.2.1.Global quality of life among cervical cancer patients

The mean score obtained from the study was determined to be 44.12, with a standard deviation of 20.11. In addition to the global health status or quality of life score mentioned above, the study also evaluated multiple and single item scales from the EORTC QLQ-C30 questionnaire. These scales specifically assessed various functional aspects. The functional scales ranged from 50.82±13.75 to 76.10±10.25. Among the functional scales evaluated, physical functioning was found to be the least affected, with a score of 76.10±10.25. This suggests that physical functioning was relatively well-preserved in the study participants. On the other hand, social functioning received the lowest score, indicating that this aspect of functioning was relatively more affected or impaired.

The EORTC QLQ-C30 questionnaire covers multiple symptom domains, such as pain, fatigue, nausea, and others. The scores obtained from these scales help to identify the severity and impact of various symptoms experienced by individuals in the study population. Among the symptom scales assessed in the study, financial difficulty had the highest mean score of 54.76± 35.15. This suggests that financial challenges were a significant concern for the study population. With the exception of diarrhea (mean score of 21.89± 16.23) and dyspnea (mean score of 22.89 ± 25.61), all the other items in the symptom scales indicated moderate to high levels of symptoms. This indicates that the study participants experienced moderate to severe symptoms in various areas assessed by the questionnaire.

Table 4.5: EORTC QLQ –C30 of cervical patients treated at TASH and SPMMC, 2023

Variables	Item numbers	Mean	Std. Dev.
Global QOL	129, 130	44.12	20.11
Functional Scales			
Physical function	101-105	76.10	10.25
Role function	106, 107	72.39	21.18
Emotional function	121-124	64.74	13.89
Cognitive function	120, 125	72.39	21.18
Social function	126,127	50.82	13.75
Symptom Scales			
Dyspnea	108	22.89	25.61
Insomnia	111	42.31	29.26
Nausea	114, 115	33.65	19.85
Fatigue	110, 112, 118	36.72	13.62
Pain	109, 119	35.94	19.33
Loss of appetite	113	41.39	30.34
Constipation	116	31.04	27.40
Diarrhea	117	21.89	16.23
Financial difficulty	128	54.76	35.15

5.4.3. Mean differences of EORTCQLQ-CX24 functional scale with Nutritional characteristics of patients with cervical cancer

Table 4.6 shows that there was a statistically significant difference in the mean scores of all EORTCQLQ-CX24 functional scales across different nutritional statuses. The findings from the study indicate that there was a statistically significant mean difference at a 5% level of significance for several functional scales of the EORTCQLQ-CX24 instrument. Specifically, the results suggest that nutritional status has a significant impact on the Body Image, Sexual/vaginal function, Sexual enjoyment, and Sexual activity scales. This means that individuals with different nutritional statuses demonstrated notable variations in their scores on these particular scales. The differences observed in Body Image indicate that nutritional status can influence how individuals perceive and feel about their own body. The impact on Sexual/vaginal function, Sexual enjoyment, and Sexual activity suggests that nutritional status can affect sexual well-being and functioning.

According to Table 4.6, there was a statistically significant mean difference in score for sexual enjoyment among the EORTCQLQ-CX24 functional scales across different BMI categories at 5% level of significance. This finding suggests that individuals with different BMI categories experienced notable variations in their scores for sexual enjoyment. The statistical significance of the mean difference indicates that BMI can have a significant impact on the level of sexual enjoyment stated by individuals.

Table 4.6: Mean differences of EORTCQLQ-CX24 functional scales with Nutritional characteristics of patients with cervical cancer

Variables	Body Image	Sexual/vaginal function	Sexual enjoyment	Sexual activity
Nutritional Status				
Well Nourished	59.86±29.56	40.98±11.45	27.63±34.26	56.06±33.96
Moderately Malnourished	47.64±23.96	37.63±11.67	23.85±27.03	49.42±33.61
Severely Malnourished	43.05±26.61	36.36±12.05	15.97±23.18	42.52±33.15
P-value	**0.000**	**0.005**	**0.010**	**0.009**
BMI				
Under Weight	49.86±27.28	39.41±11.89	21.31±26.38	47.78 ±34.07
Normal	54.65±30.42	36.78±11.82	33.33±35.53	56.16±33.17
Over weight	53.13±26.68	38.94±11.39	15.48±28.40	51.28±34.35
P-value	0.357	0.206	**0.000**	0.143
MUAC				
<=22	50.34±26.73	39.44±12.02	21.84±27.48	48.50±34.19
>22	53.70±30.13	37.32±11.35	26.09±33.32	53.78±33.47
P-value	0.274	0.107	0.192	0.157

According to the table (Table 4.7), there was a statistically significant difference in the mean scores of all EORTCQLQ-CX24 symptom scales, except for Peripheral neuropathy, across different nutritional statuses. These findings suggest that nutritional status has a significant impact on various symptom scales measured by the EORTCQLQ-CX24 instrument. The statistically significant mean difference at a 5% level of significance indicates that individuals with different nutritional statuses experienced notable variations in their scores for most of the symptom scales assessed. This implies that nutritional status can influence the severity or presence of symptoms related to different aspects of health and well-being as measured by the EORTCQLQ-CX24.

Table 4.7: Mean differences of EORTCQLQ-CX24 symptom scales with Nutritional characteristics of patients with cervical cancer

Variables	SE	LY	PN	MS	SXW
Nutritional Status					
Well Nourished	36.09±9.88	25.00±20.52	32.02±27.63	30.76±20.40	43.40±25.65
Moderately Malnourished	37.26±10.34	28.16±14.97	33.91±28.82	37.34±22.91	49.99±27.28
Severely Malnourished	39.56±10.45	31.57±17.89	30.90±26.60	38.14±25.53	55.26±28.73
P-value	**0.025**	**0.017**	0.723	**0.016**	**0.004**
BMI					
Under Weight	38.70±10.07	29.21±19.10	32.26±27.72	36.95±24.01	50.69±28.26
Normal	36.36±10.93	27.71±16.84	29.21±23.47	31.56±20.17	49.81±27.12
Over weight	37.29±10.30	28.57±14.81	37.50±33.07	31.52±21.45	50.59±27.70
P-value	0.176	0.799	0.215	**0.047**	0.969
MUAC					
<=22	38.69±10.40	28.65±18.01	33.75±28.98	37.13±23.64	50.92±27.44
>22	36.49±10.12	28.94±17.86	29.71±25.08	30.55±20.74	49.61±28.60
P-value	**0.039**	0.881	0.183	**0.008**	0.668

SE=symptom experience, LY=Lymph adenoma, PN=Peripheral neuropathy, MS=Menopausal symptoms, SXW=Sexual worry

5.4.4. Mean differences of EORTC QLQ-C30 functional scale with Nutritional characteristics of patients with cervical cancer

From the table 4.8 provided that there was a significant relationship between nutritional status and global quality of life. This indicates that the nutritional status of individuals in the study population had an impact on their overall quality of life. The findings indicate that individuals who were Severely Malnourished had lower mean levels of global quality of life (GQOL) compared to those who were Well Nourished, Similarly, individuals who were moderately Malnourished had lower mean levels of global quality of life (GQOL) compared to those who were Well Nourished. This suggests that poor nutritional status was associated with lower overall quality of life.

The findings also indicate that there was a statistically significant mean difference in all functional scales (except for social functioning and emotional function) based on nutritional status. This indicates that nutritional status had a significant impact on various aspects of functional well-being, except for social functioning and emotional function.

Functional scales typically assess different domains of functioning, such as physical, Role, cognitive, social, and emotional aspects. The statistically significant mean difference in these scales implies that the nutritional status of individuals in the study participants played a significant role in their functional abilities across these domains.

There was a statistically significant mean difference in global quality of life (GQOL) and all functional scales (except for social functioning) based on body mass index (BMI). The finding of a statistically significant mean difference suggests that there were notable variations in GQOL and functional scores across the different BMI categories. This indicates that BMI levels had a significant impact on both overall quality of life and various aspects of functional scales.

Based on the result provided in table 4.6, there was a statistically significant difference in global quality of life (GQOL) and all functional scales, except for emotional functioning and social functioning, based on mid-upper arm circumference (MUAC) categories. This suggests that MUAC levels had a significant impact on overall quality of life and various aspects of functional well-being, with differences observed across different MUAC categories.

Table 4.8: Mean differences of EORTCQLQ-C30 functional scales with nutritional status of cervical patients treated at TASH and SPMMC, 2023

Variables	GQOL	PF	RF	EF	CF	SF
Nutritional Status						
Well Nourished	50.26±22.37	78.00±10.05	76.41±20.83	63.52±15.19	75.55±20.54	51.41±15.40
Moderately Malnourished	40.71±17.89	75.04±10.23	70.16±21.08	65.42±13.10	69.87±21.18	50.50±12.77
Severely Malnourished	33.00±19.36	74.04±10.75	67.32±20.63	66.67±13.12	67.55±20.53	47.59±14.83
P-value	0.000	0.008	0.007	0.213	0.014	0.545
BMI						
Under Weight	41.44±19.89	75.65±10.29	71.23±21.04	65.64±13.30	71.00±21.06	50.46±12.66
Normal	51.03±22.64	78.73±9.69	77.53±20.89	61.05±13.162	76.28±20.52	52.06±17.38
Over weight	43,60±17.26	73.69±10.28	68.75±21.09	67.11±16.24	68.45±21.49	50.30±11.23
P-value	**0.001**	**0.009**	**0.023**	0.012	**0.057**	0.621
MUAC						
<=22	41.28±17.76	75.26±10.26	70.49±21.00	65.46±13.55	70.28±21.01	50.64±12.74
>22	49.28±22.99	77.62±10.10	75.84±21.14	63.44±14.45	74.85±21.04	51.16±15.48
P-value	**0.000**	**0.035**	**0.021**	0.184	**0,048**	0.728

GQOL= Global quality of life PF=Physical functioning, EF=Emotional functioning, RF=Role functioning, CF=Cognitive functioning, SF= Social functioning

5.4.5. Mean differences in EORTCQLQ-C30 symptom scale with nutritional status of cervical cancer patients treated at TASH and SPMMC

The table 4.9 indicates that there was a statistically significant mean difference in the EORTC QLQ-C30 symptom scales for insomnia, appetite loss, and dyspnea between nutritional statuses. This significant mean difference was observed at a 5% level of significance, the results suggest that nutritional status has a significant impact on the severity or presence of insomnia, appetite loss, and diarrhea symptoms among the patients included in the study. Based on the result provided in table 4.8, among individuals with a mid-upper arm circumference (MUAC) measurement of 22cm or less, there was a higher mean score for insomnia. This suggests that these particular patients experienced more insomnia symptoms compared to patients with a MUAC measurement of higher than 22cm.

Table 4.9: Mean differences in EORTCQLQ-C30 symptom scale with nutritional status of cervical patients treated at TASH and SPMMC, 2023

Variables	FA	NV	PA	DY	IS	AP	CO	DI	FI
Nutritional Status									
Well Nourished	35.62±17.27	33.33±19.47	35.51±24.41	25.77±28.53	37.44±29.93	37.69±30.33	33.97±29.81	20.52±18.70	51.54±34.50
Moderately Malnourished	38.65±14.67	33.12±19.74	37.82±17.61	25.32±27.97	45.01±28.58	44.59±30.60	32.62±29.69	25.02±18.96	56.55±35.45
Severely Malnourished	37.76±14.03	34.63±20.96	38.85±26.49	26.25±27.66	41.42±28.19	43.82±18.88	34.51±30.52	28.23±21.11	54.07±35.99
P-value	0.078	0.921	0.299	0.885	**0.018**	**0.040**	0.678	**0.030**	0.193
BMI									
Under Weight	38.70±14.89	33.18±19.09	37.44±17.94	25.38±27.76	44.14±29.09	43.99±30.59	32.27±29.85	24.61±19.41	57.23±35.73
Normal	35.71±18.44	34.83±20.36	36.14±24.39	25.65±28.31	37.08±30.33	36.70±30.17	32.02±28.67	20.62±19.75	50.56±34.12
Over weight	36.11±13.77	30.65±20.54	36.61±22.12	25.60±29.81	43.45±27.65	43.45±31.09	38.10±30.77	23.19±15.45	51.79±34.18
P-value	**0.238**	**0.460**	**0.868**	0.997	0.151	0.157	**0.393**	0.246	0.253
MUAC									
<=22	38.68±14.61	33.55±20.18	37.73±17.82	24.79±28.09	45.11±28.72	43.83±30.87	32.34±29.46	24.63±19.11	55.74±35.52
>22	35.56±17.38	32.56±18.62	35.66±24.18	26.74±28.29	37.21±29.65	39.02±30.08	34.49±30.20	21.19±18.57	52.97±34.51
P-value	0.070	0.646	0.352	0.527	**0.014**	0.152	0.509	0.098	0.472

FA: fatigue, NV: nausea and vomiting, PA: pain, DY: dyspnea, IS: insomnia, AP: appetite loss, CO: constipation, DI: diarrhea, FI: financial difficulty

5.5. The effect of nutritional status on quality of life of cervical cancer patients treated at TASH and SPMMC using EORTCQLQ-C30, 2023

Table 4.10 displays different multiple linear regression models that were conducted to examine the impact of nutritional status and various dimensions of quality of life. The researchers conducted separate multiple linear regression models to explore the relationship between different groups of nutritional status assessments and each scale of quality of life. This approach allowed them to examine how each specific measure of nutritional status relates to various dimensions of quality of life independently. The results of these regression models provide insights into the associations between these variables and offer a more comprehensive understanding of their impact on different aspects of quality of life. Confounder controlling was implemented by including socio demographic characteristics and disease and treatment related characteristics as covariates. By incorporating these additional variables into the models, the researchers aimed to account for their potential influence on the relationship between nutritional status and quality of life. Controlling for confounders helps to isolate the specific association between the variables of interest (nutritional status and quality of life) and minimize the potential impact of other factors that could introduce bias or alternative explanations in the analysis. In the methods section of the study, it was stated that variables with a p-value less than 0.25 in the Bivariable (Univariable) analyses were selected for inclusion in the final multivariable models. This approach is often used as a threshold for variable selection in regression modeling.

The study revealed a significant relationship between nutritional status and quality of life. Specifically, the mean level of quality of life was found to be lower among individuals who were moderately malnourished and severely malnourished compared to those who were well nourished ($\beta = -8.26$ $p<0.001$) and ($\beta = -10.14$ $p<0.01$), respectively.

Among the functional scales examined, the study found that nutritional status had the most significant associations with physical functioning (PF), emotional functioning (EF), and role functioning (RF)

The study found negative associations between moderate malnutrition and scores on the Cognitive functioning (CF), emotional functioning (EF), role functioning (RF), and physical functioning (PF) scales, when compared to the well-nourished group. Specifically, the regression analysis revealed that moderate malnutrition was associated with a decrease in CF scores by β= -

15.29 ($p<0.01$), EF scores by $\beta= -8.47$ ($p<0.01$), RF scores by $\beta= -7.73$ ($p<0.01$), and PF scores by $\beta= -4.90$ ($p<0.01$) when compared to the well-nourished group.

Similarly, severe malnutrition also showed a strong negative relationship with the same functional scales (Cognitive functioning (CF), emotional functioning (EF), role functioning (RF), and physical functioning (PF). The regression analysis indicated that severe malnutrition was associated with a significant decrease in CF scores by $\beta= -13.06$ ($p<0.01$), EF scores by $\beta= -8.33$ ($p<0.01$), RF scores by $\beta= -12.17$ ($p<0.01$), and PF scores by $\beta= -10.71$ ($p<0.01$) when compared to the well-nourished group. No significant association was found between nutritional status (both moderate and severe malnutrition) and social functioning. The study did not find a statistically significant relationship between nutritional status and social functioning scores. The regression analysis indicated that $\beta =1.53$ ($p>0.05$) and $\beta =-2.74$ ($p>0.05$) for moderate malnutrition and severe malnutrition respectively. The study also found significant associations between nutritional status and symptom scores related to fatigue, nausea and vomiting, Pain, Diarrhea, Dyspnea, Insomnia, and appetite loss.

The regression analysis results revealed that in comparison to well-nourished individuals, patients with moderate malnutrition had an average increase of 11.67 points in fatigue scores ($\beta= 11.67$, $p < 0.01$), while patients with severe malnutrition had an even higher increase of 19.58 points ($\beta= 9.58$, $p < 0.01$) in fatigue scores. And patients in the moderately & severely malnourished groups had Appetite loss scores 18.13 & 19.06 higher than well-nourished groups ($\beta= 18.13$, $p < 0.001$) and ($\beta= 19.06$, $p < 0.01$) respectively. According to Table 4.11, the regression analysis confirmed that both moderate and severe malnutrition were positively associated with pain scores. The results indicated that patients with moderate malnutrition had an average increase of 16.48 points in pain scores ($\beta= 16.48$, $p < 0.01$), while patients with severe malnutrition had a similar increase of 16.12 points ($\beta= 16.12$, $p < 0.01$) in pain scores when compared to the well-nourished group.

The study also found associations between quality of life, functional scales and certain characteristics of the study participants. These characteristics include socio demographic factors, or treatment-related characteristics that were examined in the analysis. Annex 4 provides detailed information of the multiple linear regression models.

Table 4.10: Multivariate linear regressions models of nutritional status as a predictive factor of quality-of-l cervical cancer patients TASH and SPMMC EORTCQLQ-C30, 2023

	Moderately malnourished VS well-nourished	Severely malnourished VS well nourished
	Multivariable analyses	**Multivariable analyses**
Dependent Variables	**β (95% CI)[a]**	**β (95% CI)[a]**
Overall QOL	-8.26 (-13.61, -2.90)	-10.14(-16.07, -4.21)
Physical functioning	-4.90(-9.63, -0.17)	-10.71(-15.94, -5.48)
Role functioning	-7.73 (-14.71, -0.74)	-12.17(-19.90, -4.43)
Emotional functioning	-8.47(-13.67, -3.27)	-8.33(-13.94, -2.72)
Cognitive functioning	-15.29(-22.91, -7.67)	-13.06(-21.28, -4.85)
Social functioning	1.53(-1.99, 5.06)	-2.74(-6.58, 1.06)
Fatigue	11.67(5.90, 17.44)	19.58(13.36, 25.79)
Nausea and Vomiting	14.40(8.09, 20.71)	9.46(2.67,16.26)
Pain	16.48(9.48 23.48)	16.12(8.58, 23.67)
Dyspnea	14.84(6.43, 23.24)	20.39(11.32, 29.45)
Insomnia	13.97(5.83, 22.12)	13.97(5.19, 22.75)
Appetite loss	18.13(9.53, 26.73)	19.06(9.79, 28.32)
Constipation	2.96(-5.02, 10.94)	1.82(-6.78, 10.42)
Diarrhea	16.20(8.89, 23.51)	23.35(15.47, 31.23)
Financial difficulties	7.38(-2.24, 17.00)	16.71(6.34, 27.08

β, *regression coefficient; CI, confidential interval; QoL, quality of life*

5.6. The effect of nutritional status on quality of life of cervical cancer patients treated at TASH and SPMMC using EORTCQLQ-CX24, 2023

We also used the validated EORTC QLQ-CX24 disease-specific module to evaluate the quality of life (QOL) of patients. According to the findings presented in Table 4.11, the study revealed that there was a statistically significant associations between all functional scales and the nutritional status of the patients at a 1% level of significance. In the study, it was observed that patients with moderate nutritional status experienced a decrease in Body image by β= -14.33 ($p < 0.01$), Sexual activity by β= -6.02 ($p < 0.01$), Sexual and vaginal by β= -5.21 ($p < 0.01$), and Sexual enjoyment by β= -4.16 ($p < 0.01$). Furthermore, the study found that patients with severe nutritional status experienced a decrease in Body image by β= -16.62 ($p < 0.01$), Sexual activity

by β= -10.34 ($p < 0.01$), Sexual and vaginal by β= -6.13 ($p < 0.01$), and Sexual enjoyment by β= -11.20 ($p < 0.01$).

Likewise, among the symptom scales (Symptom experience, Lymph adenoma, and Sexual worry), there was a significant association with the nutritional status of the patients at a 1% level of significance. According to the table 4.11, patients with moderate nutritional status showed an increase in Symptom experience by β= 3.64 ($p < 0.01$), Lymph adenoma by β= 5.18 ($p < 0.01$), and Sexual worry by β= 7.85 ($p < 0.01$). Furthermore, the study revealed that patients with severely compromised nutritional status showed an increase in Symptom experience by β= 4.35 ($p < 0.01$), Lymph adenoma by β= 9.29 ($p < 0.01$), and Sexual worry by β= 13.24 ($p < 0.01$).

Table 4.11: Multivariate linear regressions models of nutritional status as a predictive factor of quality-of-life domain scores in cervical cancer patients TASH and SPMMC EORTCQLQ-CX24, 2023

	Moderately malnourished VS well-nourished	**Severely malnourished VS well nourished**
	Multivariable analyses	**Multivariable analyses**
Dependent Variables	**β (95% CI)[a]**	**β (95% CI)[a]**
Symptom experience	3.64(0.93, 6.35)	4.35(1.43, 7.27)
Lymph adenoma	5.18(0.48, 9.89)	9.2928(4.22, 14.36)
Peripheral neuropathy	0.89(-6.29, 8.08)	0.95(-6.78, 8.69)
Menopausal symptom	5.67(-0.30, 11.68)	7.58(1.13, 14.04)
Sexual worry	7.85(0.75, 14.95)	13.24(5.59, 20.89)
Body image	-14.33(-21.24, -7.43)	-16.62(-24.07, -9.18)
Sexual activity	-6.02(-14.92, 2.89)	-10.39(-19.99, -0.79)
Sexual and vaginal	-5.21(-8.27, -2.16)	-6.13(-9.42, -2.84)
Sexual enjoyment	-4.16(-11.72, 3.41)	-11.20(-19.35, -3.05)

β, *regression coefficient; CI, confidential interval;*

6. DISCUSSION

The primary objective of the present study is to investigate the relationship between nutritional status and quality of life of cervical cancer patients diagnosed at St. Paul's Hospital Millennium Medical College (SPHMMC) and Tikur Anbessa Specialized Teaching Hospital (TASH) in Addis Ababa, Ethiopia. In Africa, particularly in Ethiopia, there is a lack of comprehensive quantitative assessments regarding the quality of life of individuals with cervical cancer. This study aims to address this gap by exploring the relationship between the nutritional status of cervical cancer patients and their quality of life.

The study was employed an institution based cross-sectional study design. It revealed that a majority of the patients, more than half of the patients were malnourished or were at risk of being malnourished, weight gain in these patients delayed the identification of malnutrition and malnutrition decreased the functional scores of qualities of life but increasing/worsening of symptoms.

The study findings revealed that 58.24% of the cervical cancer patients were classified as moderately or severely malnourished. This prevalence aligns with previous research on cancer-related malnutrition, which has reported varying incidence rates ranging from 30% to 90% depending on factors such as tumor site, disease stage, and treatment modalities(69).. In a cross-sectional study by Arielen et al., (70) 60 cancer patients undergoing chemotherapy were assessed using the Patient-Generated Subjective Global Assessment (PG-SGA) to determine their nutritional status.

Compared to studies conducted in Indonesia(71),, Libya(72) and Algeria(73) that used tools like SGA and PG-SGA, which reported malnutrition rates of 81.8%, 98.5%, and 77.5% respectively, the prevalence of malnutrition in this study was lower. Conversely, a study by Laky et al. (74)that assessed the nutritional status of 145 gynecologic cancer patients before treatment found a lower proportion of patients classified as moderately malnourished (20%) based on the PG-SGA.

In our study, significant weight loss over the past 6 months was identified as a critical indicator of changes in nutritional status and overall health. We observed that 17.3% of the study participants experienced weight loss exceeding 6%. This finding is consistent with research conducted in comparable settings, such as in New Mexico(75) and France(76), which also

reported similar rates of significant weight loss. The consistent findings across these studies highlight the significance of weight loss exceeding 6% as a notable concern among the populations studied. GA classification, with none classified as severely malnourished.

The present study reported a mean Quality of Life (QoL) score of 44.12, with a standard deviation of 20.11. This finding contrasts with studies conducted in Tanzania, Kenya, and Ghana, (25-27) which reported different mean quality of life scores. However, the mean QoL value in the current study is comparable to a cross-sectional study conducted in Ethiopia(28). This similarity in mean QoL scores may be attributed to the focus on the same population, specifically cervical cancer patients undergoing various treatment types. The slight difference in mean QoL between our study and a study in India, where the mean was slightly higher, could be influenced by factors such as economic conditions, treatment safety, and other population-specific differences(24)

The EORTC QLQ-C30 scores for Physical Function (76.10), Role Performance (72.39), Cognitive Function (72.39), and Emotional Function (64.10) were notably high in the study. These scores indicate a level between satisfactory and regular for these functions. The results suggest that the participants in the study exhibited relatively good physical functioning, were able to fulfill their roles to a satisfactory extent, had adequate cognitive functioning, and experienced a reasonable level of emotional well-being.

In our study, the highest mean among the functional scales was for physical functioning, whereas in the study conducted in India, it was role functioning and cognitive functioning. This difference may be attributed to variations in measurement methods, as the Indian study utilized median scores and included all cancer patients. In terms of symptom scales, financial difficulty had the highest score in both our study and in studies conducted in India and Tanzania(24, 25). Additionally, in our study, the QLQ-CX24 Symptom scale showed a higher score for sexual worry, which is not consistent with the Tanzanian study where lymphadenoma had a higher score. However, both studies reported higher scores for sexual activity in the functional scale(25).

The role function score, with a mean of 61.32, was noted as the lowest among the functions assessed in the study. This suggests that participants may have encountered challenges or limitations in meeting their roles and responsibilities across various aspects of their lives. It

underscores the potential impact of cervical cancer and its treatment on an individual's ability to fully engage in their occupational, familial, or social roles(69).. The symptoms that were most affected on the scale included financial difficulty (54.76), insomnia (42.31), fatigue (36.72), and loss of appetite (41.39). Increased fatigue and loss of appetite are common symptoms experienced by women with cervical cancer, and these symptoms can significantly impact the quality of life of women undergoing treatment for this condition.

The study revealed a significant association between overall quality of life and global health status with nutritional status. Malnourished patients in our study reported higher EORTC scores on various scales/items. Specifically, moderately and severely malnourished patients had lower quality of life scores compared to those who were not malnourished. This finding is consistent with studies conducted in the U.S., Mexico, Austria, France, and Malaysia (75, 77, 78) all of which have shown that impaired quality of life is linked to malnutrition.

The study findings indicated a negative association between malnutrition and cognitive functioning. The detrimental effect of malnutrition on cognitive functioning can be explained by several factors. Malnutrition can result in deficiencies of essential nutrients, including vitamins, minerals, and fatty acids, which are vital for optimal brain performance. Inadequate nutrition may hinder cognitive processes such as memory, attention, problem-solving, and information processing. This finding aligns with research conducted in France and Malaysia, which also highlighted the impact of malnutrition on cognitive functioning(76).

The study revealed a link between malnutrition and poorer emotional functioning in cervical cancer patients. Nutritional deficiencies can affect the synthesis and control of neurotransmitters and hormones that are essential for regulating mood and emotional balance. Insufficient intake of nutrients can disrupt the balance of these chemical messengers, which may lead to mood disorders, depression, anxiety, and decreased emotional well-being. This observation is supported by similar findings from studies conducted in Brazil(79) and China(80)..

The study findings indicated a negative association between malnutrition and physical functioning. This aligns with the results of a study conducted in Indonesia(71) and Brazil, where malnutrition was linked to reduced physical function and increased loss of energy.

The study also identified a significant association between role functioning and malnutrition, which is in line with findings from a study in Belgium(81).. This association suggests that

malnutrition can impact an individual's capacity to fulfill their work, family, or social roles. Malnutrition may result in fatigue, weakness, and decreased physical stamina, affecting the ability to carry out tasks and meet responsibilities associated with different roles. Women with cervical cancer who are malnourished are more prone to infections, experience reduced physical mobility, and often suffer from fatigue. Malnutrition compromises the immune system, making individuals more susceptible to infections and reducing their ability to effectively combat pathogens. This heightened vulnerability to infections can increase the likelihood of developing infections and subsequent complications.

Appetite loss was identified as another distressing symptom, alongside fatigue, that exhibited a significant correlation with malnutrition in the study. This observation is supported by a study conducted in Brazil, (82) which suggested that compromised nutritional status can lead to physical weakness due to muscle mass loss. Signs of malnutrition in breast cancer patients may include loss of appetite, nausea, fatigue, diarrhea, and treatment-related side effects like toxicity, which may require dosage adjustments, treatment delays, or interruptions, ultimately impacting the prognosis negatively(75).

In a study involving gynecological cancer patients, with a significant portion diagnosed with breast cancer, appetite loss and fatigue were found to have a strong association with malnutrition among the symptom scales assessed. This association was particularly notable in patients' undergoing chemotherapy, as the medications used can lead to taste alterations, putting them at risk of weight loss and various nutritional deficiencies(83).. Appetite loss was identified as the most common symptom affecting food intake in breast cancer patients, especially those in advanced stages(73).. Similar findings, with the exception of diarrhea and dyspnea, were reported in a previous study involving cancer patients(84)..

However, contrasting results were observed in a Malaysian study where dyspnea, diarrhea, and nausea/vomiting were the least reported symptoms, with values close to zero. It is important to note that perceptions of quality-of-life domains can vary significantly based on individual values and experiences, leading to differences in how each domain is perceived across individuals and populations. Additionally, variations in treatment regimens and medications used in different countries can result in differing severities of symptoms experienced by patients.

Using the validated EORTC QLQ-CX24 disease-specific module to assess the quality of life (QOL) of cervical cancer patients, the study identified a statistically significant relationship between all functional scales and the nutritional status of the patients. This highlights the importance of considering nutritional status in understanding and improving the quality of life of individuals with cervical cancer.

The study results revealed a strong negative association between malnutrition and body image on the functional scales. This suggests that individuals who were malnourished tended to have more negative perceptions of their body image. Malnutrition can significantly influence body image perception by causing changes in body composition, weight loss, and physical appearance, which may lead to body dissatisfaction and negative body image. Additionally, the functional scales related to sexual activity, sexual and vaginal functions, and sexual enjoyment also showed a negative association with malnutrition. This indicates that individuals experiencing malnutrition tended to have poorer sexual functioning and reduced enjoyment of sexual activities.

Malnutrition can have various physiological and psychological effects that may impact sexual health. Physical changes associated with malnutrition, such as weight loss, muscle wasting, and hormonal imbalances, can contribute to sexual dysfunction and reduced sexual desire. Additionally, malnutrition can also have psychological effects, such as decreased energy levels, mood disturbances, and decreased self-esteem, which can further affect sexual functioning and enjoyment. This study is aligned with the study done in Indonesia (71).

Likewise, among the symptom scales (Symptom experience, Lymph adenoma, and Sexual worry), there was a significant association with the nutritional status of the patients. This finding suggests that the nutritional status of the patients was related to their symptom experience, lymph adenoma (swollen lymph nodes), and sexual worry. It implies that individuals who had poorer nutritional status were more likely to experience a higher symptom burden, increased lymphadenopathy, and greater concerns related to sexual health. Malnutrition can weaken the immune system and overall health, making individuals more susceptible to various symptoms and health complications. Lymphadenopathy can be a consequence of underlying disease processes, including cancer, and may be influenced by nutritional status. Furthermore, malnutrition can impact psychological well-being, leading to increased worry or concerns related to sexual health. This study is in agreed with the study done by Hidding et al (85).

7. STRENGTH AND LIMITATION

The strength of the study is the large sample size and the use of validated measurement tools. It was simpler to compare the study's results with those of other worldwide research since it employed widely recognized standard techniques that had undergone local validation. Additionally, it included a homogenous population (one form of cancer), which allowed the results to accurately reflect that cancer type. The results indicate that the two QOL assessment tools were able to discriminate between groups of cervical cancer patients. The limitation the research was non-measurement and cross-sectional. If the research is prospective, test-retest reliability is significantly greater.

8. CONCLUSSION AND RECOMMENDATION

8.1. Conclusion

The main objective of the current study is to identify the effect of nutritional status on quality of life of cervical cancer patients those diagnosed at St. Paul's Hospital Millennium Medical College (SPHMMC) and Tikur Anbessa Specialized Teaching Hospital (TASH), Addis Ababa, Ethiopia. This study revealed that a majority of the patients, more than half of the patients were malnourished or were at risk of being malnourished, weight gain in these patients delayed the detection of malnutrition and malnutrition decreased the functional scores of qualities of life while increasing/worsening of symptoms. The study revealed that there was a statistically significant associations between all functional scales and the nutritional status of the patients at a 1% level of significance. Among the symptom scales (Symptom experience, Lymph adenoma, and Sexual worry), there was a significant association with the nutritional status of the patients at a 1% level of significance. From EORTC QLQ-CX24 disease-specific revealed that there was a statistically significant associations between all functional scales and the nutritional status of the patients.

8.2. Recommendation

Based on the findings of the study, the following recommendations have been made.

For health care provider

- Incorporating nutritional support into active cancer therapies should be part of the therapeutic regimen.
- Preventing early mortality, reducing complications, and enhancing quality of life would be the primary goals

For researcher

- In our cultural context it is important to include qualitative research to have a deeper understanding of the patients' quality of life specifically for EROTC CX24 questionnaire and to understand their spiritual and emotional feeling.

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ANNEX

Annex 1: information sheet

Title of the research project: assessment of nutritional status and quality of life in cervical cancer patients at public hospitals, Addis Ababa, Ethiopia; 2023

Name of principal investigator: Hiwot Tesfaye

Name of the organization: Addis Ababa university college of health sciences, school of nursing oncology unit.

Name of sponsoring organization: Tikur Anbessa Specialized Hospital

Introduction: The information sheet is prepared for Addis Ababa public hospitals administration offices. The form aims to make the above –concerning office clear about the purpose of the research, data collection procedures, and get permission to conduct the research.

The objective of the research project: To assess nutritional status and quality of life in cervical cancer patients at public hospitals, Addis Ababa, Ethiopia; 2023

Procedure: To achieve the above objective, this information will be necessary. The respondents will be selected systematically from oncology units.

Risk and/discomfort: The name or any other identifying information were not be recorded on the questionnaire and all information will be kept confidential. The information will used only for the study purpose.

Benefit: there is no direct benefit for them, but the result of the study will be highly important for the individual and the community.

Confidentiality: To reassure confidentiality, the data will be collected without the names of the patients, and the information which is collected from this research project will keep confidential. In addition, it will not be revealed to anyone except the investigator.

Based on the understanding of the above information, are you willing to participate in this study?
A) Yes

B) No

If yes, I will continue and

If no, I will skip to next participant after writing the reasons of refusal

Respondent

Signature Date ----------

Data collector ----------

Name Signature----------

Questionnaires ID number ----------

Name of hospital ----------Date of data collected ----------

Annex 2: Data collection tool

Part 1: Socio-Demographic Data Questionnaire **Instruction**: Now I am going to ask you questions about your socio-demographic information Ask the following questions carefully and circle the response unless there is no specific instruction.

No.	Questions	Response	
101	Age		
102	Religion	Orthodox Muslim Protestant catholic Other (specify	
103	Level of education	Unable to read and write Able to read and write Primary level (1-8) secondary level (9-12) Technical/vocational) higher (university)	
104	Marital status	Single Married Separated Divorced Widowed	

105	Occupation	House wife Farmer Civil servant Daily laborer student Teacher Private company pension Other (specify)	
106	Place of residence	Urban Rural	

Part 2: Life style related question

No	Questions	Response	
201	Have you ever smoked cigarette?	Yes sometimes Yes, I still smoke I have never smoked	
202	In the last 24 hours, how many cigarettes did you smoke?	Cigarettes……	
203	Have you ever chewed chat?	Yes No	
204	During the last 30 days, how many days did you chew chat?		
205	Have you ever taken a drink that contains alcohol (Tella/Tegi/ Areke/Beer/Wine, etc...)?	Yes No	
206	During the past 30 days, how many days did you drink alcohol?		
207	Do you frequently Exercise?	Yes No	
208	If your answer is yes, how frequently have you exercised during the past 30 days?		

Part 3: Cancer and treatment related questions

No	Question	
301	The tumor size	
303	Stage of the cancer	
304	Presence of metastasis at the time of initial Diagnosis	
305	Kind of treatment that the patient has had	
306	Treatment patient is now on	
307	How many months have passed since first diagnosis?	
308	Cycle of treatment	

Part 4: Subjective global assessment data (SGA) (circle one rating for each)

Instruction: Now I am going to ask you questions about your nutritional status

No	Question		
401	Have you lost weight in the past 6 Months?		
402	Weight change in the past 1 month		
403	Current weight (Please measure the current weight Of the respondent)		
404	Is there any change in your dietary Intake in the past two weeks?		
405	What kind of dietary intake change Is there		
406	How much share of your usual meal do you consume now?		
407	What type of diet are you currently Taking?		
408	Which of the following gastrointestinal Symptoms have persisted for the past 2 Weeks and more? **(Multiple Response is possible)**		

409	How many times per day do you experience the symptom?		
410	Is there a change in your functional Capacity?		
411	What is the type of your functional Capacity change?		
	Skip the following question, It will be filled by the Principal investigator Metabolic demand (stress)		
	Physical Assessment		
412	Loss of subcutaneous fat (triceps,) Remark None (Fingers don't touch) Low to moderate (Fingers nearly Meet) Severe (Fingers touch)		
413	Muscle wasting (clavicle, temple and shoulder area) Remark (Low to moderate) Muscle loss not presenting; visible, But prominent in females In males: a portion of the clavicle is Visible In females: the clavicle is Prominent deltoid and chest Muscle is still intact (Severe) Evident protrusion		
414	Edema (Please review the chart of the Patient) (Remark) Mild edema…. Localized to lower Extremities (Ankle, pedal, tibial), Possible sacral edema if bedridden Severe edema…… Pitting beyond knees, sacral edema if bedridden, may also have generalized edema		

Part 5: **QLQ-X24**

We are interested in some things about you and your health.

No		Not at all	A little	Quite a bit	Very much
		1	2	3	4
73	Have you had cramps in your abdomen?				
74	Have you had difficulty in controlling your bowels?				
75	Have you had blood in your stools (motions)?				
76	Did you pass water/urine frequently?				
77	Have you had pain or a burning feeling when passing water/urinating?				
78	Have you had leaking of urine?				
79	Have you had difficulty emptying your bladder?				
80	Have you had swelling in one or both legs?				
81	Have you had pain in your lower back?				
82	Have you had tingling or numbness in your hands or feet?				
83	Have you had irritation or soreness in your vagina or vulva?				
84	Have you had discharge from your vagina?				
85	Have you had abnormal bleeding from your vagina?				

86	Have you had hot flushes and/or sweats?				
87	Have you felt physically less attractive as a result of your disease or treatment?				
88	Have you felt less feminine as a result of your disease or treatment?				
88	Have you felt dissatisfied with your body?				
	During the past week:	Not at all 1	A little 2	Quite a bit 3	Very much 4
89	Have you worried that sex would be painful?				
90	Have you been sexually active?				

Answer these questions only if you have been sexually active during the past 4 weeks:

		Not at all 1	**A little 2**	**Quite a bit 3**	**Very much 4**
	Question				
91	**Has your vagina felt dry during sexual activity?**				
92	**Has your vagina felt short?**				
93	**Has your vagina felt tight?**				
94	**Have you had pain during sexual intercourse or other sexual activity?**				
95	**Was sexual activity enjoyable for you?**				

EORTC QLQ-C30 (version 3)

		Not at all	A little	Quite a bit	Very much
101	**Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?**				
102	**Do you have any trouble taking a long walk?**				
103	**Do you have any trouble taking a short walk outside of the house?**				
104	**Do you need to stay in bed or a chair during the day?**				
105	**Do you need help with eating, dressing, washing yourself or using the toilet?**				
106	**Were you limited in doing either your work or other daily activities?**				
107	**Were you limited in pursuing your hobbies or other leisure time activities?**				
108	**Were you short of breath?**				
109	**Have you had pain?**				
110	**Did you need to rest?**				
111	**Have you had trouble sleeping?**				
112	**Have felt you Weak**				
113	**Have you lacked appetite?**				
114	**Have you felt nauseated?**				
115	**Have you vomited?**				

116	**Have you been constipated?**				
117	**Have you had diarrhea?**				
118	**Were you tired?**				
119	**Did pain interfere with your daily activities?**				
120	**Have you had difficulty in concentrating on things, like reading a newspaper or watching television?**				
121	**Did you feel tense?**				
122	**Did you worry?**				
123	**Did you feel irritable?**				
124	**Did you feel depressed?**				
125	**Have you had difficulty remembering things?**				
126	**Has your physical condition or medical treatment interfered with your family life?**				
127	**Has your physical condition or medical treatment interfered with your social activities?**				
128	**Has your physical condition or medical treatment caused you financial difficulties?**				

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

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

1 2 3 4 5 6 7

Very poor Excellent

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

1 2 3 4 5 6 7

Very poor Excellent

Annex 3፡ የመረጃ ወረቀት

የምርምር ፕሮጀክቱ ርዕስ፡ በሕዝብ ሆስፒታሎች የማህፀን በር ካንሰር ታማሚዎች የአመጋገብ ሁኔታ እና የኑሮ ጥራት ግምገማ፣ አዲስ አበባ፣ ኢትዮጵያ; /2023

የዋና መርማሪ ስም፡ ህይወት ተስፋዬ

የድርጅቱ ስም፡- አዲስ አበባ ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ፣ የነርሲንግ አንኮሎጂ ክፍል ት/ቤት።

የስፖንሰር ድርጅት ስም፡ ጥቁር አንበሳ ስፔሻላይዝድ ሆስፒታል

መግቢያ፡ የመረጃ ወረቀቱ የተዘጋጀው ለአዲስ አበባ የሕዝብ ሆስፒታሎች አስተዳደር መሥሪያ ቤቶች ነው። ቅጹ ዓላማው ከላይ የተመለከተውን ጽ / ቤትን በሚመለከት ስለ ጥናቱ ዓላማ ፣ የመረጃ አሰባሰብ ሂደቶች እና ጥናቱን ለማካሄድ ፈቃድ ለማግኘት ግልፅ ለማድረግ ነው።

የምርምር ፕሮጀክቱ ዓላማ፡ በሕዝብ ሆስፒታሎች የማህፀን በር ካንሰር ታማሚዎችን የአመጋገብ ሁኔታና የኑሮ ጥራት ለመገምገም፣ አዲስ አበባ፣ ኢትዮጵያ፣ /2023

ሂደት: ከላይ ያለውን ዓላማ ለማሳካት, ይህ መረጃ አስፈላጊ ይሆናል. ምላሽ ሰጪዎቹ ከአንኮሎጂ ክፍሎች ስልታዊ በሆነ መንገድ ይመረጣሉ።

ስጋት እና/መመቸት፡ ስም ወይም ሌላ መለያ መረጃ በመጠይቁ ላይ አልተመዘገቡም እና ሁሉም መረጃዎች በሚስጥር ይቀመጣሉ። መረጃው ለጥናት ዓላማ ብቻ ጥቅም ላይ ይውላል.

ጥቅማ ጥቅሞች: ለእነሱ ምንም ቀጥተኛ ጥቅም የለም, ነገር ግን የጥናቱ ውጤት ለግለሰብ እና ለማህበረሰቡ ከፍተኛ ጠቀሜታ ይኖረዋል.

ምስጢራዊነት፡ ምስጢራዊነትን ለማረጋጋት መረጃው ያለ የታካሚዎች ስም የሚሰበሰብ ሲሆን ከዚህ የምርምር ፕሮጀክት የሚሰበሰበው መረጃ ሚስጥራዊ ይሆናል። በተጨማሪም, ከመርማሪው በስተቀር ለማንም አይገለጽም.

ከላይ ባለው መረጃ መረዳት ላይ በመመስረት፣ በዚህ ጥናት ውስጥ ለመሳተፍ ፈቃደኛ ነዎት?

ሀ) አዎ

ለ) አይ

አዎ ከሆነ እቀጥላለሁ እና

አይደለም ከሆነ፣ የእንቢታ ምክንያቶችን ከጻፍኩ በኋላ ወደ ቀጣዩ ተሳታፊ እዘለዋለሁ

ምላሽ ሰጪ

የፊርማ ቀን ----------

መረጃ ሰብሳቢ ----------

ስም ፊርማ ----------

መጠይቆች መታወቂያ ቁጥር ----------

የሆስፒታሉ ስም ---------- መረጃ የተሰበሰበበት ቀን ---- ----

Annex 4: የአማርኛ መጠይቅ

ክፍል 1. መሰረታዊ እና የስነ-ህዝብ መረጃን የተመለከቱ ጥያቄዎች

አሁን የርስዎን መሰረታዊ እና የስነ-ህዝብ መረጃዎች የተመለከቱ ጥያቄዎችን እጠይቅዎታለሁ:: የሚከተሉትን

ጥያቄዎች በጥንቃቄ በመጠየቅ ምርጫ ከሆነ መልሱን ያክብቡ፤ነፃ ጥያቄ ከሆነ የመላሹን መልስ ይፃፉ::

ቁጥር	ጥያቄ	መልስ	
1	ዕድሜህ/ሽ ስንት ነው?	እድሜ በሙሉ ዓመት …….	
2	ሀይማኖት	1.ኦርቶዶክስ 2. ካቶሊክ 3.ፕሮቴስታንት 4. ሙስሊም 5. ሌላይቅስ----------	
3	የትምህርትደረጃ	1.ያልተማረ(ማንበብናመፃፍየማይችል) 2.ማንበብና መፃፍ የሚችል 3.የመጀመሪያ ደረጃ ያጠናቀቀ(ከፍል1-8) 4.ሁለተኛ ደረጃ ያጠናቀቀ (9-12) 5.ኮሌጅ ወይም የሙያት/ት 6.የዩኒቨርስቲ ምሩቅ ወይም ከዛ በላይ	

4	የጋብቻ ሁኔታዎ ምንድን ነዉ?	ያላገባ/ች ያገባ/ች ተጋብተዉተለያይተውየሚኖሩ የተፋታ/ች የሞተባት/የሞተበት	
6	ስራዎ ምንድን ነዉ?	የቤት እመቤት ገበሬ የመንግስትሰራተኛ ነጋዴ የቀንሰራተኛ ተማሪ የግል ስራ ሌላ (ይገለፅ)፡	
7	የመኖሪያ አድራሻ	ዞን ከተማ	
8	ከመታመሞ በፊት የነበሮት የአኖኖር ሁኔታ እንዴት ነዉ? (የተዘረዘሩትን ምርጫዎች ያንበቡላቸው)	ለብቻ ከትዳር አጋር ጋር ከቤተሰብ ጋር ከልጆች ጋር ሌላ (ይገለፅ)	
	የቤተሰቡ አባላት በቁጥር ስንት ናቸዉ?		

ክፍል 2፡ ከአኖኖር ዘይቤ ጋር በተያያዘ የሚሰጥ ጥያቄዎች

ቁጥር	ጥያቄ	መልስ
	እስከዛሬ ድረስ የትኛዉንም አይነት አልኮል መጠጥ (ጠላ/አረቄ/ጠጅ/ቢራ/ወይን/በፋብሪካ የተመረቱ) ቢያንስ አንድ የአልኮል መጠጥ ለአንድ ጊዜም ቢሆን ጠጥተዉ ያዉቃሉ?	

S	ባለፉት 30 ቀናት ዉስጥ ስንት ቀን የአልኮል መጠጥ ጠጥተዉ ያዉቃሉ?	
	በአሁኑ ሰአት ሲጋራ ያጨሳሉ	
	ባለፉት 24 ሰአት ውስጥ ምን ያክል ሲጋራ አጭሰዋል	
	ጫት ቅመው ያው.ቃሉ	
	ባለፉት 30 ቀናት ዉስጥ ስንት ቀን ጫት ቅመው ያው.ቃሉ	
	አዘውትረው እንቅስቃሴ ያደርጋሉ ?	

ክፍል-3: ከህመምተኛው የካንሰር ሁኔታ ጋር በተያያዘ የሚሰጥ መጠይቅ

ቁጥር	ጥያቄ	መልስ	
	የእባጩ ክፍል	1. Grade 1 2. Grade 2 3. Grade 3 4. Grade 4	
	የእባጩ ደረጃ	1. ደረጃ 1 2. ደረጃ 2 3. ደረጃ 3 4. ደረጃ 4	
	መጀመሪያ ያወቁ ጊዜ የስርጭት ሁኔታ	1. ተሰራጭቶ ነበር 2. ስርጭት አልነበረም	
	ስርጭቱ የት ነበር		
	ህመምተኛው አሁን የሚወስደዉ የህክምና አይነት	1. Surgery 2. Chemotherapy 3.Radiotherapy 4. Hormonal therapy 5. Zoledronic acid 6. follow up	
	ህመምተኛው ከዚህ በፊት ሌላ	1.Chemotherapy	

	የወሰደዉ የካንሰር ህክምና	2.Radiotherapy 3.Chemotherapy and Radiotherapy 4.Chemotherapyand Surgery 5.Chemotherapy, Radiotherapy and Surgery 6. Radiotherapy and Surgery 7.Hormonal therapy 8. Surgery	
	ህመምተኛው ከዚህ በፊት የወሰደዉ ኬሞቴራፒ ብዛት (ካልወሰደ 00 ተብሎ ይሞላ)		
	ህመምተኛው ከዚህ በፊት የወሰደዉ ጨረር ህክምና ብዛት (ካልወሰደ 00 ተብሎ ይሞላ)		

ክፍል 4፡ ሰብጀክቲቭ ግሎባል አሰስመንት

ቁጥር	ጥያቄ	መልስ	
	ከስድስት ወር በፊት የነበረ ክብደት		
	በስድስት ወር ውስጥ ያጋጠመ የክብደት መቀነስ		
	ከአንድ ወር በፊት የነበረ ክብደት		
	አሁን ያለ የሰውነት ክብደት እባኮንአሁንያለውንየሰውነት ክብደት ይለኩ		
	ከተለመደው የምግብ አወሳሰድ ለውጥ አለ?	አለ የለም	
	የምግብ አወሳሰድ ለውጡ ምን አይነት ነው?	መካከለኛ አመጋገብ ግን በመሻሻል ላይ ያለ ደካማ እና የምግብ ፍላጎቱ በመቀነስ ላይ ያለ አለመመገብ..... 3	
	ከድሮው አንፅር አሁን ምን ያህል ምግብ		

	በአንዴ ይወስዳሉ?		
	አሁን የሚወስዱት የምግብ አይነት	ለስለስ ያለምግብ ፈሳሽ አለመመገብ	
	ከሁለት ሳምንት በላይ የቆየ የሆድ ህመም ምልክቶች አሉ (ከአንድ በላይ መመለስ ይቻላል)?	ምንም የለም ተቅማጥ ማቅለሽለሽ የምግብ ፍላጎት መቀነስ ማስታወክ	
	በቀን ለስንት ግዜ ነዉ ምልክቶቹ የሚታዩት?		
	የለት ተለት እንቅስቃሴን የማከናወን አቅም ለውጥ አለ?	ለውጥ የለም(ሙሉ በሙሉ ማከናወን እችላለሁ) ለውጥ አለ	
	ምን አይነት ለውጥ አለ?	ትንሽ ትንሽ መስራት የአልጋ ቁራኛ መንቀሳቀስ ብቻ	
	(ማስታወሻ ይህ ጥያቄ በ ዋና ተመራማሪው የሚሞላ ስለሆን ወስሚቀጥለው ጥያቄ ይለፉ) የህመሙ አይነት ከአመጋገብ ጋር ያለው ቁርኝት እና ጫና	ጫና የለውም ትንሽ ጫና መካከለኛ ጫና ከፍተኛ ጫና አለው	
	በሰውነት ምርመራ ላይ የተገኘ 1. የላይኛው የእጅ ጡንቻ መቀጨጭ	የለም ትንሽ ወይም መካከለኛ ከፍተኛ	
	2. የጡንቻ መሳሳት (የደረት አጥንት፣ ትከሻአ) መጋለጥ	የለም ትንሽ ወይም መካከለኛ ከፍተኛ	
	3. ውሃ መቆጠር ምልክት (ቁርጭምጭሚት፣በፈሳሽ የተወጠረ ሆድ)	የለም ትንሽ ወይም መካከለኛ ከፍተኛ	

የተመጣጠነ አመጋገብ ያለው ……..…….A

መካከለኛ የምግብ እጥረት ያለበት(ጥርጣሬ)……..B

በከፍተኛ ደረጃ የምግብ እጥረት ያለበ……..……..C

ክፍል 5፡ QLQ-CX24

እርስዎንና ጤንነትዎን በተመለከተ የተወሰኑ ነገሮችን ለማወቅ እንፈልጋለን።እባክዎትን የሚከተሉትን ጥያቄዎች በሙሉ እርስዎ ትክክለኛ ነው ብለው ያመኑበትን ይመልሱ። «ትክክለኛ» መልስ ወይም «የተሳሳተ» መልስ የሚባል የለም። የሚሰጡት መረጃ ሁሉ ምስጢራዊነቱ በደንብ የተጠበቀ ይሆናል። የዛሬው ዕለት (ቀን፣ወር፣ዓም)፦ ----------

ቁጥር	ጥያቄ	መልስ	
501	የሆድ ቁርጠት ኢጋጥሞት ያውቃል?	አዎ ኢየዉቅም	
502	ሰገራ መቆጣጠር ያስቸግሮታል	አዎ ኢየዉቅም	
503	ደም የቀላቀለ ሰገራ ኢጋጥሞት ነበሮት?	አዎ ኢየዉቅም	
504	ውሃ/ሽንት ቶሎ ቶሎ ይመጣ ነበር?	አዎ ኢየዉቅም	
505	ስትሸኚ የማቃጠል ሲማት አለ?	አዎ የለም	
506	ሽንት የመቆጣጠር ችግች አለ?	አዎ የለም	
508	እግር ማበጥ ነበር	አዎ የለም	
509	የጀርባ ሕመም ኢጋጥሞሽ ነበር?	አዎ የለም	
510	በእጅ ወይም በእግሮች ላይ መደነዘዝ ነበር?	አዎ የለም	
511	በብልት አካባቢ ማሳከክ ሲማት ነበር?	አዎ የለም	
512	ከብልት የሚዎጣ ፈሳሽ ነበር?	አዎ	

		የለም	
513	ከብልት ውስጥ ጤናማ ያልሆነ የደም መፍሰስ ነበር?	አዎ የለም	
514	ማላብ ነበር?	አዎ የለም	
515	በበሽታው ወይም በሕክምና ምክንያት በአካላዊ ሁኔታ እምብዛም ማራኪ እንዳልሆንክ ተሰምቶት ያውቃል?	አዎ የለም	
516	በበሽታው ወይም በሕክምና ምክንያት የሴትነት ስሜት አነስተኛ ነው?	አዎ የለም	
517	በሰውነትሽ እንዳልረካሽ ተሰምቶሽ ያውቃል?	አዎ የለም	
518	የጾታ ግንኙነት ህመም ይኖረዋል የሚል ስጋት ፈጥሮቦታል ?	አዎ የለም	
519	የጾታ ግንኙነት ያደርጋሉ?	አዎ የለም	
520	የጾታ ግንኙነት በምትፈጽሙበት ጊዜ የብልት መደረቅ አለ?	አዎ የለም	
521			
522	ብልትሽ አጭር ሆኖ ተሰምቶሽ ያዉቃል?	አዎ የለም	
523	ግንኙነት በምትፈጽምበት ጊዜ ሕመም ኢጋጥሞት ያዉቃል?	አዎ የለም	
524	የጾታ ግንኙነት መፈጸም አስደሳች ነበር?	አዎ የለም	

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