RISK FACTORS FOR FATIGUE AMONG CANCER PATIENTS ATTENDING CANCER CENTER OF TIKURE ANBESSA SPECIALIZED HOSPITAL IN ADDIS ABABA, ETHIOPIA:UNMATCHED CASE CONTROL STUDY

BY: LENJISA KUMSA (BSc.)

ADVISORS:1).Mr.NIGUSE TADELE (ASSISTANT PROFESSOR)

2).Mr.KETEMABIZUWORK(LECTURER)

THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR MASTER OF SCIENCE DEGREE IN CLINICAL ONCOLOGY NURSING

JUNE, 2023

ADDIS ABABA, ETHIOPIA

Thesis Submission Form

Name of Principal Investigator	LenjisaKumsa(BSC)
Name of Primary Supervisor	Mr.Niguse Tadele (Assistant Professor)
Name of Primary Co-Supervisor	Mr.Keteme Bizuwork(lecturer)
Full title of Research Proposal	Risk factors for fatigue among cancer patients attending cancer center of Tikure Anbessa Specialized Hospital in Addis Ababa, Ethiopia, 2023: unmatched case-control study
Duration of Research	January 2023 through May 2023.
Study Area	Tikure Anbessa Specialized Hospital, Addis-Ababa, Ethiopia
Total cost of the project (Birr)	25,300.00 Ethiopian birr.
Address of Principal Investigator	0913564887 lenjisakumsa1976@gmail.com

APPROVAL SHEET

ADDIS ABABA UNIVERSITY COLLEGE HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

DEPARTMENT OF CLINICAL ONCOLOGY NURSING

I, the undersigned MSC students, declare that I have submitted my original work on a tittle Risk factors for fatigue among Cancer Patients attending Cancer Center of Tikure Anbessa Specialized Hospital in Addis Ababa, Ethiopia2023 :Unmatched Case-Control Study

Submitted by:

LenjisaKumsa(Bsc) _____ _____

Name of student Signature Date

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

Approved by:

1. **NiguseTadele (Ass. professor)** _____ _____
   Name of Major Advisor Signature Date
2. **Ketema Bizuwork(Lecturer)** _____ _____
   Name of Co-Advisor Signature Date
3. **Dr.GirumSebsibe((PhD,Ass. professor)** _____ _____
   Department Head Signature Date

ACKNOWLEDGEMENT

First I would like to acknowledge Addis Ababa University College of Health Sciences postgraduate program organizing for giving me the chance to do this study and the financial grants.I would also want to thank Tikure Anbessa specialized Hospital andI would like to thank my advisors, Mr. Niguse and Ketema think ,write about this new subject area, starting from title selection them for contacting me to think and write about this new subject area, starting from title selection and the thesis to this point . Finally, we would like to forward our gratitude to the study participants and data collectors for their great contribution for the completion of this study.

Acronym/Abbreviations

AOR Adjusted Odd Ratio

BFI Brief Fatigue inventory

BMI Body Mass Index

COR Crude Odd Ratio

CRF Cancer-Related Fatigue

CNS Central Nervous System

ER Emergency Center

IDI In-Depth Interview

NCCN National Comprehensive Cancer Network

OPD Out Patient Department

TASH Tikur Anbessa Specialized Hospital

SPSS Statistical Package for social science

Table of Contents

List of Tables

List of Figures

Background: Even though cancer-related fatigue (CRF) is a highly prevalent and distressing symptom, its risk factors are mostly under assessed and reliable information on the causes of fatigue in the Ethiopian population is scarce and needs further investigation

Objective: To investigate the possible risk factors for fatigue among cancer patients attending the Tikure Anbessa Specialized Hospital in Addis Ababa, Ethiopia**.**

Material and Methods: From January 2023 to May 2023, an institution-based, unmatched case-control study was conducted at Tikure Anbessa Specialised Hospital (TASH) in Addis Abeba, Ethiopia, on 110 cases (cancer patients who received chemotherapy) and 220 controls (cancer patients who did not receive chemotherapy). Face-to-face interviews with potential study participants were used to choose them using a systematic random sampling technique. The fatigue evaluation scale was used to measure exhaustion. In order to fit a binary logistic regression (bi-variable and multi-variable) model, SPSS version 26 software was utilised. The strength and direction of the link were determined using an adjusted odds ratio with respect to the 95% confidence interval, and statistical significance was proclaimed at a p-value of <0.05.

Results: This study found that the prevalence of fatigue were 77.2% cases,22.8% controls,95% CI: (73.1–81.1%)

The mean ± standard deviation (SD) of the ages of the participants was 45.6±14.4 years,

(74 =63.3%)cases and (96 = 43.6%) controls had a history of repeated admission, 51 **(**46.4%)cases and 88 (40**%)** controls with stage three cancer, alcohol consumption 81 **(73.6%),** 15 **(13.6%),** and 14 **(12.7%)** of the case 162 (73.6%), 37 (16.8**%),** and 21 (9.5**%)** of the controls, having depression (AOR: 2.83 (1.57, 5.10), chemotherapy use (AOR: 3.61 (2.10, 4.61),

In contrast to this ,not having a history of anemia (0.68 (0.40, 1.14)),and anxiety(AOR: 0.24 (0.14, 0.40)).

Conclusions and Recommendation: In this study, having depression and chemotherapeutic use increased the odds of sustaining fatigue symptoms.

incontrast,not having anemia and anxiety reduced the odds of developing fatigue. Therefore, cancer patients with chemotherapy usersand those who had depression. Nurse shall consider fatigue as one of the vital sign in cancer patients and incorporate in vital sign sheet format. Furthermore, education programs on fatigue, etiology and treatment shall be given for the

1.INTRODUCTION

1.1. Background

Cancer is a disease characterized by the growth of abnormal cells beyond their usual boundaries that can invade adjoining body parts and/or spread to other organs. is one of the primary causes of morbidity and mortality on a global scale (1, 2). CRF is one of the most common side effects of cancer and cancer treatment. It is severely undertreated and causes to reduced functioning, a reduction in overall quality of life, and death(3). Significant socioeconomic costs. According to one study, CRF is linked to shorter survival and higher fatality rates. In the first year after being diagnosed with cancer, more than 30% of patients will have moderate-to-severe CRF. The more severe the CRF symptoms, the more likely they are to persist or recur, even after cancer therapy has ended or the patient is in remission.(4-6).

CRF is a self-recognized subjective syndrome characterised by varying degrees of exhaustion or lack of energy frequency, and duration, which is not proportional to physical activities, and not relieved by sleep or rest (7). CRF is frequently described by patients as a strange feeling of weariness, weakness, or loss of activity, with consequences for emotional and cognitive skills(8-10). Additionally, cancer-related fatigue, defined as “In terms of it might be defined as "a persistent, subjective sense of tiredness related to cancer or cancer treatment that interferes with normal functioning."“can be described in terms of perceived energy, mental capacity, and psychological status (11, 12).

Moreover, objective symptoms include muscular, neuropsychological, and metabolic changes including reduced muscle strength, tremor, diminished reflex responses, impaired coordination, diminished concentration, attention and memory problems, electrolyte abnormalities, lactate increase, and reduction of glycogen (13).

Research over the last decade has shown that fatigue is part of complex self-regulation of physiological systems, whose objective is to keep the body safe from damage. The sensations of fatigue and exhaustion, particularly after physical effort, are crucial regulators for the central nervous system (CNS)that an effort is stopped before it results in damage (14). As a result, measuring cancer-related fatigue and its predictors will be crucial for commencing early care of the condition with ongoing monitoring in all cancer patients.

1.2. Statement of the problem

Fatigue resulting from cancer (CRF) is undeniably a substantial problem with significant health policy and economics of medicine repercussions from numerous viewpoints worldwide, according to empirical research (15).Studies have established that 50-90% of cancer patients' worldwide feel fatigued from chemotherapy . Fatigue is widely regarded as the most common symptom related to cancer and its treatment and it is a sign that cancer patients frequently underestimate (16-18). Similarly, studies have indicated that 70-100% of cancer patients are plagued by cancer-related fatigue, which can be more upsetting and disruptive to everyday activities than the disease's discomfort (19, 20). Individuals are typically hesitant to report fatigue, and cancer-care providers usually do not test for it because they are unsure how to manage it (21). A study proved that high levels of weariness during treatment can result in considerable decreases in physical functioning and quality of life, despite the fact that the causes are unknown,yet its causes remain poorly understood. Another study finding established that 52.07% of cancer patients experienced clinically significant fatigue, with 50% reporting severe fatigue. Patients with acute leukaemia (61%) had more severe fatigue than those with chronic leukaemia (47%) or non-Hodgkin's lymphoma (46%)(22).

Adolescent cancer-related lethargy is sometimes viewed negatively by parents as multifaceted and perceive cancer-related fatigue as unpredictable. They struggle to distinguish between typical adolescent behavior and problematic exhaustion, as well as to strike a balance between encouraging and empowering the adolescent to experience life to the fullest and being realistic about the constraints brought on by fatigue and the advantages of action (23). Fatigue is a protective or pleasurable response to physical or psychological stress in healthy people. For patients with a chronic disease, however, it can become a distressing symptom (24). There is limited data on the meaning, effect, and experience of cancer-related weariness from the patient's perspective, though a few qualitative studies exist have been done (25).

Various treatment techniques, including chemotherapy and radiation, have been linked statistically to chemotherapy-related fatigue (26). Additionally, CRF is negatively associated with never indulging in physical exercise, whereas a higher clinical stage of cancer is positively associated with an increased risk of CRF (27).

Empirical evidence suggests that cancer-related tiredness is still prevalentunder recognized and undertreated.

Although several factors that may contribute to the development of cancer-related fatigue have been identified, the pathophysiological mechanisms involved are not well understood (28). Because cancer-related fatigue is a multidimensional condition largely characterized by subjective feelings (tiredness, weakness, or insufficient energy)), defining the condition is problematic. Cancer-related fatigue is generally differentiated from fatigue in healthy individuals by its greater severity, higher level of distress, and failure to be alleviated by sleeping or resting (29, 30).

The costs of cancer-induced fatigue and their possible determinants among cancer patients have been under reported in Ethiopian literature, with much of what is known relying on cross-sectional studies (1, 31, 32). Despite the substantial predicted consequences of cancer-related fatigue, the rate of cancer-related fatigue and its predictors in developing countries, particularly Ethiopia, are poorly known and underdiagnosed, and available information is inconclusive, necessitating additional research.

In this context, this study will aim to investigateRisk factors for fatigue among cancer patients attending cancer center of Tikur Anbessa specialized hospital in Addis Ababa, Ethiopia. This study's findings will help strengthen and evaluate cancer-related fatigue clinical care services and build a body of knowledge that may impact Ethiopian public health policy.

1.5. Significance of the study

Investigating participants' risk factors fatigue can help health practitioners plan effective interventions to decrease the consequences of risk factors for fatigue from a variety of viewpoints. It will help healthcare professionals provide meaningful clinical care assistance to cancer patients who visit the cancer center.

so, understanding the level of fatigue and the cancer patients' experience with risk factors for fatigue is essential to reducing stressful conditions and psycho-emotional problems.

Furthermore, the findings of this study would assist policymakers and programmers in developing a strategy to reduce the burden of risk factors for fatigue perceived by cancer patients in cancer center units.

It also improves communication between cancer patients and healthcare providers, strengthening the existing cancer care services in the cancer center. It provides baseline information for other similar hospitals to improve the quality of cancer related fatigue care services in the cancer center.

2. LITERATURE REVIEW

For this study, we reviewed many pieces of literature on the level of fatigue in cancer populations. Despite the fact that much has been written about the magnitude of cancer patients who are fatigued among cancer patients worldwide, we discovered that few studies have attempted to investigate the risk factors for fatigue among cancer patients in developing countries, including Ethiopia. As a result, the current investigation will shed light on this fascinating subject.

2.1. Burdens of cancer patients who are fatigued

Evidence suggests that cancer patients who go to the emergency room (ER) are seldom screened or treated for extreme tiredness, a common symptom in sick people induced by cancer and cancer therapy. The majority of people seeking emergency treatment experienced a fever, pain, gastrointestinal difficulties, dyspnea, tiredness, and bleeding, according to the research. Upon admission to EC, more over half (54%) reported extreme weariness (seven or above on a 1-10 scale) (33).

According to the research, the prevalence of severe cancer-related fatigue is 75%. Furthermore, the data demonstrated that patients were malnourished, had impaired muscular function, and were suffering from a variety of physical and mental problems. (34). Furthermore, the other study found that the prevalence of CRF among cancer survivors ranged from 10-85%. One of the strengths of the past study was that it suggested a recommendation that healthcare providers be Considering the risk of CRF, routine screening with approved measurements should be implemented, and effective interventions should be recommended to preserve patients' lives(35).

According to a survey of 1569 cancer patients, 80% of those who take chemotherapy and/or radiotherapy report weariness.CRF is present in more than 75% of patients with metastatic illness (36). According to another study, given the possibility of CRF, routine testing using approved ranged from 14.03% to 100%. Another study showed thatthe frequency of weariness connected to cancer varied from 14.03% to 100% (37).

Furthermore, past study has revealed that which CRF is state of acute exhaustion accompanied by a high level of distress that is disproportionate to the patient's activities and is not eased by sleep or rest. Prevalence rates vary depending on the clinical stage of cancer, ranging from 59 to

nearly 100%. Except for chemotherapy-induced anaemia, the mechanisms of CRF are CRF's are not known(4, 38).

Other previous studies have found CRF in the preoperative, postoperative, and continuous monitoring phases. For example, 13 doctors women with breast cancer must be screened, extensively evaluated, and referred along the continuum of treatment.

CRF is connected with emotional distress and inhibits function and willingness to exercise, hence it is suggested and treated. (39). A qualitative study found that the interviewed participants were distressed, but few had received psychological care; they reported feeling vulnerable, battling their diseases, and seeking treatment. According to 10 post-intervention interviews, most participants' perceptions had evolved from vulnerability to self-encouragement, improved optimism, and taking new activities in their situations (40).

One of the most commonreported symptoms of cancer patients, with incidence rates exceeding 60% in numerous studies. It is one of the most upsetting symptoms connected with cancer and cancer therapies because it has a considerable impact on patients' quality of life and capacity to operate efficiently every day. Cancer-related fatigue should be defined by its pervasiveness, durability, negative impact on other facets of life quality, and inability to be eased by resting or sleeping (29, 41).

A qualitative study discovered that cancer-related fatigue (CF) is a relatively prevalent symptom among three cancer patients and exacts significant personal and societal expenses. The fatigue associated with CF is more acute than the exhaustion experienced before to diagnosis or treatment (42). CRF also has an impact on physical, psychological, social, and spiritual well-being. CRF restricted individuals' capacity to perform, socialise, and engage in pleasant activities. The deleterious influence of CRF on patients' general well-being changes the meaning and pain associated with cancer (43).

According to the findings of another qualitative study, 20 tiredness is unavoidable and unpredictable.

This included parental judgements of weariness as fluctuating, separate from typical tiredness, and associated with sleep and mood. 23 Fatigue was thought to be caused by cancer, leaving parents helpless. Second, fatigue, contrary to expectations, disrupts "normal life" after cancer therapy. Third, parents dealt with weariness by attempting to combine the adolescent's desire for

normalcy with their own perspective of what is feasible by encouraging activities and seeking help from others (23).

Another qualitative study found that people experienced exhaustion of an unanticipated kind and degree that was far more than just tiredness. Some participants were upset by their failure to predict the magnitude of CRF and their lack of knowledge about CRF prevention methods (44). Likewise, the other qualitative study showed that "Among children and teenagers, exhaustion is an open interpretation," "fatigue is not a single-dimensional characteristic," and "one struggles with fatigue while balancing life's suffering." Fatigue, which is directly tied to physical, psychological, and environmental factors aspects, has a detrimental impact on the participant's physical, psychological, and cognitive health and can affect children with leukemia's family, school, and social interactions.The participants' message to health providers is that Fatigue is a complicated condition multifaceted illness that has to be well understood and handled (45).Finally, empirical evidence suggests that fatigue is a distressing and persistent symptom for women with gynaecological cancer and their survivors. Both the disease and its treatment cause debilitating cancer-related fatigue (CRF). CRF is a distressing both patients and survivors experience this as a permanent symptom. Cancer or its treatment can cause debilitating CRF, especially in individuals on active therapy. Despite increased awareness and research into this symptom in recent years, consistent evaluation has not been a focus in ordinary medical practise.The possibility that CRF has an underlying inflammatory mechanism is currently a theory, and there is no mechanism-driven symptom management (46).

2.2. Factor associated with cancer related fatigue

2.2.1. Socio-demographic characteristics

According to the findings of an epidemiological studyafter controlling for clinical factors, higher levels of weariness were associated with being above the age of 60. The relationship with tiredness as well as the treatment loadhigher in survivors 60 years of age or older 6-12 months with advanced cancer following surgery, or more concomitant diseases (47).

According to studies, 33 socio-demographic factors of patients were found to be negatively correlated with cancer-related fatigue. As a result, being female and undergoing chemoradiotherapywere statistically correlated with cancer-related mortality.

Patients with advanced cancer who visit an oncology unit experience weariness (37, 48). Nonetheless, the impact of some 12 socio-demographic variables of cancer patients, such as marital status, income level, domicile, BMI, and educational level, on cancer-related fatigue has not been properly examined and recorded by previous studies.

2.2.2. Psychological/behavioral related factors

A recent study verifies the statistical relationship between depression and cancer-related fatigue (49). Furthermore, the other research demonstrated that fatigue can be caused by cancer or its treatment. There are strong links between tumor-specific treatment and fatigue symptoms, emphasising that fatigue is usually enhanced during treatment and reduces after 28 days (50). Another research discovered that depression was one of the important statistically linked factors with fatigue (28%), followed by pain (17%), performance status (16%), chemotherapy, and anxiety (15%) (51). Furthermore, the study found a substantial statistical relationship between sleep quality, level of physical activity, psychological pressure, stress, and chemotherapy-related weariness (52). Some research' findings imply that psychological issues, such as mood disorders, may be related to cancer-induced fatigue, however contradicting findings have been seen, as well as aa causative association has not been demonstrated. A strong link was discovered between the severity between exhaustion and depression , psychological disorders, somatization, and anxiety, with a particularly high link of cancer patients' weariness and lethargy depression.

Evidence suggests that sleep is frequently disrupted in cancer patients, most likely due to a variety of factors. According to the study, some cancer-associated weariness felt sleep-wake cycles or the quality and quantity of sleep at night may be connected to how you feel during the day. Desynchronized sleep/wake cycles and disturbed sleep are more likely related to many aspects or dimensions of weariness (physical, cognitive/attentional, emotional/affective)(53).

2.2.3. Disease and treatment related factor

A longitudinal study showed that fatigue increased during chemotherapy. Early detection and intervention may be useful for reducing tiredness, particularly in people with a greater baseline fatigue level, are older, and have lower economic and educational levels. The study, however, only looked at fatigue among colorectal cancer patients (54). CRF has been shown to be a symptom experienced by the majority of cancer patients, regardless of diagnosis or type of treatment taken. Cancer-related fatigue has statistically been linked to chemotherapy medications such as Vinblastine, dacarbazine, and cyclophosphamide (55). However, reliable evidence on the potential effect of cancer type and clinical stage on cancer-related fatigue is limited.

2.2.4. Co-morbid medical conditions related factors

A study proved that cancer-related fatigue was significantly associated with pain and dyspnea scores in the patients and with the symptoms of anxiety and depression in the controls. Fatigue scores of anaemic cancer patients (both at baseline and after completion of anaemia therapy) were considerably worse compared to nonanemic cancer patients, who in turn were worse compared to the general population (59). To the best of our knowledge and searches, the effects of various concomitant medical disorders such as diabetes, hypertension, and other illnesses on cancer-related fatigue have been unreported or understudied in previous studies.

Cancer-related weariness is a common symptom complication in cancer patients. The findings reveal that haemoglobin level and body mass index are two characteristics connected with cancer-related fatigue reported in patients. (52).

3.Chemotherapy related fatigue

One study showed that the prevalence of chemotherapy related fatigue at the first cycle of the chemotherapy was found to be 64% and 82% at the fith cycle of the chemotherapy administration phase. According to the study, the incidence of weariness increased dramatically following the commencement of chemotherapy and chemotherapy had a varied impact on the course of fatigue (56). Other studies found that Cancer patients frequently encounter a variety of symptoms of cancer progressionas well as the side effects of radiation therapy and adjuvant chemotherapy, which have a detrimental influence on their quality of life (QOL). Fatigue is one of the most common and severe symptoms of cancer patients, and it can have a greater impact on QOL than pain (57, 58).

Furthermore, one long-term study found somatic chromosomal instability levels using a cytokinesis-blocked micro nuclear/cytome assay at four time points: before chemotherapy (baseline); four weeks after chemotherapy initiation; six months after chemotherapy (some women received radiotherapy); and one yea one year after chemotherapy initiation(57). Another study finding revealed that there were 40 cases of chemotherapy-related hospitalization and two postoperative fatalities. The addition of bevacizumab and erlotinib to neoadjuvantchemoradiation did not improve outcomes increase survival or pCR rate compared to similar regimens. While overall toxicity rates were not elevated, there was evidence of targeted agent-specific harm. Further research of this exact regimen is not necessary. (58). To the best of our ability, literature data on the prevalence or incidence of fatigue in patients in Ethiopia, in particular, are rare.

Conceptual framework

The literature on fatigue and its possible Risk factors among cancer patients taking chemotherapy was studied in detail in the literature section to offer context for interpreting the results. Several driving indicators of chemotherapy-related fatigue will be proposed. It was

considered that cancer -related fatigue differences are caused by the cumulative impact of numerous variables, rather than by a single variable.

The primary contributing determinants of cancer-related fatigue at the oncology unit, according to the research and personal judgement, are socio-demographic, psychological, and behavioural factors; disease- and treatment-related factors; co-morbid medical conditions; and nutritional status. They are interdependent on each other for the current study's dependent variable. This combined effect wassummarize associated factors and, as stated below, evaluate the relationship between outcome variables and independent variables. This conceptual structure was used in the current investigation to construct variables that explain differences in the amount of cancer-related exhaustion in hospitals in Addis Abeba, Ethiopia.

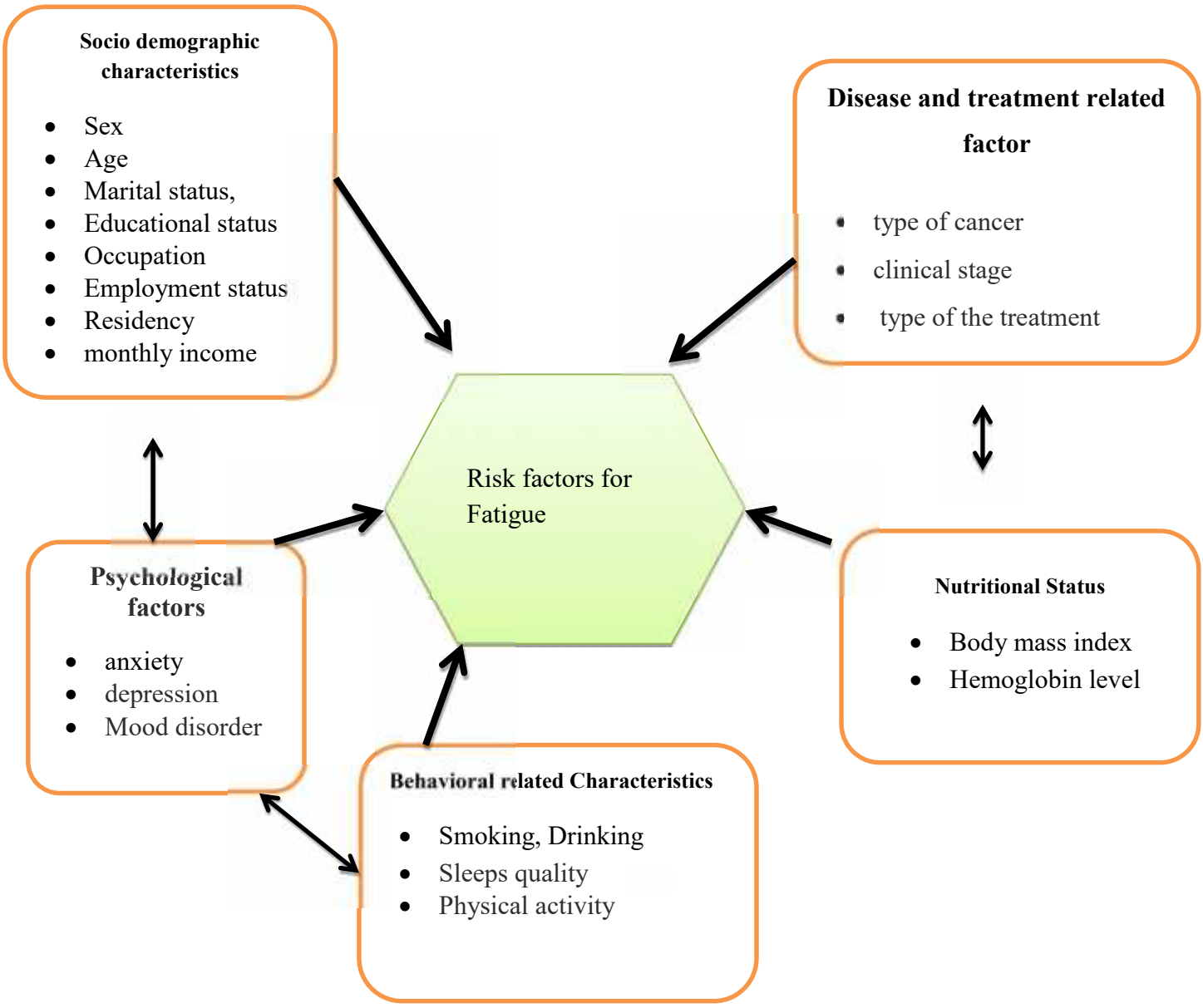

Figure 1: A conceptual framework on risk factors offatigue among cancer patients(1, 20, 27, 37).

3. OBJECTIVE

3.1. General objective

- To investigate the possible risk factors for fatigue among cancer patients atcancer center ofTikure Anbessa Specialized Hospital in Addis Ababa, Ethiopia, 2023.

3.2. Specific objectives

- To identify the risk factors forfatigue among cancer patients attending the Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia,

4. MATERIAL AND METHOD

4.1. Study area and period

This study was conducted in the cancer center of Tikure Anbessa Specialized Hospital (TASH) at Addis Ababa from January 20, 2022, to May 20, 2023.

Addis Ababa is the capital city of Ethiopia. The City has Eleven sub-cities; the City lies at 7,546 feet (2,300 meters) and has twelve government and nine non-government hospitals (60). Tikure Anbessa Specialized Hospital (TASH) is one of the government hospitals with more than 1000 beds. The TASH 7 ward's cancer cencer can house up to 150 patients.

In the previous year, 10,000 cancer patients were admitted to the cancer center.

The hospital is now the primary teaching facility for undergraduate and postgraduate medical students. Altogether, 10,000 cancer caseswere admitted to the cancer center in the last year. The hospital is now the main teaching center for medical students at both the undergraduate and postgraduate levels, nurses, midwives, pharmacists, medical laboratory technologists, radiology technologists, and others. It is also an institution where specialized clinical services that are not available in other public or private institutions are provided to the whole nation. Currently, TASH has more than 200 doctors, 379 nurses, and 115 other health professionals(61).

4.2. Study design

- ✓ A study used a hospital-based, unmatched case-control study in which cases and controls were selected using a 1:2 ratio.

4.3. Source population

- ✓ All cancer patients at the oncology unit of Tikure Anbessa specialized Hospital in Addis Ababa, Ethiopia.

4.4. Study population

- ✓ All adult cancer patients at the oncology unit of Tikure Anbessa Specialized Hospital during data collection period.

4 .5.**Inclusion and Exclusion Criteria**

4.5.1. **Inclusion Criteria**

4.5.2**.Cases**

Cases those met the following eligibility criteria were included:

- ✓ Cancer Patients those age ≥ 18 years old
- ✓ Cancer patients who started chemotherapy .

4.5.3.Controls

- ✓ Cancer Patients those age ≥ 18 years old
- ✓ Cancer patients who did not start chemotherapy

4.5.4. Exclusion criteria

4.5.5.Cases

Cases were excluded with the following criteria:

- ✓ Cancer Patients whose medical record has incomplete information
- ✓ Critically ill, hearing, and/or intellectually impaired (unable to respond appropriately to a question) were excluded from the study.

4.5.6. **Controls**

- ✓ Cancer Patients whose medical record incomplete
- ✓ critically ill patient.

4.6.Variables

4.6.1. Dependent variable:

- ✓ Risk factors for Fatigue.

4.6.2 Independent variable includes:

- ✓ Socio-demographic (age, sex, marital status, employment, income, residence, educational level),
- ✓ Psychological/behavioral factors (anxiety, depression, sleeps quality and physical activity),
- ✓ Disease and treatment related factor (type of cancer, clinical stage and type of the treatment),
- ✓ Nutritional Status: Body mass index, hemoglobin level

✓ Behavioral characteristics of cases and controls: Include variables such as smoking, drinking andchewingstatus

4.7.2 Sample Size determination

The sample size was computed using the analytic study design formula. An observational study was used to look into the relationship between received chemotherapy and and the chances of fatigue among cancer patients, which discovered that approximately 30% of the non-exposed group presented with a fatigue profile. In the exposed group, 70% of those with a fatigue (disease) profile will be used (62).

p_0 = proportion of fatigue in non-exposed group (diseased) = 0.30

p_1 = proportion of fatigue in exposed group (diseased) = 0.70

$q_0 = (1 - p0) = 1.0 - 0.30 = 0.70$

$q_1 = (1 - p1) = 1.0 - 0.70 = 0.30$

$Z(1-\alpha/2) = 1.96$ = Value of the standard normal distribution corresponding to a significance level of α (for a 2-sided test at the 0.05 level)

$Z(1-\beta) = 0.84$, Value of the standard normal distribution corresponding to the level of power of 80%

Proposed sample size:

(Number for each group) =

$$\frac{(poqo+p1q1)\left(Z1-\frac{\alpha}{2}+Z1-\beta\right)2}{(p1-po)2} = \frac{(0.30*0.70+0.70*0.30)(1.96+0.84)2}{(0.70-0.30)2} = 100$$

In summary, by using 1;2 ratio of case to controls.

Thus, the calculated sample size is 100 for cases and 100 for the control group; adding 10% for no response, (110 cases and 220 controls)andthe final sample size was 330.

4.7.2 Sampling techniques

The first identification of cases and controls were done from the oncology unit and cancer registries. The controls were recruited from the same health facilities over the same time period as the cases. Cases and control were selected by a systematic random sampling technique by calculating the sampling interval (k) value using the assumption of expected population size. The total estimated population in the one-month data collection period was taken from the office of the oncology unit of the selected hospitals (n =). Then k = 830/330 = 3. Given the approximate nature of the sampling interval, study participants were chosen every three intervals until the calculated sample size is reached. However, due to time constraints and practical applicability, the first participants were selected randomly by lottery from the first three cancer patients, and then every other patient who was coming to the oncology unit was selected until we reach the optimum sample of the study.

If the chosen subject is ineligible, the next patient's medical was taken.

4.8.Operational definition

No	Variables	Operational definitions
1	Cases	cancer patients who underwent chemotherapy.
2	Controls	cancer patients who didn't start chemotherapy until the end of the study period.
3	Fatigue	When patients respond based on BFI sub-scale and as a mean BFI score of ≥4(72)
4	Depression	When patients report physical activities based on the Godin-Shephard Leisure-Time Physical Activity Questionnaire (GSLTPAQ), and the leisure score index (LSI) ≥24 are considered physically active whereas individuals with LSI ≤ 23 are classified as physically inactive(66) .
5	Anxiety	When the patients respond based on the patient health question (PHQ), and if the overall scores are ≥10(70).
6	Anemia	When the patients respond based on the Generalized Anxiety Disorder (GAD) questionnaires, and if the overall scores are ≥10(65).
7	Sleep disturbance	When the patients respond based on the PROMIS (patient reported outcomes' measurement information system) sleep disturbance sub-scale, and the overall row score ≤ 25 as no sleep disturbance, 26–29 as mild, 30–37 as moderate, and ≥38 as severe(65).

8	Smoking	When the patients respond based on the ASSIST (alcohol, smoking, substance, involvement screening test) scale and the sum of the questions is from 0–3 to consider it as low risk, 4–26 moderate risk, and ≥27as high risk(67).
9	Alcohol	When the patients respond based on the ASSIST scale and the overall sum of the questioners is from 0–10 as low risk, 11–26 as moderate risk, and ≥27 as high risk(67).
10	Social support	When the patients respond based on the Oslo social support scale, overall sum from 3 to 8 is poor social support, 9–11 moderate social support and 12 to 14 strong social support(66).
11	Cancer-related fatigue	self-reported a subjective feeling of tiredness, weakness, or lack of energy, a distressing, persistent, subjective sense of physical, emotional, and/or cognitive tiredness or exhaustion related to chemotherapy treatment with in 24 hours (65)

4.9. Data collection tools and technique

Cases and controls were interviewed in person, utilising a standardised questionnaire applied by trained healthcare professionals. The questionnaire contains five sections: socio-demographic characteristics, environmental factors, behavioral characteristics, comorbidity status, and nutritional status of the patients. Data was gathered by interviewing the participants and reviewing the charts of the patients using a structured questionnaire adapted and modified from previous studies for both dependent and independent variables. Inpatient and outpatient visits were included, and measurements such as height and weight was taken following the interview. Additional information on the patient's clinical stage, type of disease, and type of treatment used to avoid any bias information was acquired from the patient's chart. The data collectors were four nurses working in the oncology unit, and the supervisor was a public health expert. Personal and psychosocial characteristics (including age, sex, educational level, marital status, household income, BMI, sleep quality, physical activity, anxiety, and depression), disease and treatment-related information (including disease diagnosis, clinical stage, and treatment type), and other medical conditions (including pain and anemia) was collected from the patient's interview and from records in the patient chart.

Brief fatigue inventory score

The BFI is a dependable and accurate unidimensional measurement device. It consists of nine items, the first three of which assess the "now," "usual," and "worst" degrees of fatigue experienced in the previous 24 hours. It is made up of nine items, the first three of which measure the "now," "usual," and "worst" levels of weariness during the last 24 hours. Fatigue severity was assessed using an integer scale ranging from 0 (no weariness) to as suggested by the National Comprehensive Cancer Network (NCCN) for CRF screening and re-evaluation, with an indicating clinically severe fatigue. The six questions below measure how much weariness has interfered with daily activities (ADL) in terms of general activity, mood, walking abilities (36, 67).

4.10. Data quality control

The questionnaire was constructed and contextualised to the local conditions after assessing different literatures connected to the risk factors of cancer-associated Fatigue. To ensure accuracy, the questionnaire was first developed in English and then translated by language experts into Amharic (the national working language) before being returned to English. The tool's consistency and understandability for both data collectors and research participants.The recruit four data collectors with a BSc in nursing and experienced in cancer-related research activities, as well as one oncology resident to serve as supervisor. Both the supervisor and the data collectors received two days of training on the goal of the study and the significance of quality data. Face-to-face interviews with study participants were used to collect data. An outside pretest was performed on 10% of the sample size outside of the study area before data collection to ensure consistency and precision in gathering the intended data. Before further analysis, we werecheck the collected data for completeness and consistency. The primary investigator was constantly monitoring the field level data collecting procedure on a daily basis to guarantee compliance with the protocol. By provided a clear introduction explaining the purpose and objectives to the participants on the first page of the questionnaire before data collection.

4.11. Data processing and analysis

The code list and the data was remain confidential and was accessed only by the research team.. The study was generate a code book to pass the collected data to a code sheet. It was also create the data file from the code sheet information by typing on the computer keyboard. Data cleaning, an inspection of distributions and contingency cleaning was done to clean up the data file for accuracy. Case sorting was executed to find missing variables. The data was backed up by storing it in various files on the device, removing the flash disk, and sending an email. It was provide a non-lagging numerical code for each query.

The data was entered into the research using epi-info version 7 software, and the data was exported to SPSS version 26 for analysis. The data points entered were cleaned by visualising, calculating frequencies, normality, and sorting outliers. Frequencies and proportions were utilised to characterise the research subjects in respect to the variables under consideration. By checked multi-collinearity using a correlation matrix at > 0.8, a variance inflation factor (VIF)

>10, and a tolerance of 0.1. At a p-value larger than 0.05, the Hosmer and Lemeshow goodness test was performed to evaluate model fitness. A logistic regression model was used to identify the causes of fatigue in cancer patients.Those variables having P value ≤0.025 during bi variable analysis was considered as a potential candidate variables for multivariable logistic regression. AOR (95% CI) was utilised in the multivariable logistic regression model to quantify the strength of the connection and find statistically significant results at P value 0.05. The crude relationship of each predictor variable with the outcome variable was examined using cross tabulation.

4.12. Ethical consideration

Ethical clearance was obtained fromthe Institutional Review Board (IRB) of Addis Ababa University's College of Health Sciences .To obtain permission to conduct the research, they wrote an official letter to Tikur Anbessa Specialised Hospital in Addis Ababa and the Oncology Special Clinic. All study respondents provided verbal informed permission before data collection began. For this purpose, a consent form was attached to each questionnaire that explains the purpose of the study, its confidentiality, and the respondent's full right to take part or not in the study. The respondents was given an honest clarification of the survey's intent, a summary of the benefits, and an invitation to answer all inquiries. The study did not find any physical harm, social discrimination, psychological trauma, or economic loss. This study process had no harmful form of inducement or coercion, and the study did not bring any risks that incur compensation. To protect the confidentiality of the meeting, participants' privacy was identified using a code.

4.13. Dissemination of the finding

The major goal of this research is to meet the criteria for a Master of Science degree in cancer clinic nursing. The study's findings would be submitted to the Addis Ababa University College of Health Sciences. A copy was distributed to the Ministry of Health and TASH. It will try to get published in reputed publications.

5. RESULTS

5 .1.Socio-demographic characteristics

In this study, from a total of 330,cancer patients who had took chemotherapy 110 (cases) and 220 cancer patients who had not took chemotherapy (controls) were included making a response rate of 100% for both cases and controls. The mean (±SD) age of participants were 45.19±16.58 for cases and 45.8±13.19 for control groups age in years range from 18–86. Female participants accounted for 61.8% and **56.8% of the** cases and control groups, respectively**.**Fifty Eight (52.7%) of cases and one hundred twenty three (55.9%) controls were living in rural areas. Regarding to marital status, 62 (56.4%) cases and 138 (62.7%) of controls were married. About 35.5% and 37.3% of cases and controls were diploma holders**,** respectively **(Table 1)**

Table 1: Socio-demographic characteristics of participants, 2023(N=330)

Variables	Category	Case n=110(%)	Controln=220(%)
Sex of participants	Male	42 (38.2)	95(43.2)
	Female	68 (61.8)	125 (56.8)
Age in years	mean ± sd	45.19±16.58	45.8±13.19
Marital status	Single	26 (23.6)	33(15)
	Married	62 (56.4)	138(62.7)
	Divorced	12 (10.9)	38(17.3)
	Widowed	10 (9.1)	11(5)
Religion	Orthodox	45 (40.9)	70(31.8)
	Muslim	40 (36.4)	4. 98(44.5)
	Protestant	23 (20.9)	45(20.5)
	Others	2 (1.8)	7(3.2)

Educational background	Read and write	8 (7.3)	12(5.5)
	Primary (1-8 grade)	12 (10.9)	24(10.9)
	Secondary (9-12 grade)	25 (22.7)	43(19.5)
	Diploma (level-1V)	39 (35.5)	82(37.3)
	Degree and above	26 (23.6)	59(26.5)
Residence	Urban	52 (47.3)	97(44.1)
	Rural	58 (52.7)	123(55.9)
Employment status	Employed	75 (68.2)	129(58.6)
	Not employed	35 (31.8)	91(41.4)
Monthly income	Mean±std	4836.3±3910.4	5254.2±54.71

5.2. Clinical characteristics

The present study illustrated that about (74 =63.3%) and (96 = 43.6%) of cases and control, groups had a history of repeated admission, respectively. About 68 (61.8%) and 118 (53.6%) of cases and control groups had a history of GI, respectively. Also, almost (97 =88.2%) and 175 (79.5%) of cases and control groups were reported to have heart problems (Table 2).

Table 2: Clinical characteristics of the study participants, 2023(N=330)

Characteristics	Case n=110(%)	Control n=220(%)
Type of admission		
New	36 (32.7)	124**(56.4)**
Repeat	74 (63.3)	96**(43.6)**
GI problem		
Yes	68 (61.8)	118**(53.6)**
No	42(38.2)	102**(46.4)**
Heart problem		
Yes	97 (88.2)	175**(79.5)**
No	13 (11.8)	45**(20.5)**
Throat problem		
Yes	45 (40.9)	101**(45.9)**
No	65 (59.1)	119**(20.5)**
Loss of appetite		
Yes	36 (32.7)	79**(35.9)**
No	74 (67.3)	141**(64.1)**
Pain of respondent		
Yes	90(79.9)	163**(74.1)**
No	20(18.2)	57**(25.9)**

5.3.2 Disease and treatment related factor

This study showed that about 51 (46.4%) and 88 (40%) of the cases and control groups presented with stage three cancer, respectively. Concerning the types of cancer faced by the groups under investigation (25 = 22.7**%),** and (18 = 8.2%) of cases and controls had sarcoma, respectively(Table 3).

Table 3: Disease and treatment related characteristics of the participants, 2023(N=330)

Variables	Cases n=110(%)	Control n=220(%)
Stage of CA		
Stage 1	6 (5.5)	31**(14.1)**
Stage 2	44 (40)	84**(38.2)**
Stage 3	51 (46.4)	88**(40)**
Stage 4	9 (8.2)	17**(7.7)**
Types of CA		
Colo- rectal	3 (2.7)	17(7.7)
Breast	20 (18.2)	23(10.5)
Cervical	13 (11.8)	30(13.6)
Rectal	1 (0.9)	18(8.2)
Esophageal	4 (3.6)	16(7.3)
Colon	3 (2.7)	12(5.5)
Sarcoma	25 (22.7)	18(8.2)
Others	41 (37.3)	86(39.1)
Chemotherapy use		
Received	110 (100)	0(0)
Not received	0 (0)	220(100)

5.4.2 Psychosocial and comorbid characteristics of cancer patients

Our study demonstrated that (73 =66.4%) and (104 = 47.3%) of the cases and control groups experienced self-reported histories of depression, respectively. Regarding the proportion of anxiety, 72 (65.5%) and 59 (26.8%) of cases and control groups had a history of anxiety, respectively (Table 4).

Table 4: Psychosocial and comorbid characteristics of the study participants, 2023(N=330)

Variables	Case n=110(%)	Control n=220(%)
Depression		
Yes	73 (66.4)	104**(47.3)**
No	37 (33.6)	116**(52.7)**
Anxiety		
Yes	72 (65.5)	59(26.8)
No	38 (34.5)	161(73.2)
Mood disorders		
Good	60 (54.6)	155(70.5)
Not good	50 (45.4)	65(29.5)
Anemia		
Anemic	73(66.4)	117(53.2)
Non-Anemic	37(33.6)	103(46.8)

5.3.1 Personal characteristics of the study participants

In this study, about 81 **(73.6%),** 15 **(13.6%),** and 14 **(12.7%)** of the case groups had historiesoflow, moderate, and high risk of alcohol consumption, respectively. Similarly, about 162 (73.6%), 37 (16.8**%),** and 21 (9.5**%)** of the control groups had histories oflow, moderate, and high risk of alcohol consumption, respectively (Table 5)With a mean score of 5.3 ± 2.4SD, adult cancer patients had a prevalence of CRF of 77.3% (95% CI: 73.1–81.1). Nearly half of the respondents reported feeling fatigued right now (55%), usual fatigue (57.7%) and worst fatigue (65.3%), as well as fatigue interference with daily activities, were higher(82.2%) (Fig 4)..

Table 5: **Personal characteristics of the study participants**, 2023(N=330**)**

Variables Category		Case n=110(%)	Control n=220(%)Totn=330
Alcohol consumption status	Lowe risk	81 (73.6)	162(73.6)
	Moderate	15 (13.6)	37(16.8)
	High risk	14 (12.7)	21(9.5)
Risk level of tobacco smoking	Lowe risk	83 (75.5)	180(81.8)
	Moderate	8(7.3)	8(3.6)
	High risk	19(17.3)	32(14.5)
Having sleeping disturbance	None	49(44.5)	108(49.1)
	Mild	27(24.5)	58(26.4)
	Moderate	20(18.2)	32(14.5)
	Severe	14(12.7)	22(10)
Social support	Poor	71(64.5)	144(65.5)
	Moderate	30(27.3)	62(28.2)

Strong	9(8.2)	14(6.4)

5.6.**Factors Contributing to Fatigue**

In the fully adjusted model, after correcting for confounding variables, the following factors were linked with fatigue: suffering from depression (AOR: 2.83, 95% CI: 1.57, 5.10), chemotherapy use (AOR: 3.61, 95% CI: 2.10, 4.61), a history of anemia (AOR: 0.68, 95% CI: 0.40, 1.14), and anxiety (AOR: 0.24, 95% CI: 0.14, 0.40) (Table 6). As a result, atigue was prevalent in 77.2% of cases and 22.8% of controls, respectively. In comparison to patients without a history of depression, we discovered that having depression increased the risk of experiencing fatigue by 2.83 times (AOR = 2.83, 95% CI: 1.57–5.10). Additionally, we discovered that chemotherapy patients had 3.61 times more chance of being fatigued than non-users (AOR = 3.61, 95% CI: 2.10, 4.61). Additionally, patients who didn't have a history of anemia had a 32% drop in the odds of developing fatigue compared to patients who had anemia (AOR = 0.68, 95% CI: 0.40, 0.74) Finally, not having a history of anxiety reduced the odds of experiencing fatigue by 76% among patients who didn't have it compared to their peers (AOR =0.24, 95% CI: 0.14, 0.40) .The prevalence of fatigue were 77.2%,22.8%95% CI: (73.1–81.1%) among cases and controls respectively(Table 6).

Table 6: Bivariate and multivariable analysis of factors associated with fatigue.

Associated factors	Group under investigation		COR (95% CI)	AOR (95% CI)	p-value
	case (n=110)	control (n=220)			
Age of the participants			0.99(0.98, 1.01) *	0.97(0.98, 1.02) **	0.74
Sex of the participants					
Male	95	195	1		
Female	42	68	1.23 (0.77,1.96) *	1.25 (0.75,2.11)**	0.38
Having history of depression					
Yes	22	80	2.28 (1.32, 3.93)*	2.83 (1.57, 5.10)**	0.01
No	88	140	**1**		
Having history ofanxiety					
Yes	59	161	1		
No	62	48	0.28 (0.175, 0.459)*	0.24 (0.14, 0.40) **	0.01
Having Anemia					
Yes	117	103	0.57 (0.35, 92)*	0.68 (0.40,0.74)**	0.03
No	73	77	1		
Chemotherapy use					
Received	61	159	2.01(1.25, 3.25)*	3.61 (2.10, 4.61)**	0.01
Not revived	48	62	1		

N.B

* Significant at 0.05 in bivariate binary logistic regression analysis.

** Significant at 0.05 in multivariate binary logistic regression analysis.

6. DISCUSSION

The purpose of this study was to look at the risk factors for fatigue in cancer patients visiting the Tikur Anbessa specialised hospital in Addis Ababa, Ethiopia.The data-driven evidence on the risk factors for fatigue should provide relevant stakeholders with a better understanding. This insight assists them in improving patients' clinical care and can positively impact policymakers 'decisions. According to our findings, a significant proportion of patients with different malignancies exhibited fatigue symptoms.

Moreover, knowing the factors exacerbating fatigue allows healthcare practitioners and policymakers to identify areas of focus for better decision-making. In a fully adjusted model, our binary logistic regression model indicates that having depression and using chemotherapy considerably ncrease the likelihood of sustaining fatigue. in contrast, not having a history of anxiety or anemia considerably reduced the odds of sustaining fatigue.In this study, individuals with a self-reported history of depression were 2.83 times more likely to experience fatigue symptoms than their peers which is found in united states. A possible explanation might be that depression can disrupt sleeping patterns at night, causing greater levels of fatigue .Our findings were consistent with the findings of comparable investigations (63, 64) that the odds of contracting fatigue increased when the patients experienced depression.

Additionally, theodd of developing fatigue was 3.61 times higher among those who are receiving chemotherapyas compared to control group. The suggested reason might be linked to cancer treatments, specifically chemotherapy, can decrease the number of red blood cells, causing anemia. Red blood cells deliver oxygen throughout the body, so when tissues don't get enough oxygen, the patient can feel fatigued. Our study finding was consistent with previous study(65) that the odds of experiencing fatigue were large among patients using chemotherapy as compared to control groups. In this study, absence of anemia and anxiety was identified as a protective factor. Therefore, compared to their counterparts, patients who did not participate have anemia and anxiety had lower odds of experiencing fatigue symptoms.In this regard, the odds of experiencing fatigue symptoms were 32% lower among cancer patients don't have history of anemia.This finding was supported by studies conducted in India (60).This could be due to without adequate iron; the patient's body cannot make enough hemoglobin, a component in red

blood cells that allows them to carry oxygen. As a result, iron deficiency anemia can cause fatigue and shortness of breath. The finding of the present study was supported by related literature (66) that the odds of having fatigue was reduced among patients free from clinical anemia as the anemia have negative impact on the blood circulations of patients. Similarly, the odds of developing fatigue symptoms were 76% lower among patients don't have self-reported anxiety in comparison to the control the groups.

In general, data suggests that one of the most prevalent symptoms related with anxiety, panic disorder, chronic stress, depression, and other mental health issues is exhaustion. Chronic anxiety causes the body and mind to be always tense and alert. Understanding the connections between exhaustion and anxiety is critical for understanding mental and emotional wellness. Anxiety refers to feelings of stress or worry about events in the past, present, or future. Fatigue is a drained emotional and mental condition caused by being physically fatigued or exhausted.(67).as. Anxiety, which was supported by research from Australia (67), Netherland (66), and Nigeria (67) was the fourth factor in this study that had a significant association with CRF. This may be the result of biologically related processes; in particular, worry may lead to weariness via dysregulation of the hypothalamic-pituitary-adrenal axis (65). As a result of internal and external stressors during therapy, the hypothalamic-pituitary-adrenal axis becomes dysregulated, depleting the body's supply of cortisol and impairing its ability to secrete it (66). Proinflammatory cytokines are known to contribute to exhaustion, and they have been associated to low cortisol levels (6,80). A range of physiological symptoms, such as an elevated heart rate, nausea, difficulty breathing, losing appetite, and sleep disruptions, as well as anxiety as subjective feelings of fear or worry brought on by cancer, may also result in fatigue (77).

The prevalence of fatigue were 77.2%,22.8 %95% CI: (73.1–81.1%) among cases and controls respectively This study is in line with studies conducted in Iraq, 75% (67), Ireland 75% (69), South Africa 80% (49), and Addis Ababa Black Lion Hospital 74.8% (70). This similarity is due to the fact that the pathological nature of cancer and treatments for cancer like chemotherapy, can induce inflammation as a result of cellular damage and tissue injury to the regular structure and function of mitochondria (8). Once the mitochondria are damaged, the energy supply is reduced, which results in fatigue (5,6,8). However, the prevalence of the current study was much higher than studies which have been conducted in South Korea, 67.2% (50), Lebanon, 46.3% (51), Italy, 43.5%, (52), and Netherlands, 48% (53). This discrepancy might be due to the

difference in study population, sample size, tool, and eligibility criteria (6,54,55). In the current study, all types of cancer were incorporated with different treatment options, whereas in Korea, the study was focused on only breast cancer treated by radiotherapy with a small sample size (n = 210). The cumulative effect of combination treatment modality also increases the risk of fatigue (56). On the contrary, in Ethiopia there is low screening, health promotion and prevention programs (57) for cancer, and that is why cancer patients are visiting health institutions at an advanced stage (stage 3 and 4) (60.6%,) whereas in Korea, stage 1 and stage 2 accounted for 88.9%. In Lebanon only breast cancer, with the assessments of the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire and a sample size of (n = 67), in Italy Functional Assessment of Cancer Therapy and a sample of (n = 133) and in the Netherlands, checklist ofndividual strength was used for assessment (n = 83), while in the present study, BFI was employed. Furthermore, it might be due to differences in healthcare provision across the country. The service for accessing quality of cancer treatment and palliative care in low-income countries, like Ethiopia, is poor and very challenging, which could exacerbate fatigue (57,58). On the other hand, the present study was lower than studies conducted in Jordan, (87.5%) and India (83.3–88.18%) (59–61). The discrepancy might be due to difference in study population (8,54), tool, sample size (60), and timing of assessment. The current study used the BFI scale to assess CRF and data was collected usually before receiving treatment at the outpatient department, whereas in Jordan, the Piper Fatigue Scale was used (59) and data were collected at the time of treatment. Previously studied information showed that fatigue is higher at the time of treatment and improves 7 to 10 days after treatment (62). In India, only advanced cancer patients were studied using the Functional Assessment of Chronic Illness Therapy scale, whereas in the current study, all cancer patients were studied. In this study, there were factors which had a significant association with CRF including poor social support, patients with anemia, physically inactive, patients with anxiety, pain treatment modalities for cancer (with chemotherapy), and patients with underweight. Patients who had poor support from their families, neighbors, and friends was supported by studies conducted in Iran (63), and China (50). This is due to that social support in terms of emotional (feeling love and having the certainty someone to trust), instrumental (availability of immediate help), and informational (receiving advice) are beneficial for improving physiological symptoms and therapeutic effects (64,65).

7. STRENGTHS AND LIMITATIONS

7.1. STRENGTHS

Our research has several significant strengths:One of the study's strengths was choosing the most important hospital to ensure that the results were typical of the majority of Ethiopia's hospitals.

- The objective was clearly stated.
- The inclusion criteria were stated.
- The exclusion criteria were stated
- In addition, hand searching was done
- Study selection was described
- Flow chart of study selection was provided
- List of included studies was provided
- List of excluded studies could be obtained by requesting it from the corresponding author
- Characteristics of the individual studies were provided.

7.2.Limitations

The research's weakness was that some drug-related variables (e.g. chemotherapy medication cycles), medical expense coverage pain treatment modalities, the number of comorbidities and certain biomarkers like electrolyte, and inflammatory biomarkers were not assessed.

- Unclear if data extraction was done in duplicate however quality assess was done by all three reviewers
- Details of patient characteristics and interventions were lacking
- Meta-analysis was not conducted

Information bias might have entered the study participants' interviews. The inclination of survey participants in this study to offer replies that would be seen favourably by others may potentially contribute to social desirability bias. We predicted individuals to overreport good activities while underreporting negative or unpleasant behaviour. Even though we included hospitals that were representative, there is a small but significant probability that selection bias influenced the study's conclusion.

8. CONCLUSIONS AND RECOMMENDATION

Further qualitative and longitudinal studies are needed to explore the state of fatigue on cancer patients by incorporating the missed variables like drug and biomarker related variables.

The results of our study demonstrated that a considerable number of patients who have been diagnosed with cancer suffer from a high burden of fatigue symptoms.In this study, having depression and chemotherapeutic use increased the odds of experiencing fatigue symptoms.On the other hand, a history of anaemia and worry lowered the likelihood of acquiring fatigue symptoms. As a result, medical personnel should screen for exhaustion early and establish a social network with family, friends, and psychiatrists (since family friends and psychiatrists are a big source of support) for coping mechanisms. Furthermore, it is preferable to advise patients to consume a range of food types and to engage in physical exercise as tolerated in order to strengthen the association between cancer and diet patients with nutritional problem and those who have physically inactive to nutritionist and physiotherapist and cheek their hemoglobin level for all cancer patients at each treatment period and manage accordingly. **Nurse** shall consider fatigue as one of the crucial indicators in cancer patients and incorporate in vital sign sheet format. Furthermore, education programs on fatigue, etiology and treatment shall be given for the patients.

9. REFERENCES

1. Adugna B, Mekonnen T. Prevalence of Cancer Related Fatigue and Associated Factors among Cancer Patients at the Oncology Unit, Bahir Dar, Ethiopia. American Journal of Pharmacology and Pharmacotherapeutics. 2014.

2. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: a cancer journal for clinicians. 2018;68(6):394-424.

3. Horneber M, Fischer I, Dimeo F, Rüffer JU, Weis J. Cancer-related fatigue: epidemiology, pathogenesis, diagnosis, and treatment. Deutsches Ärzteblatt International. 2012;109(9):161.

4. Weis J, Horneber M. Definition and prevalence of cancer-related fatigue. Cancer-Related Fatigue: Springer; 2015. p. 1-10.

5. Yang S, Chu S, Gao Y, Ai Q, Liu Y, Li X, et al. A narrative review of cancer-related fatigue (CRF) and its possible pathogenesis. Cells. 2019;8(7):738.

6. Jones JM, Olson K, Catton P, Catton CN, Fleshner NE, Krzyzanowska MK, et al. Cancer-related fatigue and associated disability in post-treatment cancer survivors. Journal of Cancer Survivorship. 2016;10(1):51-61.

7. Charalambous A, Berger AM, Matthews E, Balachandran DD, Papastavrou E, Palesh O. Cancer-related fatigue and sleep deficiency in cancer care continuum: concepts, assessment, clusters, and management. Supportive Care in Cancer. 2019;27(7):2747-53.

8. Henry DH, Viswanathan HN, Elkin EP, Traina S, Wade S, Cella D. Symptoms and treatment burden associated with cancer treatment: results from a cross-sectional national survey in the US. Supportive care in cancer. 2008;16(7):791-801.

9. Wagner L, Cella D. Fatigue and cancer: causes, prevalence and treatment approaches. British journal of cancer. 2004;91(5):822-8.

10. Wood DE. National Comprehensive Cancer Network (NCCN) clinical practice guidelines for lung cancer screening. Thoracic surgery clinics. 2015;25(2):185-97.

11. Morrow GR, Andrews PL, Hickok JT, Roscoe JA, Matteson S. Fatigue associated with cancer and its treatment. Supportive Care in Cancer. 2002;10(5):389-98.

12. Richardson A, Ream E, Smith A, Kerr D, Kearney N. Cancer-related fatigue: Inevitable, unimportant and untreatable? Results of a multi-centre patient survey. Annals of Oncology. 2000;11(8):971-5.

13. Mitchell SA. Cancer-related fatigue: state of the science. PM&R. 2010;2(5):364-83.

14. Noakes TD. Fatigue is a brain-derived emotion that regulates the exercise behavior to ensure the protection of whole body homeostasis. Frontiers in physiology. 2012;3:82.

15. Cheville AL. Cancer-related fatigue. Physical Medicine and Rehabilitation Clinics of North America. 2009;20(2):405-16.

16. Huang X, Zhang Q, Kang X, Song Y, Zhao W. Factors associated with cancer-related fatigue in breast cancer patients undergoing endocrine therapy in an urban setting: a cross-sectional study. BMC cancer. 2010;10(1):1-7.

17. van Weert E, Hoekstra-Weebers J, Otter R, Postema K, Sanderman R, van der Schansa C. Symptom management and supportive care. The Oncologist. 2006;11:184-96.

18. Stasi R, Abriani L, Beccaglia P, Terzoli E, Amadori S. Cancer-related fatigue: evolving concepts in evaluation and treatment. Cancer. 2003;98(9):1786-801.

19. Olsen M. Cancer in Sub-Saharan Africa: The need for new paradigms in global health: Boston University Frederick S. Pardee Center for the Study of the Longer …; 2015.

20. Woldu M, Legese D, Abamecha F, Berha A. The prevalence of cancer and its associated risk factors among patients visiting oncology unit, Tikur Anbessa Specialized Hospital, Addis Ababa-Ethiopia. J Cancer Sci Ther. 2017;9(04).

21. Wu H-S, Harden JK. Symptom burden and quality of life in survivorship: a review of the literature. Cancer nursing. 2015;38(1):E29-E54.

22. Wang XS, Giralt SA, Mendoza TR, Engstrom MC, Johnson BA, Peterson N, et al. Clinical factors associated with cancer-related fatigue in patients being treated for leukemia and non-Hodgkin's lymphoma. Journal of Clinical Oncology. 2002;20(5):1319-28.

23. Loades ME, James V, Baker L, Jordan A, Sharma A. Parental experiences of adolescent cancer-related fatigue: a qualitative study. Journal of Pediatric Psychology. 2020;45(10):1093-102.

24. Charalambous A, Kouta C. Cancer related fatigue and quality of life in patients with advanced prostate cancer undergoing chemotherapy. BioMed research international. 2016;2016.

25. Kim S, Han J, Lee MY, Jang MK. The experience of cancer-related fatigue, exercise and exercise adherence among women breast cancer survivors: Insights from focus group interviews. Journal of clinical nursing. 2020;29(5-6):758-69.

26. Joly F, Lange M, Dos Santos M, Vaz-Luis I, Di Meglio A. Long-term fatigue and cognitive disorders in breast cancer survivors. Cancers. 2019;11(12):1896.

27. Tian L, Lin L, Li HL, Chen KJ, Zhang XJ, Qian SJ, et al. Prevalence and associated factors of cancer-related fatigue among cancer patients in eastern China. The oncologist. 2016;21(11):1349-54.

28. Berger AM, Mitchell SA, Jacobsen PB, Pirl WF. Screening, evaluation, and management of cancer-related fatigue: Ready for implementation to practice? CA: a cancer journal for clinicians. 2015;65(3):190-211.

29. Cramp F, Byron-Daniel J. Exercise for the management of cancer-related fatigue in adults. Cochrane database of systematic reviews. 2012(11).

30. Morrow GR, Shelke AR, Roscoe JA, Hickok JT, Mustian K. Management of cancer-related fatigue. Cancer investigation. 2005;23(3):229-39.

31. Kassa S, Mengistu D, Woldemariam EB, Assefa M, Kebede MA. Prevalence and Factors Associated with Cancer Related Fatigue Among Cancer Patients Attending Tikur Anbessa Sepcialized Referal Hospital, Addis Ababa, Ethiopia, 2020. Addis Ababa, Ethiopia. 2020.

32. Animaw L, Woldegiorgis Abate T, Endeshaw D, Tsegaye D. Fatigue and associated factors among adult cancer patients receiving cancer treatment at oncology unit in Amhara region, Ethiopia. Plos one. 2023;18(1):e0279628.

33. Escalante CP, Manzullo EF, Lam TP, Ensor JE, Valdres RU, Wang XS. Fatigue and its risk factors in cancer patients who seek emergency care. Journal of pain and symptom management. 2008;36(4):358-66.

34. Stone P, Hardy J, Broadley K, Tookman A, Kurowska A, A'Hern R. Fatigue in advanced cancer: a prospective controlled cross-sectional study. British journal of cancer. 1999;79(9):1479-86.

35. Christen S, Roser K, Mulder RL, Ilic A, Lie HC, Loonen JJ, et al. Recommendations for the surveillance of cancer-related fatigue in childhood, adolescent, and young adult cancer survivors: a report from the International Late Effects of Childhood Cancer Guideline Harmonization Group. Journal of Cancer Survivorship. 2020;14(6):923-38.

36. Berger AM, Mooney K, Alvarez-Perez A, Breitbart WS, Carpenter KM, Cella D, et al. Cancer-related fatigue, version 2.2015. Journal of the National Comprehensive Cancer Network. 2015;13(8):1012-39.

37. Ma Y, He B, Jiang M, Yang Y, Wang C, Huang C, et al. Prevalence and risk factors of cancer-related fatigue: a systematic review and meta-analysis. International journal of nursing studies. 2020;111:103707.

38. Strebkova R. Cancer-Related fatigue in patients with oncological diseases: causes, prevalence, guidelines for assessment and management. Folia Medica. 2020;62(4):679-89.

39. Berger AM, Gerber LH, Mayer DK. Cancer-related fatigue: implications for breast cancer survivors. Cancer. 2012;118(S8):2261-9.

40. Zimmermann FF, Burrell B, Jordan J. Patients' experiences of a mindfulness intervention for adults with advanced cancer: a qualitative analysis. Supportive Care in Cancer. 2020;28(10):4911-21.

41. Neefjes EC, van der Vorst MJ, Blauwhoff-Buskermolen S, Verheul HM. Aiming for a better understanding and management of cancer-related fatigue. The oncologist. 2013;18(10):1135-43.

42. Scott JA, Lasch KE, Barsevick AM, Piault-Louis E, editors. Patients' experiences with cancer-related fatigue: a review and synthesis of qualitative research. Oncology nursing forum; 2011.

43. Borneman T, Piper BF, Koczywas M, Munevar CM, Sun V, Uman GC, et al. A qualitative analysis of cancer-related fatigue in ambulatory oncology. Clinical journal of oncology nursing. 2012;16(1).

44. Wu H-S, McSweeney M. Cancer-related fatigue:"It's so much more than just being tired". European Journal of Oncology Nursing. 2007;11(2):117-25.

45. Wu M, Hsu L, Zhang B, Shen N, Lu H, Li S. The experiences of cancer-related fatigue among Chinese children with leukaemia: a phenomenological study. International journal of nursing studies. 2010;47(1):49-59.

46. Wang XS, Woodruff JF. Cancer-related and treatment-related fatigue. Gynecologic oncology. 2015;136(3):446-52.

47. Husebø AML, Dalen I, Søreide JA, Bru E, Richardson A. Cancer-related fatigue and treatment burden in surgically treated colorectal cancer patients–A cross-sectional study. Journal of Clinical Nursing. 2022;31(21-22):3089-101.

48. van Deuren S, Penson A, van Dulmen-den Broeder E, Grootenhuis MA, van der Heiden-van der Loo M, Bronkhorst E, et al. Prevalence and risk factors of cancer-related fatigue in childhood cancer survivors: A DCCSS LATER study. Cancer. 2022;128(5):1110-21.

49. Brown LF, Kroenke K. Cancer-related fatigue and its associations with depression and anxiety: a systematic review. Psychosomatics. 2009;50(5):440-7.

50. van Weert E, May AM, Korstjens I, Post WJ, van der Schans CP, van den Borne B, et al. Cancer-related fatigue and rehabilitation: a randomized controlled multicenter trial comparing physical training combined with cognitive-behavioral therapy with physical training only and with no intervention. Physical therapy. 2010;90(10):1413-25.

51. DSilva F, Singh P, Javeth A. Determinants of Cancer-Related Fatigue among Cancer Patients: A Systematic Review. Journal of Palliative Care. 2022:08258597221131133.

52. Nurhesti POY, Yudari MA, Lasiani NL, Lisnawati LG, Mariani N. Factors Associated to Cancer Related Fatigue: A Literature Review. Journal of A Sustainable Global South. 2020;4(2):1-3.

53. Ancoli-Israel S, Moore P, Jones V. The relationship between fatigue and sleep in cancer patients: a review. European journal of cancer care. 2001;10(4):245-55.

54. Xian X, Zhu C, Chen Y, Huang B, Xu D. A longitudinal analysis of fatigue in colorectal cancer patients during chemotherapy. Supportive Care in Cancer. 2021;29(9):5245-52.

55. Repka CP, Hayward R. Effects of an exercise intervention on cancer-related fatigue and its relationship to markers of oxidative stress. Integrative cancer therapies. 2018;17(2):503-10.

56. De Jong N, Candel M, Schouten H, Abu-Saad HH, Courtens A. Prevalence and course of fatigue in breast cancer patients receiving adjuvant chemotherapy. Annals of oncology. 2004;15(6):896-905.

57. Aboalela N, Lyon D, Elswick Jr R, Kelly DL, Brumelle J, Bear HD, et al. Perceived stress levels, chemotherapy, radiation treatment and tumor characteristics are associated with a persistent increased frequency of somatic chromosomal instability in women diagnosed with breast cancer: a one year longitudinal study. PLoS One. 2015;10(7):e0133380.

58. Bendell JC, Meluch A, Peyton J, Rubin M, Waterhouse D, Webb C, et al. A phase II trial of preoperative concurrent chemotherapy/radiation therapy plus bevacizumab/erlotinib in the treatment of localized esophageal cancer. Clin Adv Hematol Oncol. 2012;10(7):430-7.

59. Cella D, Lai Js, Chang CH, Peterman A, Slavin M. Fatigue in cancer patients compared with fatigue in the general United States population. Cancer. 2002;94(2):528-38.

60. Wubneh M. Addis Ababa, Ethiopia–Africa's diplomatic capital. Cities. 2013;35:255-69.

61. Solomon B., Parihar N., et.al AL. International Conference on Hematology & Hematological Oncology: Global incidence and prevalence of acute lymphoblastic leukemia. . 2017.

62. Smets E, Garssen B, Schuster-Uitterhoeve A, De Haes J. Fatigue in cancer patients. British journal of cancer. 1993;68(2):220-4.

63. Corfield EC, Martin NG, Nyholt DR. Co-occurrence and symptomatology of fatigue and depression. Comprehensive psychiatry. 2016;71:1-10.

64. Fonseca R, Bernardes M, Terroso G, De Sousa M, Figueiredo-Braga M. Silent burdens in disease: fatigue and depression in SLE. Autoimmune diseases. 2014;2014.

65. Pertl MM, Hevey D, Collier S, Lambe K, O'Dwyer A-M. Predictors of fatigue in cancer patients before and after chemotherapy. Journal of health psychology. 2014;19(6):699-710.

66. Prochaska MT, Newcomb R, Block G, Park B. Association between anemia and fatigue in hospitalized patients: does the measure of anemia matter? Journal of hospital medicine. 2017;12(11):898-904.

67. Tzeng Y-L, Yang Y-L, Kuo P-C, Lin Y-C, Chen S-L. Pain, anxiety, and fatigue during labor: a prospective, repeated measures study. Journal of Nursing Research. 2017;25(1):59-68

68. Radha S.B. and Younis Y.M., Prevalence of Cancer-related Fatigue among Women with Breast Cancer

in Erbil City. Erbil Journal of Nursing and Midwifery, 2020. 3(2): p. 108–118

69. O'Regan P., et al., Cancer-related fatigue and self-care agency: A multicentre survey of patients receiving chemotherapy. J ClinNurs, 2019. 28(23–24): p. 4424–4433.

70. Tegusse T., et al., Prevalence of fatigue and associated factors among cancer patients attending Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia. Cancer Management and Research, 2021. 13: p. 1909.

10. Annexes

Annex 1: Information Sheet

Addis Ababa University, College of health Sciences

My name is ……I am working as a data collector for the study being conducted by Addis Ababa University, College of health Sciences. I kindly request you to give me your attention to explain about the study.

Title of the study Risk Factors of Fatigue Among Cancer Patients Attending The Tikur Anbessa Specialized Hospital In Addis Ababa, Ethiopia.

Objective of the study: To investigatethe risk factors for fatigue among cancer patients attending the Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia.

The purpose/Aim of the Study: The findings of this study will provide base line information for hospital manager and health care providers to strengthen the cancer care service.

Procedure and Duration: The data collectors will do interview with the participants in their first language using an interview guides and it will take 25-30 minutes.

Risk and Benefit: The participants will not have any risk being participating in this study. There is no direct benefit given being participated in this study, but your participation will help to generate base line information for strengthening the cancer service.

Confidentiality: Participant's information will be confidential. Your name and other personal identifiers will not be recorded on data collection format and the information that you give us will be kept confidential and will be used for this study purpose alone.

Rights: The participants will have the right to refuse the participation or to answer any questions that they feel uncomfortable. And if you have any questions about the conducted study you can ask the principal investigators with the following address. Phone -

Are you volunter to participate in this research as a participant?

1. Yes ☐ 2. No ☐

Annex 2: English version questionnaire

Risk FactorsforFatigue Among Cancer Patients Attending Cancer Center Of Tikur Anbessa Specialized Hospital In Addis Ababa, Ethiopia.

Name of hospital----------

Introduction and informed consent form

Hello, my name is ----------I am here on behalf of the research team of Addis Ababa University, Health Sciences College. We want to assess Fatigue and its risk Factors at oncology unit. Also, we would like to know the extent of Fatigue and its risk Factors. To get this information, we are carving out research in this hospital. This survey will be used to help policymakers and other responsible bodies improve cancer care service. I will ask you a few questions about your experience on cancer-related fatigue. The questions that I would like to ask will take about 30 minutes of your time. What you tell me will be kept strictly confidential, your name will not be registered, and your information will never be transferred to another party or interpreted wrongly. Your participation is voluntary, and you are not obliged to answer any question; if you do not wish to answer, you are free to stop the interview at any point.

So, may I continue? 1. Yes 2. No Informed consent certified by Interviewer Name_____ signature___ Date of interview_____ Time started_____

Time completed_____ Result of interview - 1. Completed 2.Respondent not available 3.Refused 4.Incomplete. Checked by Supervisor_____Signature _____Date _____

For any convenience and problem you can contact Principal investigator Phone +251-09-13-56-48-87.

Advisor-, Address- A/A, Phone number: +251 -09-13-16-31-30

Tools for Data collection

SectionOne: Socio-demographic characteristics

S.n	Characteristics	Possible responses	Skip ping	Code
1.	Sex	1. Male 2. Female		
2.	Age in year			
3.	highest level of education you have attained	1. Read and write 2. Primary (1-8) 3. Secondary (9-12) 4. College diploma/certificate 5. Degree and above		
4	Marital status	1. Single 2. Married 3. Divorcé		

		4. Widowed		
5	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Other		
6	Employment status	1. Not employed 2. Employed		
7	Monthly income in Ethiopian birr			
8	Residence	1. Urban 2. Rular		
9	Occupational status	1. Government 2. private 3. house wife 4. student 5. merchant 6. Farmer 7. Retired 8. Others		
10	Medical payment	1. Paid 2. Free		
11	Type of admission	1. New 2. Repeated		
12	BMI			

Section Two: Clinical characteristics of Cancer Diagnosed Patients

13	Feeling of unusual fatigue	1. yes 2. no		
14	If Yes for Q 13, what types of symptoms of cancer related fatigue associated With Cancer-treatment?	2. Pain or neuropathy Y/N 3. Nausea or dizziness Y/N 4. Emotional changes Y/N 5. Gastrointestinal problems (e.g., constipation, diarrhea) Y/N		

		6. Headache Y/N 7. Weakness or sleepy feeling Y/N 8. Skin problems (e.g., rash, dryness, itchiness) Y/N 9. Soreness Y/N 10. Hot flashes Y/N 11. Swelling Y/N 12. Throat burning Y/N 13. Vision problems Y/N 14. Heart problems Y/N 15. Loss of appetite Y/N		
15.	Stage of cancer	1. stage 1 2. stage 2 3. stage 3 4. stage 4		
16	Type of cancer	1. Colorectal CA Y/N 2. Breast CA Y/N 3. Cervical CA Y/N 4. Rectal CA Y/N 5. Esophageal CA Y/N 6. Colon CA Y/N 7. Sarcoma Y/N 8. others Y/N		
17	Type of treatment	1. radiation therapy 2. chemotherapy 3. surgery 4. chemo and radiation 5. chemo and surgery		

	Section three : Psychosocial and comorbid characteristics of cancer patients			
18	Anxiety	1. Yes 2. No		
19.	Depression	1. Yes 2. No		
20.	Sleeps quality	1. Good 2.Medium 3.Bad		
21.	Physical activity	1. Yes 2. No		
22	Pain status	1. Yes 2. No		
23	Anemia status	1. Yes 2. No		
22	Social supports			
Section four standard tool assessing Fatigue in the past 24 hrs: Numerical rating of items using the BFI-Am				
23	Fatigue right Now			
24	Usual fatigue			
25	Worst fatigue			
26	General activity			
27	Mood			
28	Walking ability			
29	Normal work			
30	Relation with others			

31 Enjoyments of life

10. አባሪዎች

አባሪ 1፡የመረጃሉህ

አዲስአበባዩኒቨርሲቲ፣የጤናሳይንስኮሌጅ

ስሜ……በአዲስአበባዩኒቨርሲቲየጤናሳይንስኮሌጅለሚካሄደውጥናትመረጃሰብሳቢሆኜእየሰራሁ ነው።

ስለጥናቱለማስረዳትትኩረትእንድትሰጡኝበትህትናእጠይቃለሁ።

የጥናቱርዕስ፡ከካንሰርጋርተያያዥነትያለውድካምእናተያያዥምክንያቶችበጥቁርአንበሳስፔሻላ ይዝድሆስፒታል፣አዲስአበባ፣ኢትዮጵያበሚገኘውኦንኮሎጂክፍልበካንሰርታማሚዎችላይመበራ ከት።

የጥናቱዓላማ፡-
በጥቁርአንበሳስፔሻላይዝድሆስፒታል፣አዲስአበባ፣ኢትዮጵያበሚገኘውኦንኮሎጂክፍልከካንሰርጋ ርተያያዥነትያለውድካምእናተያያዥምክንያቶችበካንሰርታማሚዎችላይያለውንስርጭትለመግ ምገም።

የጥናቱዓላማ/ዓላማ፡-

የዚህጥናትግንኙነትየካንሰርክብካቤአገልግሎትንለማጠናከርለሆስፒታልሥራአስኪያጅአናለጤና እንክብካቤአቅራቢዎችየመሠረታዊመስመርመረጃንይሰጣል።

የአሰራርሂደትእናየቆይታጊዜ፡-

መረጃሰብሳቢዎቹየቃለመጠይቅመመሪያዎችንበመጠቀምከተሳታፊዎች ጋርበመጀመሪያቋንቋ ቃለመጠይቅያደርጋሉ.እናከ25-30 ደቂቃዎችይወስዳል።

ስጋትእናጥቅም፡ተሳታፊዎቹበዚህጥናትውስጥየመሳተፍምንምአይነትስጋትአይኖራቸውም።በዚ ህጥናትውስጥለመሳተፍምንምአይነትቀጥተኛጥቅምየለም, ነገርግንየእርስዎተሳትፎየካንሰርአገልግሎቱንለማጠናከርመሰረታዊመረጃንለማመንጨትይረዳ ል.

ምስጢራዊነት፡የተሳታፊውመረጃሚስጥራዊይሆናል።የእርስዎስምእናሌሎችየግልመለያዎችበ መረጃአሰባሰብፎርማትላይአይመዘገቡምእናእርስዎየሚሰጡንመረጃበሚስጥርይጠበቃልእናለዚ ህጥናትዓላማብቻጥቅምላይይውላል።

መብቶች፡ተሳታፊዎችተሳትፎውንአለመቀበልወይምምኞትየሚሰማቸውንማንኛውንምጥያቄየ መመለስመብትአላቸው።እናስለተካሄደውጥናትማንኛውምአይነትጥያቄካሎትዋናመርማሪዎች ንበሚከተለውአድራሻመጠየቅይችላሉ።ስልክ -

1. በዚህጥናትላይእንደተሳታፊለመሳተፍፈቃደኛነዎት?1.አዎ 2. አይደለም

አባሪ 2፡የእንግሊዘኛእትምመጠይቅለቁጥርመረጃ

በጥቁርአንበሳስፔሻላይዝድሆስፒታል፣አዲስአበባ፣ኢትዮጵያበሚገኘውኦንኮሎጂክፍልየ ካንሰርታማሚዎችከካንሰርጋርየተያያዙድካምእናተያያዥምክንያቶች።

የሆስፒታልስም ----

ጤናይስጥልኝስሜ ---------

በአዲስአበባዩኒቨርሲቲየጤናሳይንስኮሌጅየምርምርቡድንስምመጥቻለሁ።ከካንሰርጋርየተያያዙ ድካምእናተያያዥምክንያቶችንበኦንኮሎጂክፍልመገምገምእንፈልጋለን።እንዲሁም፣ከካንሰርጋ ርየተያያዘድካምእናተያያዥምክንያቶችምንያህልእንደሆነማወቅእንፈልጋለን።ይህንንመረጃለ ማግኘት፣በዚህሆስፒታልውስጥምርምርእያደረግንነው።

ይህየዳሰሳጥናትፖሊሲአውጪዎችንእናሌሎችኃላፊነትየሚሰማቸውአካላትየካንሰርእንክብካቤአ ገልግሎትንእንዲያሻሽሉለመርዳትይጠቅማል።ከካንሰርጋርበተዛመደድካምላይስላለዎትልምድ ጥቂትጥያቄዎችንእጠይቅዎታለሁ።ልጠይቃቸውየምፈልጋቸውጥያቄዎችጊዜህን 30 ደቂቃያህልይወስዳሉ።የነገርከኝነገርበጥብቅሚስጥራዊይሆናል፣ስምህአይመዘገብምእናመረጃህለ ሌላአካልአይተላለፍምወይምበስህተትአይተረጎምም።የእርስዎተሳትፎበፈቃደኝነትነው, እናማንኛውንምጥያቄለመመለስአይገደዱም; መልስመስጠትካልፈለጉበማንኛውምጊዜቃለመጠይቁንማቆምይችላሉ።

ስለዚህልቀጥል?

1. አዎ
2. የለም

በቃለመጠይቅየተረጋገጠበመረጃየተደገፈስምምነት

_____ ፊርማ___ የቃለመጠይቁቀን _____

ጊዜየጀመረው_____ የተጠናቀቀውጊዜ_____ የቃለመጠይቁውጤት -

1. የተጠናቀቀ
2. ተጠሪአይገኝም
3. የለተስማማ
4. ያልተሟላ።

በሱፐርቫይዘርየተረጋገጠ_____ ፊርማ _____ ቀን _____

ለማንኛውምምኞትእናችግርየዋናውንመርማሪስልክማግኘትይችላሉ -+251-09-13-56-48-87.

አማካሪ፣አድራሻ- ኤ/ኤ፣ስልክቁጥር፡+251 -09-13-16-31-30

ክፍልአንድ፡- ሶሺዮ-ሥነ-ሕዝብባህሪያት

S.n	ባህሪያት	ሊሆኑየሚችሉምላሾች	መዝለል	ኮደ
	ፆታ	1. ወንድ 2. ሴት		
	ዕድሜበዓመት			
	ያገኙትከፍተኛየትምህርትደረጃ	1. ማንበብእናመፃፍ 2. ከ1-8 3. ከ9-12 4. ዲፕሎማ 5. ድግሪእናከዝያበላይ		
4	የጋብቻሁኔታ	1. ያለገባ 2. ያገባ 3. ፍቺ 4. በሞትየተለያዩ		
5	ሃይማኖት	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ሌላ		
6	የቅጥርሁኔታ	1. አልተቀጠረም 2. የተቀጠረ		
7	ወርሃዊገቢበኢትዮጵያብር			
8	የመኖሪያቦታ	1. ከተማ 2. ገጠር		

9	የጤና ሁኔታ	1. መንግስት 2. የግል		
10	የሕክምናክፍያ	1. የሚከፈልበት 2. ነጻ		
11	የመግቢያአይነት	1. አዲስ 2. ተደጋግሚል		
12	የሰዉናትክብደት			

ክፍልሁለት፡- የካንሰርሕመምተኞችክሊኒካዊባህሪያት

13	ከካንሰር-ነክድካም (CRF) ጋርየተያያዙሌሎችምልክቶችአሉ ዎት	1.ህመምወይምኒውሮፓቲአዎ/አይደለም 2.ማቅለሽለሽወይምማዞርአዎ/አይደለም 3.ስሜታዊለውጦችአዎ/አይደለም 4.የጨጓራናትራክትችግሮች (ለምሳሌ, የሆድድርቀት, ተቅማጥ) አዎ/አይደለም 5. ራስምታትአዎ/አይደለም 6. ድክመትወይምየእንቅልፍስሜትአዎ/አይደለም 7.የቆዳችግሮች (ለምሳሌ, ሽፍታ, ድርቀት, ማሳከክ) አዎ/አይደለም 8. ህመምአዎ/አይደለም 9. ትኩስብልጭታዎችአዎ/አይደለም 10. እብጠትአዎ/አይደለም 11. ጉሮሮየሚቃጠልአዎ/አይደለም 12. የእይታችግሮችአዎ/አይደለም 13. የልብችግሮችአዎ/አይደለም		

		14. የምግብፍላጎት ማጣት አዎ/አይደለም		
14.	የካንሰር ደረጃ	1. ደረጃ 1 2. ደረጃ 2 3. ደረጃ 3 4. ደረጃ 4		
15		1. ኮሎሬክታል ካንሰር አዎ/አይደለም 2.. የጡት ካንሰር አዎ/አይደለም 3.የማሂፀን ጨፊ ካንሰር አዎ/አይደለም 4. ሬኪታል ካንሰር አዎ/አይደለም 5.የጉሮሮ ካንሰር አዎ/አይደለም 6.. ኮሎን ካንሰር አዎ/አይደለም 7.ሌላ ካንሰር አዎ/አይደለም		
16	የሕክምና ዓይነት	1. የጨረር ሕክምና 2. ኪሞቴራፒ 3. ቀዶ ጥገና 4.. ኬሞእና ጨረሮች 5. ኬሞእና ቀዶ ጥገና		
	ክፍል ሶስት፡- የካንሰር በሽተኞች ሳይኮሶሻል እና ተጓዳኝ ባህሪያት			
17.	ሞት ንቀት	1. አዎ 2. አይደለም		
18.	የመንፈስ ሞት ንቀት	1. አዎ 2. አይደለም		
19.	የእንቅልፍ ጥራት	1. ጥሩ 2. መካከለኛ 3. መጥፎ		

20.	አላላዊአንቅስቃሴ	1. አዎ 2. አይደለም		
21	የህመምሁኔታ	1. አዎ 2. አይደለም		
22.	የደምግፊትሁኔታ	1. አዎ 2. አይደለም		
23.	የማህበራዊድጋፍሁኔታ			

ክፍልአራትያለፉት 24 ሰአታትድካምንየሚገመግምመደበኛመሳሪያ፡ BFI-Amንበመጠቀምየእቃዎችየቁጥርደረጃ

24	አሁንድካም			
25	የተለመደውድካም			
26	በጣምየከፋድካም			
27	አጠቃላይእንቅስቃሴ			
28	ስሜት			

29	የመሬመድኾሎታ			
30	አሁንድካም			
31	መደበኛ			
32	ከሌሎች			