

INSTITUTES OF HEALTH SCIENCE

SCHOOL OF PUBLIC HEALTH

UNMET NEED FOR SUPPORTIVE CARE AND ASSOCIATED FACTORS AMONG ADULT CANCER PATIENTS RECEIVING CHEMOTHERAPY AT PUBLIC HOSPITALS IN NEKEMTE TOWN, WESTERN ETHIOPIA, OROMIA, NEKEMTE, 2025

BY ABDETA DALASA CHALCHISA (BSC)

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NEKEMTE, ETHIOPIA

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INVESTIGETEOR: ABDETA DALASA CHALCHISA (BSC)

ADVISORS: Mr. MARKOS DESALEGN (MPH, ASSISTANT.PROFESSOR)

Mr. WASE BANTI (MSC)

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NEKEMTE, ETHIOPIA

WOLLEGAUNIVERSITY
SCHOOL OF GRADUATE STUDIES
P.O. Box: 395, Nekemte, Ethiopia.

APPROVAL SHEET FOR SUBMITTING FINAL RESEARCH THESIS

As members of the examining the final MPH thesis open defense, we certify that we have read and evaluated the thesis prepared by Abdeta Dalasa Chalchisa under the title assessment of unmet supportive care need and associated factors among Adult cancer patients receiving chemotherapy at public hospitals in Nekemte town, west Ethiopia, Oromia, Nekemte, 2025 and recommended that the thesis be accepted as fulfilling the requirement of the degree of Master of Public Health in GMPH.

Name of Student Abdeta Delesa Chalchisa Signature Date_____

Approved by: -

1) Name of major advisor Mr. Markos Dessalegn (MPH, Assistant. prof.) Signature_____Date_____

2) Name of co-advisor Mr. Wase Benti (MSC) Signature _____ _____ Date_____

3) Name of External Evaluator _____ Signature_____ Date_____

4) Name of Internal Evaluator _____ Signature_____ Date_____

5) Name of Chairperson _____ _ Signature_____ Date_____

6) Name of department PGC_____ __ Signature _____ Date_____

7) Name of Dean of Institute _____Signature _____ Date _____

8) Name of Dean, SGS _____ Signature _____ Date_____

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ABBREVIATION AND ACRONYMS

AOR	Adjusted Odd Ratio
CaSUNK	Cancer Survivors Unmet Need Korean Version
CI	Confidence Interval
Epi- Info	Epidemiological Information
ETB	Ethiopian Birr
FCR	Fear of Cancer Recurrence
HRQOL	Health Relate Quality of Life
JBI	Joanna Briggs Institute
NCI	National Cancer Institute
SCNS	Supportive Cancer Need Survey
SPSS	Statistical Package for the Social Sciences
USA	United States of America
USCN	Unmet Supportive Care Need
WHO	World Health Organization

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Abstract

Background: Supportive care aims to prevent and manage the adverse effects of cancer and its treatments. Recent literature emphasizes unmet needs in areas like psychological support, pain management, and information access, but often lacks a comprehensive assessment. This study will deepen understanding of these unmet supportive care needs, highlight specific challenges faced by cancer patients, and lay the groundwork for future research.

Objective: The aim of this study is to assess unmet needs for supportive care and associated factors among adult cancer patients receiving chemotherapy at Nekemte town public Hospitals, Nekemte, Ethiopia, 2025.

Methods: A mixed-approach cross-sectional study design was conducted among 468 cancer patients at Nekemte town public hospitals. Pretested and validated interviewer administered questionnaire was used to collect quantitative data. Systematic random sampling technique was used to select study participants. Data were entered with Epi Data version 4.6 and exported to Statistical Package for Social Science (SPSS) Version 26 for analysis. Descriptive statistics were presented through frequency tables and graphs. A bi-variable logistic regression analysis was done and Variable with a p value less than 0.05 along 95% confidence interval and adjusted odd ratio (AOR) considered as significant. Multi-collinearity among independent variables was checked using variables inflation factor. The overall model fitness was checked by Hosmer and Lemeshow goodness-of-fit test. Purposive sampling was used to select study participants and in-depth interview was used in the qualitative part and thematically analyzed in Open Code software version 4.0.

Results: More than half of study participants 252(53.8%, 95% CI: 49.3%-58.3%) had unmet need. Education (AOR=3.37 (1.23 - 9.22), 95% CI) and working at private (AOR 1.61 (1.57-9.24), 95% CI) were among significantly associated variables with unmet needs for supportive care among study participants. The qualitative analysis reveals a critical triad of unmet needs for supportive care. Inadequate physical and daily living support, a deficit in psychological and emotional care, and insufficient information and communication from providers.

Conclusions: This study underscores a critical magnitude of unmet needs for supportive care (53.8%) among cancer patients. Psychological needs 72.2% and physical need 62.8% emerging as the strongest predictors. It is recommended that health facility managers & providers to improve the accessibility and acceptability of services through training staff in client centered care to improve the unmet needs.

Key words: Cancer**,** Unmet need, supportive care, Nekemte

1. INTRODUCTION

1.1 Background

Cancer is defined as a group of diseases characterized by the uncontrolled growth and division of abnormal cells in the body. These cancerous cells can invade surrounding tissues and spread to other parts of the body through the blood and lymphatic systems, a process known as metastasis(1).Cancer diagnosis and its treatment create a complex challenges for patients, impacting their physical, psychological, social, spiritual and financial well-being(2).The rising number of cancer survivors presents a major challenges for health system worldwide, requiring comprehensive post treatment care to meet their varied physical, psychological and social need(3).

Supportive care refers to the strategies aimed at preventing and addressing the negative impacts of cancer and its treatment. This encompasses the management of both physical and psychological symptoms and side effects throughout the entire cancer experience, from diagnosis to treatment and into post treatment(4). Supportive cancer care is crucial for improving cancer out comes helping to address low survival rates and poor quality of life and ultimately promoting equity in cancer treatment(5). Achieving improved health outcomes for individuals diagnosed with cancer necessitates a holistic approach to their care. This involves not only treating the cancer itself but also addressing the various supportive care needs that arise during and after treatment (6) Cancer survivors at different life stages have unique needs that can make it difficult for health care services to provide effective care (7).

Unmet supportive care needs refer to patients' personal feelings about needing more help or information than they currently receive. (8). Identifying the unmet care needs of cancer patients is essential for enhancing a personal and tailored approach to their overall care.(9). These Needs can emerge at any stage of a disease, from diagnosis to end of life, and are categorized into five main domains: physical, psychological, informational, patient care, and sexual needs. Cancer patients frequently express that their needs are not being adequately addressed in various areas of supportive care (10) Studies indicate that the most significant unmet needs are often psychological(11).The primary unmet needs for cancer patients involve fears and worry a long side a variety of other issues. Information and support centers may help address these needs by providing assistance on multiple topics (12).

Factors contributing to unmet needs include advanced cancer stage, younger age, mental health issues, and lower socioeconomic status(2, 13).Unmet supportive care needs are associated with a rise in emergency department visits and hospitalizations, highlighting the importance of addressing these needs to enhance overall patient care and outcomes(14).

1.2 Statement of the problem

Cancer is a major contributor to the global disease burden, resulting in the loss of 250 million disability adjusted life years worldwide (6).The extended experience of dealing with cancer and its treatments presents additional challenges for patients across physical, psychological, emotional and practical aspects(12). The perceived unmet needs of patients care among genitourinary nurses in Australia found that the highest areas of perceived unmet needs were psychological needs at 74%, Intimacy needs at 65% and Informational needs at 57% (16). The prevalence of psycho social distress and unmet supportive care needs among Colo- rectal cancer survivors found that 86% of these survivors reported having at least one unmet need (17).

Unmet needs for supportive care among cancer patients can lead to a range of significant consequences across various domains, including health, psychological, social, and economic impacts. Health-wise, these patients often experience reduced quality of life, increased symptom burden, and higher mortality rates(18). Socially, unmet needs for supportive care can significantly strain interpersonal relationships, as patients often withdraw from social interactions due to their emotional and physical struggles. This withdrawal can result in a lack of vital social support during treatment. Additionally, the stress associated with these unmet needs can extend to family members, impacting their emotional well-being and potentially leading to caregiver burnout.(18, 19) Psychologically, they may face heightened anxiety and depression, along with feelings of isolation that strain relationships (19). Economically, unmet needs for supportive care can result in higher healthcare costs and loss of productivity due to prolonged recovery (18, 19) .

Unmet needs for supportive care among cancer patients are influenced by various risk factors that can be categorized into socio-demographic, medical and psychological domains. Younger patients often report greater needs than older patients due to differing coping strategies, while racial and ethnic minorities, particularly Black and Hispanic individuals, face access disparities. Lower income and education levels further limit the availability of resources. Medically, those with late-stage cancer, higher symptom burdens, and functional impairments experience increased unmet needs. Psychologically, elevated anxiety and depression levels, along with fears of recurrence, contribute to the demand for additional support,(2, 13, 14).

Interventions aimed at reducing unmet needs for supportive care among cancer patients have been implemented worldwide. In Australia, interventions that incorporate Cognitive behavioral therapy techniques have led to significant improvements in patients' emotional well-being and reduced unmet needs for psychological support(18). Effective communication about behavioral concerns is essential for integrated care in the U.S. Oncologists and primary care providers prioritize these issues for cancer survivors.

Behavioral health providers can support them by integrating assessments, training providers, and offering education.(20). In UK, Regular clinic visits help recognize and address anxieties. Healthcare teams can foster open communication, share information, and respond to the psychological dimensions of fear, including making referrals to local specialists if needed (21).

Community health initiatives in several Asian countries offer education and resources for cancer patients and their families. These programs aim to raise awareness of supportive care options and enhance access to psychological and social support (22). Initiatives aimed at enhancing access to pain management, especially regarding opioid availability, are vital in many African countries(5).

In Ethiopia, various interventions have been introduced to address the unmet needs for supportive care of cancer patients. These include integrated palliative care programs, training for healthcare professionals in pain management and psycho-social support, and awareness campaigns to educate patients and families. Community support groups provide emotional assistance, while improved referral systems ensure comprehensive care (11, 23). A study conducted at University of Gondar Specialized Hospital (Ethiopia) evaluated the unmet needs for supportive care among cancer patients. The results revealed significant unmet needs, especially in the health system and information areas, underscoring the need for targeted interventions to address these deficiencies (24).

Current research on unmet needs for supportive care in cancer patients mainly highlights particular areas like psychological support and pain management, yet it fails to offer a comprehensive evaluation across all dimensions of unmet needs for supportive care**.** Focusing exclusively on quantitative methods in research creates a gap in understanding, as it often fails to capture the contextual depth and nuanced experiences of participants.

This research seeks to fill this gap by employing qualitative methodologies to conduct a comprehensive evaluation of unmet supportive care needs, including emotional, social, and informational aspects. By providing a holistic understanding of patients' experiences, this study aims to inform more effective and tailored interventions that enhance quality of life for cancer patients.

1.3 Significance of the study

Cancer patients will be the primary beneficiaries of this study, gaining insights into their unmet supportive care needs. This understanding will drive the development of targeted interventions, such as improved care coordination and mental health services, enhancing their overall well-being.

Healthcare providers will also benefit by being better equipped to tailor their care, while Hospital administrators can use the findings to advocate for necessary resource allocation. Additionally, researchers can build on these insights for future studies, contributing to more effective supportive care practices. Overall, the study aims to foster a compassionate and responsive healthcare environment that improves the quality of life for cancer patients.

2. LITERATURE REVIEW

2.1 Prevalence of unmet supportive cancer care

A 2023 study in Australia identified, the most common unmet supportive care needs among cancer patients as fear of cancer spreading (20.7%) and concerns about cancer recurrence (17.9%)(6) Similarly, a 2021 study in Japan indicated that 76.7% of cancer patients experienced at least one unmet supportive care need, which included psychological, physical and daily living needs, health and information needs, or sexuality needs (19).

Study conducted in China involving patients with esophageal cancer found that about 95.2% reported having at least one unmet need. Most of the top ten moderate to severe unmet needs were related to the health and information domain (25).Study in Singapore found that approximately 52% of long-term colorectal cancer survivors reported experiencing at least one unmet supportive care need after curative treatment (26).In the study conducted in South Korea, the domains with the highest levels of moderate to strong unmet needs were existential survivor-ship (59.1%), comprehensive cancer care (51.2%), and information (49.7%)(27)

According to study in Mexico on unmet needs among breast cancer patients, the most prevalent moderate to high unmet needs included fears about cancer spreading (37.4%) and concerns about the worries of loved ones (37.3%)(28). Also, systematic review in England found that patients with rare cancers most often reported unmet needs in the healthcare and information areas (up to 95%), followed by psychological needs (up to 93%) and physical/daily living needs (up to 80%)(29). Additionally, a systematic scoping review on unmet supportive care needs in breast cancer conducted in 2023 revealed that the top unmet needs included social support (74%), daily activities (54%), sexual/intimacy needs (52%), fear of cancer recurrence or spreading (50%), and information support (45%)(30).

Also, study conducted in Nigeria found that the most frequent unmet supportive needs among cancer patients were in health information (53.4%), physical and daily living (49.4%), psychological (48.5%), and sexuality and patient care and support domains(31).The overall prevalence of perceived unmet needs for cancer care in Sub-Saharan Africa (SSA) was found to be 63% for physical needs, 59% for health information and system needs, 58% for psychological needs, 44% for patient care and support, and 43% for sexual needs(5). Study conducted at Dessie referral hospital (Ethiopia) showed that, the highest prevalence of unmet supportive care needs was observed in the psychological domain, at 81.0%, followed by physical needs, which were noted at 74.6%(13).

2.2 Factors associated with unmet need for supportive care

When comparing results from different studies, it's crucial to consider the unique characteristics of each study group. Research indicates that socio-demographic and clinical factors significantly affect the types and extent of unmet needs reported by cancer patients(32).A study conducted at a major public safety net hospital in Los Angeles, found that unmet supportive care needs were significantly associated with income level, health-related quality of life, multi-morbidity, and various socio-demographic factors.(33) Similarly, the study conducted on unmet supportive care needs of breast cancer survivors: a systematic scoping review, The USCNs were found to have a significant association with demographic factors, disease-related factors, and psychological factors (30).

2.2.1 Socio-demographic related factors

According to a research conducted in Chicago, Younger cancer survivors exhibited greater unmet supportive care needs across all domains, except for social needs,(34**).**According to study conducted in colorectal cancer survivors after curative treatment in an Asian population, Key predictors of increased unmet needs include being over 65 yrs. (26).While the study conducted at Dessie Hospital , showed Older age was linked to greater unmet physical and psychological needs compared to younger age. (13).

Additionally, a significant unmet need difference concerning different need domain was found in monthly income to be independent predicting factors for unmet supportive care needs(24) According to study conducted in Canada, Retired survivors with an annual income of CAD 75,000 to 125,000 or over 125,000 reported fewer unmet needs, (35).The study conducted at Dessie Hospital, showed higher household income was significantly associated with a need for health information(13).

The research conducted in Iran indicates that female cancer patients face a higher risk of having unmet supportive care needs(36). Female cancer patients frequently report greater unmet supportive care needs than male patients, especially concerning psychological and sexual health. For example, women with gynecological cancers typically indicate more substantial psychological and physical needs compared to men with prostate cancer, who tend to express higher needs related to sexuality but fewer psychological and physical concerns(2). In Ethiopia, research conducted at Dessie referral hospital found that Women often face higher psychological distress, which is linked to greater unmet supportive care needs. This distress arises from multiple factors, such as the effects of cancer on body image and sexual health, highlighting the increased demand for psychological support among female patients(13).

Having a partner can significantly impact coping strategies. Married patients often draw strength and resilience from their partners, helping to meet their supportive care needs. In contrast, single patients may lack these coping resources, resulting in heightened vulnerability and greater unmet needs (2). Married individuals tend to enjoy greater social support, which helps reduce unmet needs. Spouses offer emotional and practical assistance, easing feelings of isolation and anxiety. Conversely, single or divorced patients often face higher unmet needs due to the absence of such support (14).

2.2.2 Psycho-social related factors

According to the study conducted in Spain among the psychological needs, which account for 34% of prevalence, study participants emphasized the importance of emotional support to cope with worries about cancer recurrence. Fear of recurrence is a significant concern for cancer survivors and can continue for an extended period after diagnosis, negatively impacting their quality of life and emotional well-being (17). Also research conducted at a Tertiary Hospital in Seoul, South Korea showed, High fear of cancer recurrence (FCR) and poor emotional functioning were linked to moderate-to-strong unmet needs in all areas of the cancer survivors' unmet needs Korean version (CaSUN-K) (27).

Additionally, One in four women experienced clinical distress linked to unmet psycho-social needs, with concerns about the possibility of recurrence and its cognitive-emotional effects being the most commonly reported (37).According to study conducted on unmet supportive care needs in Hispanic/Latino cancer survivors, the most prevalent unmet needs were psychological in nature, specifically fear of metastasis (32.6%) and worries about loved ones (31.3%). However, the unmet needs differed depending on the type of cancer (34).

In Japan research found that individuals who perceived their quality of life as lower, experienced changes in their work or school life following a cancer diagnosis, and had inadequate social support were significantly more likely to have greater supportive care needs(19). According to the study conducted in Switzerland, Physical and social limitations, negative body image, distress, anxiety, and depression, along with insufficient social support and conflicts in personal relationships, were associated to an increased need for supportive care(38).

2.2.3 Illness-related factors

Unmet supportive care needs were associated with a lower health-related quality of life (HRQOL) across all domains. Additionally, individuals with multiple health conditions experienced a decline in HRQOL and a greater need for supportive care (33).The study conducted in Taiwan showed that, Concerns about diseases and symptoms related to treatment significantly impact the overall supportive care requirements and each specific area of those needs (39). A study in Germany found that cancer stage and type affect supportive care needs, with patients in advanced stages reporting more unmet needs due to complex and severe symptoms(2). And also certain types of cancer can pose unique challenges. For example, patients with head and neck cancers often have different psycho-social needs than those diagnosed with breast cancer (14). A study in southern Ethiopia found that patients with coexisting illnesses have about three times higher odds of unmet psychological supportive care needs compared to those without these illnesses (11).

2.3 Conceptual frame work

Conceptual frame work which is adapted from reviewed literature to estimate associated factors for unmet needs for supportive care among cancer survivors.(2, 11, 19)

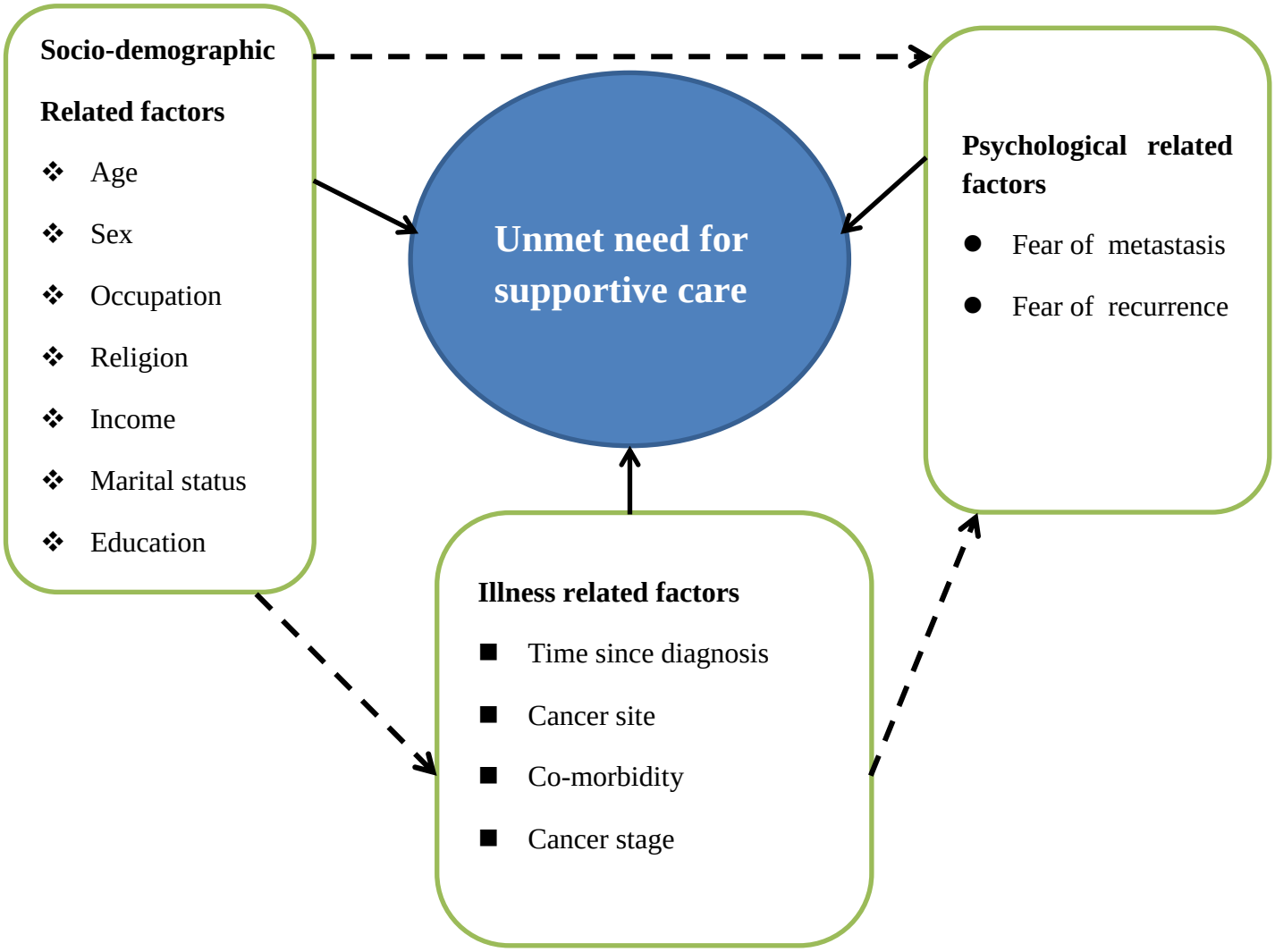


Figure1: Conceptual frame work that shows associated factors for unmet supportive care need among cancer survivors 2025.

*Co-morbidity = Existence of more than one disease e.g. Diabetes mellitus, Hypertension and HIV with cancer.

3. OBJECTIVES

3.1 General objective

- ✧ To assess unmet needs for supportive care and associated factors among adult cancer patients receiving chemotherapy at Nekemte town public Hospitals, Nekemte, Ethiopia, 2025.

3.2 Specific objectives

- ❖ To determine unmet needs for supportive care among adult cancer patients receiving chemotherapy at Nekemte town public Hospitals, Nekemte, Ethiopia, 2025.
- ❖ To identify associated factors for unmet needs among adult cancer patients receiving chemotherapy at Nekemte town public Hospitals, Nekemte, Ethiopia, 2025.
- ❖ To explore perception of patients on unmet needs for supportive care among adult cancer patients receiving chemotherapy at Nekemte town public Hospitals, Nekemte, Ethiopia, 2025.

4. METHODS

4.1 Study area and period

The study was conducted at Nekemte town public Hospitals' oncology units. Nekemte is a town located in the western part of Ethiopia, specifically in the Oromia Region. It serves as the capital of the East Wollega Zone. As of 2025, total population of the town is estimated to 157,923**.**Out of these **80,541** males and **77,382** are females. The town has seven sub cities. It has two public hospitals, one private primary hospital, two health centers, forty medium clinics, twenty one primary clinics, sixty drug stores, fifteen pharmacies, and seven health posts. The research was conducted at the two public Hospitals, Nekemte Comprehensive Specialized Hospital and Wollega University Comprehensive Specialized Hospital. Nekemte comprehensive specialized hospital has been providing chemotherapy since 2022. There are five trained nurses and two trained physicians working at oncology unit. Currently there are **1,100** patients receiving chemotherapy in this hospital. Wollega university Comprehensive specialized hospital started providing cancer treatment (chemotherapy) 2023. The hospital has two Physician and three trained nurses working at oncology unit providing chemotherapy. Currently there are **523** patients receiving chemotherapy. The study was conducted from February 18, 2025 to March 04, 2025. (42)

4.2 Study design

Institutional based cross-sectional study design complemented by qualitative (Mixed method) was conducted among adult cancer patients at public hospitals in Nekemte town. Explanatory Sequential Design was used, quantitative data collection and analysis, followed by qualitative data collection to help explain or elaborate on the quantitative findings.

4.3 population

4.3.1 Source population

The Source population was all adult cancer patients receiving chemotherapy at Nekemte town public Hospitals**.**

4.3.2 Study population

The study population was randomly selected individuals from adult cancer patients on chemotherapy at Nekemte Comprehensive Specialized Hospital and Wollega University Comprehensive Specialized Hospital.

4.3.3 Study unit

Study unit was selected cancer patients receiving chemotherapy at both public hospitals in Nekemte town who have participated on the study.

4.4 Eligibility criteria

4.4.1 Inclusion criteria

All adult cancer patients (above 18 yrs.) receiving cancer treatment at Nekemte Comprehensive Specialized Hospital and Wollega University Comprehensive Specialized Hospital were included.

4.4.2 Exclusion criteria

A patients receiving cancer treatment at both public hospitals in Nekemte town who were seriously sick and unable to communicate during data collection and those patients transferred in from other health institution within the last six months were excluded. Due to transferred patients might have different supportive care experience.

4.5 Sample size determination and sampling procedure

4.5.1 Sample size determination

For quantitative method, representative Sample size was determined by using a single population proportion formula. Considering estimated proportion of unmet psychological SCN (71.1%) from the study conducted at Hawasa Comprehensive specialized Hospital, southern Ethiopia(11) . with a marginal error of 5%, non-response rate of 10%, and 95% confidence interval. Based on these assumptions, a total sample size was calculated using the formula as indicated below.

$n = (Z\ \alpha/2)^2 \times P\ (1-P) / d^2$

Where: n= sample size required $Z\ \alpha/2$ = at 95% CI (1.96%) P= the estimated proportion =71.1%

d= is margin of error which is 5% (0.05%) n= $[1.96]^2$ x0.71[1-0.71]/ $(0.05)^2$ =**316**

For the second objective, the sample size was determined by using EPI INFO software v7.2.6 and summarized (Table 1).

Table 1: Sample size determination for unmet needs for supportive care among adult cancer patients receiving chemotherapy at Nekemte town public Hospitals oromia, west Ethiopia, 2025

Variables	**Power**	**% of Unexposed**	**AOR 95% CI**	**Sample size**	**Final sample size with 10% non-response rate**	**Reference**
Urban Residence	80	15.3	0.255	268	295	(24)
Occupation (Unemployed)	80	53.4	1.67	532	**585**	(13)
Early Cancer stage	80	52	2.95	138	152	(11)
Co-existing illness	80	30.6	2.73	148	163	(11)

From the second objectives, the largest sample size is **585**. Then, when calculated by correction formula and 10% non-response rate, $\boldsymbol{cf = \frac{n}{1+\frac{n-1}{N}}}$

Where, n is calculated the sample size and **N** is source population

So, n=**585** **N=1,623**

$$\boldsymbol{n = \frac{585}{1+\frac{585-1}{1,623}}} = \mathbf{430}$$

Then, by adding 10% non-response rate, final sample size become **473.**

For qualitative part: In depth interview was conducted with cancer patients to explore participants' perspectives on unmet supportive care need among cancer patients at public hospitals in Nekemte town. The sample size was determined by the principles of data saturation and ten In-depth interviews were conducted.

4.5 .2 Sampling procedures

For quantitative part, systematic random sampling method was used for data collection technique. There are 1,100 cancer patients on follow up at Nekemte Comprehensive Specialized Hospital. So, the calculated sample size from this Hospital was 321. Since I used systematic random sampling, every three (3) patients were selected and the first sample was selected by lottery method. At Wollega University Comprehensive Specialized Hospital calculated sample size was 152 from 523 patients on follow up. Since I used systematic random sampling, every three (3) patients were selected and the first sample was selected by lottery method. Purposive sampling was used for qualitative part and in-depth interview were conducted.

The determined sample size was proportionally allocated for selected hospital for each selected public hospital using the following statistical formula.

ni = Ni $\frac{x\ n}{N}$ **where, N i =Total population in each hospital ni=Sample size for each hospital n=Total sample size N=Total study population**

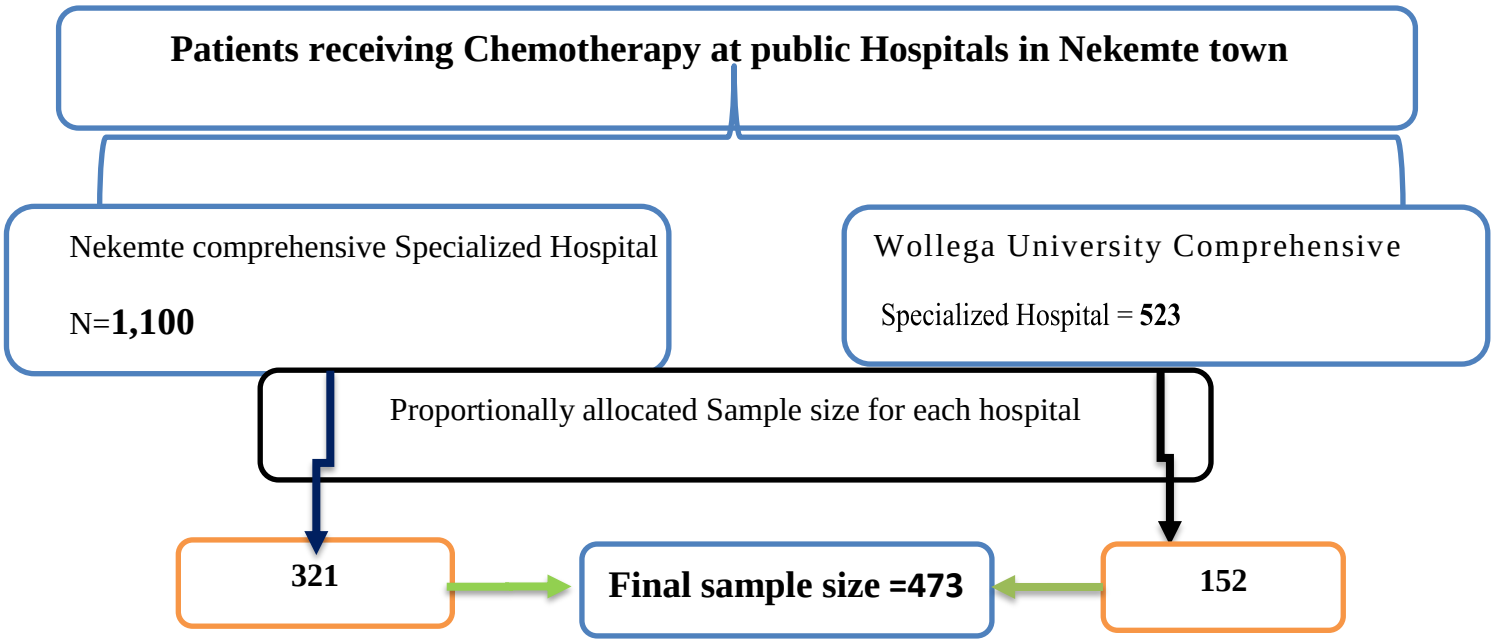


Figure 2: Sampling procedures for selection of study unit for Assessment of unmet needs for supportive care and associated factors among adult cancer patients receiving chemotherapy at public Hospitals in Nekemte town, Nekemte, Oromia, west Ethiopia, 2025.

4.6. Variables of the study

4.6.1. Dependent Variables

Unmet needs for supportive care

4.6.2. Independent variables

Socio -demographic characteristic

Age, Sex, Marital status, Residence, Income, Religion, Occupation

Psychological factor related variables

Fear of metastasis, Fear of recurrence

Illness related characteristic

Comorbidity, Cancer type, Cancer stage, Lower health related quality of life

4.7 Operational definition

Unmet needs for supportive care- needs that cancer patients and survivors report as inadequately addressed by their healthcare providers(13). Participants were interviewed using a structured questionnaire adapted from various sources and the SCNS tool, rated on a 5-point Likert scale to assess their needs. Responses were categorize needs into "no need" (not applicable to satisfied) and "some need" (low to high needs) to evaluate the proportion of unmet needs among patients (11)

Supportive care- A range of services and interventions designed to improve the quality of life for individuals facing serious illnesses or health challenges (11).

Health System and Information Needs: Needs for clear communication about treatment options, side effects, and care processes (21)

Psychological Needs: Concerns related to anxiety, depression, and fear of cancer recurrence.

Metastasis-The spread of cancer cells from the place where they first formed to another part of the body.

Coexisting illness: Existence of more than one disease or condition within your body at the same time.

4.8 Data collection tools and procedures

For quantitative part: Participants were interviewed using a structured questionnaire adapted from various sources and the SCNS tool, rated on a 5-point Likert scale to assess their needs. Responses were categorize needs into "no need" (not applicable to satisfied) and "some need" (low to high needs) to evaluate the proportion of unmet needs among patients (11).

The SCNS-SF 25 assesses cancer-specific perceived needs in five domains: physical and daily living needs, psychological needs, health system information needs, patient care and support needs, and sexuality needs. Participants rated their needs on a 5-point Likert scale. Validated at Hawasa Referral Hospital, the survey has 25 items and an overall Cronbach's alpha of 0.933. Responses can indicate "no need" (not applicable or satisfied) or "some need" (low, moderate, or high) (13).

For qualitative part: In-depth interviews were conducted to explore participants' perspectives on unmet needs for supportive care among cancer patients at public hospitals in Nekemte town. The interviews were continued until data saturation was reached, meaning that no new themes emerge from the interviews.

4.9 Data processing and analysis

Data was entered and coded using EpiData 4.6 software and then exported to SPSS V26 for analysis. Descriptive statistics and numerical summaries were presented through frequency distribution tables and graphs to describe the study population concerning relevant variables. Open code software was used for qualitative part analysis. A bi-variable logistic regression analysis was done and independent variables with a p-value less than 0.25 were selected as candidate for multi variables logistic regression analysis. Multi-collinearity among independent variables was checked using variables inflation factor .The maximum VIF was1.3 and tolerance value test was above 0.1. Finally, statistical significance was declared at 95% confidence interval, and degree of association described using adjusted odds ratio and p-value <0.05. The overall model fitness was checked by Hosmer and Lemeshow goodness-of-fit test (X^2(DF) =8.6(8); P=0.379)).

For the qualitative component, field notes were taken, and in-depth interviews were recorded and transcribed verbatim for analysis. Thematic analysis was employed, beginning with reading the transcripts, coding, and then refining the themes to categorize them. The results were presented concurrently with the quantitative findings.

4.10 Data quality assurance

Supervisors and data collectors were given a one-day training session covering the study's objectives and significance, proper methods for collecting and recording information, data collection procedures, the full content of the questionnaire, and the importance of maintaining confidentiality. A double data entry system was implemented to minimize errors and qualitative data is transcribed and verified for accuracy. A pretest was conducted at Nekemte Comprehensive Specialized Hospital using 5% (24) of the sample size before the actual survey to check for consistency and necessary correction was made based on result. Data collection was carried out by four BSc nurses under the supervision of two supervisors. Throughout the data collection period, supervisors was provided close oversight and monitoring daily to ensure data quality. Reliability of the tool was checked by Cronbach’s alpha value which was 0.933 that above 0.7.

4.11 Ethical consideration

Ethical clearance was obtained from Wollega University, Institute of Health Sciences, and research ethics committee. The letter of cooperation was written to the selected hospitals and formal permission was obtained from the hospital management. Informed written consent was obtained from each participant before the study begins, after explaining the study's objectives.

4.12 Plan for dissemination of results

The findings will be submitted to Wollega University, Institutes of Health science, and school of public health. The summaries of the findings will be presented on different seminars, meetings, and workshops in Oromia.

5. RESULTS

5.1. Socio -demographic characteristics for quantitative findings

The study included 468 cancer patients out of 473 sampled, making a 98.9% response rate. Among the participants, 58.3% were females. The average age was 52 years (±11.23 SD), ranging from 19 to 87 years. Most respondents 44.4% were engaged in paid work, while the majority 78.8% resided in rural areas (**Table 2**).

Table 2: Socio-demographic characteristics associated with unmet needs for supportive care among cancer patients receiving chemotherapy at public hospitals in Nekemte Town, Oromia Region, Western Ethiopia (2025).

Variables	Categories	Frequency	Percentage
Sex	Male	195	41.7
	Female	273	58.3
Age	<52	234	50
	>=52	234	50
Marital status	Single	36	7.7
	Married	395	84.4
	Divorced/Separated	10	2.1
	Widowed	27	5.8
Residence	Urban	99	21.2
	Rural	369	78.8

Educational level of study participants	Unable to read and write	24	5.1
	Primary school completed	155	33.1
	Secondary school completed	166	35.5
	Certificate/ Diploma	95	20.3
	First degree and above	28	6
Religion	Orthodox	182	38.9
	Protestant	232	49.6
	Muslim	40	8.5
	Other	14	3.0
Occupation of respondents	Employed	58	12.4
	Private work	53	11.3
	Labor	208	44.4
	Farmer	149	31.8

5.2 Clinical characteristics of the respondents

Breast cancer was the most prevalent diagnosis 131(28.0%), with colorectal 96(20.5%), cervical 62(13.2%), and skin/melanoma cancers 49(10.5%). The majority of cases 270(57.7%) were relatively recent diagnoses (within 2 years), with only 115(24.6%) of patients achieving remission. Notably, most presentations 385(82.3%) were at advanced stages, and concurrent health conditions were reported by 149(31.8%) of the respondents. Additionally, nearly one-third of participants 151(32.3%) experienced fear about disease recurrence (Table 3).

Table 3: Clinical characteristics of patients with unmet needs for supportive care among cancer patients receiving chemotherapy at public hospitals in Nekemte Town, Oromia Region, Western Ethiopia (2025)

Variables	Categories	Frequency	Percentage
Primary cancer site	Breast	131	28.0
	Colon and rectum	96	20.5
	Prostate	25	5.3
	Lung	46	9.8
	Skin/Melanoma	49	10.5
	Esophageal	43	9.2
	Cervical	62	13.2
	Other	16	3.4
Time since diagnosis	≤ 2 Years	352	75.2
	> 2 Years	116	24.8
Remission	Yes	115	24.6
	No	353	75.4
Other illness	Yes	149	31.8
	No	319	68.2
Stage of cancer	Early stage	83	17.7
	Late stage	385	82.3
Fear of recurrence	Yes	317	67/7
	No	151	32.3

*Other illness = Existence of Other disease other than Cancer.

5.3 Awareness status of respondents

Most participants 334(71.4%) informed about their diagnosis and disease extent 337(72.0%), but fewer receiving details about disease causes 228(48.7%). Critical treatment information was particularly lacking - only about one-quarter of patients received explanations about treatment modalities 116(24.8%), procedures 117(25.0%), treatment sequences 119(25.4%), expected benefits 125(26.7%), or potential side effects 129(27.6%). Similarly, just 129(27.6%) were informed about treatment duration. Notably more than two thirds of the study participants 336(71.8%) had gained information from family members regarding cancer management while 132(28.2%) from health professionals (Table 4).

Table 4: Information status of patients with unmet needs for supportive care among cancer patients receiving chemotherapy at public hospitals in Nekemte Town, Oromia Region, Western Ethiopia (2025)

Variables	Categories	Frequency	Percentage
Heard information from	Health professional	132	28.2
	From family member	336	71.8
. Informed about diagnosis	Yes	334	71.4
	No	134	28.6
Informed on spread of the disease	Yes	337	72.0
	No	131	28.0
Informed about possible risk factors of the disease	Yes	228	48.7
	No	240	51.3
Informed about medical tests you have had or may under go	Yes	149	31.8
	No	319	68.2
Information on procedure of laboratory tests	Yes	117	25.0
	No	351	75.0

Information on treatment modality	Yes	116	24.8
	No	352	75.2
Information on sequence of medical treatment	Yes	119	25.4
	No	349	74.6
Information on expected benefit of the treatment	Yes	125	26.7
	No	343	73.3
Information on possible side effects of the treatment	Yes	129	27.6
	No	339	72.4
Information on duration of treatment	Yes	129	27.6
	No	339	72.4

5.4 Magnitude of unmet need for supportive care.

The mean of each need domain was computed and used to categorize in to no need and unmet need. Then, over all domain of need were computed. The mean of the overall need was 2.89(±0.67SD) (Table-5)

Table 5: Domain of unmet need for supportive care among adult cancer patients at public Hospital in Nekemte town, 2025

Domains of need	**Mean± standard deviation**	**No need n (%)**	**Unmet need n (%)**
Physical need	2.81±0.82	174(37.2)	294(62.8)
Psychological need	3.2±0.88	130(27.8)	338(72.2)
Patient care need	2.8±0.87	227(48.5)	241(51.5)
Health system need	2.95±0.88	181(38.7)	287(61.3)
Sexual need	2.2±0.87	319(68.2)	149(31.8)
Total	**2.89±0.67**	**216(46.2)**	**252(53.8)**

As shown below figure-the magnitude of unmet need among study participant was 252(53.8%, 95% CI: 49.3%-58.3%)

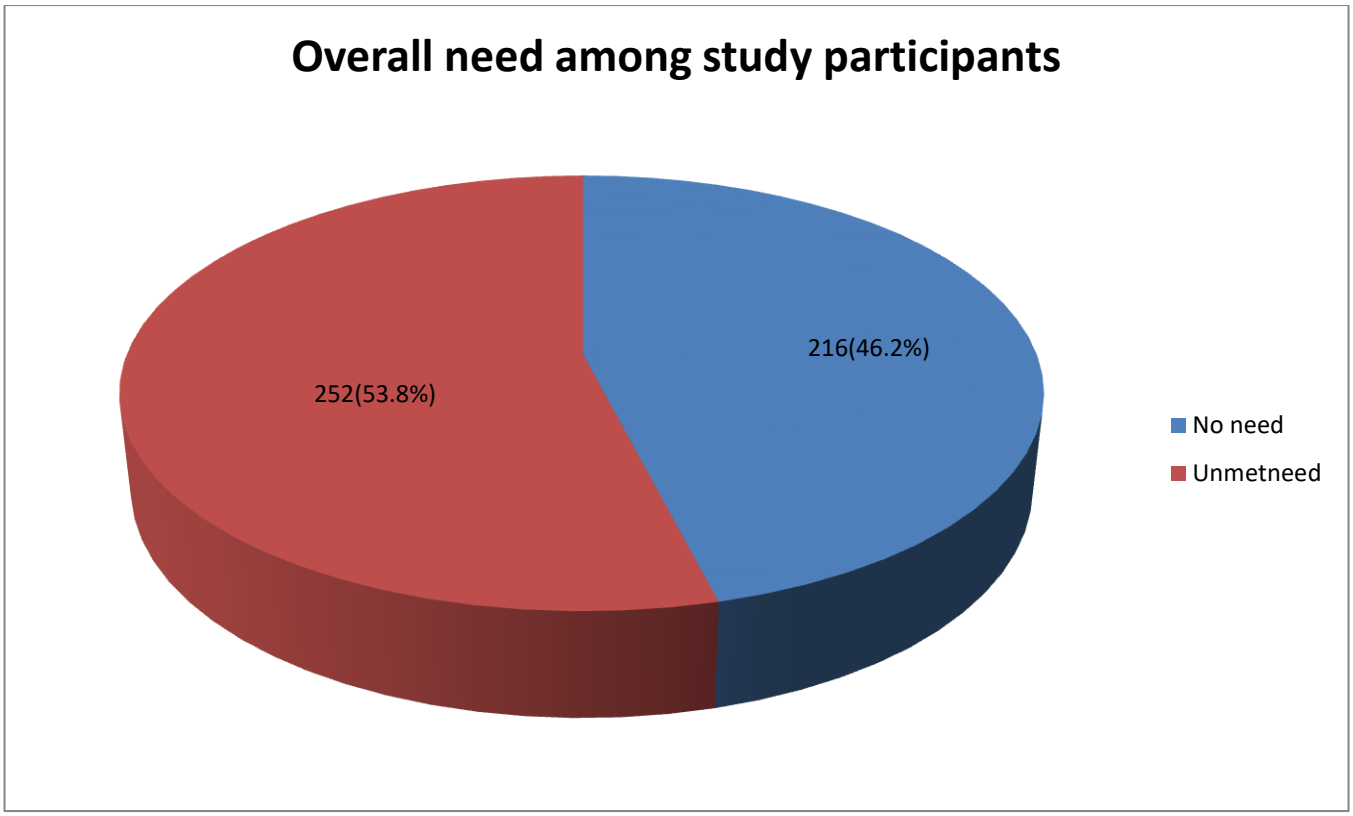


Fig 3 Magnitude of unmet need by domain on unmet needs for supportive care among cancer patients receiving chemotherapy at public hospitals in Nekemte Town, Oromia Region, Western Ethiopia (2025)

5.5 Factors associated with unmet need for supportive care.

Bi-variable logistic regression analysis was done to determine candidate variables for multivariable logistic regression analysis. And several variables were found to be candidate at p<0.25 for inclusion in the final multivariate model. These include, overall health system needs, patient care needs, psychological needs, information on treatment modality, information on possible causes of the disease, physical needs, fear of recurrence, sexual needs, other illnesses, information on diagnosis , information on treatment benefits, information on treatment duration, information on treatment sequences, respondent residency, remission status, occupation, and income.

These factors were further analyzed in the multivariable logistic regression analysis. Multivariable logistic regression analysis result showed socio-demographic factors like education, occupation, fear of recurrence, time since diagnose, information on the possible cause of the disease and information on the treatment modalities were factors significantly associated with unmet need among study participants.

The study participants those with educational level of diploma and above had more than three times higher odds of (AOR=3.37, 95% CI: 1.23-9.2, P=0.018) unmet need compared to those with no formal education. Participants those working at private had nearly to four times higher odds of (AOR=3.81, 95% CI: 1.57-9.24, P=0.003) unmet needs and those working as farmers had more than two times higher odds of (AOR=2.33, 95% CI: 1.12-4.87, P=0.024) unmet needs compared to those employed.

The study participants those since diagnosed with the current disease on follow-ups less than two years had nearly to two times higher odds of (AOR=1.61,95% CI: 1.003-2.6, P=0.049) unmet needs compared to those since diagnosed above two years. Additionally those study participants with no fear of recurrence had two times higher odds of (AOR=2.05, 95% CI: 1.32-3.18, P=) unmet need compared to those with fear of recurrence of the disease.

Those participants not received information on possible cause of the current disease on follow up had two times higher odds of (AOR=1.98, 95% CI: 1.3-3.02, P=0.002) unmet need compared to those received information. Finally, those study participants not received information on possible modality of the treatment for the current disease on follow up had nearly three times higher odds of (AOR=2.89, 95% CI:1.73-4.84,P=<0.001) unmet need compared to those received information

Table 6: Bi-variable and Multivariable Logistic Regression Analysis Results for Factors associated with Unmet need among study participants, Nekemte town, 2025 (n=468)

Variable	Categories	Supportive cancer care		COR (95%CI)	AOR (95% CI)	PV(0.05)
		Unmet need N (%)	No need N (%)			
Age	<52yrs	127(27.1)	107(22.9)	1.035(0.72-1.5)	1.14(0.74-1.74)	0.56
	>52yrs	125(26,7)	109(23.3)	1	1	
Marital status	Single	20(4.3)	16(3.4)	0.53(0.183-1.5)	0.53(0.16-1.79)	0.306
	Married	207(44.2)	188(40.2)	0.464(0.2-1.08)	0.42(0.16-1.8)	0.071
	Divorced	6(1.3)	4(0.9)	0.63(0.14-2.86)	0.34(0.07-1.78)	0.202
	Widowed	19(4.1)	8(1.7)		1	
Occupation status	Private	35(7.5)	18(3.8)	2.56(1.19-5.55)	3.81(1.57-9.22)	0.001**
	Labor	105(22.4)	103(22.0)	1.35(0.75-2.42)	1.88(0.9-3.8)	0.094
	Farmer	87(18.6)	62(13.2)	1.85(1.003-3.4)	2.33(1.12-4.57)	0.024*
	Employed	25(5.3)	33(7.1)		1	
Religion	Orthodox	87(18.6)	95(20.3)	0.25(0.07-0.93)	0.32(0.07-1.38)	0.126
	Protestant	129(27.6)	103(22.0)	0.34(0.093)	0.46(0.10-1.99)	0.299
	Muslim	25(5.3)	15(3.2)	0.455(0.10-1.9)	0.09-2.08)	0.291
	Others	11(2.4)	3(0.6)		1	
Education level	Lower	167(35.7)	154(32.9)	1.8(0.77-4.25)	1.82(0.72-4.6)	0.25
	Diploma and above	76(16.2)	40(10.0)	3.16(1.09-6.65)	3.37(1.23-9.22)	0.018*
	No formal	9(1.9)	15(3.2)		1	
Residency	Rural	212(45.3)	157(33.5)	1.99(1.27-3.13)	1.51(0.9-2.97)	0.117
	Urban	40(8.5)	59(12.6)		1	
Time since diagnosed	≤2 years	270(57.7)	82(17.5)	1.73(1.26-2.15)	1.61(1.003-2.6)	0.049*
	>2 years	76(16.2)	40(8.5)		1	

Remission	No	201(42.9)	152(32.5)	1.66(1.09-2.54)	1.16(0.70-1.91)	0.553
	Yes	51(10.9)	64(13.7)		1	
Other illness rather than cancer	No	181(38.7)	138(29.5)	1.44(0.98-2.13)	0.95(0.59-1.54)	0.538
	Yes	71(15.2)	78 (16.7)		1	
Fear of recurrence	No	196(41.9)	121(25.9)	2.75(1.84-4.10)	2.05(1.32-3.18)	0.001**
	Yes	56 (12.0)	95(20.3)		1	
Information on diagnosis	No	83(17.7)	51(10.9)	1.59(1.06-2.39)	0.68(0.28-1.66)	0.395
	Yes	169(36.1)	165(35.3)		1	
Information of spread	No	84(17.9)	47(10.0)	1.8(1.19-2.73)	1.05(0.37-2.930	0.932
	Yes	168(35.9)	169(36.1)		1	
Information on causes of disease	No	158(33.8)	82(17.5)	2.75(1.9-3.99)	1.98(1.3-3.02)	0.02*
	Yes	94(20.1)	134(28.6)		1	
Information on medical tests you have under gone	No	197(42.1)	122(26.1)	2.76(1.85-4.13)	1.37(0.57-3.28)	0.482
	yes	55(11.8)	94(20.1)			
Information on medical procedure	No	217(46.4)	134(28.6)	3.8(2.42-5.95)	1.45(0.52-4.08)	0.457
	yes	35(7.5)	82(17.5)		1	
Information on treatment modality	No	218(46.6)	134(28.6)	3.92(2.5-6.2)	2.89(1.73-4.84)	<0.001**
	yes	34(7.3)	82(17.5)		1	
Information on sequence	No	215(45.9)	134(28.6)	3.56(2.78-5.54)	1.31(0.37-4.53)	0.678
	Yes	37(7.9)	82(17.5)		1	
Information on duration of treatment	No	210(44.9)	129(19.0)	3.37(2.19-5.2)	0.97(0.23-4.03)	0.965
	Yes	42(9.0)	87(18.6)		1	
Information of diagnosis heard from	profession	47(10.0)	87(18.6)	0.34(0.22-0.51)	0.6(0.24-4.54)	0.294
	family	205(43.8)	129(27.6)		1	

*=Significant variables at a p value less than 0.05

**=Highly significant variables at a p value less than 0.05

5.6. Result for qualitative part

The study included 10 In-depth interviews. Among the participants, 50% were females. The average age was 53 years (±6.12 SD), ranging from 45 to 62 years. The majority 78.8% resided in rural areas (**Table 2**).

Table 7 Socio-demographic characteristic of participants interviewed on unmet supportive care needs among cancer patients

Participants	Age	sex	Residence	Education level	Reason for selection
IDI 1	45	F	Urban	First degree	Experienced emotional distress
IDI 2	45	M	Rural	High school completed	Looking for information on drug side effects
IDI 3	48	F	Rural	First degree	Reported unmet support need
IDI 4	52	M	Urban	First degree	Interested in discussing his experience on the diseases
IDI 5	54	F	Rural	Elementary school completed	Seeking social support
IDI 6	62	F	Rural	No formal education	Feel under support
IDI 7	58	M	Urban	No formal education	Actively seeking support
IDI 8	56	F	Rural	Elementary school completed	Need for information on side effects and care options.
IDI 9	51	M	Urban	High school completed	Interested in discussing his experience on the diseases
IDI 10	60	M	Rural	No formal education	Looking for information on drug side effects

Table 8 Thematic analysis of unmet need for supportive care among cancer patients at Nekemte town public Hospitals

Theme	Sub theme	Code
Physical and practical support gap	Basic daily needs	Assistance with activities of daily living
	Access to treatment	Availability of pain management
		Rehabilitation services
lack of emotional and psychological support	Needs for emotional validation	Feeling of isolation
		Anxiety
	Limited access to counseling	Poor mental health services
		Lack of peer support groups
Unmet informational need	Clarity on treatment options	Uncertainty about diagnosis
		Lack of side effect information
	Communication gaps	Fear of burdening staff
		Misinformation

5.6.1 Physical and practical support gaps

Key problem: Lack of support on daily living and pain management

The participants in the interviews express a profound lack of support in daily living and pain management as they navigate their cancer journeys.

IDI 1 (Female, age 45years, Breast Ca) “I struggle with daily tasks like, cooking, and often lack the support I need. While my family tries to help, they have their own lives, and unavailable when I need support. It's not just about medical care; I need physical support to live with dignity.”

IDI 5 (Female, Age 54years, Colorectal Ca) “Some days, the pain is so intense that it affects every aspect of my life-from my ability to work and socialize to even simple daily tasks. This overwhelming discomfort can be isolating, as it often feels like no one can truly understand or alleviate my suffering. “

IDI 7 (Male, Age 58years, Gastric Ca) “Due to my illness and the side effects of chemotherapy, I'm unable to do the things I once enjoyed. Activities that used to bring me joy, like going for walks or spending time with friends, now feel out of reach. The fatigue and other side effects leave me feeling limited and frustrated, making it hard to engage in life the way I used to. It's a constant reminder of how much has changed and the challenges I face each day.”

IDI 10 (Male, 60years, Liver carcinoma) “I often feel unwell after receiving my medication due to the side effects that come with it. During these times, I seek support to help me cope with the challenges, as having a strong support system is crucial for getting through this difficult journey."

5.6.2 Emotional and psychological support

Key problem: Lack of psychological and emotional support

The interviews reveal a significant lack of psychological and emotional support for cancer patients, highlighting their struggles with fear, uncertainty, and depression.

IDI 2 (Male, Age 45 years, Esophageal Ca**) “**My journey is filled with uncertainty and fear, and emotional challenges often go unaddressed. Most of the time, I struggle with depression, feeling of sadness and feelings of isolation after treatment”

IDI 4 (Male, Age 52, Prostate Ca)”I'm struggling with feelings of hopelessness regarding my survival because I've been informed that my disease has spread throughout my body. This information brings a

profound sense of fear and uncertainty, making it difficult to feel a positive outcome. The knowledge that my condition is more advanced than I initially thought weighs heavily on my mind”

IDI 3(Female, Age 48 years, Cervical Ca)” "I'm uncertain about how long I have to live, and I find myself praying to God every day. It's the only thing I feel I can do right now. Aside from that, I'm not sure what else I can pursue."

5.6.3 Unmet information need

Key problem: Lack of adequate information

The interviews highlight a critical lack of adequate information for cancer patients, emphasizing their frustrations with communication from healthcare providers.

IDI 8 (Female Age 56years, Breast Ca**)”** Doctors are often too busy to communicate with us fully, due to the high number of patients they have. As a result, they can only share the most crucial information, such as the details of our next appointment."

IDI 9(Male, Age 51 years, Colonic Ca**)** “I have no information about the duration of my treatment or the cause of my disease. Whenever I try to ask for more details, the nurses and doctors seem unwilling to respond. They are always busy, and all they do is provide me with medication and send me home. Even I heard my disease from my family after surgery”

IDI 6(Female, Age 62 years, lung Ca **)** I haven't received detailed information about the potential long-term physical and emotional effects of my treatment. Additionally, I don't know which laboratory tests were conducted to identify my disease."

6. DISCUSSION

This study identified critical gaps in supportive cancer care among patients at Nekemte Town Public Hospitals, with 53.8% (53.8%, 95% CI: 49.3%-58.3%) reporting unmet needs. The findings highlight significant shortcomings in key areas such as physical symptom management (e.g., pain, fatigue), psychological support (e.g., counseling for anxiety/depression), and patient care services (e.g., palliative care access). These results align closely with a similar study conducted in Singapore, where 52% of long-term colorectal cancer survivors reported experiencing at least one unmet supportive care need after curative treatment (26).

Additionally, the result seem to agree with study conducted in South Korea, the domains with the highest levels of moderate to strong unmet needs were, comprehensive cancer care (51.2%), and information (49.7%)(27) The consistency between these findings, despite differences in healthcare systems—suggests common underlying challenges in cancer care globally.

This study also identified overall health system and psychological need domain as the two most significant predictors of unmet supportive care needs among cancer patients. This finding is comparable with study conducted in Nigeria which reflects approximately half of participants reported unmet needs across 15 items of the SCNS-34, particularly in the health system and psychological domains (31).

The similarity between this study's findings and those from Nigeria—where health system and psychological needs emerged as the strongest predictors of unmet supportive care in cancer patients—likely arises from common underlying factors. Both settings may struggle with resource limitations, inefficient care coordination, or poor service accessibility, leading to significant unmet needs in the health system domain.

Additionally, it is consistent with findings from Ethiopia where systemic inefficiencies and mental health service shortages are prevalent(40). This could be due to Weak health infrastructure and shared measurement tools. In contrast, a research from Australia highlights Unmet Needs (CaSUN), ranging from 9.7% for individuals ever diagnosed with prostate cancer to 37.8% for individuals ever diagnosed with breast cancer. This disparity suggests divergent priorities in supportive care across health care systems (6).

Findings indicate a comprehensive break down in information provision, with a significant majority of patients (72-75%) reporting a lack of essential details on treatment and diagnostics. Specifically, Patients were consistently uninformed about treatment benefits, modalities, side effects, duration and the medical tests and procedures pointing to a critical systemic gap in patient education. These communication deficiencies show a strong association with unmet health system needs (61.3%), aligning with evidence linking poor health literacy and provider-patient communication to suboptimal care.

The findings align with study conducted by Berkman et al. demonstrating that inadequate health information delivery exacerbates healthcare disparities and compromises patient outcomes, reinforcing the critical role of effective provider-patient communication in care quality(41).

The current study identified factors associated with unmet need among study participants. Socio-demographic variables like educational level of participants and occupational background; The study participants those with educational level of diploma and above had more than three times higher odds of (AOR=3.37, 95% CI: 1.23-9.2) unmet need compared to those with no formal education this finding is supported by research finding from literatures (1,2) this revealed those educated individuals may have greater awareness on standard of care which may increase their perception of unmet need.

Participants those working at private had nearly to four times higher odds of (AOR=3.81, 95% CI: 1.57-9.24, P=0.003) unmet need and those working as farmers had more than two times higher odds of (AOR=2.33, 95% CI: 1.12-4.87, P=0.024) unmet need when compared to those employed.

Additionally, those participants not received information on possible cause of the current disease on follow up had two times higher odds of (AOR=1.98, 95% CI: 1.3-3.02, P=0.002) unmet need compared to those received information. Finally, those study participants not received information on possible modality of the treatment for the current disease on follow up had nearly three times higher odds of (AOR=2.89, 95% CI:1.73-4.84,P=<0.001) unmet need compared to those received information The finding align with study conducted in Nigeria (31).

To further understand the unmet needs for supportive care among cancer patients, a thematic analysis was conducted, revealing key themes related to physical, emotional, and informational support. Each highlighting, significant areas where patients feel unsupported.

. The interviews reveal a significant lack of psychological and emotional support for cancer patients, highlighting their struggles with fear, uncertainty, and depression. These findings align with study conducted in Australia (3). The consistency of these findings, even with variations in healthcare systems, indicates that there are shared challenges in cancer care worldwide.

7. CONCLUSIONS AND RECOMMENDATION

7.1 Conclusion

This study underscores a critical prevalence of unmet needs for supportive care (53.8%) among cancer patients at Nekemte Town Public Hospitals. Psychological needs (72.2%) and physical need (62.8%) emerging as the strongest predictors. It is the same with findings from Nigeria, where resource constraints and mental health service gaps similarly dominate. While consistent with global patterns in cancer care (e.g., Japan's 76.7% unmet needs), disparities persist in domain prioritization (e.g., South Korea's focus on information needs vs. this study's physical/psychological emphasis). The strong link between information gaps (51–75% uninformed on key care aspects) and unmet needs (AOR=3.8) aligns with health literacy literature but contrasts with high-resource settings (e.g., Calvo-Schimmel et al.), highlighting how structural disparities amplify vulnerabilities. These findings collectively call for context-specific interventions addressing systemic inefficiencies, mental health support, and patient-provider communication tailored to resource-limited realities.

7.2 Recommendation

To tackle the significant unmet needs for supportive care among cancer patients, several key interventions should be prioritized:

For health institutions

- **Health Systems Strengthening**
  - ✓ Workforce Expansion: Increase the number of healthcare professionals.
  - ✓ Scaling Up Services: Enhance the availability of mental health support for patients.
  - ✓ Structured Education: Improve communication through organized educational initiatives about diagnosis, treatment, and procedures.
  - ✓ Task-Shifting: Utilize community health workers to extend care.
  - ✓ Digital Tools: Implement low-cost digital solutions for patient education.

- **For researcher**

❖ Ensure a more diverse participant pool by including various demographics and settings to enhance generalizability.

Strength

The study design was mixed method and combining quantitative and qualitative approaches allows for a more holistic understanding of cancer patients' supportive care needs, capturing both statistical trends and personal experiences.

Limitations

Cross sectional studies assess association at a single point in time, making it difficult to determine cause and-effect relationship.

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Annex: Participant Information sheet

Greeting:

My name is …… I'm here to collect data regarding Study being conducted in Wollega University, institute of health science and school of public health for the requirement of masters of public health by Abdeta Dalasa .On the title, unmet supportive care need and associated factors among cancer patients receiving chemotherapy at public hospitals in Nekemte town, western Ethiopia, oromia, Nekemte, 2025. Your participation in this research is completely voluntary. It's entirely your choice whether to take part or not. Regardless of your choice, you will continue to receive all the services available to you as a member of this community, and nothing will change. Any information you provide will be kept confidential and only accessible to the researcher. While your participation may not offer your personal benefits, it could help improve services for all. There are no known risks or side effects associated with this type of research, and it will only take about 10 minutes of your time. You have received all the necessary information regarding this research project. I believe you understand the details clearly. As mentioned, the survey is risk-free, confidential, and brief. Thank you for your attention and cooperation! Are you willing to participate? Yes / No (if no, we will stop the interview)

Contact information: Abdeta Dalasa Chalchisa phone number +251911594627/0910133854

Email: **abdetadelasa097@gmail.com**

Data Collector's Name: _____

Signature: _____

Supervisor's Name: _____

Signature: _____

Annex **II** : **Informed voluntary written consent form**

I have read the participant information sheet. I have clearly understood purpose of the research, the procedure, the risk, and benefit, issues of confidentiality, the right of participating and the contact address of any queries. I have been given the opportunity to ask question for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declared my voluntary consent to participate in this study with my signature.

Participant signature _____Participant code_____

Name of data collector _____ Date _____Sign_____

Name of supervisor _____ Date _____Sign_____

QUESTIONNAIRE

CODE NUMBER_____ **DATE_____**

PART I socio-demographic characteristic

Question number	Questions	Response
101	**Age**	_____
102	Sex	1.Male 2.Female
103	Marital status	1.Single 2.Married 3.Divorced/Separated 4.Widowed
104	Educational level	1.Unable to read and write 2.Primary school completed 3.Secondary school completed 4.Certificate /Diploma 5.First degree and above
105	Occupation	1.Employed 2.Paid work 3. Jobless 4.Retired
106	Income	_____
107	Resident	1.Urban 2.Rural

PART II CINICAL CHARACTERSITICS

Question number	Questions	Response
201	Primary cancer site	1.Breast 2.Colon and rectum 3.Prostate 4.Lung 5.Skin/melanoma 6.Cervical 7.Oesophagial 8.other
202	Time since diagnosis	_____
203	Remission	1.Yes 2.NO
204	Another illness other than cancer	1.Yes 2.No
205	Stage of cancer at time of diagnosis	1. I 2.II 3.III 4.IV 5.Unknown
206	Fear of recurrence	1.Yes 2.No

PART III INFORMATION STATUS ABOUT PATIENT DIAGNOSIS

Question number	Questions	Coding categories	Skip
During your current disease or treatment , have you received information on,			
301.	The diagnosis of your disease?	1.yes 2.No	
302.	The extent (spread) of your disease?	1.Yes 2.No	
303.	The possible causes of your disease?	1.Yes 2.No	
304.	The purposes of any medical tests you have had or may undergo?	1.Yes 2.No	
305.	The procedures of medical tests?	1.Yes 2.No	
306.	The medical treatment (Chemotherapy, surgical treatment, or other) treatment modality?	1Yes 2. No	
307.	The sequence of the medical treatment?	1.Yes 2.No	
308.	The expected benefit of the treatment	1.Yes 2.No	
309.	The possible side effects of your treatment?	1.Yes 2.No	
400.	About the duration of your treatment?	1.Yes 2.No	
401.	From whom did you hear about your diagnosis? Record all mentioned	1.Health professional 2.From family member 3. Other pts. 4.Other	

PART IV SUPPORTIVE CARE NEED TOOL

INSTRUCTIONS: This section of questionnaire will assess supportive care needs, please

Physical need domain (5)		Coding categories				
		No need		Unmet need		
S/N		Not applicable	Satisfied	Low need	Moderate need	High need
501	Pain	1	2	3	4	5
502	Lack of energy/ Tiredness	1	2	3	4	5
503	Feeling unwell most of the time	1	2	3	4	5
504	Work around the home	1	2	3	4	5
505	Not being able to do the things you used to do	1	2	3	4	5

Circle the numbers or record on the space provided under the coding categories.

Psychological need domain (10)		Coding categories				
		No need		Unmet need		
Lakk.		Not applicable	Satisfied	Low need	Moderate need	High need
601	Anxiety	1	2	3	4	5
602	Feeling down or depression	1	2	3	4	5
603	Feeling of sadness	1	2	3	4	5
604	Fear about the cancer spreading	1	2	3	4	5
605	Worry that the results of treatment are beyond your control	1	2	3	4	5
606	Uncertainty about the future	1	2	3	4	5
607	Learning to feel in control of your situation	1	2	3	4	5
608	Keeping a positive outlook	1	2	3	4	5
609	Feeling about death and dying	1	2	3	4	5
610	Concern about the worries of those to you	1	2	3	4	5
Patient care/supportive need (3 items)		No need		Unmet need		
		Not applicable	Satisfied	Low need	Moderate need	High need
701	Reassurance by medical staff the way you feel is normal	1	2	3	4	5
702	Hospital staff attending promptly to your physical need	1	2	3	4	5
703	Hospital staff acknowledging and showing sensitivity to your feeling and emotional needs	1	2	3	4	5

Health system/information (4 items)		Coding categories				
		No need		Unmet need		
SN		Not applicable	Satisfied	Low need	Moderate need	High need
801	To be given explanations of those tests for which you would like explanations	1	2	3	4	5
802	To be adequately informed about the benefits and side effects of treatments before you choose to have them	1	2	3	4	5
803	To be informed about your test results as soon as possible	1	2	3	4	5
804	To be informed about cancer that is under control or diminishing (that is, remission)	1	2	3	4	5
Sexual domain (3 item)		No need		Unmet need		
		Not applicable	Satisfied	Low need	Moderate need	High need
901	Change in sexual relationships	1	2	3	4	5
902	Change in sexual feeling	1	2	3	4	5
903	To be given information about Sexual relationships	1	2	3	4	5

Tool for measuring anxiety (GAD 7) self-reported questionnaire with 7 items.

S/n	Symptoms	Scoring			
Over the last 2 weeks, how often have you been bothered by the following problems?		Not at all	Several days	More than half the days	Nearly every days
		0	1	2	3
1.	Feeling nervous, anxious, or on edge.	0	1	2	3
2.	Not being able to stop or control worrying	0	1	2	3
3.	Worrying too much about different things	0	1	2	3
4.	Trouble relaxing	0	1	2	3
5.	Being so restless that it's hard to sit still	0	1	2	3
6.	Becoming easily annoyed or irritable.	0	1	2	3
7.	Feeling afraid as if something awful might happen.	0	1	2	3

Tool for measuring depression (PHQ 9) self-reported questionnaire with 9 items.

S/n	Symptoms	Scoring			
Over the last 2 weeks, how often have you been bothered by the following problems?		Not at all	Several days	More than half the days	Nearly every days
		0	1	2	3
1.	Little interest or pleasure in doing things	0	1	2	3
2.	Feeling down, depressed or hopeless	0	1	2	3
3.	Trouble falling or staying a sleep, or sleeping too much	0	1	2	3
4.	Feeling tired or having little energy	0	1	2	3
5.	Poor appetite or over eating	0	1	2	3
6.	Feeling bad about your self - or that you are a failure or have let yourself or your family down	0	1	2	3
7.	Trouble concentrating on things, such as reading the newspaper or watching TV.	0	1	2	3
8.	Moving or speaking so slowly that other people could have noticed? or the opposite -being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9.	Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

Dabalata I: Waraqaa Odeeffannoo Hirmaattotaa

Nagaan isiniif haata’u!

Maqaan koo _____jedhama. Barataa digirii 2ffaa gosa barnootaa saayinsii fayyaa hawaasaa Universitii wallagggaati . Mata duree **‘’Unmet need for supportive care and associated factors among cancer patients receiving chemotherapy’’** jedhu irratti Qorannoo geggeesssaan jira. Qorannoo kana keessatti hirmaannaan keessan guutummaatti fedhii iratti kan hundaa’edha. Filannoon keessan maal iyyuu yoo ta’e, akka miseensa hawaasa kanaatti tajaajila isiniif kennamu hunda argachuun keessan itti fufa, wanti jijjiiramus hin jiru. Odeeffannoon isin kennitan kamiyyuu iccitii ta’ee kan eegamu yoo ta’u, qorataa qofaaf kan argamu ta’a. Hirmaannaan keessan faayidaa dhuunfaa keessanii kan hin kennine ta’us, tajaajila hundaa fooyyessuuf gargaaruu danda’a. Qorannoo gosa kanaan walqabatee balaan ykn miidhaa cinaa beekamaan kan hin jirre yoo ta'u, yeroo keessan keessaa gara daqiiqaa 10 qofa fudhata. Pirojektii qorannoo kana ilaalchisee odeeffannoo barbaachisaa ta’e hunda argattaniittu jedheen amana.Xiyyeeffannoo fi tumsa nuuf gootaniif galatoomaa!

Hirmaachuuf fedhii qabduu? Eeyyee / Lakki (yoo lakki ta'e interview ni dhaabna)

Odeeffannoo quunnamtii: Abdeta Dalasa Chalchisa

lakkoofsa bilbilaa +251911594627/0910133854

Imeelii: abdetadelasa097@gmail.com

Maqaa nama ragaa funaanee: _____ .

Mallattoo: _____

Maqaa To’ataa: _____ .

Mallattoo: _____

Dabalata II: Unka hayyama barreeffamaa tola ooltummaa odeeffannoo qabu

Waraqaa odeeffannoo hirmaattotaa dubbiseera. Kaayyoo qorannichaa, hojimaata, miidhaa fi faayidaa, dhimmoota iccitii, mirga hirmaachuu fi teessoo quunnamtii hunda sirriitti hubadheera. Wantoota ifa hin taane gaaffii akkan gaafadhu carraan naaf kennameera. Yeroon barbaadetti qo'annoo keessaa ba'uuf ykn gaaffii ani hin barbaanne kamiyyuu deebisuu dhiisuuf mirga akkan qabu naatti himameera. Kanaaf, qorannoo kana irratti hirmaachuuf fedhii kootiin ta'uu mallattoo kootiin hayyama koo labseera.

Mallattoo hirmaataa _____Koodii hirmaataa_____ .

Maqaa nama odeeffannoo fuannaanuu _____ Guyyaa_____Mallattoo_____

Maqaa supparvaayizaraa _____ Guyyaa _____Mallattoo_____

Af gaaffii Afaan Oromoo

Koodii_____ **Guyyaa _____**

Kutaa I Haalota diimogiraafii fi hawaasummaa

Lakk.	Gaaffii	Deebii
101	**Umurii**	_____
102	Saala	1.Dhi 2.Dha
103	Haala Gaa'ilaa	1.Hin fuune/ hin heerumne 2.Fuudheera/ Heerumeera 3.Wal hiikeera 4.Narraa du'e /duute
104	Sadarkaa barnootaa	1.Barreessuu fi dubbisuu hin danda'u 2.Sadarkaa tokkoffaa xumureera 3.Sadarkaa Lammaffaa xumureera 4.Sartifikeeta/Dippilomaa 5.Digirii jalqabaa
105	Hojii	1.Qacarameera 2.Hojjetaa guyyaa 3.Hojii hin qabu 4.Soorama ba'eera
106	Galii	_____
107	Bakka jireenyaa	1.Magaalaa 2.Baadiyyaa

Kutaa II **Amaloota Dhibeen wal qabatan**

Lakk.gaaffii	Gaaffii	Deebii
201	Dhibeen kun qaama keessan kami irraa eegalee?	1.Harma 2.Maru'maan 3.Pirosteetii 4.Somba 5.Gogaa 6.Caafii/ balbala /gadameessaa 7.Qoonqoo 8.Kan biroo
202	Turtii erga dhibeen kun adda ba'ee?	_____
203	Dhibeen kun irra deebiin mul'atee?	1.Eeyyee 2.Lakki
204	Dhibee kan biro qabduu?	1.Eeyyee 2.Lakki
205	Dhibeen kun yeroo adda ba'etti sadarkaan irra ture maali?	1.I 2.II 3.III 4.IV 5.Hin beekamu
206	Sodaa dhibeen kun irra deebiin na mudata jedhu qabduu?	1.Eeyyee 2.Lakki

Kutaa III Haala odeeffannoo waay'ee dhukkubsataa

Lak.gaaffii	Gaaffii	Deebii	
Dhibee keessan ykn haala yaalii isaarratti, odeeffannoo armaan gadii argattaniittuu?			
301.	Adda baasii ykn maalummaa dhibichaa dhageessaniittuu?	1.Eeyyee 2.Lakki	
302.	Haalli faca'insa qaama keessaa dhibichaa isinitti himameeraa?	1.Eeyyee 2.Lakki	
303.	Sababa ka'umsa dhibichaa dhageessaniittuu?	1.Eeyyee 2.Lakki	
304.	Faayidaa qorannoo laaboraatoorii geggeefame ykn geggeeffamuuf jiruu isinitti himameeraa?	1.Eeyyee 2.Lakki	
305.	Akkaataa qorannoon dhibee kanaa laboraatoorii itti hojjetamu isinitti himameeraa?	1.Eeeyyee 2.Lakki	
306.	Gosa yaalii dhibee kanaaf jiru isinitti himameeraa ?	1.Eeyyee 2.Lakki	
307.	Toora yaaliin dhibee kanaaf itti taasifamu isnitti himameeraa?	1.Eeyyee 2.Lakki	
308.	Bu'aan yaalii eegamu maal akka ta'uu malu isinitti himaniiruu?	1.Eeyyee 2.Lakki	
309.	Miidhaa cinaa sababa yaalii dhibee kanaatiin dhufuu malu isinitti himameeraa?	1.Eeyyee 2.Lakki	
401.	Yeroon turtii yaalii dhibee kanaa isinitti himameera?	1.Eeyyee 2.Lakki	
402.	Waayee dhibee keessanii eenyurraa dhageessan? Kan deebisan hunda galeessi	1.Ogeessa fayyaa 2.Maatii 3. Dhukkubsataa biro irraa	

Kutaa IV Sakatta'iinsa Fedhii yaalii deggersaa

Ajaja: Gaaffileen kutaa kana keessaa fedhii yaalii deggersaa qoratu, filannoo jiru keessaa deebii keessan itti maraa ykn bakka duwwaa jiru irratti guutuun deebisaa.

Doomeenii deggersa qaama fiizikaalaa (5)		**Ramaddii koodii**				
		Fedhiin hin jiru		**Fedhii hin guunne**		
Lakk.		**Nan hin ilaallatu**	**Fedhiin koo guuteera**	**Fedhii xiqqoon qaba**	**Fedhii giddu galeessa qaba**	**Fedhii guddaa qaba**
501	Miira dhukkubbii	1	2	3	4	5
502	Humna dhabuu/Dadhabbii	1	2	3	4	5
503	Yeroo heedduu nagaa dhabuu	1	2	3	4	5
504	Naannoo mana ofiitti hojjetachuu	1	2	3	4	5
505	Wantoota duraan hojjechaa turan hojjechuu dadhabuu	1	2	3	4	5

Doomeenii deggersa fedhii xinsammuu (10)		**Ramaddii koodii**				
		Fedhiin hin jiru		**Fedhii hin guunne**		
Lakk.		**Nan hin ilaallatu**	**Fedhiin koo guuteera**	**Fedhii xiqqoon qaba**	**Fedhii giddu galeessa qaba**	**Fedhii guddaa qaba**
601	Yaaddoo	1	2	3	4	5
602	Miira gadi bu'aa ykn dhiphina sammuu	1	2	3	4	5
603	Miira gaddaa	1	2	3	4	5
604	Sodaa kaanseriin kun babal'achuu iasstii	1	2	3	4	5
605	Bu'aan wal'aansaa to'annoo keessanii ol ta'uusaa yaadda'uu	1	2	3	4	5
606	Waa'ee egeree ofii mirkanaa'aa ta'uu dhabuu	1	2	3	4	5
607	Haala kee toa'achuu akka qabdu sitti dhaga'amuu barachuu	1	2	3	4	5
608	Ilaalcha gaarii qabaachuu	1	2	3	4	5
609	Waa'een du'aa namatti dhaga'amuu	1	2	3	4	5
610	Warra waa'eekee yaadda'aniif yaadda'uu	1	2	3	4	5
Doomeenii fedhii deggersa kunuunsa dhukkubsataa **(3 items)**		**Fedhiin hin jiru**		**Fedhii hin guunne**		
		Nan hin ilaallatu	Fedhiin koo guuteera	Fedhii xiqqoon qaba	Fedhii giddu galeessa qaba	Fedhii guddaa qaba
701	Hojjetoonni fayyaa wanti sittidhaga'amu waanuma jiru ta'uu sii mirkaneessuun si jajjabeessuu	1	2	3	4	5
702	Hojjetoonni Hospitaalaa fedhii keessniif dafanii qaqqabuu	1	2	3	4	5
703	Hojjetoonni Hospitaalaa miiraa fi fedhii keessaniif beekamtii kennuun isin deggeruuf miira gaarii qabaachuu	1	2	3	4	5

Doomeenii Sirna /Odeeffannoo fayyaa (4 items)		Ramaddii koodii				
		Fedhiin hin jiru		Fedhii hin guunne		
Lakk.		**Nan hin ilaallatu**	**Fedhiin koo guuteera**	**Fedhii xiqqoon qaba**	**Fedhii giddu galeessa qaba**	**Fedhii guddaa qaba**
801	Qorannoo taasifamurratti ibsa dabalataa barbaaddaniif ibsi kennamuu	1	2	3	4	5
802	Wal'aansa filachuu dura wa'ee midhaa fi bu'aa wal'aansichaa dhufuu odeeffannoo ga'aa argachuu	1	2	3	4	5
803	Waa'ee bu'aa qorannoo keessanii dafee isin beeksisuu	1	2	3	4	5
804	Waa'ee kaanserii to'annaa jala jiruu ykn hir'achaa jiraachuu isaa isin beeksisuu	1	2	3	4	5
Doomeenii saal quunnamtii(3 item)		**Fedhiin hin jiru**		**Fedhii hin guunne**		
		Nan hin ilaallatu	Fedhiin koo guuteera	Fedhii xiqqoon qaba	Fedhii giddu galeessa qaba	Fedhii guddaa qaba
901	Jijjirama Hariiroo saalaa	1	2	3	4	5
902	Jijjirama miira saal quunnamtii	1	2	3	4	5
903	Waa'ee hariiroo saalquunnamtii odeeffannoo argachuu	1	2	3	4	5

For qualitative part

In-Depth Interview Questionnaire

Section 1: Demographic Information

1. Age:
2. Sex
3. Address:
4. Marital status
5. Diagnosis:
6. Stage of Cancer:
7. Duration of Treatment:
8. Type of Treatment Received: (e.g., chemotherapy, radiation, surgery)
9. Occupation:
10. Education Level:

Section 2: Supportive Care Needs

11. What types of supportive care have you received during your treatment? (e.g., emotional, physical, spiritual, informational)

12. How satisfied are you with the supportive care you have received? (Scale of 1-5, with 1 being very dissatisfied and 5 being very satisfied)

13. What supportive care needs do you feel are unmet? (Please specify)

Section 3: Emotional and Psychological Support

12. How has your emotional well-being been during your treatment?
13. Have you sought any psychological support (counseling, support groups)? If yes, how helpful was it?
14. What barriers have you faced in accessing emotional or psychological support?

Section 4: Physical and Practical Support

15. What physical challenges have you encountered during your treatment?
16. Have you received help with daily activities (e.g., transportation, household tasks)? If no, what has prevented this?
17. Are there any resources or services that would have helped you?

Section 5: Informational Needs

18. Do you feel you have received enough information about your condition and treatment options?
19. What additional information do you wish you had?

Section 6: Social Support

20. How has your support system (family, friends, and community) impacted your care?
21. Have you felt isolated during your treatment? If yes, can you explain?

Section 7: Closing Thoughts

22. What recommendations do you have for improving supportive care services for cancer patients?
23. Is there anything else you would like to share about your experience?