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Knowledge and Attitude of Patients on Chemotherapy and Associated Factors in Oncology Center of Amhara Regional State, North West Ethiopia, 2023.

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BAHIRDAR UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

SCHOOL OF HEALTH SCINCES

DEPARTMENT OF ADULT HEALTH NURSING

KNOWLEDGE AND ATTITUDE OF PATIENTS ON CHEMOTHERAPY AND ASSOCIATED FACTORS IN ONCOLOGY CENTER OF AMHARA REGIONAL STATE, NORTH WEST ETHIOPIA, 2023.

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THESISPAPER SUBMITTED TO BAHIRDAR UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCES SCHOOL OF HEALTH SCINCES, DEPARTMENT OF ADULT HEALTH NURSING IN PARTIAL FULFILMENT OF THE REQUIREMENT OF THE DEGREE OF MASTER OF SCIENCES IN ADULT HEALTH NURSING

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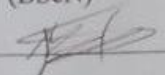
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This is to certify that the thesis entitled "assessment of knowledge and attitude of patients on chemotherapy and associated factors in oncologic centers in Amhara regional state, North West Ethiopia, 2023" in partial fulfillment of the requirements for the degree of masters of science in adult health nursing, department of adult health nursing, Bahir Dar University, is prepared solely by myself and it has not been submitted, in whole or in part, in any previous application for a master's degree. Except where states (BDU) otherwise by reference or acknowledgment, the work presented is entirely my own.

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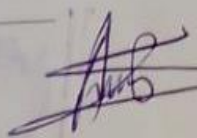## School of Health Sciences

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ACRONYMES

AOR………………………….............. Adjusted Odd Ratio

CI…………………………............. Confidence Interval

COR………………………........... Crude Odds Ratio

DCSH…………………….......... Dessie Comprehensive Specialized Hospital

ETB…………………….......... Ethiopian Birr

FHCSH…………………….......... Felege Hiwot Comprehensive Specialized Hospital

LMIC……………………........... Low- and Middle-Income Countries

OR.. Odds Ratio

SPSS…………………………........ Statistical Package for Social Science

TACM…………………….......... Traditional and Complementary Medicine

TGSH…………………….......... Tibebe Ghion Specialized Hospital

UoGCSH... University of Gondar Comprehensive Specialized Hospital

VIF……………………............... Variance Inflation Factor

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ABSTRACT

Background: Chemotherapy knowledge is a term that generally describes the information patients receive about treatment goals, duration, possible side effects and lifestyle adjustments. Knowledge and attitude towards cancer treatment have been found to significantly impact help seeking in patients' adherence to treatment.

Objective: To assess knowledge and attitude of patients on chemotherapy and associated factors at oncology center of Amhara Regional State, North West Ethiopia, 2023.

Methods: An institution-based cross-sectional study design was conducted on 423 systematically selected cancer patients who receive chemotherapy by using structured interviewer administered questionnaires and chart reviews. Data was entered into Epi-data version 4.6 Software and exported to statistical package for social science version 26 for analysis. Bivariable and multivariable analysis using a logistic regression model were used to determine the association between predictor variables and the dependent variable. Model of fitness was checked by using Hosmer and Lemeshow test. Variables those have a p-value of <0.25 in Bivariable logistic regression were entered in to multivariable logistic regression's-values<0.05 were considered significantly associated to outcome variables.

Results; the totals of 405 Participants were participated in study. About 46.2%, 51.4% participants had good knowledge and favorable attitude towards chemotherapy respectively. For knowledge uneducated (AOR=0.5,95%CI:0.31,0.83), stage-II cancer (AOR=0.53,95%CI:0.31,0.89),stage-III(AOR=0.39,95%CI:0.21,0.70)and age36-55(AOR=1.81,95%CI:1.13,2.91).for attitude, uneducated(AOR=0.57,95%CI:0.37,0.87) ,family history of cancer(AOR=2.1,95%CI:1.87,3.68)and community health insurance have 2.5(AOR=2.5: 95%CI: 1.474-4.083) were significantly associated .

Conclusions and Recommendations; About less than half of cancer patients had good knowledge and half of participants had favorable attitude about cancer therapy and predictors such as age, education and stage of cancer were found to be significantly associated with good knowledge. Education, member of health insurance, family history of cancer wear significantly associated with favorable attitude. There for expand community health insurance and establish a health information delivery system.

Keyword; chemotherapy, attitude, knowledge, Ethiopia

1. INTRODUCTION

1.1Background

Chemotherapy is a standard modality of cancer treatment that uses chemical agents or drugs to destroy cancer cells in the cell cycles or drugs to inhibit cancerous cells' growth and spread (1).Chemotherapy knowledge is a term that generally describes the information patients receive about treatment goals, duration, possible side effects, and lifestyle adjustments (2).Chemotherapy attitude a psychological trait that involves judging something favorably or unfavorably depends on the individual (3).

Chemotherapy is a vital treatment modality for many cancers, but it is also responsible for multiple negative side effects i.e., pain, sleep disturbances, nausea, vomiting, stress, anxiety and gastrointestinal disorders etc (4).Lack of knowledge on chemotherapy treatment and various methods to manage related adverse effects could increase hospital admissions, increased morbidity ,and decreased quality of life among cancer survivors(5). Chemotherapy drugs are also used as an adjuvant treatment to kill any cancer cells that remain; they may also be used as neo-adjuvant therapy. For cancers of the blood or lymph system, such as leukemia and lymphoma, chemotherapy may be the only treatment given and used to treat recurrent cancer or metastatic cancer (6).

Knowledge and attitude about cancer treatment and likely treatment outcomes is critical to making decisions about adherence to prescribed therapy (7).Knowledge and attitude towards cancer treatment have been found to significantly impact help seeking in patients and adherence to treatment (8, 9). Diverse factors are responsible for such variations, including demographics, access to information, cost and side effect, factors, disease severity, and combinations of these. There are many factors that affect directly or indirectly attitude of patients toward cancer therapy like socio-economic, environmental factor and psychological factors (10).

The provision of health education for patients by aid of materials increases general knowledge and attitude of therapy and uptake of cancer prevention (11).Health care workers play important role for educating patients about side effects of cancer, management of the pain and explaining need of contact with health professional if side effects occurred to increase knowledge and attitude of cancer patients but the knowledge and attitude of cancer patients was still low (12).

1.2 Statement of the Problem

Lack of knowledge and attitude about chemotherapy are risk factors for increasing death of cancer in the world especially in developing countries including Ethiopia (13, 14).Unfavorable attitude toward modern medication was the most problems facing sub-Saharan countries, Patient's belief of attaching disease and its curing method to spiritual tradition and culture and for these reasons, the outcome of cancer treatment programs in these countries was critical (15).

As studies indicated that several factors, such as culture, false beliefs, and taboos, can affect early detection and proper treatment. Failure to identify and react to these domestic factors can mess-up the success of any cancer treatment outcomes, even with tolerable resources. Patients will commonly turn to alternative health care strategies and traditional healers, believing them to have equal or superior ability to address difficult health problems (15). However, the current Ethiopian health care system is a primary health care focused system which improves access to modern medicine more than ever. But both rural and urban populations continue to use traditional medicine. The reason behind this was found to be the cultural acceptability of traditional medicines that affects their attitude toward modern treatment(16).

In many developing countries, particularly in Ethiopia, most patients with cancer, die of the disease being complicated due to by patients' refusal to go to hospitals in early stages and trying to cure cancer through traditional and spiritual ways(15, 17)

As various studies indicated that cancer patients those had poor knowledge and attitude regarding chemotherapy leads to uncertainty, anxiety, social stigma, distress, dissatisfaction and negative influence of patients on treatment decision and default (18-20).

In 2015, Ethiopian government launched national cancer control plan that increase awareness of general population by 50%, reduce the prevalence of tobacco smoking by 30%, overweight and obesity by 5%, insufficient physical activity by 10% and alcohol intake by 5%, but this requires clarification of risk factors (21). Even though in Ethiopia, administration of chemotherapy is under the supervision of health personal, the role of oncologists cannot undermine and yet none of the patients are well informed about chemotherapy (22).As we try to search out there is limited evidences about knowledge

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and attitude towards chemotherapy among patients who are undergoing chemotherapy in Ethiopia, especially Amhara region, therefore the aim of this study is to determine knowledge and attitude of patients on chemotherapy and associated factors in oncologic centers of Amhara regional state,2023.

1.3 Significance of the Study

The finding of study will provide information of knowledge, attitude and associated factors among cancer patients on chemotherapy. The finding of this study will also inform the national & local decision makers and program managers to launch strategies and policies that are used to increase the knowledge and attitude of patients towards benefits of chemotherapy for cancer patients.

The finding of this study will also help Hospital managers and oncology health care providers for planning and improving health service utilization of cancer patients during chemotherapy follow-up. This study may also be a baseline information for those researchers who are interested to do further studies on this area.

2. LITERATURE REVIEW

2.1 Knowledge on Chemotherapy

The study conducted in United Kingdom, revealed that 57.8% of patients knew the accurate timing of oral chemotherapy intake(23) and cross-sectional study done in Abdul-Aziz University Hospital revealed that 8% of patients scored good knowledge regarding chemotherapy (12).

Another study conducted in Ireland of Meath Hospital showed that only 23% of patients receiving chemotherapy have good knowledge regarding the benefits of chemotherapy (24) and similar study done at Hospital Baghdad revealed that participants who have good knowledge regarding chemotherapy were 28.1% (22).

A study conducted in Egypt pointed that about 60% patients receiving chemotherapy has poor knowledge (16) and contrarily the Quasi experimental study done in Egypt revealed that more than two thirds of the study group (70.0%) had good chemotherapy knowledge (25).

The study conducted in Addis Ababa among chemotherapy receiving breast cancer patients showed that, about 46% of patients have good knowledge about chemotherapy (26) and similarly the cross-sectional study done in Tikur Anbessa Specialized Hospital showed 33.3% that the proportion of clients who receive chemotherapy had good knowledge (27).

2.2 Attitude on Chemotherapy

The study conducted in Korea indicated that 56.7% of cancer patients had positive attitude towards chemotherapy(28). Likewise, the study done in Malaysian revealed that 68.5% of the patients with chemotherapy have positive attitude towards chemotherapy (29) and similarly the study done at Hospital Baghdad revealed that 59.4% of participants have positive attitude towards chemotherapy (22).

The study conducted in Tanzania revealed that 92.1% of patients regarding chemotherapy had a positive attitude towards the use of chemotherapy (30). Similarly, the study done in Egypt had showed that about 95% patients receiving chemotherapy has positive attitude (16).

The cross-sectional study done in Tikur Anbessa Specialized Hospital showed that the proportion of participants receiving chemotherapy towards positive attitude was 51.1% (27).

2.3 Factors Associated with Knowledge of Chemotherapy

2.3.1 Socio-demographic factors

As study show in African American women without financial difficulty or having stronger social functioning are significantly associated with good knowledge of their chemotherapy (31) and study done in USA high income were significantly associated with good knowledge of patients who receiving chemotherapy (32).

Across-sectional study show in Tanzania completed secondary or higher education were significantly associated with good knowledge regarding chemotherapy (33) and college and above were significantly associated with good knowledge regarding cancer therapy across-sectional study show in Tikur Anbessa Specialized Hospital (34).

Study show in Nigeria employed patients were significantly associated with good knowledge receiving chemotherapy than unemployed patients (35).

Study conducted in Iran age 50 years or older had significantly associated good knowledge for receiving chemotherapy (36) and similarly study shows in Ethiopia age>45 years significantly associated good knowledge for receiving chemotherapy (26).

Study conducted in USA married women are significantly associated with good knowledge for receiving chemotherapy (32)

2.3.2 Clinical related factors

Study conducted in Australia showed that common chemotherapy related side effects, loss of appetite and small to moderate pain were significantly associated with poor knowledge among chemotherapy users (37). In addition, a study conducted in Iran showed that increases chemotherapy cycle was significantly associated with good knowledge to receiving chemotherapy (38).

2.4 Factors Associated with Attitude of Chemotherapy

2.4.1 Socio-Demographic Factors

Study conducted in Netherland higher educational level were significantly associated with positive attitude receiving chemotherapy (39). Travel more than 250 miles to their

reporting institution are less likely to receive chemotherapy than those who go less distance as study shows in Atlanta (40).

2.4.2 Lifestyle Related Factors

Study done in Germen current drinking and smoking are significantly associated with poor attitude on receiving chemotherapy (41).

2.4.3 Clinical Related Factors

Study done Qaboos university Hospital shows that history of cancer in their family, were significantly associated with positive attitude towards chemotherapy (42) and similarly study done in Tikur Anbessa Specialized Hospital showed that Patient with no family history of chemotherapy were 34.47% less likely to have a positive attitude (27).

2.4.4 Others

As study done in Atlanta indicated that patients who didn't have community health insurance are less likely to receive chemotherapy (40). A study conducted in Korea revealed that patients who are informed from friends and family members had positive attitude on chemotherapy (43).

2.5 Conceptual Frame work

According to different studies conducted show the knowledge and attitude towards patients on chemotherapy were multi-factorial like socio- demographic, lifestyle, clinical related and other factor. This factor may impact the patient's knowledge and attitude. The following conceptual framework is designed to show the link between the outcome variable and the factors associated to it (21, 26, 44-46).

Figure 1.Conceptual framework, to assess Knowledge and attitude of patients for chemotherapy and associated factors in the oncologic center in Amhara Regional State North West Ethiopia, 2023.

3. OBJECTIVES

3.1. General Objective

To assess knowledge and attitude of patients on chemotherapy and associated factors in oncologic centers in Amhara Regional state, North West Ethiopia, 2023.

3.2. Specific Objectives

➢ To determine knowledge of cancer patients on chemotherapy at oncology centers in Amhara Regional state.

➢ To determine the attitude of cancer patients on chemotherapy at oncology centers in Amhara Regional state.

➢ To identify factors associated of knowledge cancer patients on chemotherapy at oncology centers of Amhara Regional state.

➢ To identify factors associated of attitude cancer patients on chemotherapy at oncology centers of Amhara Regional state.

4. METHODS AND MATERIALS

4.1 Study area and Period

The study was conducted in public specialized Hospitals of Amhara regional state from March 19-April 18/2023. Amhara region is located north west of Ethiopia and 565kms far from capital city of Ethiopia. Four specialized Hospitals, such as Felege Hiwot comprehensive specialized Hospital (FHCSH), had total cancer patient of 291, University of Gondar comprehensive specialized Hospital (UoGCSH) had total cancer patients of 380, Dessie comprehensive specialized Hospital (DCSH) had total cancer patient of 379 and Tibebe Gion specialized Hospital (TGSH) had 161 total cancer patients those are received chemotherapy per month in average. FHCSH has 22 beds, UOGCSH has 32 beds, DCSH has 16 beds and TGSH has 8 beds which are used for providing anticancer chemotherapy services. FHCSH and TGSH found in Bahir Dar city, the capital of Amhara regional state and UOGCSH and DCSH, on the other hand are 731 and 401 kilometers from capital city of Ethiopia and 175kms and 420km from capital city Amhara region respectively.

4.2 Study design

Institution-based cross-sectional study was conducted

4.3 Source and study Population

4.3.1 Source population
All adult cancer patients attending at oncology units in Amhara regional state Public Hospitals.

4.3.2 Study population
All adult cancer patients who attained and received chemotherapy at oncology unit, in Amhara Regional state during the study period were included.

4.3.3 Study unit
Each systematically selected adult cancer patient who attained and received chemotherapy at oncology unit, in Amhara Regional state during the study period.

4.4 Eligible Criteria

4.4.1 Inclusion Criteria

All cancer patients aged ≥ 18 years old that receive chemotherapy.

4.4.2 Exclusion Criteria

Cancer patients who became seriously ill during study period were excluded from the study.

4.5 Sample Size Determination

The sample size was determined by using single population proportion formula, considering following assumptions: 50% of on knowledge and attitude of patients towards chemotherapy, because the study was not done previously in this title.

$$n = \frac{(Za/2)2P(1-P)}{d2}$$

- ➢ Zα/2=1.96
- ➢ p=proportion knowledge and attitude patients on chemotherapy =50%
- ➢ (1-p) =0.5%
- ➢ Confidence level=95%
- ➢ Desired precision (d) =5%

Therefore, $n = 3.84 * 0.5 * 0.5 /(0.05)2$ =384 and adding 10% non-response rate the final sample size was423.

4.5.1 Sample size determination by using factors

The sample size was determined by using variables that have associations via Epi info stat Calc Version 7, by assuming one to one allocation ratio of exposed to non-exposed, 95% level of confidence, with a power of 80.

Table 1: Sample size determination for the analytical components of knowledge and attitude towards patients on chemotherapy, 2023

Main factor	Assumptions	Unexposed Outcome(p2) or exposed(p1)	AOR	Calculated sample	With 10% non-response	Total sample	Reference
Age	80% power, 95% CL	P1=46.9% P2=67%	0.521	208	21	229	(26)

From the table the maximum sample size of main significant factors is 229, but a larger sample size was from a single proportion = 423

4.6 Sampling Procedures and Techniques

First, oncology units which are located in the Amhara regional state were identified. According to the unit's cancer registry of patients with cancer and received chemotherapy, in each hospital. FHCSH, UoGCSH, DCSH, and TGSH, treated about 291, 380, 379, and 161 on average every month, respectively. And averagely the overall number of cancer patients who have been followed up on each month at the region's oncology units was 1211.Using a systematic sampling technique, the sampling interval was calculated by dividing the source population by the total sample size (k=N/n =1211/423=2). Based on the monthly attending adult cancer patients at oncology units the Kth value became 2. The first study participant was selected by using lottery method. Finally, the actual study participants were selected with every 2nd cancer patient who came to the oncologic unit for treatment during the data collection period and met the inclusion criteria.
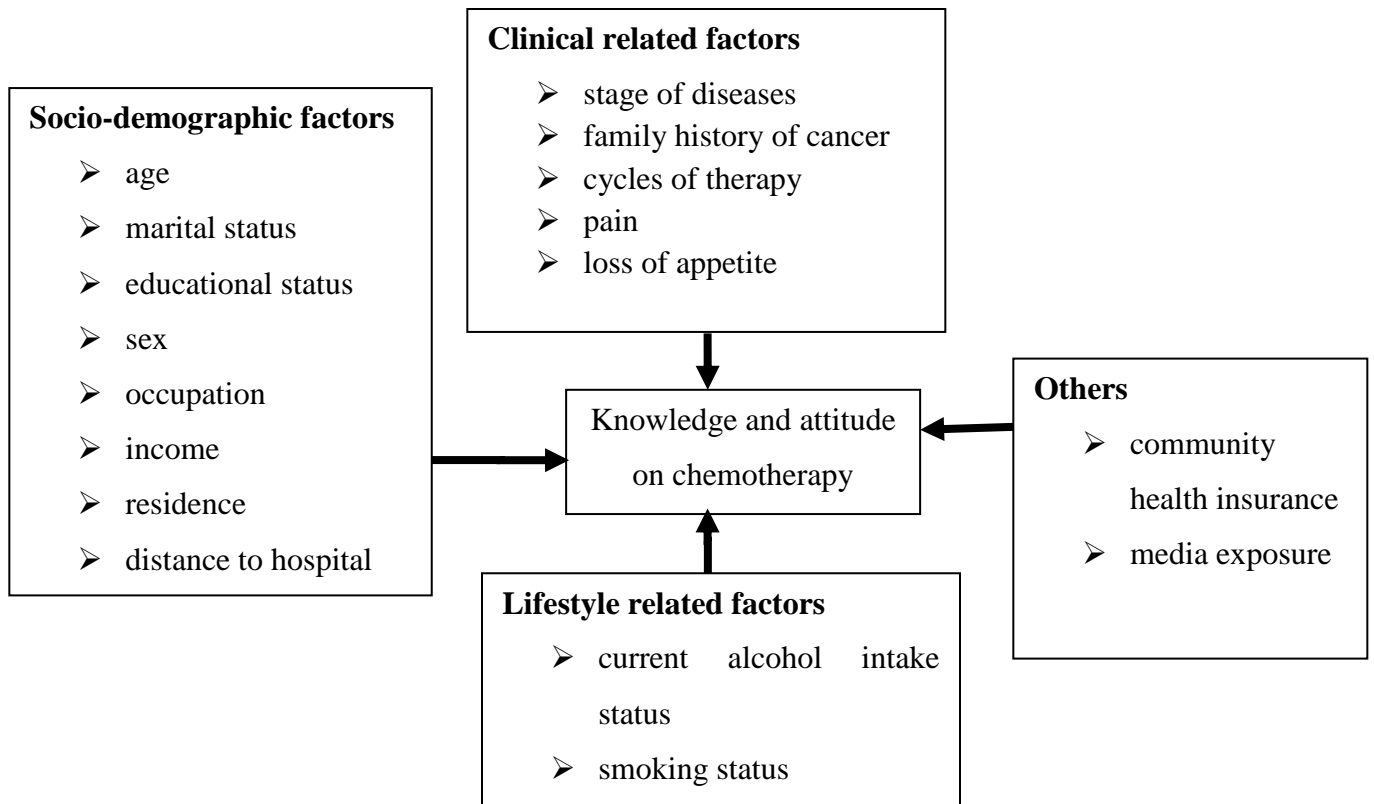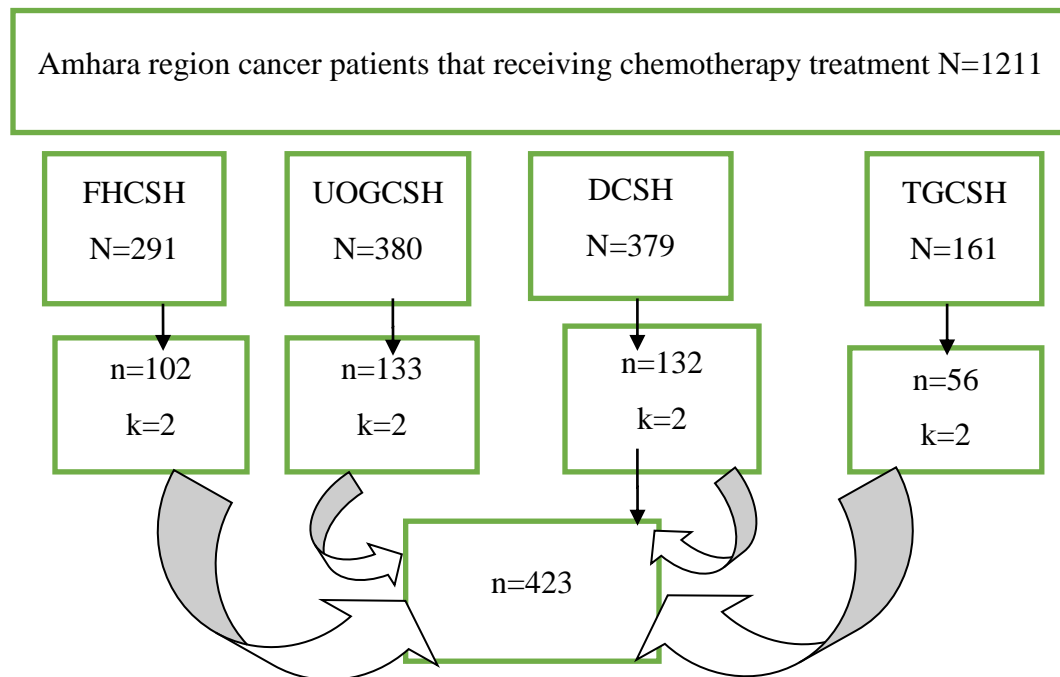

Figure 2; Sampling Procedures: to assess the Knowledge and attitude of patients for chemotherapy and associated factors in the oncologic center in Amhara Regional State North West Ethiopia, 2023.

4.7 Study Variables

4.7.1 Dependent Variable

➢ Knowledge on chemotherapy
➢ Attitude on chemotherapy

4.7.2 Independent Variables

➢ Socio-demographic factors (age, sex, educational status, marital status, residence, occupational status, income status of the patient, distance of Hospital,)
➢ Lifestyle related factor (smoking, alcohol intake)
➢ Clinical related factor (disease's stage, family history of cancer, cycle of therapy, loss of appetite, pain)
➢ Others (mode of information, community health insurance)

4.8 Operational Definitions

Knowledge on chemotherapy: patients who were answered equal or above the mean considered as having good knowledge, while cancer patients who were answer less the mean was considered as poor knowledge(26)

Attitude towards chemotherapy: cancer patients who were answered equal or above the mean was considered as favorable attitude towards chemotherapy, while clients who were answered less than mean was considered as unfavorable attitude(16).

Alcohol intake status: A person consuming more than four drinks on any day or more than fourteen drinks (glasses)per week(47).

Smoker: Regular smoker: an adult who had smoked at least 100 cigarettes in his/her lifetime and who now smokes every day.

Never smoker: an adult who had smoked less than 100 cigarettes in his/her lifetime, or who had never smoked (48).

4.9 Methods of data Collection and Analysis

4.9.1 Data Collection Tools and Procedures

The data collection tool was adapted from previous literature with some modifications (26, 45, 46).The tool contains six components (8 socio-demographic related questions,13 questions from knowledge related,10 attitudes related questions, 5 clinical related question, 2 lifestyle related questions and 2 others components. The questionnaire was designed in English and translated into the local language of Amharic, and then back to English. The data was collected by using interviewer-administered questionnaire on the cancer patients of the participants during attending time of Hospitals. Face-to-face interviews which were lasted for 30 minutes for each patient and chart review was used to complete the questionnaire.

4.9 2 Data Quality Assurance

The pretest was carried out with 5% of the total sample in Tikur Anbessa Specialized Hospital oncologic unit. Based on the pre-test, necessary modification and adjustments were made before were the actual data collection.

The reliability of the tool was assessed using the Cronbach alpha analysis method which was (0.79) for knowledge and attitude (0.782).Four BSc nurse professionals and three health officer supervisor were used to collect the necessary data after giving one day training about the objectives of the study and how to collect data. Data collectors are monitored by the investigator and the supervisor has received a daily report from each data collector. The data was kept in the form of a file in a private secure location.

4.9.3 Data Processing and Analysis

Collected data was coded and entered using Epi-data version 4.6 and exported to SPSS Version 26 statistical software for analysis. Descriptive statistics of respondents were presented by frequency tables, texts and graphs and summarized by using, mean, and standard deviations.

Bivariable and multivariable analysis using a logistic regression model was used to determine the association between predictor variables and the dependent variable. Multicollinearity was checked between two or more independent variables before multivariable logistic regression analysis. With variance inflation factor (VIF) (1.082) and tolerance (0.924) for knowledge, (VIF) (1.714) and tolerance (0.175)for attitude. The model fitness was checked with the Hosmer-Lemeshow goodness-of-fit test (0.468) for knowledge and attitude (0.892).

Variables those have a p-value of <0.25 in Bivariable logistic regression were entered in to multivariable logistic regression and then variables those have p-values<0.05 were considered significantly associated to outcome variables. An adjusted odds ratio with 95% confidence intervals was used to determine the strength of the association between dependent and independent variables.

4.10 Ethical Considerations

Ethical clearance was obtained from Bahir Dar University College of Medicine and Health Sciences Institutional review board, following recipient of the latter of approval, the investigator was preceded to the Amhara public health institution to receive the authorization letter for collection of data from respective hospital and then, FHCSH, UoGCSH, DCSH and TCSH hospital administrative. Then study participants were asked for their willingness to participate in the study by verbal consent form on the cover page of the questionnaire. All the reasons why the participants were chosen and why the research is conducted were explained to the study participants. Confidentiality was maintained by avoiding writing any personal identification on the questionnaire and the participants were noticed as they have the right not to participate in the study. Study participants were informed neither they gained benefit nor be harmed by the outcome and process of this study.

4.11 Dissemination of the Result

The result of this study will be submitted to Bahir Dar University College of Medicine and Health Sciences. Then, the findings will be disseminated to concerned organizations and stakeholders; including UoGCSH, TGSH, FHCSH and DCSH.

The research paper will be presented in annual meetings, professional conferences, workshops and training. Finally, attempts will be made to publish the results in the national and international journals to disseminate the result worldwide.

5. RESULT

5.1 Socio Demographic Characteristics

In this study, from the total 423 samples determined, 405 (with a response rate of 95.7%) gave a complete response. The mean age of the respondents was 45 years. According to the findings, majorities of participants (48.5%) were farmers and they (58.3%) were found in rural areas, and most of them (58.8%) were unable to read and write and the majority of them (79.8) lived at least 10 kilometers away from the hospital.

Table 2socio-demographic and economic characteristics of patients on chemotherapy in oncology center of Amhara regional state, North West Ethiopia, 2023(n=405)

Variables	Category	Frequency	Percent
Sex	Male	175	43.2
	Female	230	56.8
Age	18-35	81	20
	36-55	191	47.2
	≥56	133	32.8
Residence	Rural	236	58.3
	Urban	169	41.7
Educational status	Uneducated	238	58.8
	Educated	167	41.2
Marital status	Single	62	15.3
	Married	305	75.3
	Divorced	18	4.4
	Widowed	20	4.9
Occupation	Farmer	197	48.6
	Merchant	106	26.2
	Employed	83	20.5
	Daily laborer	6	1.5
	Housewife	13	3.2
Income status	1000 and below	148	36.5
	Greater than 1000	257	63.5
Far from Hospital	10 km and below	82	20.2
	Greater than 10km	323	79.8

5.2 Results for Life Style, Clinical Related and other Factors

The majority of participants (77.3%) have consumed alcohol in the past. In terms of smoking habits, the majority of participants (90.9%) did not smoke. Eighty two percent (82.2%) of participants had no history of cancer in their families, and seventy five percent (75.5%) were covered by health insurance. The majority of them have heard about chemotherapy via health experts (40.5%) and majority of them minor pain (63%).
(Table 3)

Table 3: Other factors related to knowledge and attitude of participants towards chemotherapy in oncology center of Amhara regional state, North West Ethiopia, 2023(n=405).

No	Factors	Yes	%	No	%
1	Ever consumed any alcohol such as Beer, tej, tela...	313	77.3	92	22.7
2	Consumed any alcohol such as Beer, tej, tela.for the past 12 months	163	40.2	242	59.8
3	Consumed alcohol for the past 30 days	23	5.7	382	94.5
4	Consume any homebrewed alcohol, such as tella, tej, arekie, bordie for the past 7 days,	9	2.2	396	97.8
5	Smoke any tobacco products, such as cigarettes, cigars or pipes currently	0	0	405	100
6	Smoke any tobacco products in the past	37	9.1	368	90.9
7	Daily smokers in the past?	5	1.2	2	0.5
8	During the past 12 months, tried to stop smoking	6	1.5	1	0.2
9	Family history of cancer	72	17.8	333	82.2
10	Loss of appetite after receiving chemotherapy	332	82.5	71	17.5
11	Community health insurance status	314	77.5	91	22.5

5.3 Respondents 'knowledge towards Chemotherapy

One hundred eighty-seven (46.2%) with 95% CI: 40.8-50.4of cancer patients had good knowledge about the chemotherapy drugs they take (fig.3).
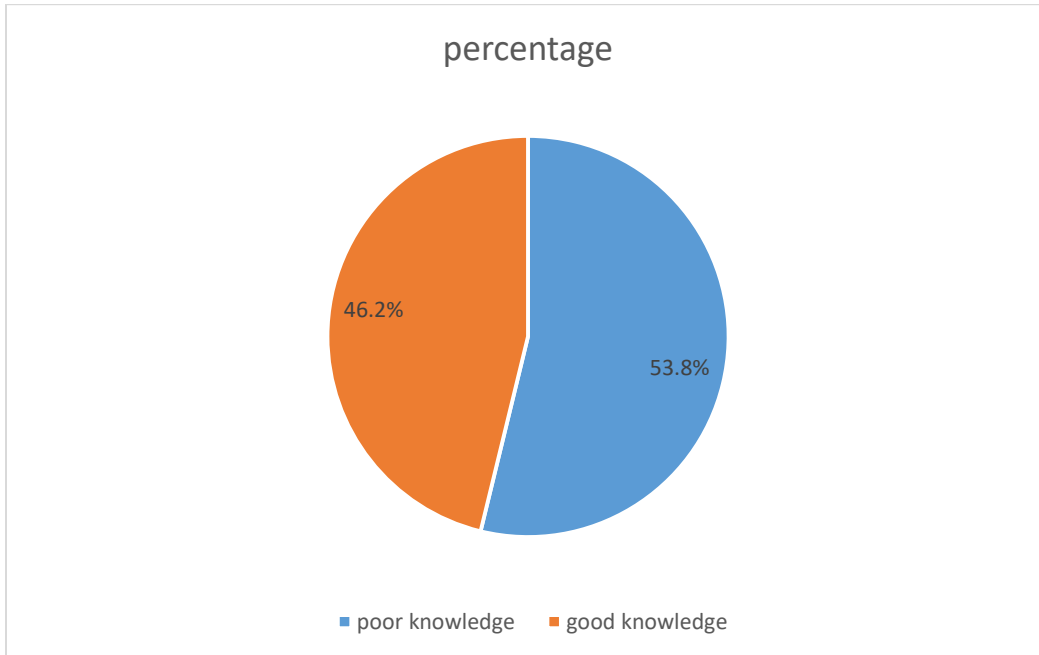
Figure 3 knowledge of patients on chemotherapy in oncology center of Amhara regional state, North West Ethiopia, 2023(n=405).

5.4 Respondents 'attitude towards chemotherapy

Two hundred five (51.4%) with 95% CI: 46.2-55.8 of cancer patients had favorable attitude about the chemotherapy drugs they take (fig.4).
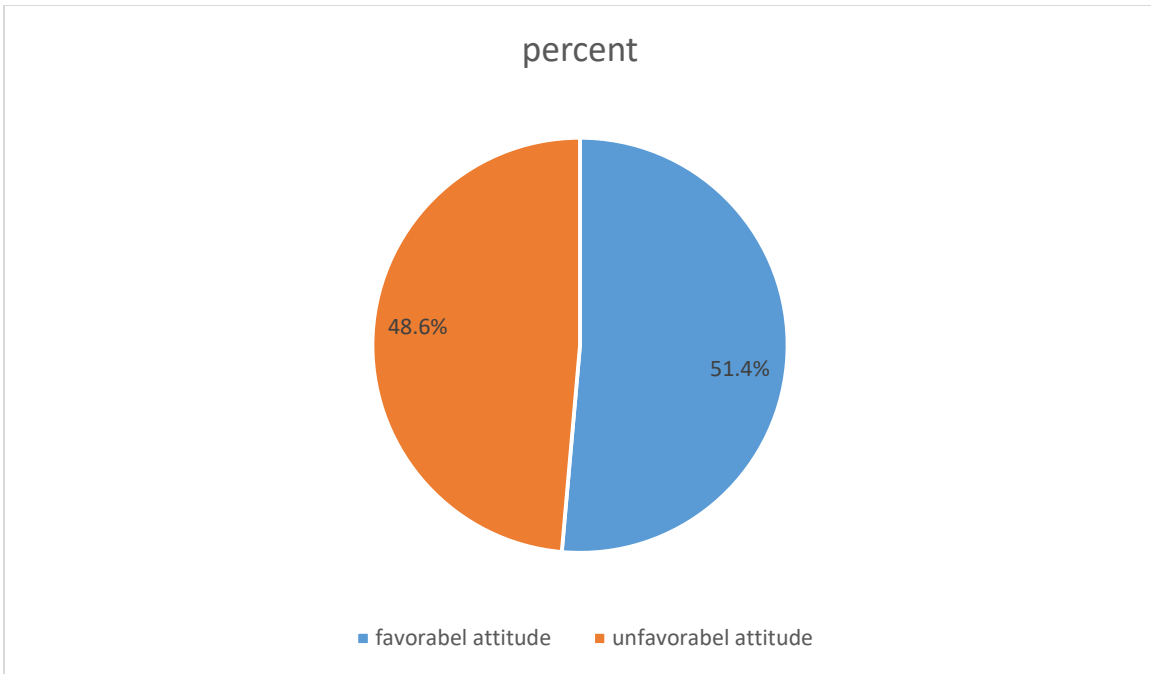
Figure 4 Overall attitudes of participants towards chemotherapy in oncology center of Amhara regional state, North West Ethiopia, 2023(n=405).

5.5 Factors Associated with Knowledge of Patients on Chemotherapy

The covariates age, educational status, occupation, income status, family history of cancer, stage of cancer disease, having community health insurance, ever consumed any alcohol and consumed alcohol past 30 days were significantly associated with knowledge of patients about chemotherapy in the bi-variable binary logistic regression analysis. In the adjusted analysis (multi-variable) binary logistic regression analysis age, educational status, Stage II and III of the disease were significantly associated with the knowledge of patients on chemotherapy.

The finding showed that cancer patients with the age between 36-55 years are 81% (AOR=1.81, 95%CI: 1.13-2.91) more knowledgeable about chemotherapy than age greater than 56 years.

The study revealed that cancer patients who are unable to read and write their knowledge about chemotherapy were decreased by 50% (AOR=0.50, 95%CI: 0.31-0.83) than their counter parts.

In this finding, cancer patients with current stage of the diseases II and III their knowledge was decreased by 47% (AOR=0.53,95%CI:0.31-0.89) and 61% (AOR=0.39,95%CI:0.21-0.70) about chemotherapy than stage IV patients respectively (table 4).

Table 4: knowledge of patients on chemotherapy and its associated factors in oncology center of Amhara regional state, North West Ethiopia, 2023(n=405).

Variables	response	Knowledge status of chemotherapy		COR with 95%CI	AOR with 95% CI	p-value
		Good	Poor			
Age	18- 35	38(46.9%)	43(53.1%)	0.72(0.42-1.26)	1.32(0.72-2.41)	0.375
	36-55	76(39.8%)	115(60.2%)	0.54(0.35-0.85)	1.81(1.13-2.91)	0.014**
	>56	73(54.9%)	60(45.1%)	1	1	0.014
Educational status	Uneducated	96(40.3%)	142(59.7%)	0.56(0.38-0.84)	0.50(0.31-0.83)	0.003**
	Educated	91(54.5%)	76(45.5%)	1		
Occupation	Farmer	95(48.2%)	102(51.8%)	1.08(0.35-3.35)	0.73(0.22-2.41)	0.059
	Merchant	39(36.8%)	67(63.2%)	0.67(0.21-2.16)	1.57(0.46-5.37)	0.609
	Employed	45(54.2%)	38(45.8%)	1.38(0.43-4.46)	0.75(0.22-2.64)	0.475
	Daily laborer	2(33.3%)	4(66.7%)	0.58(0.08-4.39)	1.56(0.1813.41)	0.659
	Housewife	6(46.2%)	7(53.8%)	1		0.686
Income status	<=1000 birr	61(41.2%)	87(58.8%)	0.72(0.48-1.09)	1.46(0.94-2.25)	0.090
	>1000 birr	126(49.0%)	131(51.0%)	1		
Family history of cancer	Yes	42(58.3%)	30(41.7%)	1		
	No	145(43.5%)	188(56.5%)	1.82(1.08-3.04)	1.37(0.79-2.40)	0.264
Current stage of diseases	Stage I	16(43.2%)	21(56.8%)	1.46(0.68-3.13)	0.73(0.33-1.62)	0.434
	Stage II	80(48.8%)	84(51.2%)	1.82(1.11-3.02)	0.53(0.31-0.89)	0.018**
	Stage III	54(56.3%)	42(43.8%)	2.46(1.40-4.35)	0.39(0.21-0.70)	0.002**
	Stage IV	37(34.3%)	71(65.7%)	1		0.013
Having Community HI	No	34(37.4%)	57(62.6%)	0.62(0.39-1.01)	0.51(0.29-0.88)	0.054
	Yes	153(48.7%)	161(51.3%)	1		
Consumed alcohol past 30 days?	No	180(96.3%)	202(92.7%)	0.49(0.19-1.22)	0.61(0.37-1.01)	0.093
	Yes	7(3.7%)	16(7.3%)	1		
Ever consumed any alcohol	No	35(18.7%)	57(26.1%)	0.65(0.96-2.47)	1.46(0.88-2.43)	0.145
	Yes	152(81.3%)	161(73.9%)	1		

** P-value <0.05.CI. Confidence Interval

5.6 Factors Associated with Attitudes of Patients on Chemotherapy

The covariates age, educational status, occupation, income status, marital status, family history of cancer, having community health insurance, consumed any alcohol for the past 12 months, alcohol consumption for the last 30 days and past cigarette smoking habit were significantly associated with the attitude of patients on chemotherapy in the bi-variable binary logistic regression analysis. In the adjusted analysis (multi-variable) binary logistic regression analysis Educated, family history of cancer and having community health insurance, were significantly associated with the attitude of patients on chemotherapy.

In this finding, Participants who are unable to read and write have 43 %(AOR=0.57:95 %CI: 0.37-0.87) less likely to have favorable attitude towards chemotherapy than their counter parts.

Participants with a family history of cancer have 2(AOR=2: 95 %CI: 1.187-3.681) times favorable attitude towards chemotherapy than those participants who have no family history of cancer.

Participants that have a community health insurance have 2.5(AOR=2.5: 95%CI: 1.474-4.083) times favorable attitude towards chemotherapy than those patients who have no health insurance.

Table5 Attitudes of patients on chemotherapy and its associated factors in oncology center of Amhara regional state, North West Ethiopia, 2023(n=405).

Variables		Overall attitudes		COR with 95% CI	AOD with 95%CI	P-value
		Favorable	unfavorable			
Age	18-35	45(55.6)	36(44.4)	1		
	36-55	85(44.5)	106(55.5)	0.64(.3801.082)	0.764(0.438,1.332	0.343
	>56	78(58.6)	55(41.4)	1.13(.649,1.982)	1.304(0.718,2.368	0.484
Education	Uneducated	107(45)	131(55)	0.53(0.357,0.798)	0.569(0.374,0.868)	0.009*
	Educated	101(60.5)	66(39.5)	1		
Marital status	Single	39(62.9)	23(37.1)	2.26(0.742,5.751)	2.045(0.697,5.996)	0.193
	Married	154(50.5)	151(49.5)	1.24(0.502,3.094)	1.142(0.441,2.960)	0.785
	Divorced	6(33.3)	12(66.7)	0.61(.164,2.282)	0.531(0.134,2.105)	0.367
	Widowed	9(45)	11(55)	1		
Income level	1000 and below	69(46.6)	79(53.4)	.74(.494,1.112)	0.700(0.455,1.075	0.103
	Greater than 1000	139(54.1)	118(45.9)	1	1	
Alcohol Consumption Within 12 months	Yes	77(47.2)	86(52.8)	0.75(0.510,1.130)	0.708(0.463,1.1082)	0.110
	No	131(54.1)	111(45.9)	1	1	
Alcohol Consumption Within 30 days	Yes	9(39.1)	14(66)	.59(.250,1.399)	.589(.236,1.469)	0.256
	No	199(52.1)	183(47.9)	1	1	
Past cigarette Smoking	Yes	16(56.8)	21(60)	.69(.353,1.381)	1.400(.674,2.909)	0.367
	No	192(47.8)	176(48.5)	1	1	
Family HX	Yes	49(68.1)	23(31.9)	2.3(1.359,4.001)	2.090(1.187,3.681)	0.011*
	No	159(47.7)	174(52.3)	1	1	
Pain status	No pain	18(51.4)	17(48.6)	1.41(.519,3.837)	1.209(.423,3.452)	0.723
	Mild pain	125(49)	130(51)	1.28(.583,2.818)	1.186(.513,2.744)	0.690
	Moderate	53(60.9)	34(39.1)	2.07(.876,4.929)	1.878(.745,4.735)	0.182
	Sever	12(42.9)	16(57.1)	1	1	
Health Insurance	Yes	176(56.1)	138(43.9)	2.35(1.448,3.818)	2.453(1.474,4.083)	0.001*
	No	32(35.2)	59(64.8)	1		

6. DISCUSSION

6.1 Knowledge of Patients on Chemotherapy

This study was aimed to knowledge and attitude of patients on chemotherapy and its associated factors in oncology center of Amhara regional state. According to this study the magnitude of knowledgeable patients about chemotherapy was 46.2% which is similar with studies done on female patients with breast cancer in Addis Ababa 46% (26). The similarity might be due to study design, socio-economic and demographic characteristic. But this finding was higher than a cross sectional studies done in Addis Ababa 33.3% (27).The reason might be due to difference in study period, availability of chemotherapy treatment sites and the availability of health insurance packages. In addition the finding of this study was higher than studies done in Addis Ababa 30.7% (49),Egypt 40%(16),Baghdad hospital 28.1% (22).and Ireland Meath hospital 23% (24).The difference might be due to the number of cancer patients and duration of contact time with professionals during treatment and OPD visit. However, the finding of this study was lower than studies done in United Kingdom that is 57.8% (23).This difference might be due to study design, cost of chemotherapy drugs they take, availability of different infrastructures and might be due to the availability of different benefit packages for non-communicable diseases.

The finding of this study showed that cancer patients whose age between 36-55 years had more knowledge about chemotherapy compared to patients whose age >56 years. This finding is different from studies done in Addis Ababa on female breast cancer patients, showed that patients whose age less than 45 years had more knowledge about chemotherapy (26). The difference might be the previous study focuses only on breast cancer patients.

The study revealed that cancer patients who are uneducated were 50 % less likely to have good knowledge than literate patients on chemotherapy. This study was supported by studies done in Lake Zone Tanzania that, Secondary education or higher had good knowledge about chemotherapy drugs (33).This finding also supported by studies done in Addis Ababa revealed that cancer patients have elementary, college and above educational level have good knowledge than illiterate (49). The similarity might be due to socio-demographic characteristics and cancer treatment centers in Ethiopia are found in public

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health facilities that is almost similar standard. Generally, there is a positive relationship between education and knowledge of cancer patients about chemotherapy.

In this finding, cancer patients with current stage of the diseases II and III their knowledge was decreased about chemotherapy than stage IV patients As far as we search out, we didn't get results show the association of cancer stage and knowledge of chemotherapy. As our general knowledge and scientific point of view as the stage of cancer increases, there the dissemination and involvement to major internal organ(50). Due to this reason patient have frequent or more visit of health facility than other stages and got more information about chemotherapy.

6.2 Attitude of Patients on Chemotherapy

Attitude is a settled way of thinking or feeling about something, it is a single strong indicator driving an individual into willingly accepting something. Attitude can be changed by pre or post choice information. In this finding most of participants, 51.4% had favorable attitude towards the use of chemotherapy. This finding is similar to a cross-sectional study which was conducted in Tikur Anbessa Specialized Hospital ,51.1% (27). The similarity might be due to same source of population and study design. However the finding of this study is lower than study finding in Tanzania (92.1%) (30). And also, the finding of this study is lower than study finding in Egypt (95%) (16). This might be due to increasing cancer control plan over these countries in which many efforts might be made to improve screening and early detections that lead the patients for good health outcome (51).

Similarly, the finding of this study is lower than the study finding in Korea, Baghdad Hospital and Malaysian 56.7%, 59.4% and 68.5% of cancer patients had positive attitude towards chemotherapy respectively (22, 28, 29). The difference might be due to different in population characteristics, parameters and increasing cancer control plan over these countries.

The finding of this study revealed that, participants who are unable to read and write have 43%times less likely to have favorable attitude towards chemotherapy than their counter parts. This finding is similar to a study conducted in Netherland that revealed that higher educational level were significantly associated with positive attitude receiving

chemotherapy that is why educated people have more knowledge and attitude about chemotherapy and therefore assess the risk/benefit ratio differently (39).

In this study, participants with a family history of cancer have favorable attitude towards chemotherapy than those participants who have no family history of cancer. This finding is consistent to a study conducted in Tikur Anbessa Specialized Hospital showed that patient with no family history of chemotherapy were less likely to have a positive attitude than with family history cancer. On the contrary previous study conducted in England showed that respondents with a family history of cancer were most likely to have been frustrated by their most recent search (52). This difference might be due to difference in study period in which adequate information might not be given during that time.

Participants those have a health insurance had favorable attitude towards chemotherapy than those patients who have no health insurance. This finding is similar to a study conducted in Atlanta patients without community health insurance are less likely to receive chemotherapy (40). This might be due to the treatment costs are not influence their economic status and they might be engaged on their treatment plan without financial constraints than those who have not. Previous study conducted in Boston contradicts this finding which showed that patients receiving chemotherapy were less likely to want to discuss out-of-pocket costs (P= .035)(53). This difference might be due to difference in economic maturity of participants.

7. STRENGTH AND LIMITATION

7.1 Strength

We can say that samples are representative since data is obtained from different hospitals and variables compared to the prior study.

7.2 Limitation

This research is focused only on knowledge and attitude, but not practice and presence of insufficient literatures in this area.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

About less than half of cancer patients had good knowledge about cancer therapy and predictors such as age, education and stage of cancer were found to be significantly associated with good knowledge.

In addition to this about half of participants had favorable attitude toward cancer therapy and major predictors associated with unfavorable attitude were education, member of health insurance, family history of cancer.

8.2 Recommendations

Amhara Regional Health Bureau

According to the study's findings, it is better to expand community health insurance that can increase the health seeking behavior of the community and establish a health information delivery system at community level in which individuals who are previously exposed and treated with chemotherapy in Amhara Regional widely.

Hospital Leaders

All public health institution administrators should support their staff to provide information to each cycle's cancer patient about the importance, duration, side effects of cancer therapy on regular basis.

Researchers

Further integrate other knowledge and attitude related factors.

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10 ANNEXES

Annex I: Information sheet

Introduction: My name is ------------------------. I am working with Adanech Tenaw, a Master of Adult health nursing student from Bahir Dar University. She is conducting a study on "knowledge and attitude towards chemotherapy and associated factors among cancer patients receiving chemotherapy at oncology unit in Amhara regional state of North West Ethiopia". You are being invited to participate in this study because you are among the sampled respondents believed to have useful information on the study subject.

Purpose: The purpose of this study wear to assess knowledge and attitude towards chemotherapy and associated factors among cancer patients receiving chemotherapy at oncology unit.

Procedure to be followed: If you agree to participate in this study, you wear asked to respond to some questions through a structured interview questionnaire

Study time: Study participation wear take a total of approximately 30 minutes.

Confidentiality: Your study data wear handled as confidential as possible. If the results of this study are published or presented, individual names and other personally identifiable information wear not expressed.

Rights: Participation in research is completely voluntary. You have the right to refuse to participate or to withdraw at any point in this study without penalty or loss of benefits.

Question /Contact information: If you have any questions or concerns about this study, you May contact

Investigator Name Adanech Tenaw signature _____date__/__/2023

Cell phone, 0923785883

Email.adanechtenaw877@gmail.com

Data collector's Name_____ signature _____date__/__/2023

Annex II, Consent Sheet

Consent form

Bahir Dar university school of medicine and health science, department of adult health nursing

Questionnaires: The purpose of this questionnaire is to collect data to assess knowledge and attitude of patients on chemotherapy and associated factors in oncologic centers in Amhara Regional state, having read the information stated above, would you like to participate in this study?

1. Yes   2. No

1. Code ------------------ 2. Date of data collection---------------------------

3. Name of data collector-----------------------------signature--------------

4. Name of supervisor--------------------------------signature----------------

Annex III, English questionnaire

Part one: Socio-demographic information of therespondents, 2023**.**

Code	Items	Choices
101	How old are you?	------years
102	Sex	1. Male 2. Female
103	Where do you live?	1. Rural 2. Urban
104	Your level of education	1. unable to write and read 2. Primary 3. Secondary 4. college and above
105	Your marital status	1. Single 2. Married 3. Divorced 4.widowed
106	What is your Occupation?	1, Farmer 2. Merchant 3. Employed 4. Daily labourer 5.housewife
107	What is your monthly income?	…………..birr
108	How far from Hospital to home	----------------in kilo meters

Part two: Questionnaire for assessing knowledge of respondents toward chemotherapy says true or false, 2023

Code	Questions	Choice
201	the goal of your treatment is to stabilize or cure the disease	1,true 2,false
202	planned duration of your treatment is A fixed number of cycles	1,true 2,false
203	the reason for blood sample before your treatment administration is to checking the body or Assessing the effect of the treatment	1,true 2, false
204	Shivers as a sign of infection	1,true 2,false
205	Persistent diarrheal or vomiting during 1 day cause dehydration	1,true 2,false
206	resting as sufficient management for Sudden shortness of breath	1,true 2,false
207	Infections urgent need for antibiotics	1,true

		2,false
208	red and swollen intravascular access area are normal effect of administration	1,true 2,fales
209	Nausea occurs mostly during first 7 days after administration	1,true 2,fales
210	Fatigue disappears immediately after treatment	1,true 2,false
211	Oncology nurse are source of information about your treatment	1,true 2,false
212	Oncology doctor are source of information about your treatment	1,true 2, false
213	Written information from the hospital gets knowledge about your treatment	1,true 2,false

Part three: Questionnaire for assessing attitude of respondents toward chemotherapy put

1 for strongly disagree,2 disagree,3 nutral,4 agree,5 strongly agree

Code	Question	1	2	3	4	5
301	do you prepared to take all steps necessarily to achieve a cure for your diseases					
302	do you consider yourself highly motivated to take medical action against the disease					
303	Do you want treatment that can extend your life, if the treatment does not cause side effects that may prevent you from doing the things that you enjoy					
304	At this point in your disease and treatment, do you mostly concerned with avoiding pain					
305	Do you believe that chemotherapy is necessary for every cancer patient					
306	chemotherapy is Effective to prevent cancer if implemented properly					
307	Do you believe that before starting chemotherapy you have					

	delayed taking chemotherapy by will					
308	Do you believe that have anxiety when coming to the centre for chemotherapy					
309	Is there attempt/ thought of discontinuing chemotherapy					
310	You would be willing to endure significant side effects from your treatment if it helps you live longer					

Part four: Lifestyle related information toward chemotherapy say yes or no, 2023

	Now I am going to ask you some question about your use of alcoholic beverage (Beer, Tella, Teji, Arekie)		
401	Have you ever consumed any alcohol such as Beer, tej, tela....?	1=Yes 2=No	
402	Have you consumed any alcohol such as Beer, tej, tela.... within the past 12 months?	1=Yes 2=No	
403	Have you consumed alcohol within the past 30 days?	1=Yes 2=No	
404	During the past 7 days, did you consume any homebrewed alcohol, such as tella, tej, arekie, bordie?	1=Yes 2=No	

Questionnaires that screen for smoking dependency			
501	Do you currently smoke any tobacco products, such as cigarettes, cigars or pipes?	1=Yes 2=No	If you no→Q504
502	Did you smoke daily?	1=Yes 2=No	
503	How many cigarettes do you smoke daily?	_____	
504	In the past, did you ever smoke any tobacco products?	1=Yes 2=No	If ,no Q 601

505	Do you smoke daily?	1,yes 2,no	If no Q 507
506	How many cigarettes do you smoke daily?	………….	
507	During the past 12 months, have you tried to stop smoking?	1=Yes 2=No	If no Q 601
508	How old were you when you stopped smoking?	_____ Years/monthly	

Part five: Clinical related information respondents toward chemotherapy, 2023

Code	Questions	Choices
601	Is their family history of cancer?	1. Yes 2,no
602	How do you express your current pain based on(0-10) pain score	1,no pain (0) 2,mild pain(1-3) 3,modert pain(4-6) 4,sever pain(7-10)
603	Is their loss of appetite after receiving chemotherapy?	1,yes 2,no

Others

701	Have you community health insurance?	1.yes 2.no
702	What type media you heard about chemotherapy from	1. Television2.Radio3.Newspaper4. friends and family 5.health professions 6,others

Checklist for data collection to be filled by data collector on the chart

1, current stage of cancer

   1. Stage I

   2. Stage II

   3. Stage III

   4. Stage IV

2, cycle of chemotherapy

  1. First-Second 2, Third – Fourth 3 fifth- six4 seven –eight 5 >eight

Annex IV: Amharic version information sheet

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Annex v: Amharic version consent form

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Annex VI: Questionnaire in Amharic version

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Checklist for data collection to be filled by data collector on the chart

1, current stage of cancer

   1. Stage I

   2. Stage II

   3. Stage III

   4. Stage IV

2, cycle of chemotherapy

  1. first-Second 2. Third-Fourth

  3. fifth-six 4seven-eight, 5>eight