Research article

Assessment of the level of social support and associated factors among cancer patients in the comprehensive cancer center at Ethiopia: Ordinal logistic regression analysis level of social support and associated factors among cancer patients

Bantalem Tilaye Atinafu [*], Fetene Nigussie Tarekegn, Worku Misganaw Kebede

Department of Nursing, Health Science College, Debre Berhan University, Ethiopia

ABSTRACT

Introduction: Cancer is a serious and common disease, which had a substantial problem in the social status of patients. There was no empirical evidence on the effect of cancer on social support.
Objective: This study aimed to determine the level of social support among cancer patients in a comprehensive cancer center in Ethiopia.
Methods: An institution-based cross-sectional study was done. About 386 study participants who were selected through systematic random sampling involved in the study. Training and close supervision and monitoring were done. The collected data were analyzed using SPSS-25. Descriptive statistics and Chi-square test were done. Ordinal bivariate and multivariate logistic regression were done to show the net effect of independent variables on the dependent variable. Model fitting information, the goodness of test, and the test of parallel line assumption test of the ordinal logistic regression model were carried out.
Results: A total of 386 study subjected were included in the final analysis. The poor, moderate, and strong levels of social support among cancer patients were found to be 45.3%, 34.2%, and 20.5% respectively. The mean score of social support among cancer patients was 10.4 ± 2.6SD. Age, Marital status, residence, educational status, stage III were found to be significant factors for the level of social support.
Conclusion: and recommendation: The level of poor, moderate, and strong social support was found to be 45.3%, 34.2 and 20.5 respectively. Emphasis should be given to those cancer patients who had poor social support, and frequent social status assessment should be done.

1. Introduction

Cancer is a group of at least a hundred diseases that occur when malignant forms of abnormal cell growth develop in one or more body organs, which is the second most common cause of death globally, accounting for an estimated 9.6 million deaths in 2018 [1,2]. The burden of cancer continues to grow globally, exerting tremendous physical, emotional, and financial strain on individuals, families, communities, and health systems. Cancer is a serious health problem in all populations, regardless of wealth or social status [3].

Social support is a multidimensional construct that typically includes informational, emotional, esteem, tangible, and social network dimensions [4]. Social support leads the individuals to believe that they got concerned and accepted, in the meantime, there is someone who appreciates and takes care of them [5]. The presence of supportive interpersonal relationships has the potential to influence well-being in cancer survivorship [6]. Social and family support for cancer patients is the core element of patient management. It will enhance quality of life decrease stress, anxiety, strengths patient family bonds [7,8].

Providing effective social and emotional support for cancer patients with shared goals and objectives to sustain physical, psychological, and moral abilities throughout the treatment and the rest of their life. On the other hand, negative interpersonal relationships with their families and caregivers will result in poor prognosis and poor adherence to treatment modalities [9].

Structured and organized social support and social relationships between cancer survivors and their supporters have an impression of their health and ability to fix self-management practices. Enhances their engagement with health-promoting practices and connects cancer patients within future life aspects [10]. Social support is crucial for improved quality of life of patients with a chronic disease like cancer. Social support highly determines the prognosis and quality of life of cancer patients. Hence, Healthcare providers and families or others will play a significant role in establishing social support for cancer patients [11].

By means of there is the necessary social support for cancer patients. They are presented with a variety of health issues, financial constraints, community concerns. As a result, perceived social support will enhance psychosocial cohesion and emotional wellbeing. Besides, it will also counteract the undesired health effect of stressors to improve physical health and quality of life [12]. Without early social support and prompt management, cancer may cause debilitating depression and anxiety. A study conducted in Taiwan showed that 22.1% of cancer patients developed psychological distress [13,14]. The unmet needs of cancer survivors in different components of health are relatively high. At least 78% % of emotional concerns or needs were not fulfilled by the concerned bodies. Similarly, 86% of their physical worries and 44% practical concerns were also not met [15].

According to the federal ministry of health of Ethiopia, cancer accounts for about 5.8% of total national mortality [16]. As the prevalence of cancer in Ethiopia substantially rising along with it the hospital expenditure for the treatment also higher. Studies in cancer centers showed that above 74% of patients faced catastrophic healthcare expenditure for cancer treatment. Their mean expenditure per patient was $2366. Treatment-related expenditure took the uppermost expenditure of (83.6%) [17]. However, no data was found in Ethiopia. Thus, this study aimed to determine the level of social support and associated factors among cancer patients in a comprehensive cancer center in Ethiopia.

2. Methods and materials

2.1. Study design, study area and period

An institution-based prospective cross-section study was conducted in Black Lion Specialized hospital from March to June 2020 G C. Black Lion specialized hospital is the largest tertiary, hospital in Ethiopia located at the center of Addis Ababa. Addis Ababa is the capital city of Ethiopia which house primary, referral, tertiary governmental, and non-governmental hospital to deliver adequate health service to the people. Black Lion is the terminal referral hospital in Ethiopia due to the presence of advanced diagnostic facilities, most senior health professionals, and comprehensive service to the client who needs health-related intervention. The hospital had above 800 beds for providing inpatient, outpatient, and emergency services to clients in various departments. The Black lion specialized hospital oncology center was housed in the separated building within the hospital compound and also had a separated oncology center in sebategna (local language for 7th). The Oncology Unit is the center of excellence for cancer treatment in which radiotherapy, surgery, chemotherapy treatment, and comprehensive care services are delivered for cancer patients. The oncology center had a diagnostic and screening room, OPD, radiation vault, and inpatients rooms. Colorectal, breast, cervical and sarcomas are the commonly seen cases at the Oncology Unit. With the support of Ethiopia's governmental institutions, non-governmental organizations and international partners, including International Network for Cancer Treatment and Research (INCTR), the hospital is hoping to develop a comprehensive cancer care program, including cancer registry, early detection, prevention, standard treatment and palliative care [18].

2.2. Population

All cancer patients were considered to be the source population, whereas cancer patients within the study period were the sample population. The stuType equation here.dy population was a cancer patient who had a follow-up with the study population and who fulfill the eligibility criteria. Those patients who are critically ill because the patient couldn't provide adequate information related to the study due to the disease process, Age less than 18 years old, at this the study participants weren't expected to express themselves independently and understand the questions of the study were excluded from the study. Those patients who fulfill the eligibility criteria were included in the study.

2.3. Sample size determination and sampling techniques

The sample size was determined using the single proportion formula by taking the assumption of 50% population proportion, 5% margin of error, 95%CI power of 80%. Because there was no previous study done on the level of social support among cancer patients, so to get enough information to provide an acceptable sample size to generalize to the source population.

$$\mathrm{p} = 50\% : \mathrm{n} = \frac{(Za/2)^2 \times P(1-P)}{(d)^2}, \mathrm{n} = (1.96)^2 * 0.5 * 0.5 \Big/ (0.05)^{2=} 384$$

After adding the 10% non-response rate yield 422. The final sample size was 422.

To select 422 study subjects, first, the number of cancer patients who had a follow-up within a week and month was determined then the study period was for two months, lastly, the final number of participants was determined. Therefore, there were around 465 cancer patients had followed up per week. Based on the information obtained from weekly data, About 3, 720 cancer patients had follow up within two months. To get the final sample size, First, kth was calculated. K= N/n, where N number patients within two months, n was the calculated final sample size, Kth the interval in which the final subjects were selected. Then, the K value is taken to be 8. To drow the starting study subject, number 5 was randomly selected from 1 to 8 numbers. Finally, the participants were selected every 8th interval through a systematic sampling technique. About 386 study participants were involved with a response rate of 91.5%.

2.4. Study variables

The main outcome of the variable was the level of social support. The Oslo-3 item social support scale was used for measuring the level of social support among cancer patients. Oslo 3-items Social Support Scale (OSS-3) is an important instrument to screen social and social related problems. OSS-3 cover different fields of social support and put together into a composite index of social support by summarizing the standardized Z scores for each item. A sum index was made by summarizing the raw scores, the sum ranging from 3 to 14. Patients with poor support had a 3–8 score, moderate support had a 9–11 score and strong support had a 12–14 score [19].

Whereas the independent variables were sociodemographic factors consisted of gender, age, marital status, residence, occupation, income, educational status; clinical factors consisted of tumor type, stage of the tumor, comorbidity, length of diagnosis, and treatment interventions. According to the Charles comorbidity index, comorbidity is defined as the presence of a medical condition co-occurring with cancer [20]. The current study level as a "yes" response to those who had other medical conditions co-occurred with cancer. Stages: Based on the American Joint Committee of Cancer (AJCC): Stage 0: Carcinoma in situ, no lymph node, and no metastasis; Stage I: Tumor invades muscularis propria, submucosa, no lymph node, and no metastasis; Stage II: Tumor invades muscularis propria, penetrates to the surface of the visceral peritoneum, adherent to other organs or structure, no lymph node and no metastasis; Stage III: Tumor metastasis in 7 or more regional lymph nodes, and Stage IV: Tumor metastasis into different organs [21].

3. Data collection procedure

First data collectors and supervisors were recruited. Three BSc nurses as data collectors and two MSc students as supervisors and data collectors were involved in the data collection procedure. The data were collected by using a structured interview questionnaire. The questionnaire consisted of socio-demographic factors, clinical treatment factors, and social support scale. Interview based administered questionnaire was given to the follow-up patients. The questionnaire was prepared in English and translated into the local language forward and backward by the researchers for easiness in interviewing the study participants. Then it was again translated back to English to check the consistency of meaning. The data quality was assured by designing a standardized questionnaire and evaluated by experienced researchers. A pre-test was done on 5% of the total sample size prior to the actual data collection period. The training was given to data collectors and supervisors. After the pre-test, Clarification of the unclear terminologies and modification of those expressions into understandable terms was done. The internal reliability with Cronbach's alpha analysis was 0.71. Monitoring and evaluation were carried by the principal investigator on daily basis for completeness of the filled questionnaire. The data was checked before entered into the computer.

3.1. Statistical analysis

The collected data was cleaned, edited, coded, and entered into Epidata version 4.2 and transferred into SPSS version 25 for analysis. Descriptive statistics were done for categorical variables. Mean and the standard deviation was used for continuous variables. The outcome variable was ordinal data leveled into poor social support, moderate social support, and strong social support. The Chi-square test was used to show the association among explanatory variables with the outcome variable the assumption of the chi-square test was checked and met its assumptions. A multicollinearity test was used using the variance inflation factor (VIF) value less than two.

Ordinal binary logistic regression was done at p-value 0.25. Those variables fitted at bivariate analysis (p < 0.25) were entered into ordinal multivariate logistic regression analysis. In ordinal multivariate logistic regression, a p-value less than 0.05 was considered as a statically significant factor for the outcome variable. The *P*-Value and OR with 95% CI were used to show the statically significance and strength of association. During analysis, the software gave the estimates of the independent variables to outcome variables. Hence The Odd ratio of this study was calculated by the exponential of the given estimates from the final analysis output. The assumption of the ordinal logistic regression model assumptions was checked. To check the model fit, The model fitting information, the goodness of fit, and pseudo R^2, and test of parallel lines was used. Finally, the result of the study is illustrated by texts, tables, and figures.

3.2. Ethics approval and consent to participation

Ethical clearance was obtained from the Addis Ababa University, College of Health Science, School of Nursing and Midwifery Institutional Review Board (IRB) ethical research committee (IRB number: 067/20/SNM). A letter of cooperation was written to concerned bodies. Approval was obtained for data collection from the medical director and cancer treatment center focal person of Black Lion Specialized Hospital. Written informed consent was obtained from study participants. Confidentiality of the information was kept throughout the study by excluding patient names as identification from the data collection form. To keep confidentiality all collected data were coded and locked in a separate room before entered into the computer. After entering the computer, the data were locked by password, and the data haven't been disclosed to any person other than the principal investigator. The study has followed the Helsinki declaration of ethical principles.

4. Result

4.1. Sociodemographic characteristics of the study participants

A total of 386 study participants were involved in the final analysis with a response rate of 91.5%. The majority of the study participants were females. The mean age of study participants was 45.01 ± 13.6SD, 55.7% of study participants were age below 45 years old. Two third (66.1%) of the study participants were urban residents. Nearly one-tenth (11.4%) of the study participants' marital status was single. The income of the study participants 2960.8 ± 4453.9SD, 56.5% of the study participants' income was greater than 1001 Ethiopian birr. One-quarter of the study participants' educational status were secondary school. Greater than one-third (37.0%) of the study participants were employed.

About 45.9% of female participants had a poor level of social support. Among participants whose age≥45 years old, 43.9% and 25.1% had a poor and strong level of social support respectively. Around 75.0% of divorced study participants have had a poor level of social support whereas 9.1% of study participants had a poor level of social support. Of urban residents, Slightly nearly half (47.8%) of the study participants had a poor level of social support whereas slightly greater than one-third (35.3%) had moderate social support. Among those participants who can't write and read, around 60.6% of study participants had poor social support while one fifth (25.1%) of participants had strong social support. Among the unemployed participants, slightly greater than half (52.6%) of them had moderate social support (Table 1).

4.2. Clinical and therapeutic characteristics of the study participants

Among types of cancer, about 42.0% of participants were diagnosed with breast cancer followed by colorectal cancer (18.4%). The majority (69.9%) of the participants were diagnosed at the late stage of the disease, Of that 33.9% of the study, participants were diagnosed at stage III. Half of the study participants have diagnosed within a one-year duration. Concerning treatment received,

Table 1
Socio-demography and socio-economic characteristics of a study participant in TASH, oncology center, Addis Ababa, Ethiopia 2020 (n = 386).

Variable	Category	Level of social support			Total (%)
		Poor	Moderate	Strong	
Sex	Male	46(43.8)	28(26.7)	31(29.5)	27.2
	Female	129(45.9)	104(37.0)	48(17.1)	72.2
Age	<45	100(46.5)	79(36.7)	36(16.7)	55.7
	≥45	75(43.9)	53(31.0)	43(25.1)	44.3
Marital status	Single	21(30.4)	34(49.3)	14(20.3)	17.9
	Married	94(42.2)	75(33.6)	54(24.2)	57.8
	Divorced	33(75.0)	7(15.9)	4(9.1)	11.4
	Widowed	27(54.0)	16(32.0)	7(14.0)	13.0
Residence	Urban	122(47.8)	90(35.3)	43(16.9)	66.1
	Rural	53(40.5)	42(32.1)	36(27.5)	33.9
Monthly income(birr)	≤500	41(39.4)	40(38.5)	23(22.1)	26.9
	501–1000	29(45.3)	25(39.1)	10(15.6)	16.6
	≥1001	105(48.2)	67(30.7)	46(21.1)	56.5
Educational status	Can't read and write	40(60.6)	12(18.2)	14(21.2)	17.1
	Primary	70(51.9)	43(31.9)	22(16.3)	35.0
	Secondary	43(43.0)	37(37.0)	20(20.0)	25.9
	College and university	22(25.9)	40(47.1)	23(27.1)	22.0
Occupation	Unemployed	8(42.1)	10(52.6)	1(5.3)	4.9
	Employed	65(45.5)	53(37.1)	25(17.5)	37.0
	Housewife	52(52.0)	33(33.0)	15(15.0)	25.9
	Farming	19(39.6)	10(20.8)	19(39.6)	12.4
	Daily laborer	18(41.9)	18(41.9)	7(16.3)	11.1
	Other	13(39.4)	8(24.2)	12(36.4)	8.5

N.B: Other: Merchant, Student, Retire.

slightly nearly half (47.7%) of patients have received chemotherapy, while 30.6% of participants have received surgery plus chemotherapy.

Among cervical cancer patients, around 47.6% of participants had poor social support, whereas 28.6% of study participants had a strong level of social support. Of those participants who were diagnosed with stage III, around 46.6% of them had a poor level of social support whereas 35.9% of participants had strong social support. About 47.4% of study participants who had a comorbid condition had a poor level of social support. However, nearly one-quarter (24.4%) of participants had strong social support. Regarding chemotherapy received participants, about 46.2% of chemotherapy received patients had poor social support, while one-fifth (20.1%) of study participants had strong social support (Table 2).

5. Prevalence of social support among cancer patients

Around 45.3% of participants had a poor level of social support followed by moderate social support (34.2%) (Fig. 1). The mean score of social support among cancer patients was $10.4 \pm 2.6SD$.

5.1. Association of the level of social support among different predictor variables

The marital status of the study participant has a statistical association with the level of social support with a level significance p-value <0.001. There was a statistical difference of social support among urban and rural residences p-value<0.05. Similarly, there was also a statistical difference in social support among the educational status of the participants with a p-value <0.001. Moreover, there were statistical differences in the level of social support among participants in tumor type, stage of cancer, and comorbidity (Table 3).

Bivariate and Multivariate analysis of the level of social support among determinant factors of Cancer patients in TASH Oncology center.

Gender, age, marital status, educational status, occupational status, residence, tumor type, comorbidity were fitted in bivariate ordinal logistic regression. In multivariate ordinal logistic regression analysis, age, Marital status, residence, educational status, stage III were found to be significant factors for the level of social support. The age of participants whose age less than 45 was having 57.0% less social support than age greater than or equal to 45 (AOR: 0.57; CI: 0.37–0.88; P $<$ 0.05). Single marital status was having 2.3 times more social support than widowed participants (AOR:2.3; CI: 1.03–5.04; P $<$ 0.05). Those divorced participants were having 33.0% less support than those individuals with widowed marital status (AOR:0.33; CI:0.13–0.83; P $<$ 0.05). Those individuals whose education was unable to write and read and primary school were having 28.0% and 35.0% less social support than those individuals who have completed the colleges and university (AOR: 0.28; CI:0.15–0.54; P $<$ 0.001) and (AOR:0.35; CI: 0.21–0.61:P $<$ 0.001) respectively. Those patients who were diagnosed as stage III were having times more social support than stage one diagnosed cancer patients (AOR: 1.9; CI: 1.01–3.89; P $<$ 0.09) (Table 3).

5.2. Assumption testing of the ordinal logistic regression model

In the model fitting information, the significant value should be less than 0.005. Thus we reject the null hypothesis. The null hypothesis was there were no significant differences between the baseline model and the final model. Here, the baseline model is a

Table 2

Clinical and therapeutic characteristics of study participants in TASH oncology center, Addis Ababa Ethiopia, 2020 (n = 386).

Variable	Category	Level of social support			Total (%)
		Poor	Moderate	Strong	
Cancer type	1. lung cancer	17(60.7)	3(10.7)	8(28.6)	7.3
	2. breast cancer	68(42.0)	67(41.4)	27(16.7)	42.0
	3. colorectal cancer	32(45.1)	19(26.8)	20(28.2)	18.4
	4. cervical cancer	20(47.6)	10(23.8)	12(28.6)	10.9
	5. sarcoma	9(32.1)	12(42.9)	7(25.0)	7.3
	6. esophageal cancer	13(56.5)	8(34.8)	2(8.7)	6.0
	7. others	16(50.0)	13(40.6)	3(9.4)	8.3
Stage	stage I	22(48.9)	14(31.1)	9(20.0)	11.7
	stage II	29(40.8)	33(46.5)	9(12.7)	18.4
	stage III	61(46.6)	23(17.6)	47(35.9)	33.9
	stage IV	63(45.3)	62(44.6)	14(10.1)	36.0
Length of diagnosis	<12 months	86(44.6)	62(32.1)	45(23.3)	50.0
	≥12 months	89(46.1)	70(36.3)	34(17.6)	50.0
Comorbidity	Yes	64(47.4)	38(28.1)	33(24.4)	35.0
	No	111(44.2)	94(37.5)	46(18.3)	65.0
Treatment received	Radiation and Surgery	19(38.0)	18(36.0)	13(26.0)	13.0
	Chemotherapy	85(46.2)	62(33.7)	37(20.1)	47.7
	surgery plus chemo	52(44.1)	40(33.9)	26(22.0)	30.6
	radiation plus surgery plus chemo	19(55.9)	12(35.3)	3(8.8)	8.8

N.B: Others: lymphoma Ca, prostate Ca, Testicular Ca, leukemia Ca, endometrial Ca, vulvar Ca, the skin ca, laryngeal Ca, nasopharyngeal Ca, orbital Ca, oral Ca, pancreatic Ca, squames cell carcinoma.
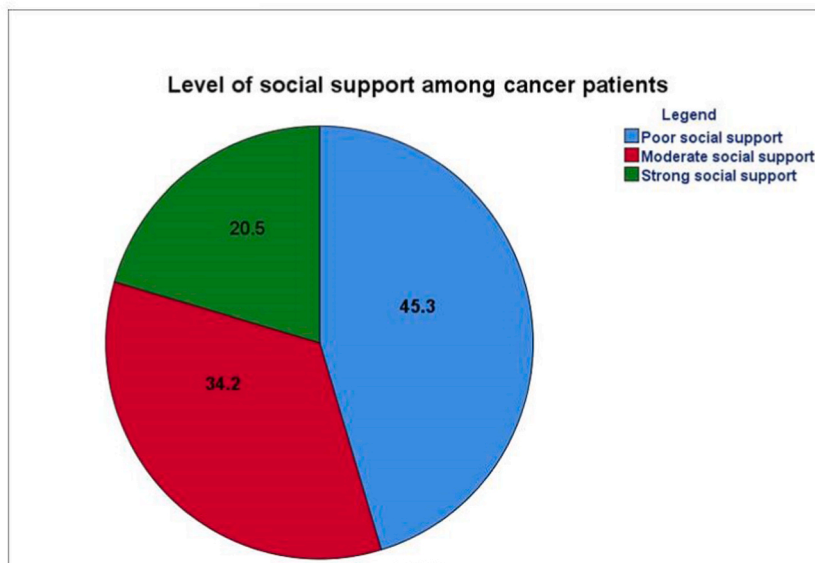
Fig. 1. The distribution of social support among cancer patients in TASH Oncology center Addis Ababa, Ethiopia, 2020.

model without independent variables and the final model is a model with all possible independent variables. In this study the significant value of the final model was p < 0.05, so that the model is good for this study. The null hypothesis was rejected and there was a significant difference between the baseline model and the final model.

5.3. Goodness-of-fit

In the goodness of fit test, we have seen the Pearson significant value. The significant p-value must be greater than 0.05. if the Pearson p-value is greater than 0.05 the model is fitted. The current significant value was 0.535 which is greater than 0.05. Therefore, the observed data was significantly fitted with the logit model.

When we discuss the pseudo-R-Square, we have observed the Nagelkerke value which must be 0.7. R-square indicated that the proportion of variance explained by independent variables on the dependent variables in the regression model or How much the independent variable explaining the dependent variables. In the current study, the Nagelkerke value was 0.172 which is less than 0.7. It showed that various factors were affecting the level of social support.

5.4. Test of parallel lines

This test showed that the dependent opinion with the dependent variable level of social supporter. The location parameters were the same across the response variable. The null hypothesis states that the location parameters (slope coefficients) are the same across response categories. The significant value of the general model is greater than 0.05. Therefore, the model has no enough evidence to reject the null hypothesis. We concluded that the proportional odds assumption was fitted.

6. Discussion

The study aimed to determine the level of social support among cancer patients. Age, single and divorced marital status, residence, educational status, stage III were found to be significant factors for the level of social support.

The current study revealed that the poor, moderate, and strong level of social support among cancer patients was found to be 45.3%, 34.2%, and 20.5% respectively. In contrast, a study was done in Iran [7] showed that about 94.5% of cancer patients had a high rate of social support. In the current study, the mean score of social support among cancer patients was found to 10.4 ± 2.6SD. This finding is lower than the studies conducted in Turkey [22].

This discrepancy perhaps due to the presence of a large number of families' support for their medical condition in the previous study. As a result of physiological derangement, the patients perceived that they had poor social support than the previous healthy life [23]. The difference might be due to differences in socio-demographic factors. Because some individuals live alone or lack family or friend's support. The previous study bared that socio-demographic factors could determine the level of social support among cancer diagnosed patients. As a result of the number of individuals in the family, partners situation, status social interaction and status Information perceived by individuals determine the status of social support [24]. The other discrepancies perhaps due to the difference in psychometric properties of the scale. Previous studies have used the Medical Outcome study-social support scale (MOS-SSS) with the internal consistency of Cronbach's alpha analysis of 0.97. Even if MS-SSS had good reliability [25], it doesn't address the specific

Table 3

Association of the level of social support among different characteristics of study participants in TASH, Addis Ababa, Ethiopia, 2020.

Variable	Category	Chi-square (P-value)	Bivariate (COR) 95%CI	Multivariate (AOR) 95%CI
Sex	Male	0.016	4.1(3.0–7.85)	4.5(3.1–12.0)
	Female		Ref	Ref
Age	<45	0.113	2.7(0.99–1,02)	0.57(0.37–0.88)*
	≥45		Ref	Ref
Marital status	Single	0.000	2.1(1.1–4.2)*	2.3(1.03–5.04)*
	Married		1.7(0.95–3.09)	1.5(0.78–2.81)
	Divorced		0.4(0.17–0.97)*	0.33(0.13–0.83)*
	Widowed		Ref	Ref
Residence	Urban	0.048	0.66(0.45–0.98)*	0.57(0.37–0.87)*
	Rural		Ref	Ref
Monthly income(birr)	≤500	0.425	1.3(0.84–2.0)	–
	501–1000		1.0(0.58–1.65)	
	≥1001		Ref	
Educational status	Can't read and write	0.000	0.33(0.18–0.62)**	0.28(0.15–0.54)***
	Primary		0.41(0.25–0.68)**	0.35(0.21–0.61)***
	Secondary		0.57(0.33–0.97)*	0.45(0.26–0.80)**
	College and university		Ref	Ref
Occupation	Unemployed	0.005	0.82(0.29–2.23)	0.71(0.22–2.26)
	Employed		0.93(0.75–1.75)	0.46(0.20–1.05)
	Housewife		0.73(0.37–1.43)	0.68(0.59–1.40)
	Farming		1.8(0.83–3.82)	1.5(0.58–3.90)
	Other		1.6(2.03–3.81)	0.97(0.37–2.53)
	Daily laborer		Ref	Ref
Cancer type	1. lung cancer	0.024	1.2(0.42–3.59)	1.3(0.42–4.18)
	2. breast cancer		1.7(0.74–4.10)	1.9(0.78–5.00)
	3. colorectal cancer		2.02(0.81–5.03)	1.8(0.68–4.81)
	4. cervical cancer		1.9(0.71–5.05)	2.3(0.80–6.69)
	5. sarcoma		2.6(0.91–7.56)	2.0(0.65–6.49)
	6 others		1.2(0.34–3.50)	1.2(0.40–3.71)
	7. esophageal cancer		Ref	Ref
Stage	stage IV	0.000	0.9(0.49–1.75)	1.1(0.58–2.25)
	stage III		1.5(0.79–2.84)	1.9(1.01–3.89)*
	stage II		2.2(0.54–2.40)	1.2(0.57–2.47)
	stage I		Ref	Ref
Length of diagnosis	<12 months	0.356	0.98(0.90–1.00)	–
	>12 months		Ref	
Comorbidity	Yes	0.134	1.1(0.69–1.52)	1.0(0.68–1.61)
	No		Ref	Ref
Treatment received	Radiation and Surgery	0.579	2.3(0.98–5.25)	–
	Chemotherapy		1.6(0.79–3.31)	
	surgery plus chemo		1.8(0.85–3.75)	
	radiation plus surgery plus chemo		Ref	

N.B: *:p < 0.05; **:p < 0.01: ***:p < 0.001.

source of social support, and negative consequences of social support [26]. The Oslo- 3-social support Scale (OSS-3) was validated in Nigeria with Cronbach's alpha 0.65 [27]. The reliability of this scale is low but it is not necessary to conclude that it had low reliability to demonstrate the social status, rather due to the multidimensionality of the scale OSSS-3 IS satisfactory [28,29]. The current Cronbach's alpha analysis was 0.71. It was acceptable to reflect the internal consistency of the scale.

The gender of the study participants wasn't found statistically significant for the level of social support among cancer patients. On the contrary, there was a significant difference among males and females in the level of social support. As the previous study explained, females had more social support from families whereas males got more social support from health professionals. Besides, females prone to emotional distress related to the cancer diagnosis [30]. Currently, regardless of gender, all necessary intervention is being provided for the patients. Moreover, females had a close relationship with their partners, families, and had better social involvement in the community [31].

In this study, there was a significant difference in the level of social support among marital status with a significance level of p < 0.001. Marital status was found to be a significant factor for social support. Single marital status has better social support than widowed patients. This finding is similar to the previous studies conducted in Turkey [32]. Due to the life-threatening nature of the disease, cancer patients show their loneliness and hopelessness. This could lead to a change in their lifestyle. A previous study done in Turkish showed that the score of loneliness and hopelessness is much higher in cancer patients [33].

Single marital status individual lives with families, sisters, and brothers so that these individuals can get economic, social, psychological, and mental support from their families. In the current study, married and widowed had no significant difference in the level of support. But married and patients who had partners had better social support [34–36]. Even if the client's marital status profile was widowed there might be many sources of support like children, brothers, sisters, and relatives, and other volunteer people.

There was a significant difference in social support in terms of the age difference. Besides, the age of participants whose age <45

years old was found to be a significant factor for the level of social support. This finding is similar to the previous study [37]. The older age was more likely to involve in the community organizations and better perceived social support

A residence found to be a significant factor for social urban residents had less social support than rural residents support. This finding is similar to the previous study [38]. Because urban residents had fewer social connections [39].

In this study, stage III cancer patients had better social support than patients diagnosed with stage I cancer patients. Owing to the involvement of multidisciplinary health care professionals, they receive comprehensive health care intervention because of the advanced nature of the disease. Hence, Less disease severity is associated with less social support [40].

Strength and limitation include It was the first study done in Ethiopia. This could be generalized to the other cancer patients. The limitation of the study was it doesn't show the cause and effect relationship. This study didn't address the lifestyle like alcohol, cigarette smoking, and related variables. It didn't assess the other dimension which couldn't be addressed by quantitative method rather than it could be addressed through the qualitative method. moreover, the patients' social security status and the social services were not aderssed in detail. The researchers need to consider these components in their research works.

7. Conclusion

The level of poor, moderate, and strong social support was found to be 45.3%, 34.2 and 20.5 respectively. Age, single and divorced marital status, residence, educational status, stage III were found to be significant factors for the level of social support. Social security Used to reduce social and economic risks, vulnerabilities and deprivations for all people and facilitates equitable growth. Moreover, social service infrastructure bringing people together, developing social capital, maintaining quality of life, and developing the skills and resilience to build strong communities. Our country has started to support some financial issues like health care insurance, sometimes transportation incase of emergency. However, other social dimensions are not addressed. As a result cancer patients face challenges to receive the standard treatment as early as possible. This is evidenced by majority of patient diagnosed at advanced stage. Moreover, health information dissemination took another role. The study recommends that frequent social status assessment, special emphasis should be given for those cancer patients who had poor social support, the health care professionals should give social counseling in addition to regular interventions. Future researchers should address the limitation of the study.

Author contribution statement

Fetene Nigussie Tarekegn, Worku Misganaw Kebede: performed the experiment; analyzed and interpreted the data; contributed reagents, materials, analysis tools or data; and wrote the paper. had performed the experiment; analyzed and interpreted the data; contributed reagents, materials, analysis tools or data; and wrote the paper. Bantalem Tilaye Atinafu: conceived and designed the experiment; performed the experiment; analyzed and interpreted the data; contributed reagents, materials, analysis tools or data; and wrote the paper.

Data availability statement

Data will be made available on request.

Declaration of competing interest

The authors declare that they have no competing interests.

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