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The quality of life of colorectal cancer patients attending the cancer center in addis Ababa, Ethiopia

Helen GebreLibanos[1*], Girma Taye[2], Abigiya Wondimagegnehu[2], Jilicha Diribi Feyisa[3], Tsion Afework[2,4], Ephrem Gebreegziabher[5] and Zenawi Hagos Gufue[6]

Abstract

Background Globally, colorectal cancer (CRC) is the third most common type of cancer and the second most deadly. CRC significantly impairs patients' overall and health-related quality of life, as well as their psychological and physical function. However, in Ethiopia, there is insufficient local evidence about the quality of life of patients with colorectal cancer. Hence, this study aimed to assess the quality of life of adult colorectal cancer patients who have follow-ups at the cancer center in Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia.

Methods An institutional-based cross-sectional study was conducted among 159 colorectal cancer patients attending the Tikur Anbessa Specialized Hospital Cancer Center from February to April 2019. The validated Amharic version of the European Organisation for Research and Treatment of Cancer Core 30 questionnaire (EORTC QLQ C-30) and the disease-specific colorectal cancer questionnaire (EORTC QLQ CR-29) were used. A binary logistic regression model was used to identify the factors associated with quality of life. The adjusted measure of effect (AOR) with a 95% CI was presented and $P < 0.05$ was used to declare statistical significance.

Results There were 159 colorectal cancer patients, 89 of whom were male, and the median time from diagnosis was 12.5 months. The patients had a low global health status score with a mean (± SD) of 52.88 ± 21.02. Being employed (AOR = 3.41; 95% CI 1.15, 10.17), early-stage clinical diagnosis (AOR = 4.98; 95% CI 1.51, 16.4), physical functioning (AOR = 1.04, 95% CI 1.01, 1.06), and social functioning (AOR = 1.02; 95% CI 1.01, 1.04) were associated with good quality of life. Whereas, being female (AOR = 0.16; 95% CI 0.05, 0.52), having financial difficulty (AOR = 0.98; 95% CI 0.96, 0.99), and having blood and mucus in the stool (AOR = 0.94; 95% CI 0.91, 0.96) were associated with poor quality of life.

Conclusion In our study, half of our study participants had poor quality of life. The responsible stakeholders should identify and address the patients' respective symptoms. Female patients, those in severe clinical stages, unemployed patients, those experiencing financial difficulties, and those with blood and mucus in their stool should receive due attention.

Keywords Colorectal cancer, Quality of life, EORTC QLQ CR-29, EORTC QLQ C-30, Ethiopia

*Correspondence:
Helen GebreLibanos
helenlibanos789@gmail.com

Full list of author information is available at the end of the article

Background

Noncommunicable diseases (NCDs) account for the majority of global deaths [1]. Among these, cancer is anticipated to be the leading cause of death, posing challenges to increasing life expectancy in the 21st century. The impact of cancer varies across countries: it ranks first or second cause of death before the age of 70 years in very high human development index (HDI) countries, third or fourth in medium HDI countries, and fifth to tenth in low HDI countries. Colorectal cancer (CRC) is the third most common cancer in men worldwide (746,000 cases, 10% of the total) and among female patients, it accounts for 614,000 cases and 9.2% of the total female cancer cases [2].

In Ethiopia, cancer ranks as the second most prevalent NCD, trailing cardiovascular disorders. The Federal Ministry of Health (FMOH) of Ethiopia estimates that over 150,000 cancer cases occur annually, although data availability remains limited. A 2012 report by the International Agency for Research on Cancer (IARC) suggested approximately 60,749 cancer cases in Ethiopia during that year. It has been reported that digestive organ cancers are the leading cause of cancer in males [3]. According to the GLOBOCAN 2022 Ethiopia country report, the five-year prevalence of colorectal cancer was reported to be 10.5% [4]. Between 2012 and 2015, the Addis Ababa cancer registry documented a total of 8,449 cancer cases in the city. Among these cases, 67% were females, with breast cancer being the most prevalent, followed by cervical and colorectal cancer. Comprehensive cancer registration and population-based measurements of cancer burden are still pending in Ethiopia [5].

Quality of life (QOL) refers to an individual's perception of their life situation within the context of their cultural and value framework. It encompasses their aspirations, expectations, standards, and worries. QOL is a multifaceted concept frequently employed as an outcome measure for cancer patients [6]. Medical and other health professionals have considered the importance of measuring QoL as a crucial element in evaluating a patient's health, responding to treatment, and increasing survival [7].

The concept of health-related QoL primarily pertains to the outcomes of clinical treatments, care plans, and associated practice strategies. These include aspects such as physical, emotional, and role functioning, physical symptoms and drug side effects, social well-being, functional capability, life satisfaction, and bodily sensations [8]. Within the framework of a bio-psychosocial medical model, the quality of life of patients is becoming a crucial focus in contemporary cancer research and clinical practice. QoL outcomes offer insights into patients' subjective experiences of their physical and psychosocial health, as well as provide prognostic information [9, 10].

QoL measures, when combined with survival and mortality data, demonstrate the effectiveness of treatments for malignancies and rehabilitation. They also guide treatment decisions and enhance communication between doctors and patients [11]. Cancer patients often face stressors related to uncertainty about recurrence and recovery, as well as psychological effects stemming from their diagnosis and treatment [12, 13]. These challenges, along with complications and side effects of cancer treatments, can negatively impact patients' social, emotional, physical, spiritual, and psychological well-being, leading to a reduced QoL [14, 15].

Stoma-wearing CRC patients have little experience with employment or leisure activities daily. They would also have a worse perception of their bodies, which would negatively impact their ability to operate in a social and familial context [16]. However, we do not have data on colorectal cancer patients' quality of life, as the current Ethiopian healthcare system does not provide this critical information. Sociocultural factors have a significant impact on the quality of life of these patients, which is especially true in Ethiopia's diverse cultural landscape. It is critical to collect and quantify this data, as well as share it with all relevant stakeholders involved in colorectal cancer care. Making this information available is not only important; it is essential for improving patient outcomes and meeting their unique needs. The purpose of this study was to assess the quality of life of adult colorectal cancer patients who visited the cancer center at Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia, using the validated European Organization for Research and Treatment of Cancer core quality of life questionnaire (EORTC QLQ C-30) and disease-specific colorectal cancer questionnaire (EORTC QLQ CR-29).

Methods

Study design and area

The study took place at Tikur Anbessa Specialized Hospital (TASH) in Addis Ababa, Ethiopia, from February 12 to April 19, 2019. Despite improvements in the decentralization of cancer care in various parts of Ethiopia, TASH has been the country's only cancer center for decades. It was the only teaching and referral hospital for cancer treatment and provides radiotherapy services. TASH is also a teaching hospital that trains undergraduate and postgraduate medical students, dentists, nurses, pharmacists, laboratory technicians, and other professionals who address community and national health issues. The hospital has over 600 beds, of which 18 are dedicated to the oncology unit. The cancer center offers services through its dedicated senior nurses, pharmacists, clinical oncology resident physicians, clinical psychologists, senior clinical oncologists, radiotherapists, and specialized surgical oncologists.

Study design An institutional-based, cross-sectional study was conducted among adult colorectal cancer patients having follow-up service at the cancer center of the hospital.

Study population All adult (at least 18 years old) colorectal cancer patients with pathologically confirmed primary colorectal cancer (no previous history of other cancer) were the study population.

Eligibility criteria The study included adult patients who had been diagnosed with colorectal cancer but had no prior medical history of other malignancy. Patients who were very sick and in excruciating pain, those who had cognitive impairment, and those who had just received a colon cancer diagnosis within the previous three months and had not yet started treatment were all excluded.

Sample size determination and sampling procedure

The study included all eligible colorectal cancer patients who met the inclusion criteria and received any of the available treatment services could it be curative or rehabilitative at the center (surgical treatment, chemotherapy, or radiotherapy) during the study period. The study included 159 colorectal cancer patients who came to TASH for treatment or follow-up care during the study period. During the study, only these patients were available.

Data collection tool and process

The core quality-of-life questionnaires EORTC QLQ C-30 and EORTC QLQ CR-29 were used to collect data. These are commonly used metrics for assessing cancer patients' quality of life, and we measured CRC patients' QoL using a validated instrument written in the local language (Amharic) [17]. In Amharic, EORTC QLQ C-30 was assessed for internal consistency (Cronbach's alpha, $\alpha > 0.7$), except for cognitive functioning ($\alpha = 0.51$) [18], and had been utilized in various studies.

There are two scales in the EORTC QLQ C-30: a single-item scale and a multi-item scale. It consists of six single items, three symptom scales, five functional scales, and a global health status scale. There are no duplicate items in any of the multi-item scales; each one has a unique set of items. Additionally, the QLQ CR-29 has 19 single-item and 4 multi-item scales that measure a range of symptoms that are typical of patients with colorectal cancer.

Questions regarding the sociodemographic, lifestyle, and clinical features of the patients were included by reviewing their medical records in addition to the QoL rating measures. A master of science-holder cancer specialist nurse working in the TASH oncology unit supervised two certified bachelor's degree-holder nurses as they collected the data. The two-day training aimed to familiarize the team with tools, provide informed consent, and maintain data confidentiality.

Data management and analysis

The principal investigator reviewed the questionnaire after data collection to ensure it was clear and complete. The collected data were then verified, edited for completeness, coded, and entered into Epi Data 4.4.2. Subsequently, the data were exported to SPSS version 25 for statistical analysis. The multi-item and single-item scale measures that make up the EORTC have scores on a scale from 0 to 100. In the functioning scale and global health status (QoL), a higher score indicates better functioning and health, whereas in the symptom scale, a higher score signifies a greater severity of symptoms or problems [19].

The scoring principle for EORTC scales remains the same in all cases. Initially, the average of the contributing items is calculated to get the raw score. Then, a linear transformation is applied to standardize this raw score, producing a score that ranges from 0 to 100. Higher or lower scores reflect either a better level of functioning or a worse level of symptoms, respectively. The outcome of the study was global health status (QoL) and was divided into poor quality (affected) and good quality (unaffected) based on an assessment by Koller [20] with 50 cut-off points. The review stated that a cutoff point of 50 could indicate clinical impairment or clinical improvement while using the EORTC questionnaire.

Independent variables, such as the functional and symptom scales from both general and specific questionnaires, were considered continuous variables. Forward stepwise logistic regression was used to identify the factors associated with the outcome variable. The crude (COR) and adjusted (AOR) measures of effect were presented, along with their 95% confidence intervals. Statistical significance was determined at $P < 0.05$ and the Hosmer and Lemeshow goodness-of-fit test was used to validate the model fitness assumptions.

Results

Socio-demographics and lifestyle of colorectal cancer patients

There were a total of 159 colorectal cancer patients, of whom 89 (56.7%) were males. The mean ± standard deviation (SD) age of the patients was 49.6 ± 13.12 years. One hundred four (65.4%) of the patients were married and 57 (36.3%) had secondary-level educational status. Regarding the place of residence, 138 (86.8%) lived in the urban area and 79 (49.7%) of them are currently unemployed. One hundred forty-three (89.9%) of them never smoked cigarettes, 134 (84.3%) never chewed Khat, and 84 (52.8%) of them had a history of drinking alcohol (Table 1).

Table 1 Socio-demographic characteristics of colorectal cancer patients attending Tikur Anbessa specialized hospital, addis Ababa, 2019 ($n=159$)

Patient profile	Categories	Frequency (%)
Age, mean (± standard deviation), in years		49.6 ± 13.12
Sex	Male	89 (56)
	Female	70 (44)
Religion ($n=157$)	Orthodox Christian	108 (68.8)
	Muslim	25 (15.9)
	Protestant	20 (12.7)
	Others [a]	4 (2.6)
Place of residence	Urban	138 (86.8)
	Rural	21 (13.2)
Marital status	Married	104 (65.4)
	Divorced	22 (13.8)
	Widowed	19 (12)
	Never married	14 (8.8)
Educational Status ($n=157$)	No formal education	28 (17.8)
	Primary school (grades 1 to 8)	47 (29.9)
	Secondary school (grades 9 to 12)	57 (36.3)
	Diploma and bachelor's degree	25 (15.9)
Occupational status	Unemployed	79 (49.7)
	Self-employed	23 (14.5)
	Government-employee	57 (35.8)
Cigarette smoking status	Never smoked	143 (90)
	Used to smoke	15 (9.4)
	Still smoker	1 (0.6)
Chat chewing status	Never chewed	134 (84.3)
	Used to chew	19 (11.9)
	Still chewer	6 (3.8)
Current alcohol drinking status	Yes	84 (52.8)
	No	75 (47.2)
Wealth index	Lowest	31 (19.6)
	Second	32 (20.1)
	Middle	32 (20.1)
	Fourth	32 (20.1)
	Highest	32 (20.1)

Notes:

[a] Wakkafecha and non-spiritual; [b] SNNPR: Southern, Nations, Nationalities, and People's Regional State; [c] Afar, Dire Dawa, Harari, and Benishangul-Gumuz

Clinical characteristics of colorectal cancer patients

Among 159 colorectal cancer patients, one hundred thirty-one (82.4%) were diagnosed for the first time, while twenty-seven (17%) had a recurrence. The median time since diagnosis was 12.5 months. At the time of diagnosis, several patients were in stage two: 58 (36.5%) and 57 (35.8%) in stage three. Patients who received both surgery and chemotherapy account for 81 (50.9%), with surgery accounting for 32 (20.1%). Forty-two (26.4%) had comorbidities like diabetes mellitus, hypertension, and HIV/AIDS. Distant-site metastasis occurred in 38 (23.9%) and locally advanced in 45 (28.3%) patients and 57 (35.8%) of them had a colostomy bag.

Quality of life score for colorectal cancer patients

Functional and symptom scale scores of EORTC C-30

The mean global health status of the patients was 52.88 with a SD of 21.02. Eighty (50.3%) of the patients had scored less than 50 and seventy-nine (49.6%) had scored greater than 50. The functional scales ranged from a mean (± SD) of 77.8 ± 26.08 for cognitive functioning to a mean of 56.7 ± 35.73 for social functioning.

A high score on the functional scale denotes a healthy level of functioning. For the symptom scale, the mean (± SD) of financial difficulty was 53.03 ± 40.42, fatigue was 43.95 ± 33.66 and pain was 43.50 ± 32.52. A high score on the symptom scale denotes a high level of symptomatology/problem (Table 2).

Table 2 EORTC QLQ C-30[b] version 3 scale scores among colorectal cancer patients attending Tikur Anbessa specialized hospital, addis Ababa, 2019 ($n=159$)

EORTC [c] scales	Mean score	Standard deviation
Global health status (quality of life)	52.88	21.02
Functional scales		
Physical function	64.27	27.35
Role function	57.12	38.12
Emotion function	66.14	28.66
Cognitive function	77.88	26.08
Social function	56.7	35.73
Symptom scales		
Fatigue	43.95	33.66
Nausea and vomiting	11.74	22.15
Pain	43.50	32.52
Dyspnea	11.53	22.18
Insomnia	25.99	34.29
Appetite loss	35.63	35.79
Constipation	16.98	30.89
Diarrhea	10.98	20.89
Financial difficulties	53.03	40.42

Notes:

[b] EORTC QLQ C-30: European Organization for Research and Treatment of Cancer quality of life of cancer patients tool with 30 items

[c] EORTC: European Organization for Research and Treatment of Cancer

Table 3 EORTC CR-29 [c] scales scores among colorectal cancer patients attending Tikur Anbessa specialized hospital, addis Ababa, 2019 ($n=159$)

EORTC CR-29 scales	Mean score	Standard deviation
Functional scales		
Anxiety	36.9	38.71
Weight	76.31	33.82
Body image	67.51	29.8
Sexual interest (men)	21.28	27.82
Sexual interest (women)	21.01	26.02
Symptom scales		
Urinary frequency	37.0	28.35
Urinary incontinence	10.06	23.04
Dysuria	12.36	24.46
Abdominal pain	21.59	31.40
Buttock pain	23.69	35.05
Bloating	19.50	30.76
Blood and mucus in stool	9.75	20.04
Dry mouth	29.35	30.08
Hair loss	16.98	31.22
Taste	17.81	31.77
Flatulence[1]	33.66	39.58
Fecal incontinency[1]	11.86	26.90
Sore skin [1]	0.11	0.26
Stool frequency [1]	24.58	32.62
Embarrassment [1]	14.19	29.19
Stoma care problem [2]	47.36	39.31
Stoma bag change frequency	30.40	24.01
Impotence [3]	31.80	40.63
Dyspareunia [4]	11.11	25.03

Notes:

[c] EORTC CR-29:European Organization for Research and Treatment of Cancer quality of life questionnaire for colorectal cancer with 29 items

[1]Relevant only for Patients with no colostomy/ Ileostomy,

[2]Relevant only for Patients with colostomy/Ileostomy,

[3]Applicable only for men; [4]Applicable only for female

Functional and symptom scale scores of EORTC QLQ CR-29

The EORTC QLQ CR-29 functional scales (mean ± SD) for weight (76.31 ± 33.82) and body image (67.51 ± 29.8) showed a better level of functioning. Sexual interest was identified as the lowest functional level in both men and women, followed by anxiety. Stoma care problem (47.36 ± 39.31) and urinary frequency (37.0 ± 28.35) were the most common symptomatologies (problems) (Table 3).

Factors associated with global health status

Female patients were 84% less likely to have a good quality of life than their counterpart male patients (AOR = 0.16; 95% CI 0.05, 0.52), after controlling for all variables. Similarly, after controlling for other variables, the odds of good quality of life among colorectal cancer patients were three times higher among government employees than among unemployed people (AOR = 3.41; 95% CI 1.15, 10.17). Patients' quality of life improved dramatically after receiving an early diagnosis. Colorectal cancer patients diagnosed in the early stage had a fourfold higher good QOL than those diagnosed in the late stage (AOR = 4.98; 95% CI 1.51, 16.4) (Table 4).

After controlling for other variables, physical functioning was associated with a high quality of life (AOR = 1.04; 95% CI 1.02, 1.06) using the EORTC QLQ C-30 functional and symptom scales. Similarly, social functioning was associated with quality of life (AOR = 1.02; 95% CI 1, 1.04). Furthermore, financial difficulties were associated with quality of life (AOR = 0.98; 95% CI 0.96, 0.99) (Table 5). From the symptom and functional scales of the EORTC QLQ CR-29. The presence of blood and mucus in the stool was also associated with lower quality of life (AOR = 0.94; 95% CI 0.91, 0.96). Additionally, there was missing data on the symptom scale of CR-29 on flatulence and female sexuality (Table 6).

Discussion

QoL is a meaningful endpoint used together with the clinical and physiological aspects and is explained from the patient's perspective. Furthermore, the QoL ratings offer valuable information about how the disease affects many facets of the lives of those who are impacted. The global health status of patients with colorectal cancer and related factors were evaluated in this study. The evaluated studies had a higher global health status mean score as compared to this study. The study's mean score was lower

Table 4 Factors associated with the global health status of colorectal cancer patients attending Tikur Anbessa specialized hospital, addis Ababa, 2019 ($n = 159$)

Variable category	Categories	Quality of life		COR (95% CI)	AOR (95% CI)	*P*-value
		Poor quality of life	Good quality of life			
		Frequency (%)	Frequency (%)			
Age (in years)				1.02 (0.99, 1.04)		
Time since diagnosis (months)				1.01 (0.99, 1.02)		
Sex	Male	38 (47.5)	51 (64.5)	1		
	Female	42 (52.5)	28 (35.4)	0.5 (0.26, 0.94)	0.16 (0.05–0.52)	0.002*
Marital status	Married	49 (61.3)	55 (69.6)	1		
	Never married	9 (11.3)	5 (6.3)	0.5 (0.155, 1.58)		
	Divorced	11 (13.8)	11 (13.9)	0.9 (0.36, 2.24)		
	Widowed	11 (13.8)	8 (10.1)	0.65 (0.24, 1.74)		
Educational status	Secondary school (grade 9–12)	24 (30.0)	33 (42.9)	1		
	No formal education	19 (23.8)	9 (11.7)	0.34 (0.13, 0.89)		
	Primary school (grade 1–8)	29 (36.3)	18 (23.4)	0.45 (0.21, 0.99)		
	College and above	8 (10.0)	17 (22.1)	1.6 (0.57, 4.16)		
Residence	Urban	67 (83.8)	71 (89.9)	1		
	Rural	13 (16.3)	8 (10.1)	0.58 (0.23–1.49)		
Occupational status	Unemployed	48 (60.0)	31 (39.2)	1		
	Government employee	16 (20.0)	41 (51.9)	3.97 (1.89, 8.36)	3.41 (1.15, 10.17)	0.03*
	Self-employee	16 (20.0)	7 (8.9)	0.7 (0.25, 1.85)	0.23 (0.05, 1.13)	0.07
Wealth Index	Highest	23 (28.7)	9 (11.4)	1		
	Lowest	14 (17.5)	17 (21.5)	3.1 (1.09, 8.83)		
	Second	12 (15.0)	20 (25.3)	4.3 (1.49, 12.19)		
	Middle	12(15.0)	20(25.3)	4.3 (1.488–12.192)		
	Fourth	19(23.8)	13(16.5)	1.8 (0.615, 4.97)		
Smoking status	Never smoked	73(91.3)	70(88.6)	1		
	Smoked before	7 (8.8)	9(11.4)	1.34 (0.47, 3.8)		
Chat chewing	Never chewed	66(82.5)	68(86.1)	1		
	Chewed before	14(17.5)	11(13.9)	0.76 (0.32, 1.8)		
Alcohol drinking status	Yes	37(46.3)	47(59.5)	1		
	No	43(53.8)	32(40.5)	0.6 (0.31, 1.1)		
Treatment type	Surgery and chemotherapy	35(43.8)	46(58.2)	1		
	Surgery	14(17.5)	18(22.8)	0.98 (0.43, 2.23)		
	Chemotherapy and radiation	6(7.5)	5(6.3)	0.63 (0.18, 2.23)		
	Chemotherapy	10(12.5)	4(5.1)	0.3 (0.09, 1.05)		
	Surgery, chemotherapy, and radiation	15(18.8)	6(7.6)	0.3 (0.11, 0.86)		
TNM stage	Late-stage	79(50.3)	78(49.7)	1		
	Early stage	37(46.8)	40(51.3)	1.2 (0.64, 2.24)	4.98 (1.51, 16.4)	0.01*
History of metastasis	No	60(76.9)	57(48.7)	1		
	Yes	18(23.1)	20(26.0)	1.17 (0.56, 2.43)		
History of recurrence	No	63(78.8)	68(87.2)	1		
	Yes	17(21.3)	10(12.8)	0.6 (0.23, 1.28)		

Notes: AOR: adjusted odds ratio; COR: crude odds ratio; CI: confidence interval; TNM: T describes the size of the tumor and any spread of cancer into nearby tissue; N describes spread of cancer to nearby lymph nodes; and M describes metastasis.*$p < 0.05$

Table 5 Functional and symptom scales of EORTC QLQ C-30 [b] association with quality of life among colorectal cancer, Tikur Anbessa specialized hospital, Ethiopia, 2019 ($n=159$)

Variable	COR (95% CI)	AOR (95% CI)	*P*-value
Functional scales			
Physical function	1.04 (1.03, 1.06)	1.04 (1.01, 1.06)	0.001*
Role functioning	1.03 (1.02, 1.04)		
Emotional functioning	1.05 (1.03, 1.06)		
Cognitive functioning	1.04 (1.02, 1.06)		
Social functioning	1.03 (1.02, 1.04)	1.02 (1.01, 1.04)	0.04*
Symptom scales or items			
Fatigue	0.97 (0.95, 0.98)		
Nausea or vomiting	0.97 (0.95, 0.99)		
Pain	0.97 (0.96, 0.99)		
Dyspnea	0.97 (0.96, 0.99)		
Insomnia	0.98 (0.97, 0.99)		
Appetite loss	0.98 (0.97, 0.99)		
Constipation	0.98 (0.96, 0.99)		
Diarrhea	0.99 (0.98, 1.01)		
Financial difficulties	0.98(0.97, 0.99)	0.98 (0.96, 0.99)	0.002*

Notes: AOR: adjusted odds ratio; COR: crude odds ratio; CI: confidence interval; *$p<0.05$

[b] EORTC QLQ C-30: European Organization for Research and Treatment of Cancer quality of life of cancer patients tool with 30 items

Table 6 Functional and symptom scales of EORTC QLQ CR-29 [c] association with quality of life among colorectal cancer patients attending the cancer center at Tikur Anbessa specialized hospital, Ethiopia, 2019 ($n=159$)

Variable	COR (95% CI)	*P*-value	AOR (95% CI)
Symptom scale			
Urinary frequency	0.98 (0.97, 0.99)	0.004	
Urinary incontinence	0.98 (0.97, 0.99)	0.03	
Dysuria	0.97 (0.96, 0.99)	0.001	
Abdominal pain	0.98 (0.97, 0.99)	0.002	
Buttock pain	0.98 (0.97, 0.99)	0.001	
Bloating	0.99 (0.98, 0.99)	0.02	
Blood and mucus in stool	0.96 (0.94, 0.99)	0.001	0.94 (0.91, 0.96)
Dry mouth	0.99 (0.97, 0.99)	0.01	
Hair loss	0.99 (0.98, 1.01)	0.37	
Taste	0.99 (0.98, 1.001)	0.07	
Impotence[3]	0.99 (0.98, 1.01)	0.91	
Dysuria[4]	0.99 (0.98, 1.02)	0.73	
Functional scales			
Anxiety	1.01 (1.002, 1.02)	0.01	
Weight	1.02 (1.010, 1.03)	0.00	
Body image	1.02 (1.012, 1.04)	0.00	
Sexual interest in men[4]	0.99 (0.982, 1.01)	0.64	
Sexual interest in women[3]	0.99 (0.976, 1.02)	0.73	

Notes:

AOR: adjusted odds ratio; COR: crude odds ratio; CI: confidence interval; *$p<0.05$

[c] EORTC QLQ CR-29 -European Organization for Research and Treatment of Cancer quality of life questionnaire for colorectal cancer with 29 items

[3]Applicable only for men; [4]Applicable only for female

than that of studies done in Turkey, the UK, and China [21–23]. Additionally, it was below the 60 ± 23.4 EORTC QLQ C-30 reference value guideline for colorectal cancer, indicating a dismal quality of life [24]. This disparity could be attributed to variations in sample size and geographic location. The studies conducted in Turkey, the United Kingdom, and China all represent high-income and upper-middle income countries, with a direct relationship between income levels and patient quality of life.

The reduced QoL could be attributed to factors such as delayed disease diagnosis, limited treatment options, and socioeconomic challenges. Compared to the EORTC QLQ reference values for colorectal cancer, the mean scores for physical, role, cognitive, and social functions were lower, while emotional functioning scores were nearly the same. Role and social functions had the lowest mean scores, which were quite similar to each other. These findings are consistent with studies from Morocco, Germany, and the Netherlands [25–27].

The reduced role and social functioning in colorectal cancer patients might be due to the presence of ostomies and bowel control issues. These conditions can prevent patients from engaging fully in daily work activities and social life, especially when dealing with a colostomy. The mean symptom scale scores for EORTC QLQ C-30 in these patients were higher than those in the EORTC reference manual for fatigue, pain, appetite loss, and financial difficulties, while other symptoms were similar. This indicates that patients experienced more severe symptoms compared to the reference manual.

Symptom burdens in colorectal cancer patients often arise from treatment side effects. A German study [28] reported a lower median summary score for symptom scales, with fatigue being a prominent complaint. Similarly, a study in the general population of Denmark [29] found fatigue and pain to be significant symptom burdens, despite their mean scores being lower than those observed in our study. Notably, urinary frequency emerged as a top complaint on the EORTC CR-29 symptom scale, consistent with findings from a Saudi Arabian study [30, 31].

Colorectal cancer patients who have a stoma face challenges that impact their quality of life. These challenges include feelings of stigma, bowel dysfunction, fear of odor and leakage, and limitations in social activities. Similar findings have been observed in studies conducted in England and the USA [32, 33]. Despite having a stoma, patients still encounter difficulties in social functioning, which aligns with results from a Saudi Arabian study [34].

Another factor influencing their quality of life is pain, according to a study in Turkey [35], in which patients with moderate to severe pain reported interference with sleep, daily activities, happiness, work capacity, and social contacts. Pain is a common symptom of cancer.

Strengthens and limitations of the study

This study used the Amharic version of the EORTC C-30 V.9 questionnaire, as well as the EORTC CR-29, a colorectal cancer-specific tool, to identify the specific challenges that colorectal cancer patients face. However, because the study was carried out at a single radiation referral center, the results may not accurately reflect the broader community situation.

Conclusions

This study found that patients with colorectal cancer have a lower-than-average quality of life (QoL). Many patients reported below-average scores in several domains, including social, role, and physical functioning. Additionally, these patients frequently experienced severe pain, fatigue, loss of appetite, and financial difficulties. Gender, occupational status, the clinical stage of the disease, levels of physical and social functioning, financial difficulties, the presence of a stoma, and the presence of blood or mucus in stools have all been found to have an impact on the quality of life of those with colorectal cancer. To improve the evaluation of functional aspects and symptom management related to specific colorectal cancer, patient-reported outcomes should be incorporated into treatment protocols.

Abbreviations

AOR	Adjusted Odds Ratio
COR	Crude odds ratio
CRC	Colorectal Cancer
EORTC QLQ C-30	European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30
EORTC QLQ CR-29	European Organization for Research and Treatment of Cancer Quality of Life Questionnaire for colorectal cancer
HDI	Human development index
NCDs	Non-communicable Diseases
QOL	Quality of life
TASH	Tikur Anbessa Specialized Hospital
SD	Standard deviation
TASH	Tikur Anbessa Specialized Hospital

Supplementary Information

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Supplementary Material 1

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Author contributions

HG and ZHG wrote the draft and interpreted the results. HG, GT, AW, ZHG, and JDF were involved in the writing of the research proposal, report, data analysis, and write-up. GT, AW, JDF, EG, and TA were involved in the development of the study design and in reviewing the entire study report. All authors reviewed the manuscript for important intellectual content and approved it for publication.

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Data availability

This master's thesis interim data was presented at Addis Ababa University, and this manuscript is part of a larger gastrointestinal cancer quality of life study in Addis Ababa, Ethiopia. The full thesis report is available in the institutional repository of Addis Ababa University (https://etd.aau.edu.et/items/f63b10fe-2e18-4fb2-9560-7bca387e6ae8).

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Research and Ethics Committee (REC) of the School of Public Health, College of Health Sciences, Addis Ababa University (Ref: SPH/0019/2019). A verbal informed consent was obtained from all individual participants. The data obtained from the patients was strictly protected, which was accomplished by not writing the identification of the participants' names. There was no remuneration or incentive given to study participants without their consent. All participant data was kept anonymous and the study was conducted following the 1964 Declaration of Helsinki.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

[1]Department of Epidemiology, School of Public Health, Debre Birhan University, Debre Birhan, Ethiopia
[2]Department of Epidemiology and Biostatistics, School of Public Health, Addis Ababa University, Addis Ababa, Ethiopia
[3]Department of Radiation Oncology and Applied Sciences, Dartmouth Cancer Center, Lebanon, NH, USA
[4]Sociology Department, School of Social and Political Science, University of Glasgow, Glasgow, UK
[5]School of Pharmacy, Addis Ababa University, Addis Ababa, Ethiopia
[6]Department of Public Health, College of Medicine and Health Sciences, Adigrat University, Adigrat, Ethiopia

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