

Quality of Life of Patients with Upper Gastrointestinal Cancer at Kenyatta National Hospital Cancer Treatment Centre, Nairobi City County, Kenya

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Abstract

Background: Upper gastrointestinal (GI) cancers substantially impair health-related quality of life (HRQoL). In Kenya, these malignancies rank among the leading causes of cancer mortality and are frequently diagnosed at advanced stages.

Objectives: To assess HRQoL among patients with upper GI cancers at Kenyatta National Hospital Cancer Treatment Centre (KNH-CTC) and to identify associated sociodemographic, clinical, treatment and hospital-related factors.

Methods: Analytical cross-sectional study of 131 consecutive patients with histologically confirmed oesophageal, gastric or oral cavity cancer receiving active treatment at KNH-CTC (July–August 2025). HRQoL was measured with the EORTC QLQ-C30 (version 3). Good HRQoL was defined a priori as global health status/QoL ≥ 60 , all functional scales ≥ 60 and all symptom scales < 60 . Data were analysed using SPSS v28 with descriptive statistics, χ^2 tests, and multivariable logistic regression.

Results: Only 25.3% (n=33) met criteria for good HRQoL; 74.7% had poor HRQoL. The mean global health status score was 48.0 ± 1.3 . Role functioning (38.7) and social functioning (28.1) were severely impaired. Dominant symptoms were financial difficulties (84.8), fatigue (80.3) and appetite loss (73.9). Multivariable analysis identified late-stage disease (adjusted odds ratio [AOR], 4.10; $p=0.002$) and lack of financial access to oncology services (AOR, 3.62; $p=0.002$) as independent predictors of poor HRQoL. Married patients had significantly better HRQoL ($p=0.042$).

Conclusion: Patients with upper GI cancers at KNH-CTC experience substantially impaired HRQoL, driven primarily by advanced stage at presentation and financial toxicity. Strengthening early detection, expanding financial protection under the Social Health Authority, and integrating nutritional, psychological and palliative support are urgently required.

Keywords: *Upper gastrointestinal cancer, quality of life, EORTC QLQ-C30, financial toxicity, Kenya, late-stage disease*

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1. Introduction

Quality of life (QoL) in cancer is defined as the individual's subjective perception of satisfaction or happiness across physical, psychological, social and functional domains [19]. Cancer remains a leading global cause of death, accounting for approximately 10 million deaths in 2020 [4,5]. In Sub-Saharan Africa, upper gastrointestinal (GI) cancers, particularly oesophageal and gastric malignancies, impose a substantial burden of morbidity and mortality [14,15].

In Kenya, upper GI tract cancers rank among the top five causes of cancer-related death [7,13]. At Kenyatta National Hospital (KNH), the majority of affected patients present with advanced disease, often accompanied by dysphagia, cachexia, odynophagia and tracheo-oesophageal fistula, rendering treatment predominantly palliative [7,8,11]. Despite this high clinical burden, local data on health-related quality of life (HRQoL) during active treatment remain scarce. Most existing studies have focused on cancer survivors rather than patients still receiving therapy, a critical phase that influences treatment adherence, symptom burden, and overall outcomes [9,10,17].

No previous Kenyan study has systematically examined the joint influence of sociodemographic characteristics, treatment modalities, disease-related factors and hospital support structures on the HRQoL of upper GI cancer patients at a national referral centre. This study therefore aimed to: (1) quantify overall HRQoL using the EORTC QLQ-C30; (2) determine associations with sociodemographic, treatment, disease-related and hospital factors; and (3) identify independent predictors of poor HRQoL.

2. Methods

2.1 Study design and setting

An analytical cross-sectional study was conducted at the Kenyatta National Hospital Cancer Treatment Centre (KNH-CTC), the largest public oncology referral and teaching facility in East and Central Africa, between July and August 2025. The centre manages the highest volume of upper GI cancer cases in Kenya and offers chemotherapy, radiotherapy, chemoradiotherapy and supportive services including nutritional counselling, palliative care and psychological support [8,11].

2.2 Study population and sampling

Consecutive sampling was used to enrol all eligible adults (≥ 18 years) with histologically confirmed upper GI cancer (oral cavity, pharynx, oesophagus, stomach or duodenum) who were actively receiving chemotherapy, radiotherapy or chemoradiotherapy at KNH-CTC during the study period. Exclusion criteria included: multiple primary cancers, critical illness requiring emergency intervention, and refusal or inability to provide informed consent. Sample size was calculated using Cochran's formula, adjusted for a finite population of approximately 200 eligible patients, yielding a target of 132; 131 patients completed the study.

2.3 Data collection instruments

HRQoL was assessed using the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire – Core 30 (EORTC QLQ-C30, version 3.0) [1–3]. This internationally validated instrument comprises a global health status/QoL scale, five functional scales (physical, role, emotional, cognitive, social) and nine symptom scales/items. Scores range from 0 to 100; higher functional and global scores indicate better function, while higher symptom scores indicate greater burden. Good HRQoL was defined a priori as global health status/QoL ≥ 60 , all functional scales ≥ 60 , and all symptom scales < 60 , consistent with established interpretability thresholds [6]. Poor HRQoL was defined as failure to meet any of these thresholds.

A structured questionnaire captured sociodemographic variables (age, sex, marital status, education, occupation, insurance status, number of dependants), treatment modality, disease stage (TNM), comorbidities, and hospital support structures (accessibility of pain management, nutritional support, psychological counselling, financial accessibility of oncology services, drug availability, staffing, communication and privacy).

2.4 Data collection procedure and ethics

Questionnaires were administered face-to-face (self- or interviewer-administered, depending on literacy and physical capacity). Clinical data were verified from medical records. The Kenyatta University Ethics Review Committee, the KNH–University of Nairobi Ethics and Research Committee, and the National Commission for Science, Technology and Innovation (NACOSTI) approved the study. All participants provided written informed consent. Data were anonymised and stored securely.

2.5 Statistical analysis

Data were analysed using SPSS version 28. Descriptive statistics (means $\pm$ standard error of the mean [SEM], frequencies and percentages) summarised participant characteristics and domain scores. Bivariate associations were examined with χ^2 or Fisher's exact tests. Variables with $p < 0.05$ on bivariate analysis or of clinical relevance were entered into multivariable binary logistic regression (outcome: poor versus good HRQoL). Adjusted odds ratios (AORs) with 95% confidence intervals are reported. Statistical significance was set at $p < 0.05$.

3. Results

3.1 Participant characteristics

Of the 131 patients, 55.0% ($n=72$) had oesophageal cancer, 29.0% ($n=38$) had gastric cancer, and 16.0% ($n=21$) had oral cancer. Most patients were aged 50–70 years (58.8%); 60.3% were male; 78.6% were married; 84.7% had primary education or less; 86.3% were unemployed; and 99.2% were covered by the public Social Health Authority (SHA). Stage distribution was: Stage I 13.0%, Stage II 30.5%, Stage III 32.1%, and Stage IV 24.4%. The majority (82.4%) reported no comorbidity.

Table 1. Sociodemographic and clinical characteristics of study participants (N=131)

Variable	Category	n	%
Age (years)	31–39	5	3.8
	40–49	16	12.2
	50–59	39	29.8
	60–70	38	29.0
	≥71	33	25.2
Sex	Male	79	60.3
	Female	52	39.7
Marital status	Married	103	78.6
	Single/Widowed/Separated	28	21.4
Education	Primary or less	111	84.7
	Secondary or higher	20	15.3
Occupation	Unemployed	113	86.3
	Employed/Self-employed	18	13.7
Cancer type	Oesophageal	72	55.0
	Gastric	38	29.0
	Oral	21	16.0
Stage	Early (I–II)	57	43.5
	Late (III–IV)	74	56.5

3.2 Overall health-related quality of life

Only 33 patients (25.3%) met the strict composite criteria for good HRQoL. The vast majority (98 patients; 74.7%) had poor HRQoL. The mean global health status/QoL score was 48.0 ± 1.3 , placing the cohort firmly in the low QoL range. Functional scales revealed relatively preserved cognitive (91.8 ± 1.7) and emotional (76.6 ± 2.8) functioning, but severe impairment in role (38.7 ± 2.5) and social (28.1 ± 2.2) functioning. Physical functioning was moderately impaired (61.2 ± 1.8). Financial difficulties (84.8 ± 2.2), fatigue (80.3 ± 2.0), and appetite loss (73.9 ± 2.8) dominated symptom burden. Pain scored 48.2 ± 2.4 . These patterns were consistent across oesophageal, gastric and oral cancer subtypes.

Table 2. EORTC QLQ-C30 domain scores (N=131)

Domain / Item	Mean $\pm$ SEM	Interpretation
Global health status / QoL	48.0 $\pm$ 1.3	Low
Cognitive functioning	91.8 $\pm$ 1.7	Preserved
Emotional functioning	76.6 $\pm$ 2.8	Relatively preserved
Physical functioning	61.2 $\pm$ 1.8	Moderately impaired
Role functioning	38.7 $\pm$ 2.5	Severely impaired
Social functioning	28.1 $\pm$ 2.2	Severely impaired
Financial difficulties	84.8 $\pm$ 2.2	High burden
Fatigue	80.3 $\pm$ 2.0	High burden
Appetite loss	73.9 $\pm$ 2.8	High burden
Pain	48.2 $\pm$ 2.4	Moderate burden
Nausea/vomiting	32.5 $\pm$ 2.3	Low–moderate

3.3 Associations with HRQoL

On bivariate analysis, three factors were significantly associated with HRQoL. Late-stage disease (Stage III–IV) was associated with markedly higher rates of poor HRQoL compared with early-stage disease (85.1% vs 61.4%; $\chi^2=8.405$, $p=0.0037$, OR=3.60). Lack of financial accessibility to oncology services was likewise associated with poorer HRQoL (84.0% vs 60.0%; $\chi^2=8.183$, $p=0.004$, OR=3.49). Married patients reported better HRQoL than single, widowed or separated patients (28.2% good HRQoL vs 14.3%; $\chi^2=4.12$, $p=0.042$). No statistically significant associations were found for age, sex, education, occupation, cancer type, treatment modality or comorbidity status, although clinically relevant trends favoured better HRQoL among those with higher education, employment, and access to pain management and nutritional support.

3.4 Independent predictors of poor HRQoL

Multivariable logistic regression identified two independent predictors of poor HRQoL after adjustment: late-stage disease (AOR 4.10, $p=0.002$) and lack of financial accessibility to oncology services (AOR 3.62, $p=0.002$). Marital status attenuated and lost statistical significance after adjustment.

Table 3. Multivariable logistic regression: independent predictors of poor HRQoL

Variable	B	SE	Wald	p-value	AOR
Disease stage (Late vs Early)	1.412	0.451	9.81	0.002	4.10
Financial accessibility (No vs Yes)	1.285	0.423	9.22	0.002	3.62

4. Discussion

This study demonstrates that approximately three-quarters of patients with upper GI cancers treated at Kenya's principal national referral centre experience clinically important impairment in HRQoL. The mean global health status score of 48.0 is substantially lower than scores typically reported among mixed-stage cohorts in high-income countries [3,17] and is consistent with findings from other low-resource East African settings [9,10]. Abebe et al. reported similarly impaired physical functioning and overall QoL among Ethiopian patients with upper GI cancers [9], while a multi-centre East African study by Degu et al. also documented high symptom burden and reduced role and social functioning [10].

The strongest independent drivers of poor HRQoL were advanced stage at diagnosis and financial inaccessibility of oncology services. Late presentation (56.5% Stage III–IV) reflects well-documented systemic barriers, low public awareness, limited endoscopy capacity, financial barriers to diagnostics, and a preference for traditional healers over biomedical care [7,11,13]. These patterns are similar to the wider epidemiology of oesophageal cancer in East Africa, where most patients present at unresectable stages [14,15]. Financial toxicity persisted despite near-universal coverage under the Social Health Authority, indicating that current benefit packages inadequately cover oncology drugs, nutritional supplements, transport and income loss. This finding aligns with Donkor et al.'s systematic review, which identified financial toxicity as a dominant determinant of patient-reported outcomes in low- and middle-income countries [12], and with broader analyses of cancer care delivery challenges in similar settings [20].

Role and social functioning were particularly compromised, reflecting the cultural centrality of shared meals and community participation in Kenyan society. Cognitive and emotional functioning were relatively preserved, perhaps reflecting cultural resilience, spiritual coping, and a shift in response. Treatment modality was not significantly associated with HRQoL, suggesting that disease stage and financial burden outweighed differences in therapeutic intensity when supportive care infrastructure is limited. Similar observations have been reported post-oesophagectomy and during multimodality treatment in other cohorts, where disease stage and access to supportive care often eclipse treatment-specific effects [16,17].

These findings align with emerging literature from low- and middle-income countries that positions financial toxicity and late-stage presentation as dominant determinants of patient-reported outcomes in gastrointestinal oncology [12,18,20]. They also underscore the protective role of marital and family support in collectivist African settings, consistent with conceptual models linking social support to health-related quality of life [19]. The Lancet Oncology Commission's call for integrating oncology and palliative care [18] remains particularly relevant for this patient population, given the high symptom burden and advanced stage at presentation.

5. Conclusion

Patients with upper gastrointestinal cancers at Kenyatta National Hospital Cancer Treatment Centre experience substantially impaired health-related quality of life. Late-stage disease at presentation and financial toxicity are the dominant, independent predictors of poor HRQoL. Marital status confers a modest protective effect. Strengthening early detection programmes,

expanding financial protection mechanisms under the Social Health Authority, and integrating nutritional, psychological and palliative care into routine oncology services are essential to improve patient outcomes.

6. Recommendations

1. The Ministry of Health and National Cancer Control Programme, in partnership with county health departments, should intensify community education on early warning signs of upper GI cancers and introduce subsidised or free endoscopy screening in high-risk regions.
2. The Social Health Authority should expand comprehensive oncology benefit packages to include drugs, nutritional support and indirect costs, and establish dedicated financial navigation desks at major cancer centres.
3. KNH-CTC management should institutionalise routine HRQoL screening using the EORTC QLQ-C30 and embed multidisciplinary supportive-care teams comprising nutritionists, psycho-oncologists and palliative care specialists.
4. Future longitudinal and interventional studies should evaluate the impact of combined financial-navigation, nutritional and psychosocial packages on HRQoL trajectories among patients with upper GI cancers in East Africa.

References

1. Aaronson NK, Ahmedzai S, Bergman B, et al. The European Organisation for Research and Treatment of Cancer QLQ-C30: a quality-of-life instrument for use in international clinical trials in oncology. *J Natl Cancer Inst.* 1993;85(5):365-376.
2. Fayers PM, Aaronson NK, Bjordal K, et al. EORTC QLQ-C30 Scoring Manual. 3rd ed. Brussels: European Organisation for Research and Treatment of Cancer; 2001.
3. Scott NW, Fayers PM, Aaronson NK, et al. EORTC QLQ-C30 Reference Values. Brussels: EORTC Quality of Life Group; 2008.
4. Ferlay J, Ervik M, Lam F, et al. Global Cancer Observatory: Cancer Today. Lyon: International Agency for Research on Cancer; 2021. Available from: <https://gco.iarc.fr/today>
5. Sung H, Ferlay J, Siegel RL, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2021;71(3):209-249.
6. Osoba D, Rodrigues G, Myles J, Zee B, Pater J. Interpreting the significance of changes in health-related quality-of-life scores. *J Clin Oncol.* 1998;16(1):139-144.
7. Wanjohi S, Othieno-Abinya N, Mutua K. Clinical patterns of upper gastrointestinal cancers at Kenyatta National Hospital. *East Afr Med J.* 2020;97(5):233-240.
8. Kenya Ministry of Health. Kenya National Cancer Treatment Protocols. Nairobi: Ministry of Health; 2019/2020.
9. Abebe T, Alemu G, Tadesse M. Physical functioning and quality of life among Ethiopian patients with upper GI cancer. *Ethiop J Health Sci.* 2023;33(2):234-245.

10. Degu A, et al. Quality of life among patients with gastrointestinal cancers in East Africa: a multi-centre perspective. *African Health Sciences*. 2024.
11. Njeru EM. Cancer care pathways in Kenya: patient experiences and systemic challenges. *East Afr Med J*. 2021;98(7):456-463.
12. Donkor A, et al. Financial toxicity of cancer care in low- and middle-income countries: a systematic review. *Lancet Oncol*. 2022.
13. Korir A, et al. Cancer incidence and survival in Nairobi: population-based registry results. *Int J Cancer*. 2022;150(5):789-798.
14. Pennathur A, et al. Oesophageal cancer: epidemiology, staging, and outcomes. *Ann Thorac Surg*. 2022;114(1):356-365.
15. Thrift AP, Nguyen TH. Epidemiology and risk factors for oesophageal cancer. *Nat Rev Gastroenterol Hepatol*. 2023;20(2):85-97.
16. Blazeby JM, et al. Development of an EORTC questionnaire module to assess quality of life in patients with oesophageal cancer. *Eur J Cancer*. 2000;36(15):1825-1834.
17. Lagergren J, Avery KNL, Barbour AP. Health-related quality of life after esophagectomy for cancer. *Br J Surg*. 2007;94(9):1132-1137.
18. Kaasa S, et al. Integration of oncology and palliative care: a Lancet Oncology Commission. *Lancet Oncol*. 2018;19(11):e588-e653.
19. Wilson IB, Cleary PD. Linking clinical variables with health-related quality of life: a conceptual model of patient outcomes. *JAMA*. 1995;273(1):59-65.
20. Pramesh CS, et al. Cancer care delivery in low- and middle-income countries: challenges and opportunities. *Lancet Oncol*. 2022;23(2):e93-e102.