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Quality of life and associated factors among cancer patients receiving palliative care in Western Uganda: a cross-sectional study

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Abstract

Background Quality of life (QoL) is a vital outcome of palliative care for cancer patients, yet in a number of Sub-Saharan settings, including Western Uganda, there is a dearth of evidence on the level of quality of life and its correlates. Our goal therefore, was to assess the level of quality of life and associated factors among cancer patients receiving palliative care in Western Uganda.

Methods A cross-sectional study was conducted using a pretested questionnaire that included socio-demographics, clinical information and the MissoulaVitas Quality of Life Index (MVQOLI-15R), a tool that measures quality of life of patients with advanced, incurable and progressive disease such as cancer. It is a 16-item instrument comprising of five subscales of: function, symptom, interpersonal, well-being and transcendence that encompass physical, social, psychological and spiritual dimensions. This tool was previously validated for a similar segment of patients. The above data collection instrument was translated into Runyoro and Runyankore and administered to consecutively enrolled cancer patients at Mobile Hospice Mbarara and Little Hospice Hoima, both of which are found in Western Uganda.

Results Two hundred four patients were recruited. They had a mean age of 58.8 ± 15.2 years and 154 (75.5%) of them were female. The commonest diagnosis was cancer of the cervix, 101 (49.5%). The mean global QoL score was 3.47 ± 0.88 (possible range 0[worst] to 5[best]). The mean total QoL score was 13.44 ± 1.62 (possible range 0[worst] to 30[best]). Patients scored most poorly on symptoms ($-6.78 \pm$), followed by Interpersonal (-4.01), transcendence (-3.53), function (-2.50) and well-being (1.31). The possible ranges for the subscales is (-30 [worst] to 30 [best]). With regard to factors associated with QoL, stage of disease, treatment with radiotherapy and pain intensity were found to have statistically significant associations with QoL of cancer patients receiving palliative care in this context.

Conclusion QoL of cancer patients under palliative care in Western Uganda was found to be low. Treatment with radiotherapy, pain intensity and stage of disease were established to key predictors of QoL of these patients. Therefore, it is vital for cancer patients to be diagnosed with early stage, have their pain well controlled and get treated with radiotherapy where appropriate in order to harness better outcomes such as QoL for them.

Keywords Quality of life, Palliative care, Associated factors, Cancer

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Background

Globally, cancer is a leading cause morbidity and mortality, and this burden is increasingly becoming prominent in low- and middle-income nations, especially those in sub-Saharan Africa (SSA) such as Uganda [1, 2]. In 2020 SSA had over 800,000 new cases and 520,000 deaths and this public health load is projected to more than double by 2040 [3, 4]. Uganda registers over 32,000 new cases and over 21,000 deaths annually [5, 6]. In these settings many of these patients present with advanced, incurable and progressive disease characterized by limited management modalities, making palliative care (PC) a pertinent component of cancer care [1, 7].

The World Health Organization (WHO) defines palliative care as “an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual” [–10].

The main focus of palliative care is to ameliorate quality of life (QoL) through addressing multifaceted problems of the patients and their families [1, 11, 12]. QoL is a foundational outcome in cancer care and WHO define it as “individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” [13–15]. It is a broad spectrum multi-dimensional concept that is influenced by a number of factors; physical, social, psychological as well as spiritual [16, 17].

In African palliative care settings, a number of patients are found to have low to moderate QoL, especially in the physical and psychological domains [11, 18, 19]. In Uganda, majority of adult cancer patients experience a decline in physical (79%) and psychological (61%) functioning and hence low QoL levels, highlighting a huge indicator of unmet needs for palliative care [18].

Additionally, several systematic reviews about QoL for cancer patients in the developing world have shown that it is highly influenced by factors such as; marital status, education levels, symptom burden, depression, social support and age and that these factors can be modified through better clinical, psychological and spiritual care [1, 2, 20]. Unfortunately, QoL and its determinants among cancer patients in Africa including Western Uganda remain largely under-researched, which hinders proper planning and implementation of palliative in the region [1, 2].

In view of the above, this study therefore, aimed to assess the level of QoL and associated factors among cancer patients receiving palliative care in Western Uganda. This was justified to quantify the outcome and reveal modifiable determinants and ultimately support

evaluation and improvement of palliative care in the region.

Methods

Setting

This study was carried out from Little Hospice Hoima (LHH) and Mobile Hospice Mbarara (MHM), both of which are located in Western Uganda. The two health facilities are branches of Hospice Africa Uganda (HAU), a non-governmental organization (NGO) that provides specialized palliative care at a tertiary level (level 3) as per the African Palliative Care Association (APCA) standards of 2011. to patients with life-limiting illnesses such as cancer. Since their establishment in 1998, both facilities have cared for over 50,000 patients and currently 815 patients are on their program, 80% of whom have a diagnosis of cancer (HAU 2025). HAU provides a spectrum of services that include; pain and symptom management across physical psychosocial and spiritual domains. It also provides bereavement support and daycare services for both patients and their families. This care is offered through home-based care, outreach clinics and at the facilities.

Study design and participants

This was a facility-based cross-sectional study carried among 204 cancer patients who received care from Mobile Hospice Mbarara and Little Hospice Hoima from September to November 2025 through the above modalities of care. Participants were considered eligible if they had a diagnosis of cancer, were 18 years or older, had been on palliative care program for 30 days or more and were willing to participate in the study. Participants were excluded if they were not willing to take part in the study, were too sick to participate or were unable to communicate verbally.

Sample size estimation

The above sample size of 204 cancer patients was estimated by use of Yamane’s formula (1967) for finite populations. This formula is widely used in survey studies when the population size is known and a specific margin of error is targeted [21].

Sampling technique

We employed a consecutive sampling technique at the study sites. A database of patients at each of the two facilities was used to identify all the eligible participants who were sequentially consented and enrolled into the study until the required sample size was attained.

Data collection

Data were collected using a pretested structured questionnaire that was programmed and administered

through the Research and Data Capture software (REDCAP) version 5 [22] by 3 trained research assistants at each of the 2 study sites. The data collection tool had 3 sections: (1) Patients' socio-demographics, (2) medical/clinical information (3) QoL assessment using the Misoula Vitas Quality of Life Index (MVQOLI-15R). This tool, developed by Byock et al. at first as a 25-item tool, with five dimensions of: function, symptom, interpersonal (social), well-being (psychological), transcendence (existential and spiritual issues) but was later revised to 15-item tool with similar dimensions/domains [23]. The MVQOLI-15R is specifically designed to assess the personal experiences of patients in each of the 5 domains and for the very reason, the individual items are phrased in a very subjective way where scores are not awarded to questions seen by the patient. In each of the 5 dimensions, patients provide 3 pieces of information to capture their overall experience: Assessment, which is a subjective measure of the current status or circumstance (rate from - 2 to + 2), Satisfaction, which measures the level of acceptance of the current status or circumstance (rated from -4 to + 4) and Importance, which indicates the extent to which a specific dimension influences the overall quality of life (rated + 1 to + 5). The tool generates both raw/unweighted scores and weighted scores. The unweighted dimensional scores are obtained by adding the Assessment and Satisfaction scores and they range from - 6 to + 6 while the weighted dimensional scores are calculated as the product of the above unweighted scores and the Importance score and they range from - 30 to + 30. The total QoL is derived by summing all the five weighted dimensional scores, dividing them by 10, and then adding 15 to the resultant quotient. This variable ranges from 0 to + 30, as the worst and best QoL levels possible. The instrument includes a single item on quality-of-life status (Global score) for assessing convergent validity purposes and it ranges from + 1 to + 5 for the worst and best possible scores. Additionally, this tool has adequate internal consistency ($\alpha = 0.77$) and construct validity ($r = 0.43$) [24] and it has been validated and used to assess QoL in a number of studies in SSA and Uganda [11, 25]. The entire data collection instrument was in English but was translated to Runyankore and Runyoro for application in Mbarara and Hoima respectively. Other key independent variables, such as socioeconomic status, pain control, medication adherence and functional status were assessed using standard and validated instruments of: modified Kuppaswamy scale [26], Numerical Rating Scale (NRS) [27], Morisky Medication Adherence Scale (MMAS-8) [28, 29] and Eastern Cooperative Oncology Group (ECOG) Scale [30, 31] respectively.

Data management and analysis

Data was exported from REDCAP to excel software as a password protected dataset where its completeness was ascertained and cleaned. It was then exported to SPSS software version 25 for analysis. Descriptive statistics (frequencies, percentages, means, medians and inter-quartile range) were used to summarize participant characteristics and pertinent study variables including QoL. Also, bivariate and multi-variable analysis was conducted to identify key factors associated with QoL utilizing suitable statistical tests.

Ethical considerations

Informed consent was sought and obtained from all study participants before they could be enrolled into the study. Ethical approval was sought and granted from the Research and Ethics Committee of Mbarara University of Science and Technology (MUST-2025-351 and Uganda National Council of Science and Technology (UNCST: HS6248ES). Also, administrative clearance was obtained from Hospice Africa Uganda. In order to protect privacy, data were collected and stored in de-identified form, with personal identifiers kept separate from research data, datasets were password protected and accessible only to authorized study personnel. Additionally, all data collection processes were aligned to the key principles of the Declaration of Helsinki [32].

Results

Socio-demographic characteristics of the study participants

Over a period of 12 weeks, we recruited 204 patients across the 2 study sites. None of the participants requested declined to take part in the study. Slightly less than three-quarters of the participants (147, 72.1%) were recruited from MHM.

Table 1 illustrates the participants' socio-demographic characteristics. The mean and standard deviation of their ages was 58.8 and 15.2 years respectively. Slightly more than three quarters of the number of participants (154, 75.5%) were female. Just over a half the number of participants (112, 59.8%) had attained primary level of education and above. Slightly more than half the number of participants (119, 58.3%) were Banyankore by tribe and also about half (92, 45.1) were married. Just over three quarters of them (163, 79.9%) reported no history of smoking and slightly more than half of them (131, 64.2%) did not consume alcohol. Just over half of them (107, 52.5%) were of socio-economic class 4 and worse. Only about one eighth of the participants (26, 12.7%) stated that they had total family support. A little more than half of them (117, 57.4%) receive care from hospice sites. Slightly less than one quarter (46, 22.5%) received support from the village health teams (VHTs).

Table 1 Demographic characteristics of study participants by site

Variable	Site 1 (MHM) (n=147)	Site 2 (LHH) (n=57)	Total (n=204)
Age (years) Mean (Standard deviation-Sd)	59.7(16.2)	56.5(11.8)	58.8(15.2)
Median (Interquartile range- IQR)	60.0(23)	56.0(14.0)	60.0(18.0)
Gender: Counts (%)			
Female	103(70.1)	51(89.5)	154(75.5)
Male	44(29.9)	6(10.5)	50(24.5)
Education Level: Counts (%)			
No Formal Education	59(40.1)	23(40.4)	82(40.2)
Primary Level	69(46.9)	24(42.1)	93(45.6)
Ordinary level secondary	11(7.5)	7(12.3)	18(8.8)
Advanced level secondary	2(1.4)	2(3.5)	4(2)
Tertiary level	6(4.1)	1(1.8)	7(3.4)
Tribe: Counts (%)			
Banyankore	116(78.9)	3(5.3)	119(58.3)
Baganda	6(4.1)	5(8.8)	11(5.4)
Banyoro	1(0.7)	34(59.6)	35(17.2)
Batooro	0	1(1.8)	1(0.5)
Bakiga	18(12.2)	6(10.5)	24(11.8)
Others	6(4.1)	8(14.0)	14(6.9)
Religion: Counts (%)			
Christian	141(95.9)	54(94.7)	195(95.6)
Muslim	6(4.1)	3(5.3)	9(4.4)
Others			
Marital Status: Counts (%)			
Married	69(46.9)	23(40.4)	92(45.1)
Single	15(10.2)	3(5.3)	18(8.8)
Separated	19(12.9)	11(19.3)	30(14.7)
Cohabiting	10(6.8)	3(5.3)	13(6.4)
Divorced	0	1(1.8)	1(0.5)
Others	0	0	0
Widow/widower	34(23.1)	16(28.1)	50(24.5)
Smoking History: Counts (%)			
Yes	36(24.5)	5(8.8)	41(20.1)
No	111(75.5)	52(91.2)	163(79.9)
Alcohol Consumption: Counts (%)			
Yes	56(61.9)	17(29.8)	73(35.8)
No	91(38.1)	40(70.2)	131(64.2)
Socio-economic Status: Counts (%)			
Class 1	0	0	0
Class 2	7(4.8)	4(7)	11(5.4)
Class 3	63(42.9)	23(40.4)	86(42.2)
Class 4	71(48.3)	25(43.9)	96(47.1)
Class 5	6(4.1)	5(8.8)	11(5.4)
Occupation: Count (%)			
1-Professionals with first class jobs, govt officials, prominent business persons etc. with an income of >3m/month	0	0	0

Table 1 (continued)

Variable	Site 1 (MHM) (n=147)	Site 2 (LHH) (n=57)	Total (n=204)
2-Professionals with middle level jobs, senior religious leaders and ordinary business persons (income of <3m/month)	6(4.1)	4(7.0)	10(4.9)
3-Small business owners, junior religious leaders, etc. (income of 0.5-2m/month)	13(8.8)	8(14.0)	21(10.3)
4-Peasant farmers, petty traders (Income of <0.5m)	122(83.0)	33(57.9)	155(76.0)
5-No income; destitute	6(4.1)	12(21.1)	18(8.8)
Family Support (Financial, moral, social and spiritual): Counts (%)			
Total Support	21(14.3)	5(8.8)	26(12.7)
3 of the above 4 pillars	22(15)	16(28.1)	38(18.6)
2 of the above 4 pillars	40(27.2)	30(52.6)	70(34.3)
1 of the above 4 pillars	59(40.1)	6(10.5)	65(31.9)
No support at all	5(3.4)	0	5(2.5)
Place of care: Counts (%)			
Hospice	93(63.3)	24(42.1)	117(57.4)
Home	23(15.6)	1(1.8)	24(11.8)
Outreach	31(21.1)	32(56.1)	63(30.90)
Village Health team involvement: Counts (%)			
Yes	11(7.5)	35(61.5)	46(22.5)
No	136(92.5)	22(38.6)	158(77.5)

Cancer disease-related Information of the study participants

The most prevalent cancer diagnoses among the study participants were cancer of the cervix (101, 49.5%), cancer of the breast (20, 9.8%) and cancer of the prostate (19, 9.3%), Fig. 1.

Table 2 describe some of the key variables of the study participants. The mean score of the medication adherence levels as measured by the Morisky medication Adherence Scale (MMAS) [28], was 5.13 ± 1.77 . A tad more than half the number of participants (105, 51.5%) had early stage disease. Slightly more than half their number (116, 56.8%) had at least one comorbidity condition such as heart disease, renal disease, hypertension, HIV/AIDS and diabetes. Almost a similar number (113, 55.4%) had been on palliative care program for more than a year. About pain, only (28, 13.7%) were not in any physical pain, with the rest having various levels of pain ranging from mild to overwhelming pain as assessed using the Numerical Rating Scale (NRS) [33]. In terms of their functional status which was assessed using the Eastern Oncological Group Scale (ECOG) [34], about three-quarters of them (156, 76.5%) were grade or better. Related to cancer treatment received, 140(68.6%) had received chemotherapy, 91(44.6%) received radiotherapy, 48(23.5%) received surgery, 41(20.1%) were treated with herbal medicine while 34(16.7%) did not receive any of the above treatment modalities.

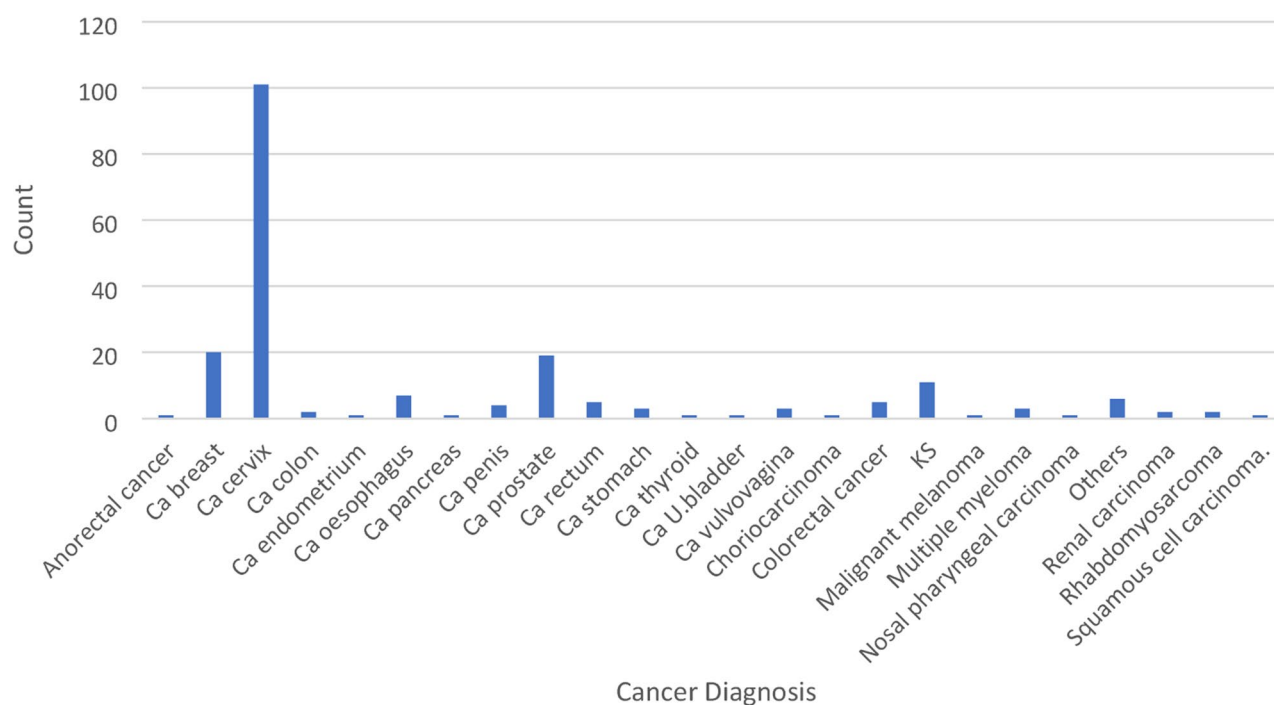


Fig. 1 Cancer diagnosis

Table 2 Quality of life (QOL) scores of participants by site

MVQOLI Mean [95%CI] (Sd)	Site 1, MHM, n = 147	Site 2, LHH, n = 57	Total, n = 204
Global Score	3.51[3.35 to 3.67] (0.99)	3.37[3.24 to 3.50] (0.49)	3.47 [3.35 to 3.59] (0.88)
Weighted Symptom subscale score	-7.21[-8.85 to -5.57] (10.08)	-5.68[-7.65 to -3.72] (7.41)	-6.78 [-8.08 to -5.48] (9.42)
Weighted Function Subscale Score	-2.35[-3.00 to -1.70] (3.99)	-2.86 [-3.86 to -1.86] (3.77)	-2.50 [-3.04 to -1.95] (3.93)
Weighted Interpersonal Subscale	-3.27[-4.11 to -2.44] (5.12)	-5.91 [-7.15 to -4.68] (4.65)	-4.01[-4.72 to -3.30] (5.12)
Weighted Well-being Subscale score	1.39 [0.74 to 2.05] (4.00)	-1.09[-0.5 to 2.68] (5.99)	1.31 [0.67 to 1.95] (4.63)
Weighted Transcendence Subscale score	-2.99 [-3.87 to -2.12] (5.39)	-4.91[-6.27 to -3.55] (5.13)	-3.53[-4.27 to -2.79] (5.37)
Total QOL Score	13.56 [13.29 to 13.83] (1.66)	13.17 [12.77 to 13.83] (1.52)	13.44 [13.22 to 13.67] (1.62)

Quality of life levels

The mean total weighted QoL score for the study participants was 13.44 ± 1.62 with a 95 CI of 13.22 to 13.67. The weighted dimensional mean scores were also calculated and they ranged from -6.78 ± 9.42 , 95CI -8.08 to -5.48 for the symptom subscale to 1.31 ± 4.63 , 95CI 0.67 to 1.95 for the well-being subscale (Table 2).

Predictors of quality of life (QoL)

With regard to factors associated with QoL, a multi-variable analysis revealed three factors that had significant statistical associations with QoL. These were, stage of disease, treatment with radiotherapy and pain levels, all of which were found to have statistically significant relationship with the of quality of life of cancer patients receiving palliative care in Western Uganda.

Considering patients with early stage disease as a reference group, patients with advanced stage disease have lower quality of life levels by about 0.6 units ($p=0.001$, 95CI; -0.965 to -0.243), while those not staged, their

quality was lowered by 0.54 units, although it was marginally significant ($p=0.068$, 95CI; -1.130 to 0.042).

For radiotherapy, the cancer patients who did not received the treatment, their quality of life declined by 0.55 units compared to those who received treatment ($p=0.025$, 95CI; -1.033 to -0.071).

About pain levels, considering cancer patients with no pain as a reference group, patients with moderate pain tended to have lower quality of life levels by 1.0 units, although this was marginally significant ($p=0.06$, 95CI; -2.116 to 0.043), those with moderately-severe pain, their quality of life levels were lower by 1.6 units ($p=0.04$, 95CI; -0.477 to -2.902), those with severe pain, their quality of life scores reduced by 1.6 units ($p=0.003$, 95CI; -0.474 to -2.999). The most impactful was overwhelming pain where quality of life levels declined by 3.47 units ($p<0.001$, 95CI; -4.782 to -2.160).

Other variables such as; age, alcohol consumption, socio-economic status, family support, and functional status did not demonstrate statistically significant

association with quality of life as their p-values exceeded 0.05 and their 95% CIs included zero (Table 3).

Discussion

This is one of the first studies to examine quality of life and its predictors among cancer patients receiving palliative care in Uganda. Our participants were predominantly female 154 (75.5%) and cancer of the cervix was the commonest, followed by cancers of the breast and prostate, which finding is consistent with regional cancer epidemiology in Sub Saharan Africa, including Uganda [35, 36]. This study established that adult cancer patients who are under palliative care in Western Uganda suffer from poor quality of life, especially in the symptoms domain but comparatively better in the well-being domain, but still far from optimal. This is consistent with other studies conducted elsewhere in the African setting [7, 11, 37].

The mean QoL in this study is 13.4, which is lower than those reported in the above studies where it was reported at about 17 could be as result of the differences in the study settings and sample sizes.

The remarkably low symptom subscale and relatively higher interpersonal/well-being scores mirror patterns across patients receiving palliative care in the developing world, where there is a high physical symptom burden but where interpersonal or relational and spiritual domains are highly valued and sometimes better preserved [1, 11, 38].

With regard to predictors of QoL, three clinical factors; stage of disease, radiotherapy, and pain intensity were the only statistically significant predictors of QoL while socio-demographic factors were not. This can be attributed to the linkage between the three factors and physical and symptom burden of the disease; so they naturally show strong correlations with QoL in palliative and oncological settings [39, 40]. This finding is consistent with previous studies which showed that clinical severity and symptom burden are key determinants of QoL in cancer disease [40–45].

Advanced or unstaged cancer disease compared to early stage disease leads to a decrease in QoL, with more pain, fatigue, and functional decline. This is because advanced stage disease means higher tumor burden, more metastases, more complications and intensive treatment, all of which heighten the symptom burden and reduce the physical and role function [39, 42, 46, 47]. It is also reflective of findings of previous studies which showed that QoL declines as the cancer disease progresses [42]. In Indian and Vietnamese cross-sectional studies, advanced stage disease and poor performance status consistently predict poor QoL, especially across the physical and global domains [48, 49].

Table 3 Summary of multivariable linear regression analysis results

Predictor	B Coefficient	95%CI	P value
Age	-0.001	-0.011 to 0.008	0.773
Alcohol consumption			
Yes*			
No	-0.029	-0.296 to 0.238	0.830
VHT			
Yes*			
No	-0.022	-0.354 to 0.310	0.897
Heart disease			
Yes*			
No	0.522	-0.335 to 1.378	0.231
Marital status			
Married*			
Single	0.011	-0.464 to 0.486	0.962
Separated	0.220	-0.181 to 0.621	0.281
Cohabiting	-0.107	-0.653 to 0.438	0.698
Divorced	0.317	-1.423 to 2.053	0.720
Widow/Widower	0.040	-0.349 to 0.268	0.797
Chemotherapy			
Yes*			
No	-0.363	-0.832 to 0.105	0.128
Radiotherapy			
Yes*			
No	-0.552	-1.033 to -0.071	0.025
Socioeconomic status			
Socio-economic class 1*			
Socio-economic class 2	-0.556	-1.342 to 0.229	0.164
Socio-economic class 3	-0.540	-1.141 to 0.060	0.078
Socio-economic class 4	-0.197	-0.773 to 0.379	0.501
Family support			
4 pillars of support*			
Only 3 pillars of support	-0.323	-0.892 to 0.246	0.264
Only 2 pillars of support	-0.360	-1.403 to 0.682	0.496
Only 1 pillar of support	-0.487	-1.439 to 0.465	0.314
No pillars of support	-0.786	-1.771 to 0.199	0.117
Stage of disease			
Early stage*			
Advanced stage	-0.604	-0.965 to -0.243	0.001
Not staged	-0.544	-1.130 to 0.042	0.068
Functional status			
Grade 0*			
Grade 1	0.060	-0.202 to 0.323	0.651
Grade 2	-0.192	-0.896 to 0.512	0.591
Grade 3	-0.027	-0.650 to 0.596	0.932
Grade 4	0.168	-0.486 to 0.822	0.613
Place of care			
Hospice*			
Home	0.152	-0.244 to 0.548	0.451
Outreach	-0.140	-0.443 to 0.164	0.366
Pain level			
No Pain*			
Mild Pain	-0.538	-1.126 to 0.50	0.073
Moderate Pain	-1.036	-2.116 to 0.043	0.060

Table 3 (continued)

Predictor	B Coefficient	95%CI	P value
Moderate-severe Pain	-1.589	-2.670 to -0.508	0.004
Severe pain	-1.618	-2.683 to -0.553	0.003
Overwhelming Pain	-3.471	-4.782 to -2.160	0.000

[*] denotes reference variable

Patients who did not receive radiotherapy had poorer QoL scores than those who did and this may be explained that cancer-directed treatment including radiotherapy is closely associated with better body function and less symptom burden such as pain and fatigue [42, 48, 49]. Radiotherapy is vital in both early and advanced stages of disease. In early stage, it decimates the tumor size and reduces future symptoms and preserves function [50, 51]. In advanced stage disease, this modality of treatment reduces pain and other local symptoms, leading to better physical functioning. This finding is highly collaborated by results from a number of previous studies [51–53].

Patients with higher pain intensity tended to have lower QoL levels. Pain is one of the most frequent and burdensome symptoms in advanced cancer and is negatively correlated with QoL [40]. Higher pain scores are linked to poor physical functioning, body weakness and limitation in daily activities [41, 44] but when pain is well controlled, QoL improves markedly [54]. This finding is strongly supported by evidence from several studies which show that higher pain severity is a predictor of physical, social, psychological well-being in advanced cancer [40, 41, 43, 44]. Interventions that reduce pain lead to substantial improvement in QoL scores, even in low-resource settings similar to our study [44, 55].

All in all, advanced stage disease diminishes QoL by increasing the disease and symptom burden. Pain intensity directly impacts physical, emotional and social functioning. Radiotherapy affects QoL majorly through its effectiveness in managing tumor-induced symptoms, especially pain.

The lack of association between socio-demographic factors such as age, socio-economic status, family support and QoL in this could be as result of having homogeneous samples in which there was an overwhelming symptom burden that overshadowed or attenuated the effect of the socio-demographic factor differences in determining QoL levels. This phenomenon is similar to other studies carried in palliative care settings [41, 43, 48].

Strengths

This study has several important strengths. It focuses on a real-world group of palliative care cancer patients in Western Uganda, an under-researched setting where evidence is urgently needed. By recruiting patients from routine specialized palliative care services rather than from highly selected trial populations, the study reflects

the complex realities of everyday clinical practice in a low-resource context.

The use of a standardized, validated quality-of-life tool, together with systematic collection of clinical and socio-demographic data, allows for robust assessment of how different factors relate to patients' quality of life. Applying multivariable analysis further strengthens the findings by accounting for key confounders.

Importantly, the study identifies practical, modifiable clinical predictors—pain, disease stage and access to radiotherapy—that can realistically be targeted within Ugandan and similar health systems. This makes the results directly relevant for guiding improvements in palliative cancer care at both clinical and policy levels.

Limitations

This study has some important limitations that should be kept in mind when interpreting the findings. First, its cross-sectional design provides only a single snapshot of patients' quality of life and clinical status. This means we cannot determine causal relationships or understand how quality of life and symptoms evolve over the course of palliative care, even though the study still offers valuable real-world insight into patients already receiving specialized services.

Second, the work was carried out in the only two specialized palliative care facilities in Western Uganda, using a consecutive sample of patients enrolled in these services. While this strengthens the study's relevance to routine palliative practice in this region, it may limit how far the findings can be generalized to other settings, to people who are not accessing palliative care, or to patients with non-cancer conditions.

Finally, although the sample size was sufficient for the main analyses and allowed robust multivariable modeling, it was not large enough to reliably detect smaller differences within subgroups. This underlines the need for larger, longitudinal, multi-center studies—ideally including a broader range of patients and facilities—to confirm and build on these context-specific results and to better track changes in quality of life over time.

Conclusions

In this real-world sample of palliative cancer patients attending two specialized care facilities in Western Uganda, overall quality of life (QoL) was significantly poor, possibly due to high symptom burden and advanced disease stages among patients already receiving palliative care.

The study found that clinical factors, rather than socio-demographic characteristics, were the main influences on QoL. Specifically, advanced disease stage, higher pain levels, and radiotherapy were significantly linked to QoL outcomes. In contrast, socio-demographic factors did not

show a significant impact. This pattern highlights that, in this resource-limited setting, severe symptoms and clinical needs tend to overshadow social factors. Notably, pain intensity emerged as a key modifiable factor affecting QoL, emphasizing the importance of effective pain management and symptom control in palliative care. The association between advanced disease and poorer QoL underscores how disease progression affects physical, psychological, and functional wellbeing. Additionally, access to radiotherapy was linked to better QoL, suggesting that chemo-radiation treatment can still provide symptom relief even in palliative stages.

This study provides valuable, context-specific evidence from an under-researched, resource-limited region. By utilizing a standardized QoL measurement and multivariable analysis, it highlights modifiable clinical factors—such as pain, disease stage, and radiotherapy access—that align with regional and global efforts to improve palliative cancer care in low-resource settings.

Recommendations

Clinical practice

Palliative cancer care teams in Western Uganda should focus on proactive control of physical pain and other distressing symptoms. This includes consistent use of WHO stepwise analgesic ladder to ensure that treatment is effective and adjusted as patients' needs change.

Routine assessment for quality of life and common symptoms during clinic visits should become standard practice. This would help clinicians identify patients who are struggling earlier and offer timely, tailored interventions rather than waiting for crises to occur.

Radiotherapy should be used earlier and more systematically for symptom relief, for example to manage pain, bleeding, or obstruction. Clear referral pathways and simple eligibility criteria are needed so that patients who could benefit are identified promptly so that they do not miss out due to delays or system barriers.

Health system and policy

At the health system level, access to essential palliative medicines, particularly opioids, should be strengthened through reliable procurement, robust supply chain management, and supportive regulatory frameworks.

There is high need for training, mentorship and supervision of healthcare providers at palliative care facilities to build confidence and skills in assessing QoL, pain and other burdensome symptoms and treating them.

Research

Future research should include longitudinal studies that track patients over time to observe how QoL evolves with better pain management, earlier palliative care intervention, and improved access to radiotherapy.

Abbreviations

APCA	African Palliative Care Association
HAU	Hospice Africa Uganda
LHH	Little Hospice Hoima
MHM	Mobile Hospice Mbarara
MUST	Mbarara University of Science and Technology
MVQOLI	Missoula Vitas Quality of Life Index
NGO	Non-Governmental Organization
QoL	Quality of Life
REDCAP	Research Data Capture
WHO	World Health Organization

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Authors' contributions

J.B.N. led the research team that conceptualized and executed the study, analyzed the data, and wrote and reviewed this manuscript. J.K., E.M., and E.N. contributed almost equally towards the above facets of this work.

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Data availability

The dataset generated and analyzed for this study is available and can be accessed on request. Please contact ndinawek78@gmail.com about the same.

Declarations

Ethics approval and consent to participate

This research was approved by the Research and Ethics Committee of Mbarara University of Science and Technology (MUST-2025-351 and Uganda National Council of Science and Technology (UNCST: HS6248ES). Also, administrative clearance was obtained from Hospice Africa Uganda. Additionally, all data collection processes were aligned to the key principles of the Declaration of Helsinki.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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