

The Prevalence of Cancer Patients Requiring Palliative Care and Its Associated Factors at St. Paul Hospital, Addis Ababa, Ethiopia: A Cross-Sectional Study

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Background: Cancer has been the leading cause of death worldwide with its various enormous socio-economic impacts. Hence, early palliative care implementation is a potent addition to oncology for the treatment of physical, mental, and psychological pain in cancer patients. Therefore, this article aims to assess the prevalence of patients requiring palliative care and its associated factors among admitted cancer patients.

Methods: A cross-sectional study was conducted among cancer patients who were admitted to oncology wards during the data collection period at St. Paul Hospital, Ethiopia. The Palliative Care Indicators Tool in Low-Income Settings (SPICT-LIS) was used to determine the need for palliative care. The collected data was entered into EpiData version 3.1 and exported to Statistical Package for the Social Sciences (SPSS) version 26 for analysis. A multivariable logistic regression was used to analyze the predictors of palliative care need.

Results: A total of 301 cancer patients were included in this study, with a mean age of 42 years (SD=1.38). The prevalence of palliative care needs among the patients in this study was 10.6% (n=32). The study revealed that the need for palliative care increases as the age of the patient increases and suggested that cancer patients who were above 61 years old were two times (AOR=2.39 95% CI=0.34–16.55) more likely to need palliative care than others. Male patients had a significantly higher requirement for palliative care compared to female patients (AOR=5.31, 95% CI=1.68–11.79).

Conclusion: The manuscript describes the palliative care needs of patients with cancer admitted to St. Paul Hospital in Ethiopia. The study revealed that the health status of a significant number of cancer patients in the hospital was deteriorating. Hence, the hospital administrators and the oncology ward staff are recommended to pay attention to the identified factors.

Keywords: cancer, malignancy, palliative care, SPICT-LIS, Ethiopia

Background

Besides its alternative terms such as tumor and neoplasm, cancer is a generic term used for a large group of diseases that can affect any part of the body. In 2020, more than 10 million deaths were reported as breast, lung, colon, and rectum cancers were the most common forms of cancer.¹

In sub-Saharan Africa, an estimated 801,392 new cancer cases and 520,158 cancer deaths were reported in 2020 where breast and cervical cancer were the most common cancers.² Despite the fact that early screening and diagnosis of cancer greatly increase the chance of successful treatment as many cancers can be cured,³ the association between cancer and poverty, as well as poor healthcare system outcomes 80% of patients with cancer progress to an incurable stage.^{4–7} In addition, by 2030, the developing world is anticipated to shoulder 70% of the burden of cancer worldwide.⁸

Among cancer patients, several physical, psychological, social, and financial effects are described.⁹ A patient-centered approach called palliative care was developed to improve the quality of life for patients and their families who are dealing with issues related to a life-threatening illness by preventing and relieving suffering through early detection, effective assessment, and treatment of pain and other physical, psychosocial, and spiritual issues.¹⁰ Even so, most patients do not have access to the proper and readily available palliative care in today's sophisticated medical systems; only 14.0% of patients, according to the World Health Organization (WHO), would benefit from palliative care.¹¹ Recently, the Supportive and Palliative Care Indicators Tool-Low Income Setting (SPIC-T-LIS) has been developed to help in identifying patients with cancer and other life-limiting diseases that could strengthen a palliative care approach to provide an appropriate care as the needs of the patients and coordinating care planning.¹²

Since the establishment of Hospice Ethiopia in 2003,¹³ the government of Ethiopia has developed various palliative care guidelines with training modules; however, the service is not fully integrated at the primary healthcare level and there are barriers to the continuity of palliative care for cancer patients. With an imbalanced need and supply of palliative care services, there are barriers to the provision of palliative care in Ethiopia, including limited availability of drugs, a shortage of facilities, a lack of trained palliative care professionals, and a high burden of non-communicable diseases.¹⁴ However, some private health-care providers are providing home-to-home care in the capital city, Addis Ababa, such as Africare home-based health-care service.¹⁵ At St. Paul Hospital, Hospice Ethiopia trained doctors and nurses on how to care for patients with incurable diseases, including pain management and proper psycho-social support. Despite enormous programs and trainings given by the Ethiopian Federal Ministry of Health, the World Health Organization (WHO), and several non-governmental organizations (NGOs), palliative care services, and data on palliative care needs in Ethiopia are still limited. A study in Addis Ababa showed that 65% of cancer patients admitted to a tertiary referral hospital, the majority with advanced-stage disease, did not receive adequate pain management.¹⁶

Accurate data are required to estimate the need for palliative care, such as personnel, demographic, and infrastructure-related data.¹⁷ In developed countries, palliative care specialists are available to provide opinions that would benefit patients and other colleagues.¹⁸ However, there are drawbacks to the palliative care services offered in Ethiopia, such as improper channels for consultation in tertiary hospitals. Furthermore, the prevalence of palliative care needs in cancer patients in Ethiopia is unknown. Therefore, this study reported the prevalence of cancer patients requiring palliative care and its associated factors at the oncology ward of St. Paul Hospital, Ethiopia.

Methods

Study Area

St. Paul Hospital is a teaching public hospital found in the capital, Addis Ababa, that was established in 1968. The hospital has an inpatient capacity of 700 beds with an average patient flow of 1200 emergencies and outpatients daily, where over 2800 clinical and non-clinical staff are available in over 13 departments.¹⁹

Study Design and Period

A cross-sectional study was conducted among cancer patients who were admitted to oncology wards from March 1, 2022, to April 30, 2022.

Eligibility Criteria

Cancer patients aged 18 years old or older, who were diagnosed with cancer; currently receiving treatment or follow-up during the data collection period and were willing to give their informed consent to participate in the study, were included. Whereas, cancer patients who were visiting the other medical wards, who were referred from another hospital for surgery or outpatient services, critically ill who were not able to respond to questionnaires, and who were not admitted, were excluded from the study.

Sample Size Determination and Sampling Technique

A single population proportion formula was used by considering 50% of cancer patients requiring palliative care with a 95% confidence interval and a 5% margin of error. The initial sample size was calculated as:

$$n_0 = (Z_{\alpha/2})^2 P(1 - P) / d^2$$

Where; n_0 = the initial sample size,

d = margin of error of 0.05,

$Z_{\alpha/2}$ = standard score for 95% confidence level,

P = 50% (proportion of cancer patients requiring palliative care); **$n_0=384$** .

During the study period, 950 patients were admitted to the oncology unit. Hence, as the study population (N) was $<10,000$, the modified sample size was **274**; by considering 10% of expected non-response rate, the total sample size was 301. Finally, a simple random sampling technique was used to meet **301** cancer patients who fulfilled the inclusion criteria during the study period.

Data Collection

Two physicians who were working at the oncology ward during the data collection period collected the data. A structured questionnaire was used to collect patients data such as socio-demographic characteristics, including age, sex, marital status, educational status, region, religion, and monthly income, as well as their clinical profiles, including a particular diagnosis of cancer. Additionally, the beliefs of the patients about the facility concerning palliative care services were assessed. The palliative care requirement for each patient was determined based on the SPICT-LIS measurement criteria, which were designed to help physicians identify patients in low-income settings who might benefit from palliative care, developed from the original and validated preliminary version of the SPICT for use in Nepal.²⁰ The SPICT has two major indicators: Six general indicators and 28 clinical indicators. A patient is considered in need of palliative care when they have at least two general indicators and at least one clinical indicator.⁵

Data Management and Data Analysis

Data was checked daily for its completeness and accuracy. The collected data was entered into Epi data version 3.1 with range, consistency, and validity checks embedded to ensure accuracy of data. All statistical analyses were performed with SPSS[®] version 26 (IBM[®], New York, USA). Inferential statistics including Chi-square test and Fisher's exact test were used to compare the characteristics of the patients who need palliative care with those of the patients who do not. For inferential analysis, multivariable logistic regression was used to analyze the associations between patients requiring palliative care and associated factors, with a p -value less than 0.05 considered statistically significant.

Results

Socio-Demographic Characteristics

A total of 301 cancer patients were included in this study with a 100% respondent rate. The respondents were in the age range of 20–71 years with a mean age of 42 years ($SD=1.38$). More than half of the patients - 176 (58.5%) - were female (Table 1).

Patients Clinical Profile

The top three primary cancers were gynecological cancer in 78 (25.9%), breast cancer in 51 (16.9%), and nasopharyngeal cancer in 40 (13.3%). Patients with more than six symptoms were higher than those with below five symptoms, 193 (64.1) and 108 (35.9), respectively (Table 2).

Most of the patients (85.7%) complained of fatigability following anorexia (75.7%) and persistent back/joint pain (73.1%) (Figure 1).

Table 1 The Socio-Demographic Characteristics of the Prevalence of Cancer Patients Requiring Palliative Care and Its Associated Factors at Saint Paul Hospital, Addis Ababa, Ethiopia, 2022 (N=301)

Characteristics	Category	Frequency (%)
Age	20–30	74 (24.6)
	31–40	74 (24.6)
	41–50	62 (20.6)
	51–60	46 (15.3)
	Above 61	45 (15)
Sex	Male	125 (41.5)
	Female	176 (58.5)
Marital status	Single	83 (27.6)
	Married	166 (55.1)
	Divorced/ Widowed	52 (17.3)
Educational status	No formal education	92 (30.6)
	Read and write	67 (22.3)
	Primary & secondary	76 (25.2)
	Tertiary education	66 (21.9)
Region	Tigray	14 (4.7)
	Afar	31 (10.3)
	Amhara	31 (10.3)
	Oromia	69 (22.9)
	Somalia	16 (5.3)
	SNNPR	22 (7.3)
	Sidamo	7 (2.3)
	South west Ethiopia	7 (2.3)
	Gambella	7 (2.3)
	Addis Ababa	66 (21.9)
	Diredawa	15 (5)
	Harere	16 (5.3)
Religion	Orthodox	177 (58.8)
	Protestant	43 (14.3)
	Muslim	66 (21.9)
	Catholic	15 (5)
Monthly income	Low income (< 4600)	173 (57.5)
	Low middle income (4600–17,886)	128 (42.5)

Abbreviation: SNNPR, Southern Nations and Nationalities Peoples' Region.

Table 2 The Clinical Characteristics of the Prevalence of Cancer Patients Requiring Palliative Care and Its Associated Factors at Saint Paul Hospital, Addis Ababa, Ethiopia, 2022 (N=301)

Characteristics	Category	Frequency (%)
Types of cancer	Breast cancer	51 (16.9)
	Colonic cancer	24 (8)
	Gastric cancer	31 (10.3)
	Gynaecological cancer	78 (25.9)
	Nasopharyngeal cancer	40 (13.3)
	Pancreatic cancer	15 (5)
	Hepatocellular carcinoma	30 (10)
	Lung cancer	32 (10.6)
Number of symptoms	<5	108 (35.9)
	>6	193 (64.1)

Beliefs of the Patients About the Facility

Almost two-third of respondents, 189 (62.8%), believed that the hospital provides adequate services for cancer patients who need palliative care, and more than half, 171 (56.8%), of respondents believed that the hospital provides palliative care as soon as diagnosed for cancer (Figure 2).

Patients Requiring Palliative Care by Characteristics and SPIC-T-LIS

A total of 32 (10.6%) patients required palliative care following the SPIC-T-LIS minimum criteria of general indicators and clinical indicators; among them, 22 (68.5%) were males. The top three primary cancers that require palliative care were breast cancer (15.6%), gynaecological cancer (15.6%), and gastric cancer (12.5%). Of 32 patients who required

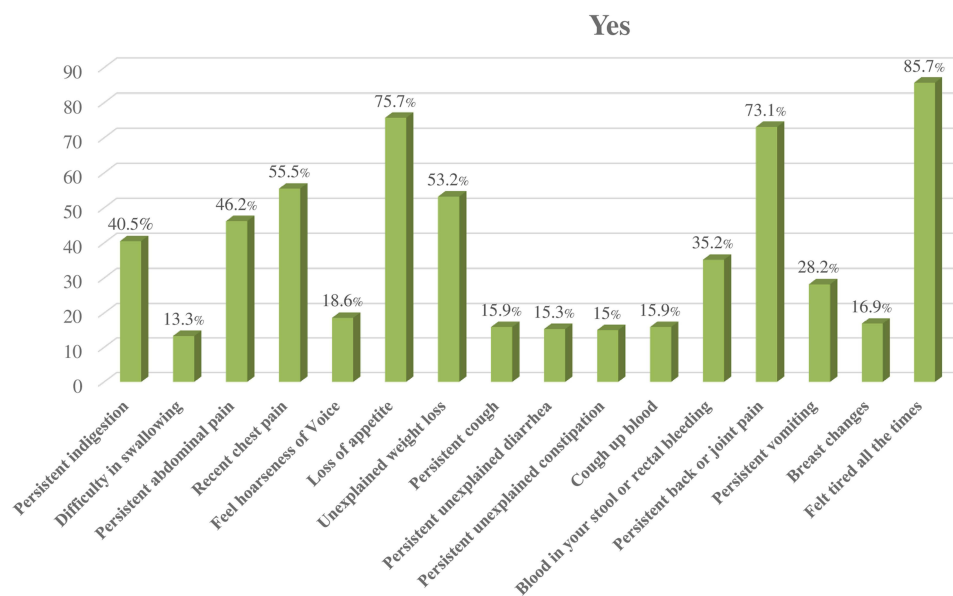


Figure 1 Particular symptom profile of cancer patients at Saint Paul hospital, Addis Ababa, Ethiopia, 2022 (n= 301).

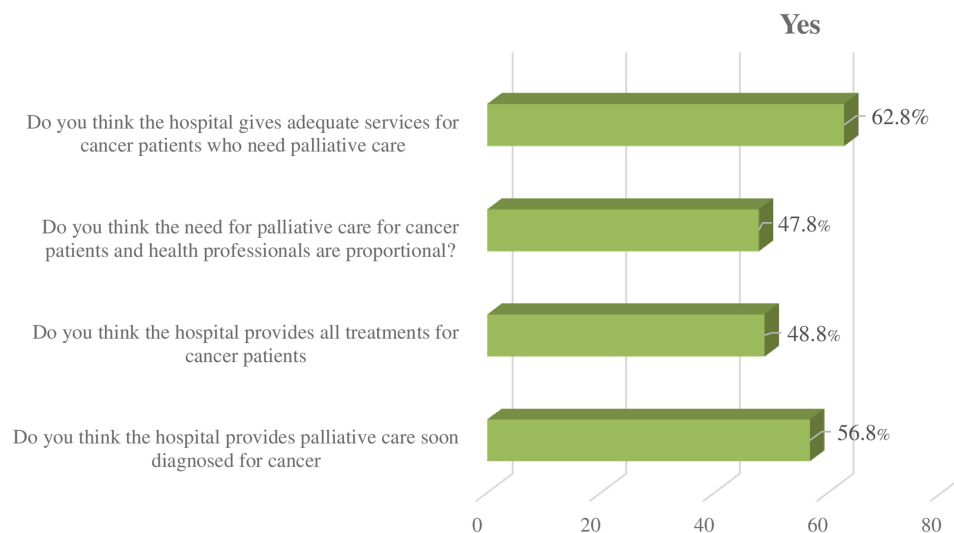


Figure 2 Patients beliefs about the facility at Saint Paul hospital, Addis Ababa, Ethiopia, 2022 (n= 301).

palliative care, 26 (81.3) stayed in their bed or chair for more than half of the day, indicating that their performance status was deteriorating (SPICT-1). According to SPICT-4, persistent symptoms were seen in 26 (81.3) patients who needed palliative care despite best available treatment (Table 3).

Factors Associated with Patients Requiring Palliative Care

The final multivariable model was selected by a stepwise method based on sequential entrance of variables into the model; as a result, age, sex, religion, and types of cancer were included into the model. Age was associated with the need for palliative care, suggesting cancer patients who were above 61 years old were two times (AOR=2.39, 95% CI=0.34–16.55) more likely need palliative care than others. Male patients had a significantly higher requirement for palliative care compared to female

Table 3 Characteristics and SPICT-LIS Indicators of Cancer Patients at Saint Paul Hospital, Addis Ababa, Ethiopia, 2022 (N=301)

Variable		Number (%)		P-value
		Did Not Require	Required	
Total		269(89.4)	32(10.6)	
Age group	20–30	69(25.7)	5(15.6)	<0.0001*
	31–40	73(27.1)	1(3.1)	
	41–50	58(21.6)	4(12.5)	
	51–60	38(14.1)	8(25)	
	Above 61	31(11.5)	14(43.8)	
Sex	Male	103(38.3)	22(68.8)	0.001*
	Female	166(61.7)	10(31.2)	
Marital status	Single	82(30.5)	1(3.1)	0.005*
	Married	141(52.4)	25(78.1)	
	Divorced/ Widowed	46(17.1)	6(18.8)	

(Continued)

Table 3 (Continued).

Variable		Number (%)		P-value
		Did Not Require	Required	
Region	Tigray	14(5.2)	0	<0.0001*
	Afar	24(8.9)	7(21.9)	
	Amhara	28(10.4)	3(9.4)	
	Oromia	97(24.9)	2(6.3)	
	Somalia	14(5.2)	2(6.3)	
	SNNPR	14(5.2)	8(25)	
	Sidamo	7(2.6)	0	
	South west Ethiopia	7(2.6)	0	
	Gambella	7(2.6)	0	
	Addis Ababa	66(24.5)	0	
	Diredawa	9(3.3)	6(18.8)	
	Harere	12(4.5)	4(12.5)	
Religion	Orthodox	165(61.3)	12(37.5)	0.024*
	Protestant	38(14.1)	5(15.6)	
	Muslim	55(20.4)	11(34.3)	
	Catholic	11(4.1)	4(12.5)	
Educational status	No formal education	75(27.9)	17(53.1)	0.01*
	Read and write	61(22.7)	6(18.8)	
	Primary & secondary	74(27.5)	2(6.3)	
	Tertiary education	59(21.9)	7(21.9)	
Monthly income	Low income (< 4600)	160(59.5)	13(40.6)	0.041*
	Low middle income (4600–17,886)	109(40.5)	19(59.4)	
Number of symptoms	<5	101(37.5)	7(21.9)	0.02**
	>6	168(62.5)	25(78.1)	
Types of cancer	Breast cancer	46(17.1)	5(15.6)	<0.0001**
	Colonic cancer	22(8.2)	2(6.3)	
	Gastric cancer	27(10.03)	4(12.5)	
	Gynaecological cancer	73(27.13)	5(15.6)	
	Nasopharyngeal cancer	36(13.4)	4(12.5)	
	Pancreatic cancer	12(4.5)	3(9.4)	
	Hepatocellular carcinoma	25(9.3)	5(15.6)	
	Lung cancer	28(10.4)	4(12.5)	

(Continued)

Table 3 (Continued).

Variable			Number (%)		P-value
			Did Not Require	Required	
SPICT 1	Performance status is poor or deteriorating, best available treatment is having limited effect (eg stays in bed or a chair for more than half the day), bed or chair more than half of a day)	Yes	173(64.3)	26(81.3)	0.039**
		No	96(35.7)	6(18.7)	
SPICT 2	The person's caregiver needs more help and support.	Yes	151(56.1)	25(78.1)	0.022**
		No	118(43.9)	7(21.9)	
SPICT 3	The person has had significant weight loss over the last few months or remains underweight.	Yes	214(79.6)	23(71.9)	0.02**
		No	55(20.4)	9(28.1)	
SPICT 4	Persistent symptoms despite best available treatment of underlying condition(s); is unable to access treatment (eg due to distance, cost or inability to travel).	Yes	148(55)	26(81.3)	0.004**
		No	121(45)	6(18.7)	
SPICT 5	The person (or family) asks for palliative care; chooses to reduce, stop or not have treatment; or wishes to focus on quality of life.	Yes	183(68)	28(87.5)	0.024**
		No	86(32)	4(12.5)	
SPICT 6	Unplanned hospital admissions; increased visits to hospital, clinic or health facility with progressive illness or complications. How often do you visit clinics when you feel progressive illness or complications	Often	35(13)	11(34.4)	0.011**
		Sometimes	86(32)	12(37.5)	
		Occasionally	55(20.4)	5(15.6)	
		Rarely	70(26)	4(12.5)	
		Never	23(8.6)	0	

Note: P-value calculated by, *Chi-squared test, **Fisher's exact test.

Abbreviation: SPICT, Supportive and Palliative Care Indicators Tool.

patients (AOR=5.31, 95% CI=1.68–11.79). Despite not being statistically associated, patients with breast and nasopharyngeal cancer showed a higher palliative care than the other types of cancer (AOR=22.2, 95% CI=0.81–610.52), and (AOR=4.32, 95% CI=0.65–16.9), respectively (Table 4).

Table 4 Factors Associated with Patients Requiring Palliative Care at Saint Paul Hospital, Addis Ababa, Ethiopia, 2022 (N=301)

Variable	Category	COR (95% CI)	P-value	AOR (95% CI)	P-value
Age	20–30	Ref	Ref	Ref	Ref
	31–40	0.56(0.15–2.11)	0.389	0.03(0.001–1.2)	0.062
	41–50	0.97(0.29–3.28)	0.962	0.42(0.07–2.71)	0.364
	51–60	2.31(0.76–7.06)	0.14	1.56(0.16–15.22)	0.703
	Above 61	4.87(1.74–13.7)	0.003*	2.39(0.34–16.55)	0.039*
Sex	Male	3.55(1.61–7.79)	0.002*	5.31(1.68–11.79)	0.019*
	Female	Ref	Ref	Ref	Ref
Religion	Orthodox	0.26(0.72–0.9)	0.034*	1.35(0.07–25.03)	0.839
	Protestant	0.39(0.09–1.68)	0.205	2.84(0.08–102.2)	0.569
	Muslim	0.56(0.15–2.09)	0.389	3.03(0.13–71.15)	0.492
	Catholic	Ref	Ref	Ref	Ref
Types of cancer	Breast cancer	0.88(0.18–4.42)	0.876	22.2(0.81–610.52)	0.067
	Colonic cancer	1.28(0.33–4.67)	0.719	1.46(0.14–14.93)	0.75
	Gastric cancer	0.73(0.22–2.43)	0.612	0.54(0.16–5.41)	0.371
	Gynaecological cancer	1.02(0.27–3.82)	0.98	1.59(0.58–3.53)	0.106
	Nasopharyngeal cancer	2.07(0.44–9.63)	0.355	4.32(0.65–16.9)	0.149
	Pancreatic cancer	1.68(0.46–6.13)	0.436	0.81(0.12–5.39)	0.83
	Hepatocellular carcinoma	1.24(0.32–4.8)	0.752	1.56(0.23–10.54)	0.65
	Lung cancer	Ref	Ref	Ref	Ref

Note: *Indicating statistically significant factors as p-value = <0.05.

Abbreviations: COR, crude odds ratio; AOR, adjusted odds ratio; CI, confidence interval; Ref, reference.

Discussion

This study assesses the prevalence of palliative care need and its associated factors among 301 admitted cancer patients at St. Paul Hospital, Addis Ababa, Ethiopia, during March-April, 2022.

The mean age of the patients was 42 years (SD=1.38). This finding is higher than the population demographics of the country with a median age of 19.5 years despite the fact that comparison parameters are different.²¹ Disease prevalence was higher in females (58.5%) than in males (41.5%). This is due to the type of cancer that only affects females, including those with gynecological cancers, and the highest prevalence of breast cancer (86.3%) than males. Gynecological and breast cancers were the most admitted cancer cases, 25.9% and 16.9%, respectively. This finding is higher than the global data of 5.4% and 12.5% for its counter parts.²²

In this study, the overall prevalence of palliative care need by SPIC-T-LIS was 10.6%, which is greater than the study done in Tertiary Hospital in Southern Thailand, which was 7.8%.²³ This might be due to differences in technology, economy of the country, and the recent treatment given for cancer patients. The result of this study is in line with the study done by Hamano, which was 9.2%.²⁴ General indicators for poor or deteriorating health showed that a significant number of cancer patients at the St. Paul Hospital health situation were deteriorating. For instance, 199 (66.1%) of patients stayed in bed or chair for more than half a day, and 176 (58.5%) of respondents needed more help and support from their care giver to move, eat, and walk.

This study revealed that the need for palliative care increases as the age of patient increases; cancer patients who were above 61 years old were three times (AOR=2.39, 95% CI=0.34–16.55) more likely to require palliative care than the others. The result of the study is in line with the study done in Thailand.²³ This might be due to multiple medical conditions elderly people face such as chronic disease and different musculoskeletal diseases.^{25,26} The results of the study also showed that male patients had a significantly higher requirement for palliative care compared to female patients, which was five times that of their counterpart (AOR=5.31, 95% CI=1.68–11.79). This result is quite different from the study done at Tikur Anbessa (Black Lion) Hospital with the finding that none of socio-demographic characteristics were determinant factors of pain.²⁷ However, the finding is similar to the population study of adult palliative care during 2004–2030 conducted in Malaysia as overall men have higher palliative care needs than women across all years.²⁸ This might be due to the fact that most aggressive/advanced cancers are highly prevalent among men than females.²⁹ In addition, due to the fact that men and women may differ in their psychological reactions to the disease, results from different types of longitudinal models reveal that cancer has more adverse psychological implications for men than women.³⁰

In this study, despite statistically not significant, patients with nasopharyngeal cancer required four times more palliative care than those with other types of cancer. But this result is different from the study done in Thailand that showed malignant neoplasms of bone and articular cartilage required higher palliative care than other types of cancer.²³ This difference might be due to the different types of cancers found at the Saint Paul hospital. The reason nasopharyngeal cancer needs palliative care more than other types of cancer might be due to its impact on breathing, speaking, and hearing.³¹

In terms of patient beliefs about the facilities needed for palliative care, this study showed that 112 (37.2%) patients believed the hospital did not provide adequate services for cancer patients who required palliative care. Almost half of respondents, 154 (51.2%), said that the hospital did not provide all treatments for cancer patients. This showed that a significant number of cancer patients who required palliative care at St. Paul Hospital did not get the appropriate care adequately due to shortages of facilities and health-care providers in the institution.

Strength and Limitation of the Study

This study complements the evidence gap in cancer patients requiring palliative care in African settings. This highlights the importance of palliative care for patients diagnosed with cancer. Moreover, it provides health institutions to update their services to fit with palliative care setup as the study implies care is required for patients with cancer. Despite its original content, our study has limitations inherent to the observational design, such as much of the data were self-reported and therefore may be subject to recall bias, as well as respondent bias. In addition, the results cannot be generalized to the rest of hospitals found in Addis Ababa or in the country. As in all cross-sectional studies, we can infer association but not causation from our results. Budget constraint was also the other limitation of this study.

Conclusion

The manuscript described the palliative care needs of patients with cancer admitted to St. Paul Hospital. The most common cancers requiring palliative care were nasopharyngeal cancer, colonic cancer, and hepatocellular carcinoma rather than the others in their respective orders. In addition to this, the study also revealed that a significant number of cancer patients in St. Paul Hospital health situation were deteriorating. This is due to shortages of facilities and trained health-care providers in the institution. Hence, the hospital administration recommended increasing the proportion of trained health-care providers according to the standard of health-care staff-to-patient ratio in order to improve the service quality. Moreover, all the necessary medical equipment for cancer patients who need palliative care recommended being fulfilled.

Data Sharing Statement

All data are available within the article.

Ethical Approval

Ethical clearance was obtained from the Institutional Review board (IRB) of Addis Ababa Medical and Business College. A formal support letter was obtained from the respective administrations. All the study participants and respective

stakeholders were informed about the purpose of the study, and written informed consent was obtained from all participants. We used an impartial witness during the entire informed consent process and data collection period for those participants who were unable to read/write. The study was conducted per the declaration of Helsinki. Confidentiality of participants' information was kept using unique codes rather than personal identification.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

We declare that the authors have no competing interests.

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