Characteristics and health problems of cancer patients admitted to palliative care service at the Oncology Hospital in Ho Chi Minh City, Vietnam: a cross-sectional study

Thuy Thi Thanh Mai[1,*], Oanh TH Trinh[1], Dung Van Do[2], Cheng-Pei Lin[3], and Richard Harding[3]

[1]Epidemiology Department, Faculty of Public Health, University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Vietnam
[2]Biostatistics Department, Faculty of Public Health, University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh City, Vietnam
[3]Cicely Saunders Institute of Palliative Care, Policy and Rehabilitation Florence Nightingale Faculty of Nursing, Midwifery & Palliative Care, King's College London - Bessemer Road, London, UK

Abstract

Introduction: Vietnam has very few study on health problems of cancer patients receiving palliative care. Therefore, this study aimed to estimate the prevalence of characteristics and health problems of cancer patients who admitted to the palliative care department of the Ho Chi Minh City Hospital of Oncology.

Methods: A cross-sectional study was conducted in cancer patients newly admitted to the palliative care department. Descriptive statistics and multivariable linear regression models were performed to estimate the prevalence and factors associated with patient's health problems. The main outcome is the severity of health problems, as measured with the African Palliative Care Outcomes Scale (APCA African POS). This validated questionnaire measures health outcomes of people severely affected by diseases such as cancer.

Results: A total of 134 patients enrolled in the study showed a mean total APCA African POS score of 32.2±10.8 of 67. The most common symptoms of severe intensity were pain (57.5%), mobility difficulties (45.5%) and weakness (42%). The study determined that inpatient status, the patient's health condition, and the extent of caregivers' involvement in social activities were significantly associated with increased APCA African POS score.

Conclusions: Pain, weakness, mobility issues, reduced peace of mind, a sense of life's value, lack of information, and financial constraints are prominent problems in cancer patients receiving palliative care in Vietnam. The initial assessment of the patient's symptoms and problems prior to palliative care is essential to inform treatment discussions regarding medical prognosis in order to improve the patient's quality of life and treatment outcomes.

Keywords: palliative care; outcome assessment, health care; quality of life; pain

1. INTRODUCTION

Cancer and the corresponding treatments can cause dis-tress that affects a patient's quality of life (QoL). Preventing or alleviating symptoms and side effects caused by the treatments is important [1]. By doing so, patients' comfort

and QoL through their disease trajectory could be improved, through treatment, and beyond. These approaches and methods are called palliative care, and early delivery of palliative care reduces the use of futile medical services and unnecessary hospitalizations [1].

Access to palliative care and hospice services, including provisions for pain relief, is acknowledged as an essential human right globally [2]. In Vietnam, the first palliative care unit was established in 2001. After 4 years, the program received support from the US President's Emergency Plan for AIDS Relief (PEPFAR) [2]. Since then, although Vietnam has also had many studies on palliative care, mainly assessing the QoL of cancer patients, studies about palliative care outcomes almost were conducted in the geriatric specialty or HIV patients and healthcare workers' knowledge on palliative care services [3]–[5].

Similar to the situation in other developing countries, a significant proportion of Vietnamese cancer patients are admitted to hospitals at advanced stages of the disease [6]. Many of these patients, due to their deteriorating health, and their multidimensional emotional and spiritual challenges, may find it challenging to complete questionnaires or engage in interviews. Many of these patients, due to their deteriorating health, and their multidimensional emotional and spiritual challenges, may find it challenging to complete questionnaires or engage in interviews [7]. For such individuals, palliative care must be considered one of the most important supportive measures of their comprehensive treatment and care plan. However, Vietnam currently lacks specific assessment tools capable of gauging the significance of early palliative care referral to patients and its impact on QoL. The palliative outcomes scale (POS), a multidimensional life quality assessment tool developed by researchers at King's College London [8], has been widely utilized for teaching, research, and clinical applications, particularly in the context of palliative care for patients with incurable or life-threatening chronic illnesses, including cancer patients [9]. The POS has been developed into different cultural and linguistic versions. Including the African Palliative Care Outcomes Scale (APCA) African POS version, developed by King's College London researchers to provide a concise in-terviewing tool that is appropriate in setting where resources are limited [10]. This study aimed to estimate the prevalence of health problems of cancer patients using APCA African POS questionnaire regarding physical, psychological, social, spiritual needs among cancer patients who admitted to the palliative care department of the Ho Chi Minh City Hospital of Oncology.

2. METERIALS AND METHODS

2.1. Study design

A prospective cohort study of cancer patients admitted to the palliative care department began in July 2020 and ended in December 2021. This study describes a cross-sectional analysis of baseline data that was collected for the cohort study. The article was written based on the STROBE checklist for reports of cross-sectional study [11].

2.2. Setting

The Department of Palliative Care at Ho Chi Minh City Oncology Hospital was established in 2011 and specializes in the physical, mental, and treatment of terminal cancer patients, who are undergoing complicated developments in cancer treatment. The palliative care department accepts patients from the Emergency department or related departments based on medical records after the patient has been assessed for symptoms according to the Guidelines on Palliative care for Cancer and AIDS patients issued by the Ministry of Health in 2006 [12].

2.3. Study participants

The study participants included adults aged 18 years and above, who had been hospitalized for a minimum of 3 days between July 2020 and January 2021 at the Oncology Hospital, a prominent cancer treatment center located in southern Vietnam.

The inclusion criteria specified that prospective participants were 18 years of age or older at the time of admission, recently admitted to the Palliative Care Department for less than 3 days, and accompanied by their primary caregivers. Exclusion criteria were cognitive impairment; unable to pro-

vide informed consent; unwell or too distressed to agree to participate in the study.

2.4. Variables

The study collected demographic information and clinical characteristics of patients including age, gender, ethnicity, marital status, living with relatives, cancer diagnosis.

In addition, the study also collected information about the patient's health outcomes or health problems. Health problems were defined as physical symptoms, anxiety of the patient and their family, current health status, emotional expressions shared with the family, information received, and specific concerns within a 3-day timeframe, employing the 18-item APCA African POS questionnaire. This questionnaire was used to measure health outcomes and the severity of these problems, rated on a scale from 0 (most positive=no symptoms/problems) to 5 (most negative value=overwhelming symptom/problem burden). The total APCA African POS score ranges from 0 to 90, with higher values representing worse outcomes.

2.5. Data collection and tools

Prospective participants were identified from the palliative care department admission list at the Oncology Hospital. This list provides detailed information including age, sex, type of care, and diagnosis. he researcher approached potential participants in the hospital to explain the study objectives and invite them and their caregivers to participate in the study after obtaining permission from the treating physician. If the potential participant agreed, written consent was obtained from both the patient and the caregiver. Additionally, the researchers conducted a medical record review.

The investigator interviewed the patients using a prepared set of questions, including the APCA African POS, with a recall period of three days, considering cultural, family, and social characteristics of patients and caregivers. In addition, the Australian-modified Karnofsky Performance Scale (AKPS) patient's severity and activity status questionnaire were assessed by the physician. This is an Australian revised questionnaire from the Karnofsky Performance Status gold standard scale to be more relevant to healthcare clinical set-

tings [13].

The Palliative Care Outcome Scale (POS) measures are a group of tools developed to measure Palliative care needs of patients and their families. The Integrated Palliative care Outcome Scale (IPOS) is integrating the most important questions from POS, Palliative Care Outcome Scale – Symptoms (POS-S) and the APCA POS. POS collects demographic information or clinical characteristics of patients including age, sex, ethnicity, marital status, living with relatives, and cancer diagnosis [13],[14].

IPOS also collects information about the patient's key concerns, common symptoms, patient and their family's anxiety, current well-being, shared feelings with family or friends, information received and actual concerns, within a 3-day (for inpatient facility) or 7-day (for emergency patient) time frame [14]. The APCA African IPOS version, validated in Africa, consists of ten questions (18 items) assessing various aspects of physical, emotional, mental, and psychological well-being, information, and support for the patient and family. In addition, three sub-scores are calculated: POS Physical Symptoms Score (pain, shortness of breath, weakness or lack of energy, nausea, vomiting, poor appetite, constipation, sore or dry mouth, drowsiness, poor mobility) ranges from 0 to 50, POS Emotional Symptom Score (worry about illness or treatment, anxiety in family or friends, feelings of life's worth, and the sense of peace) from 0 to 20 and POS Communication/Practice Score (Communication/practical issues: share feelings with family and friends, the acquisition of desired information, the availability of sufficient help and advice, and the confidence felt by the family) from 0 to 20 [14].

2.6. Bias

Possible information bias in this study arose from patients self-answering the questionnaire due to their poor health status. This was addressed in the POS questionnaire by allowing designated caregivers or medical staff to respond on behalf of the patient.

Selection bias can also occur because the study may exclude very ill patients who cannot consent to participate in the study, leading to an underestimation of the palliative care needs of these patients.

2.7. Sample size

This study was a part of an international project support-ed by the World Health Organization (WHO). Its primary objective was to set the foundation for a prospective cohort study evaluating changes in palliative care outcomes and re-lated factors in cancer patients [8]. The project, a collabora-tion between the Cicely Saunders Institute of palliative care, Policy, and Rehabilitation, King's College London, and the Ho Chi Minh City Oncology Hospital, aimed to provide data for assessing of the WHO's palliative care program in the Western Pacific Region. Sample size calculations were based on changes in the baseline POS score and six follow-up as-sessments at monthly intervals, considering weak to moder-ate correlations between baseline and follow-up assessments [15]. A minimum sample size of 134 patients were needed to detect a small effect size of 0.25 in POS change score with 80% power and two-sided alpha level 0.05; the estimated number of patients who did not continue to participate during the study was 30% of the observational cohort [15],[16].

Sample size calculation formula:

$$N = R \times \left[\frac{(1+\varphi)^2}{\varphi} \frac{\left(z_{1-\alpha/2} + z_{1-\beta}\right)^2}{\left(\delta_{Plan} / \sigma_{Plan}\right)^2} + \frac{z_{1-\alpha/2}^2}{2} \right],$$

with

$$R = \left[\frac{1+(w-1)\rho}{w} - \frac{v\rho^2}{[1+(v-1)\rho]} \right].$$

In there:

v = 1: Number of initial evaluations

w = 6: Number of follow-up interview

α = 0.05; β = 0.2

ρ = 0.25: Change of mean POS score between follow-ups

φ = 2.4: SD of the POS score, the sample size calculated was 94, the estimated number of patients who did not contin-ue to participate during the study was 30%, the sample size to be taken was 134.

2.8. Statistical methods

After checking for the completion of the collected data, it was entered and cleaned using Microsoft Excel 2010 soft-ware. Subsequently, the data was analyzed using Stata 13.0 software (Stata Corporation, College Station, TX).

Frequencies and percentages were calculated for categori-cal variables such as patient and relative characteristics, and the patient symptom rates. Means and SD was estimated for continuous variables such as the five-point Likert scale and total POS score. For skewed distribution variables, median and interquartile range was reported instead. Univariate linear regression analysis was used to examine the association be-tween patient and caregiver characteristics and APCA African POS scores.

All variables with a p-value of 0.25 in the simple linear regression analysis were used to construct the multivariate linear regression model. A two-sided p-value of 0.05 was considered statistically significant.

2.9. Ethical considerations

The study received medical ethics approval from the Ethical Council in Biomedical Research of the Oncolo-gy Hospital, Ho Chi Minh City (Reference Number: 427/ BVUB-HDD) and King's College London Research Ethics Committee (Reference Number: HR-18/19-10835).

3. RESULTS

3.1. Characteristics of patients

Out of the total of 145 participants who agreed to take part in the study, six individuals (4.1%) passed away during their hospital stay, while an additional five participants (3.4%) could not be contacted after discharge. There were no signif-icant differences between study and non-study participants in terms of age (p=0.35) and sex (p=0.27). Table 1 shows the demographic characteristics of the patients. In which, the proportion of female patients accounted for 44%, the average age of the patient was 58.1 years old, the youngest was 19 years old and the oldest was 91 years old. Married patients accounted for the highest rate of 81.3%. In terms of educa-tion, secondary and high school levels account for nearly

Table 1. Patient characteristics

Characteristics	n (%)
Female	59 (44.0)
Age	58.1±14.1[1]
Marital status	
Married	109 (81.3)
Divorced	7 (5.2)
Single	10 (7.5)
Widowed	7 (5.2)
Prefer not to say	1 (0.7)
Education level	
Primary school and below	30 (22.4)
Secondary school	46 (34.3)
High school	47 (35.1)
College and above	11 (8.2)
Respondents	
Patients	58 (43.3)
Family/friend help answer	76 (56.7)
Have financial hardship	83 (61.9)
Responsible for a family member or a friend	
An adult, 18 or over	9 (6.7)
One or more child (ren)	18 (13.4)
None	107 (79.9)

[1] Mean± SD.

Table 2. The characteristics of caregivers

Characteristics	n
Female	95 (70.9)
Age	47.2±13.5[1]
Marital status	
Married	113 (84.3)
Divorced	18 (13.4)
Single	1 (0.8)
Widowed	2 (1.5)
The relationship with patients	
Spouse/partner	57 (42.5)
Sibling	11 (8.2)
Son/daughter	48 (35.8)
Friend	3 (2.2)
Parent	7 (5.2)
Cousin	1 (0.7)
Other	7 (5.2)
Health status	
Very good	15 (11.2)
Good	62 (46.3)
Fair	50 (37.3)
Poor	7 (5.2)
Social activity	
Much less than most	28 (20.9)
Less than most	68 (50.7)
About the same	34 (25.4)
More than most	4 (3)
Average hours per day caring for the patients	19.9 (6.9)[1]
	24 (12–24)[2]
Monthly earning	
Under 5 million VND	51 (38.1)
Above 5 million VND	47 (35.1)
Prefer not to say	36 (26.8)

[1] Mean±SD.
[2] Median quartiles.

equal proportions (34.3% and 35.1%), with above high school accounting for the lowest percentage (8.2%). Nearly half of the patients asked relatives or friends to complete the survey on their behalf, only 43.3% of the patients completed the questionnaires on their own. The proportion of patients experiencing financial hardship was twice that of patients not facing financial difficulties. The proportion of patients who were taking care of their relatives was 20.1%, and taking care of children accounts for a higher proportion.

3.2. Characteristics of caregivers

Table 2 presents the characteristics of the caregivers. The majority of caregivers reported having good health accounting for nearly 50% and they rarely participated in social activities. The mean number of hours a day caring for patients was 19.9 hours, however, caregivers may count the time they have been with the patients. Currently, while taking care of patients, the main income of caregivers was from full-time employment, accounting for the highest percentage (30.2%); the second was the unemployment rate; housework and other activities had nearly equal distribution. Before taking care of patients, most of the relatives worked as full-time workers, the unemployment rate was low. Except for unemployed relatives and housewives, the monthly income of relatives under five million VND (USD210) had the highest rate.

3.3. Clinical characteristics of patients

Table 3 presents the clinical characteristics of the patients. There were 52.2% inpatients and 44.8% outpatients. Most

patients in the study's sample were admitted to hospital for less than three days. Cancer of digestive, respiratory, and intrathoracic organs were equal in distribution and accounting for the highest rate, whereas pancreatic cancer had the lowest rate. Regarding the disease stage, the highest rate of stabilization was 43.3%; had roughly equal distribution in the unstable and deteriorating stages. About 32.8% of patients achieved an overall performance state of 60%, which means that they can meet most of their own needs but need help occasionally. Functional status at 70% reached the second-highest rate of 30.6%, roughly equally distributed at 50% and 80%, with no patients dead or normal, no evidence of disease.

3.4. Physical, emotional and communication problems

Fig. 1 depicts the patient's physical, emotional, and communication problems based on the POS scale. Over 90% of patients have pain symptoms, with moderate to severe pain accounting for more than 50%. Clinical symptoms such as weakness/lack of energy, difficulty in movement, loss of appetite, pain/dry mouth, and shortness of breath, were prevalent, ranging from 58% to 75%. More than 97% of patients
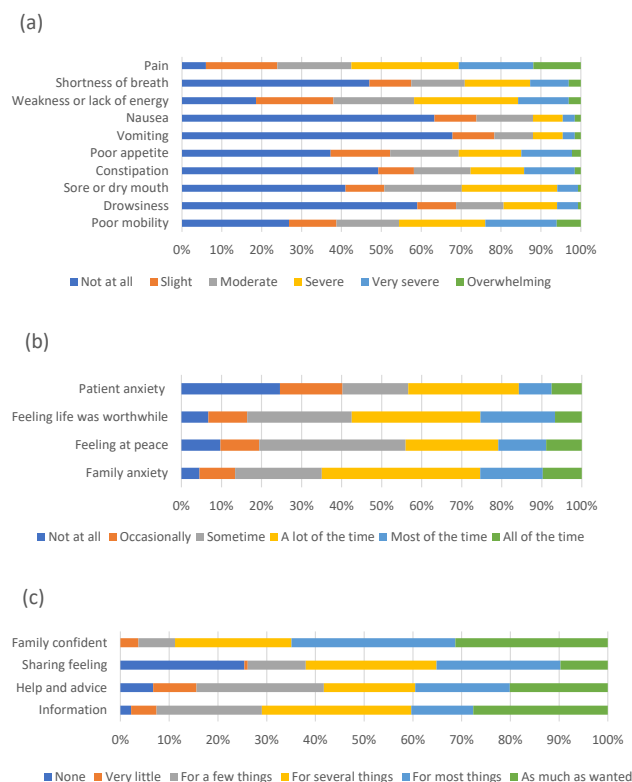
Table 3. Clinical characteristics of the patients

Characteristics	n	%
Place of care		
Inpatient	70	52.2
Outpatient	60	44.8
Home care	3	2.2
Day care	1	0.7
Main cancer diagnosis		
Digestive organs	29	21.6
Head – face - neck	23	17.2
Respiratory and intrathoracic organs	22	16.4
Breast	18	13.4
Genital organs	18	13.4
Other	12	9
Liver	8	6
Pancreatic	4	3
Phase of illness		
Stable	58	43.3
Unstable	40	29.8
Deteriorating	34	25.4
Dying	2	1.5
Deceased	0	0.0
Performance status (AKPS, %)	63.8±12.1[1]	
100	0	0.0
90	2	1.5
80	21	15.7
70	41	30.6
60	44	32.8
50	18	13.4
40	5	3.7
30	2	1.5
20	1	0.8
10	0	0.0
0	0	0.0
Performance status level		
Under 60%	26	19.4
Above 60%	108	80.6

[1] Mean±SD.
AKPS, Australian-modified Karnofsky Performance Scale.

Fig. 1. APCA African POS scale physical, emotional symptoms and communication/practice issues. (a) APCA African Palliative care outcome scale (APCA POS) physical symptoms. (b) APCA POS emotional symptoms. (c) APCA POS communication/practice issues. APCA, African Palliative Care Association; POS, palliative outcomes scale.

had two or more clinically relevant symptoms, especially nearly 5% of patients who reported having all ten physical symptoms. More than 43% of patients felt worried about their illness in the last three days. This rate is as high as the anxiety level of relatives (over 66%). Most patients have a habit of sharing their feelings with family members or friends (62.5%), feeling peaceful and feeling that life is worth living only on average (57.3% and 44.84%, respectively).

More than half of patients received help or advice from their families to solve problems for the future. The patient's family also received more information about their medical condition and felt confident in caring for the patient (71.3% and 89.7%, respectively).

3.5. African Palliative Care Association (APCA) African Palliative Outcomes Scale (POS) average score

Tables 4 and 5 present the average APCA African POS scores overall and by patient characteristics. The scores of all items were converted to a scale of 0=better status and 5=worse status. The mean total score of the patients was 32.2±10.8, ranging from 11 to 67 points.

The physical symptoms score is 15.1±7.6. Which, symp-

Table 4. Mean of APCA African POS score

POS items	Mean	SD	Median	95% CI (mean)
Physical symptoms				
Pain	2.7	1.4	3	2.45–2.94
Shortness of breath	1.4	1.5	1	1.13–1.67
Weakness or lack of energy	2.1	1.4	2	1.78–2.27
Nausea	0.8	1.2	0	0.59–1.02
Vomiting	0.7	1.2	0	0.51–0.92
Poor appetite	1.6	1.5	1	1.32–1.84
Constipation	1.3	1.5	1	1.09–1.62
Sore or dry mouth	1.4	1.4	1	1.21–1.68
Drowsiness	0.9	1.3	0	0.75–1.2
Poor mobility	2.1	1.6	2	1.81–2.37
Emotional symptoms				
Anxiety	2.0	1.5	2	1.76–2.29
Family anxiety	2.8	1.2	3	2.62–3.03
Life worthwhile	2.1	1.2	3	2.46–2.88
Feeling at peace	2.4	1.3	2	2.23–2.68
Communication/practice issues				
Sharing feelings	2.6	1.7	3	2.31–2.87
Help and advice	2.9	1.4	3	2.69–3.17
Family confidence	3.8	1.1	4	3.63–3.99
Family information	3.3	1.3	3	3.06–3.51

Higher score=worst status; APCA, African Palliative Care Association; POS, palliative care outcome Scale; 95%CI, 95% confidence interval.

Table 5. Descriptive statistics for APCA African POS total score and sub-scores

	Number of items	Mean	SD	Median	95% CI	Range
POS total score	18	32.2	10.8	32	30.4–34.1	11–67
POS physical symptoms	10	15.1	7.6	15	13.8–16.4	0–35
POS emotional symptoms	4	9.7	3.7	10	9.1–10.35	1–20
POS communication/practice issues	4	7.3	3.7	7	6.74–8.03	0–17

APCA, African Palliative Care Association; POS, palliative care outcome scale; 95%CI, 95% confidence interval.

toms of pain, weakness/lack of energy, and difficulty in functioning were the most common symptoms and had the highest average score. Nausea, vomiting, and drowsiness are the least common symptoms.

The emotional symptoms of APCA African POS score have an average score of 9.7±3.7. Both the patients and their family felt worried a lot of the time about the patient's situation with the highest score of 2.4 to 2.8 points.

The APCA African POS score in communication/practice has an average score of 7.3±3.7. Generally, the problems with sharing feelings or getting help from family or friends were occasionally. Additionally, it seems that the family was not confident about some issues when caring for the patient with the highest average score of 3.8±1.1 points.

3.6. Factors associated with the African Palliative Care Association (APCA) African Palliative Outcomes Scale (POS) score

Tables 6 and 7 present the results of univariable and multivariable linear regression analysis examining risk factors for APCA African POS score. Multivariable linear regression found that outpatients were less likely to have severe physical symptoms than inpatients (β=–3.5; 95% CI: –6.1 to –1.1). Conversely, home care or day care patients had more severe physical symptoms than inpatients (β=6.2; 95% CI: –1.1 to 13.4).

In addition, the greater the caregiver's involvement in social activities, the less likely the patient was affected by physical problems (β=–4.8; 95% CI: –8.1 to –1.5).

Table 6. Factors associated with APCA POS score

Characteristics	n	Physical symptoms	p-value	Emotional symptoms	p-value	Communi-cation/ practice issues	p-value
Education level							
Primary school and below	30	15.2±8.8		10.7±3.1		8.8±4.3	
Secondary school	46	15.2±7.8	0.994	10.4±3.3	0.693	6.9±3.6	0.022[1]
High school	47	14.7±7.3	0.816	8.6±3.8	0.010[1]	6.5±3.2	0.007[1]
College and above	11	16.6±5.7	0.591	8.7±4.3	0.107	9.1±3.2	0.861
Place of care							
Inpatient	70	16.0±7.4		10.2±3.7		6.1±3.7	
Outpatient	60	13.6±7.7	0.070	9.2±3.6	0.109	8.8±3.2	<0.001[1]
Home care/day care	4	22.8±6.1	0.084	10.3±2.8	0.973	7.0±3.5	0.636
Age[2]							
Under 35	28	12.5±7.1		8.8±3.3		6.1±3.4	
35–65	95	15.7±7.8	0.055	10.1±3.7	0.091	7.6±3.8	0.056
Above 65	11	16.3±6.4	0.164	8.4±3.6	0.723	8±3.3	0.162
Monthly earning[2]							
Under 5 million VND	51	16.4±7.8		9.7±3.6		7.9±3.5	
Above 5 million VND	47	16.0±8.3	0.808	9.8±4.3	0.912	8.2±4.1	0.704
Prefer not to say	36	12.1±5.5	0.010[1]	9.6±2.8	0.887	5.4±2.8	0.001[1]
Health status[2]							
Very good	15	12.1±4.8		7.1±3.8		7.6±3.6	
Good	62	13.6±8.1	0.481	9±3.4	0.060	6.1±3.4	0.170
Fair/poor	57	17.5±7.2	0.013[1]	11.2±3.4	<0.001[1]	8.6±3.8	0.315
Social activity[2]							
Much less than most	28	19.3±8.1		11.3±3.9		8.2±3.8	
Less than most	68	13.5±6.5	0.001[1]	9.2±3.5	0.006[1]	6.7±3.7	0.096
Same/more than most	38	14.8±8.3	0.018[1]	9.5±3.4	0.036[1]	7.9±3.7	0.760

[1] Univariable linear regression model.
[2] Characteristics of caregivers.
APCA, African Palliative Care Association; POS, palliative care outcome.

Table 7. Multiple linear regression analysis between factors associated with APCA POS score

Characteristics	β	95% CI	p-value[1]
Physical symptoms:			
Place of care			
Outpatient	−3.5	−6.1 to −1.1	<0.01
Home care/day care	6.2	−1.1 to 13.4	0.097
Age[2]			
35–65	0.4	−2.8 to 3.6	0.806
Above 65	1.3	−3.8 to 6.5	0.617
Monthly earning[2]			
Above 5 million VND	−1.0	−3.9 to 1.8	0.487
Prefer not to say	−4.1	−7.3 to −0.8	0.014
Health status[2]			
Good	1.3	−2.7 to 5.3	0.524
Fair/poor	3.9	−0.4 to 8.2	0.073
Social activity[2]			
Less than most	−4.8	−8.1 to −1.5	<0.01
Same/more than most	−3.0	−6.7 to 0.7	0.109
Emotional symptoms:			
Education level			
Secondary school	0.04	−1.5 to 1.6	0.956
High school	−1.4	−3.1 to 0.2	0.077
College and above	−1.0	−3.5 to 1.5	0.419
Health status[2]			
Good	1.6	−0.4 to 3.6	0.110
Fair/poor	3.2	1.2 to 5.3	0.002
Social activity[2]			
Less than most	−1.3	−2.9 to 0.2	0.089
Same/more than most	−1.0	−2.7 to 0.8	0.263
Communication/practice issues:			
Education level			
Secondary school	−2.1	−2.9 to 0.1	0.009
High school	−2.2	−3.4 to −0.5	0.005
College and above	0.2	−1.6 to 2.8	0.899
Place of care			
Outpatient	2.4	1.4 to 3.7	<0.001
Home care/day care	0.1	−2.9 to 3.7	0.945
Age[2]			
35–65	1.1	−0.1 to 2.6	0.121
Above 65	0.8	−1.4 to 3.2	0.520
Monthly earning[2]			
Above 5 million VND	0.2	−1.3 to 1.3	0.823
Prefer not to say	−1.8	−2.9 to 0.03	0.018

Multivariable linear regression analysis: R^2=24.5; 19.5; 28.3 for physical, emotional symptoms and communication/practice issues, respectively.
95%CI: 95% confidence interval.
[1] Multivariable linear regression model β.
[2] Characteristics of caregivers.
APCA, African Palliative Care Association; POS, palliative care outcome.

The association was also found for caregivers with worse health status, the worse the patient's emotional problems (β=3.9; 95% CI: −0.4 to 8.2).

3. DISCUSSION

The results showed that the age of cancer was getting younger with half of patients under 60 years old and the need for palliative care in cancer was not only found in elderly patients, but palliative care was also suitable for all subjects, of all different ages [1].

Nearly half of the patients needed a relative or friend to respond on their behalf. This feature differed from the results of the study of Vlckova et al. which reported that most of the patients needed help to complete the survey [17]. This difference may be due to the health status of the patients as more than half of them were in unstable or worsening condition. This was why the palliative care patient health outcomes tool was designed so that the patient's primary caregiver can also answer on behalf of the patient [14].

The cancer that accounted for the highest proportion of patients receiving palliative care was digestive system cancer and the lowest was pancreatic cancer. This result was similar to the statistics in Vietnam of Globocan 2020, according to which the most common cancers were liver, lung, breast, stomach and colorectal [18],[19]. Research by author Zimmermann performed on 461 patients at Princess Margaret Cancer Center, Canada in 2011 or author Hiroki Sakurai performed on 142 patients at Cancer Treatment Centres and Hospitals in Japan in 2019 also had similar results, two cancer types with the highest rates were the digestive and respiratory organs [20],[21].

For cancer patients, to measure how the disease affects the patient's ability to live every day was very important. Many hospitals, cancer centers and clinics often use a standard criteria scale called ECOG Performance Status scale. This scale describes the patient's activity level in term of self-care, daily activities and physical abilities such as walking or working … [22]. In this study, the percentage of patients were in the unstable condition lower than the study of Murtagh at al. in the UK and Germany in 2016 [23]. Patients in this stage

need an urgent change in care or treatment plan. The patient experiences a rapid increase in the severity of an existing or family problem or a sudden change in the caregiver's circumstances the affects the patient's care [22].

Additionally, the study found that more than a quarter of patients were in deteriorating or dying stage. This result was higher than the results of Murtagh's study. Patients in the stable stage have impaired overall functional status. The patient experiences worsening problems or the patient encounters a new, but predictable problem, or the family/caregiver experiences worsening distress affecting to patient care [22].

The results also show that the percentage of patients unable to perform normal activities or to do active work higher than in the study of Murtagh et al. or Kralik et al.'s study on 153 cancer or non-cancer patients with palliative care at the Royal Institute of Nursing, South Australia in 2007 [23],[24]. This difference indicated that the condition of the patients in this study was worse before receiving palliative care.

The above results showed that the majority of cancer patients admitted to the palliative care department in the late stages of the disease. When referred to the palliative care department, most patients' conditions are rapidly deteriorating, especially in homecare and inpatient-care units. Before receiving palliative care, the patient suffered from various physical symptoms such as pain, weakness, and mobility difficulties as well as mental and emotional problems such as lack of sharing of emotions, anxiety about the illness and less felt that life was worthwhile peace... This suggests that palliative care should be provided to patients from the time of cancer diagnosis as early as possible.

3.1. Patient's average African Palliative Care Association (APCA) Palliative Outcomes Scale (POS)

Many studies around the world such as the United Kingdom, Germany and Brazil have shown that APCA Africa POS has high value and reliability [10],[21]. Harding et al. have shown that APCA African POS has acceptable value and reliability with Cronbach's alpha=0.6, showing that the IPOS toolkit is reliable and there is consistency across items [10]. In addition, APCA African POS has good psychometric properties (Cronbach's alpha=0.6), easy to understand and concise [10].

In this study, the overall mean health outcome score was the sum of 18 items and ranged from 0 to 85 on the APCA African POS questionnaire. This is one of the first studies in Vietnam to evaluate the symptoms of patients at the beginning of palliative care. The results of the study show that the average POS score of cancer patients at the time of admission is higher than that of studies in other countries [21],[25]. The higher the score, the worse the patient's health and vice versa [26].

The mean scores of physical, emotional and communication symptoms are also higher than studies in other countries [17],[21],[23],[25]. Pain, difficulty in movement and weakness/lack of energy are the three most severe symptoms.

Pain was a typical symptom for cancer patients, there were many causes of pain including tumor pressing on bones, nerves, and other organs or pain after cancer treatment such as surgery, radiation treatment or as a long-term side effects of chemotherapy [25]. A study by author Richard Harding and colleagues performed in palliative care facilities in South Africa and Uganda also found that 82.6% of patients reported pain [27]. Too much rest and bed rest leads to loss of body function, muscle weakness, and reduced range of motion as well as difficulty functioning [28],[29]. Besides the direct effects of cancer and its treatment, people with cancer also often experience other things like surgery, stress, changes in activity levels, changes in blood counts, and blood pressure levels, hormone levels… can interact with each other to make the patient feel weak and lack energy [29],[30]. Nausea, vomiting, and drowsiness were the least common patient symptoms. Some patients also complain of constipation, shortness of breath, and loss of appetite. Some other symptoms reported were headache, insomnia, dizziness, numbness in the limbs, leg pain, cough, inability to move the legs due to loss of sensation, abdominal pain, diarrhea, edema on the backs of hands/feet, pruritus, blurred vision, ulcers, axillary lymph nodes, jaundice, abdominal distention, urinary incontinence… The above results suggested that pain and physical symptoms such as weakness/lack of energy and difficulty in functioning are serious problems in newly admitted palliative care patients.

The results of this study also show that patients are less likely to feel peaceful and have a worthwhile life after their illness. Many newly hospitalized patients were found to have cancer and were transferred to the intensive care unit, leaving them sad, no longer hoping to live, and worried about their families and children after their death. Studies in the UK and Germany also showed similar results, the three most frequently reported psychological problems were patient anxiety, anxiety for family/friends, and feelings of depression [26],[27].

3.2. Factors related to the average African Palliative Care Association (APCA) African Palliative Outcomes Scale (POS) score

Results found that inpatients had worse physical symptoms than outpatients. In contrast, patients choosing home care or day care service had higher physical symptoms severity than inpatients. Typically, home care patients who cannot go to the hospital regularly because of their poor health.

Our results were like those of Tanya Pidgeon's study in Australia, which showed that inpatients had more severe physical symptoms than outpatients [31].

For caregivers of patients, if they have a higher income this is also associated with an improvement in the physical health of the patient. Besides, the results of multivariable linear regression analysis also showed that caregivers' health was also related to patients' negative emotions. If the person taking care of the patient was in good or very good health status, the patient will have better and more positive emotions. Inpatient or home care patients had more serious physical problems than outpatients. Meanwhile, patients were less likely to have serious physical problems if their caregivers were in better health or participated in more social activities. These findings demonstrate the great importance and dependence of patients on their relatives.

3.3. Limitations of the study

There were several limitations to our study. First, the APCA African POS questionnaire was used to assess the improvement of palliative care outcomes in patients. However, the cross-sectional study only evaluated the mean APCA Af-rican POS score at the time of admission, so it did not evaluate the change or improvement in the patient's health over time. Second, this study only found factors related to patients' QoL including inpatient and the health status of caregivers, although this study did not prove a causal-and-effect relationship between these factors. Third, the proportion of patients who self-reported the APCA African POS questionnaire was low, more half of their caregivers responded to the questionnaire instead, which could lead to bias in reporting patient symptoms. Fourth, the study may exclude patients with very poor health who cannot consent to participate in the study, resulting in underestimating the patient's health problems requiring palliative care.

4. CONCLUSION

The study was conducted at Ho Chi Minh City Oncology Hospital, which is one of the largest Oncology Hospitals in southern Vietnam. The results may represent the characteristics and health problems of cancer patients receiving palliative care in Ho Chi Minh City and potentially reflect the situation in Vietnam as a whole. The study found that pain, weakness or lack of energy, difficulty in movement, decreased peace of mind, reduced sense of life's value, insufficient family support, lack of information, and financial difficulties are prominent problems in cancer patients receiving palliative care in Vietnam. The initial assessment of the patient's symptoms and psychosocial problems prior to palliative care is essential to inform treatment discussions regarding medical prognosis to improve the patient's QoL and improve treatment outcomes.

Funding sources

Conflict of interest

No potential conflict of interest relevant to this article was reported.

ORCID

Thuy Thi Thanh Mai
https://orcid.org/0000-0001-6910-4391
Oanh TH Trinh
https://orcid.org/0000-0001-5226-4997
Dung Van Do
https://orcid.org/0000-0001-6872-3481
Cheng-Pei Lin
https://orcid.org/0000-0001-5810-8776
Richard Harding
https://orcid.org/0000-0001-9653-8689

Authors' contributions

Conceptualization: DV Do, CP Lin, R Harding.

Data curation: TTT Mai, CP Lin.

Formal analysis: TTT Mai.

Methodology: OT Trinh, DV Do, CP Lin.

Software: TTT Mai, DV Do.

Validation: OT Trinh, R Harding.

Investigation: TTT Mai.

Writing - original draft: TTT Mai, OT Trinh, CP Lin.

Writing - review & editing: TTT Mai, OT Trinh, DV Do, CP Lin, R Harding.

Availability of data and material

Upon reasonable request, the datasets of this study can be available from the corresponding author.

Ethics Approval

The study received medical ethics approval from the Ethical Council in Biomedical Research of the Oncology Hospital, Ho Chi Minh City (Reference Number: 427/BVUB-HDD) and King's College London Research Ethics Committee (Reference Number: HR-18/19-10835).

REFERENCES

1. National Cancer Institute. Palliative care in cancer [Internet]. NIH. 2001 [cited 2022 May 10]. https://www.cancer.gov/about-cancer/advanced-cancer/care-choices/palliative-care-fact-sheet#who-gives-palliative-care

2. Krakauer EL, Ngoc NTM, Green K, Van Kham L, Khue LN. Vietnam: integrating palliative care into HIV/AIDS and cancer care. J Pain Symptom Manag. 2007;33(5):578-83.

3. Green K, Tuan T, Hoang TV, Trang NNT, Ha NTT, Hung ND. Integrating palliative care into HIV outpatient clinical settings: preliminary findings from an intervention study in Vietnam. J Pain Symtom Manag. 2010;40(1):31-4.

4. Vu HTT, Nguyen LH, Nguyen TX, Nguyen TTH, Nguyen TN, Nguyen HTT, et al. Knowledge and attitude toward geriatric palliative care among health professionals in Vietnam. Int J Environ Res Public Health. 2019;16(15):2656.

5. Tsao L, Slater SE, Doyle KP, Cuong DD, Khanh QT, Maurer R, et al. Palliative care–related knowledge, attitudes, and self-assessment among physicians in Vietnam. J Pain Symptom Manag. 2019;58(6):1015-22.E10.

6. Fitzmaurice C, Dicker D, Pain A, Hamavid H, Moradi-Lakeh M, MacIntyre MF, et al. The global burden of cancer 2013. JAMA Oncol. 2015;1(4):505-27.

7. Lo RSK, Woo J, Zhoc KCH, Li CYP, Yeo W, Johnson P, et al. Quality of life of palliative care patients in the last two weeks of life. J Pain Symptom Manag. 2002;24(4):388-97.

8. Hearn J, Higginson IJ. Development and validation of a core outcome measure for palliative care: the palliative care outcome scale. Palliative Care Core Audit Project Advisory Group. Qual Health Care. 1999;8(4):219-27.

9. Wentlandt K, Krzyzanowska MK, Swami N, Rodin GM, Le LW, Zimmermann C. Referral practices of oncologists to specialized palliative care. J Clin Oncol. 2012;30(35):4380-6.

10. Harding R, Selman L, Agupio G, Dinat N, Downing J,

Gwyther L, et al. Validation of a core outcome measure for palliative care in Africa: the APCA African Palliative Outcome Scale. Health Qual Life Outcomes. 2010;8:10.

11. Strengthening the Reporting of Observational studies in Epidemiology [STROBE]. What is STROBE [Internet]. STROBE. 2023 [cited 2023 Aug 10]. https://www.strobe-statement.org/

12. Ministry of Health. Decision 3483/QD - BYT dated 19/05/2006 on promulgating National Guidelines on palliative care for patients with cancer and AIDS. Hanoi: Ministry of Health; 2006.

13. Abernethy AP, Shelby-James T, Fazekas BS, Woods D, Currow DC. The Australia-modified Karnofsky Performance Status (AKPS) scale: a revised scale for contemporary palliative care clinical practice. BMC Palliat Care. 2005;4:7.

14. The Palliative care Outcome Scale [POS]. What is POS [Internet]. Palliative care outcome scale. 2012 [cited 2020 May 20]. https://pos-pal.org/maix/background.php

15. Twisk JWR. 11 - Sample size calculations. In: Twisk JWR, editor. Applied longitudinal data analysis for epidemiology: a practical guide. Cambridge: Cambridge University Press; 2013. p. 237-42.

16. Machin D, Campbell MJ, Tan SB, Huey Tan S. Comparing paired groups for binary, ordered categorical and continuous outcomes. In: Machin D, Campbell MJ, Tan SB, Huey Tan S, editors. The correlation coefficnet. Wiley Online Library; 2008. p. 153-7.

17. Vlckova K, Hoschlova E, Chroustova E, Loucka M. Psychometric properties of the Czech Integrated Palliative Outcome Scale: reliability and content validity analysis. BMC Palliat Care. 2020;19(1):39.

18. World Health Organization [WHO]. Viet Nam - Global Cancer Observatory. World Health Organization. 2020 [cited 2022 May 10]. https://gco.iarc.fr/today/data/factsheets/populations/704-viet-nam-fact-sheets.pdf

19. Tran TLT, Luu MN, Tran VLT, Le NQ, Nguyen TD, Quach DT. Prevalence, endoscopic and histopathological characteristics of early gastric cancer in Vietnamese patients. MedPharmRes. 2023;7(3):62-6.

20. Zimmermann C, Swami N, Krzyzanowska M, Hannon B, Leighl N, Oza A, et al. Early palliative care for patients with advanced cancer: a cluster-randomised controlled trial. Lancet. 2014;383(9930):1721-30.

21. Sakurai H, Miyashita M, Imai K, Miyamoto S, Otani H, Oishi A, et al. Validation of the Integrated Palliative care Outcome Scale (IPOS). Jpn J Clin Oncol. 2019;49(3):257-62.

22. ECOG-ACRIN. ECOG performance status scale [Internet]. U.S. 1982 [cited 2020 Aug 5]. https://ecog-acrin.org/resources/ecog-performance-status/

23. Murtagh FEM, Ramsenthaler C, Firth A, Groeneveld EI, Lovell N, Simon ST, et al. A brief, patient- and proxy-reported outcome measure in advanced illness: validity, reliability and responsiveness of the Integrated Palliative care Outcome Scale (IPOS). Palliat Med. 2019;33(8):1045-57.

24. Kralik D, Anderson B. Differences in home-based palliative care service utilisation of people with cancer and non-cancer conditions. J Clin Nurs. 2008;17(11c):429-35.

25. Coym A, Ullrich A, Hackspiel LK, Ahrenholz M, Bokemeyer C, Oechsle K. Systematic symptom and problem assessment at admission to the palliative care ward – perspectives and prognostic impacts. BMC Palliat Care. 2020;19(1):75.

26. POS. How to score [Internet]. Palliative care outcome scale. 2012 [cited 2020 May 20]. https://pos-pal.org/maix/how-to-score.php

27. Harding R, Selman L, Agupio G, Dinat N, Downing J, Gwyther L, et al. Prevalence, burden, and correlates of physical and psychological symptoms among HIV palliative care patients in sub-Saharan Africa: an international multicenter study. J Pain Symptom Manag. 2012;44(1):1-9.

28. American Cancer Society. Physical activity and the cancer patient [Internet]. American Cancer Society. 2022 [cited 2022 May 10]. https://www.cancer.org/treatment/survivorship-during-and-after-treatment/be-healthy-after-treatment/physical-activity-and-the-cancer-patient.html#:~:text=Avoid%20inactivity%20and%20return%20to,vigorous%20intensity)%20activity%20each%20week

29. American Cancer Society. What is fatigue or weakness? [Internet]. American Cancer Society. 2022 [cited 2022

May 10]. https://www.cancer.org/cancer/managing-cancer/side-effects/fatigue/what-is-cancer-related-fatigue.html#:~:text=In%20people%20with%20cancer%2C%20weakness,are%20often%20many%20factors%20involved

30. Than THN, Nguyen LP, Nguyen TNHM, Pham THK, Nguyen TTT, Vo NT. Cancer-related thrombosis among older patients in a hospital in Vietnam: a retrospective study. MedPharmRes. 2023;7(1):8-14.

31. Pidgeon T, Johnson CE, Currow D, Yates P, Banfield M, Lester L, et al. A survey of patients' experience of pain and other symptoms while receiving care from palliative care services. BMJ Support Palliat Care. 2016;6(3):315-22.