



## Research Article

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# DO CAREGIVERS HAVE AN EFFECT ON EXTENDED HOSPITALIZATION IN PATIENT-FOLLOWED PALLIATIVE CARE CENTER? A STUDY FROM TÜRKİYE

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## Abstract

**Objectives:** Since palliative care clinics are clinics that strive to solve the pain caused by the disease as well as other physical and psychological symptoms and social problems as a caregiver burden, the length of stay becomes important in our clinics with high demand from patients. One of the purposes of palliative care centers is to evaluate the patient for discharge. We aimed to investigate whether the length of stay is caused by the caregivers as well as clinical conditions.

**Materials and Methods:** In this study, we retrospectively investigated the days of hospitalization of 915 patients followed in a palliative care center and the factors that prolong hospitalization in patients with extended hospitalization.

**Results:** The average length of stay of the patients was found to be  $15.65 \pm 11.43$  days. Hospitalization longer than 28 days was found in 97 (10.60%) patients. The most common reason for extended hospitalization was the reluctance of caregivers to discuss discharge in 47 (48.45%) patients. The second most frequent discharge was delayed in 25 (25.8%) patients due to clinical instability. 23 (23.71%). A significant relationship was detected between length of stay and TPN nutrition. A significant relationship was detected between patients with cancer ( $P: 0.042$ ) and coronary artery disease ( $P < 0.01$ ) on extended stay.

**Conclusion:** With the aging of the world population and the improvement of health care services, the need for palliative care is increasing daily. To use resources efficiently, there is a need to optimize the length of stay in palliative care with a multidisciplinary approach.

**Keywords:** Palliative care, length of stay, caregiver.

## Introduction

The impact of palliative care, which includes symptom management that impairs the quality of life at the end of life, has come forth as a new concern in the last three decades. As the elderly population in society rises, its popularity also increases among health professionals and caregivers.<sup>1</sup> Since palliative care centers aim to treat the disease itself in addition to other physical and psychological symptoms, and social problems, the length of hospitalization comes forth as an issue with solving due to high demand for such health care services.

Another aim of palliative care centers is to evaluate the patient for discharge, to provide devices that the patient needs at home or in a nursing home, and to provide caregivers with care and device usage training.<sup>2</sup> While there are very limited studies on the emotional states of caregivers in the end-of-life management of cancer patients, we have not come across a study investigating the effects of medical discharge decisions on patients' prolonged hospital stays.<sup>3,4</sup>

Although there is a concept such as prolonged hospitalization in intensive care units, prolonged hospitalization for palliative care centers is still a matter of debate.<sup>5</sup> Although it is known that palliative care is cost-effective, it is also known that it prolongs the length of stay, but the underlying causes remain unclear.<sup>6</sup>

In this study, we aimed to investigate the data of the patients who were followed as inpatients in our palliative care center, their discharge status, and the factors affecting prolonged hospitalization.

## Materials and Methods

This study is cross-sectional and retrospective. The data of patients aged 18 and over who were followed consecutively at Ankara Bilkent City Hospital and Ankara Etilik City Hospital, palliative care centers between January 2020 and October 2023 were taken from the hospital database. Those with more than one hospitalization and those with hospitalizations other than their first hospitalization were excluded.

Demographics, medical diagnosis, major morbidities (cancer, Alzheimer's disease, cerebrovascular disease), comorbid conditions such as; congestive heart failure, hypertension, diabetes mellitus, coronary artery disease, chronic kidney failure, medications used, nutrition style, caregiver status, history of tracheostomy were recorded. Pressure ulcer presence, pain scores, length of hospital stay, and discharge status were noted. As in intensive care units, there is no exact cut-off value for long hospital stays in palliative care centers, but in other studies, the average length of stay is generally found to be 25 days or more. We consider the 28 days as

sufficient time for caregivers to develop their ability to care for the patient and to adapt to the care and the patient's symptoms. Patients are evaluated for discharge at the end of the 28th day at the latest. Those with a length of stay of 28 days or more were considered as prolonged hospitalization.<sup>7</sup> Since it is mandatory to keep all patient-related data in nurse and doctor observation forms daily, there were no patients with missing data in our study. In patients with prolonged hospitalization, data regarding potential factors were obtained from the hospital database, and nurse and doctor observation forms.

The nutritional status of the patients at the time of admission to our service was recorded with the nutritional risk score (NRS 2002) form. According to the NRS 2002 score, patients with a score of  $\geq 3$  were interpreted as a malnutrition risk group.<sup>8</sup> Feeding routes of the patients were recorded. It was recorded whether the patient was fed via oral, nasogastric (NG), percutaneous gastrostomy (PEG), percutaneous jejunostomy (PEJ), or total parenteral nutrition (TPN).

Braden risk assessment scale was used for pressure ulcer evaluation immediately after the patients were admitted to the palliative care center. According to this scale,  $\leq 12$  points were considered high risk, 13-14 points were considered risky, and 15-18 points were considered low risk. Preventive practices for pressure ulcers were reviewed in all patients. Pressure ulcer staging was performed.<sup>9,10</sup>

Pain was determined using the visual pain scale (VAS) in patients who could be contacted for pain scores, and the behavioral pain score (DAS) in others. At the same time, the analgesics used by patients with pain were recorded.<sup>11,12</sup>

For this study, local ethics committee approval numbered E1-23-4076 was received from the Ankara Bilkent City Hospital, Ethics Committee. Since this study was retrospective, informal consent could not be obtained. The principles of the Declaration of Helsinki were followed accordingly.

### *Statistical Analysis*

The data obtained from the Hospital Information Management Systems (HIMS) notes, and nurse, dietitian, and doctor daily evaluations were entered into SPSS for Windows v26.0 (IBM Corp., Armonk, NY, USA). The normality of the data was analyzed both visually and analytically. Descriptive analyses were performed. In the comparison of two independent variables, an analysis of T-tests was used. In the presence of more than two variables, analysis of variance (ANOVA) was used. Correlations were investigated by Spearman's Rho. p values  $< 0.05$  was considered statistically significant.

## Results

Nine hundred and fifteen consecutively followed-up patients from January 2020 to September 2023 were included in the study. The mean±SD age of the patients was found to be 71.77±15.22. Among the patients, 478 (52.24%) were female. Eastern Cooperative Oncology Group (ECOG) performance scales of all patients were 3-4. The most common morbidity in patients was cerebrovascular disease with 345 (37.70%) patients. The second common morbidity was end-stage cancer 294 [32.13%]. The third most common disease was advanced-stage Alzheimer's disease (27.54%). A significant relationship was detected between patients with cancer (p=0.042) and cerebrovascular disease (p=0.034) and prolonged stay. The majority of diseases that caused the patients to be admitted to the palliative care center are given in Table 1.

**Table 1.** Major diseases that affect the length of hospital stay

	Length of Stay >28 Days n /%		Length of Stay <28 Days n /%		Total	%	p
	n	%	n	%			
Cerebrovascular disease	27/97	27.84%	318/818	38.88%	345	37.70%	<b>0.034</b>
Cancer (End- stage)	40/97	41.24%	254/818	31.05%	294	32.13%	<b>0.042</b>
Alzheimer's Disease (Advanced-stage)	23/97	23.71%	229/818	28.00%	252	27.54%	0.372

673 (73.55%) of the patients were transferred from intensive care units to the palliative care center. 190 (20.77%) patients were transferred from inpatient clinics. 52 (5.68%) patients were admitted to the palliative care center upon the demand from the home health unit and the patient's relatives. Mortality was observed in 282 (30.82%) patients from the entire patient population during hospitalization. A significantly higher mortality was observed in the group with prolonged hospital stay (p=0.02). Nutritional problems were the most frequently observed during admission, and pain was the third most common in 304 (33.22%) patients. When the patients were evaluated in terms of feeding methods, 484(52.90%) were fed orally, the second most common was 209 (22.84%) patients who received total parenteral nutrition (TPN). The third most common was 161 (17.60%) patients who received tube feeding. No significant relationship was found between prolonged hospitalization and TPN nutrition (p=0.42) Low-potency tramadol/oxycodone was the most preferred painkiller in 211 (23.06%) patients with pain. The use of morphine was preferred in 12(1.31%) patients. In terms of pressure ulcers, all patients received <12 points according to the Braden risk score. While 18 (18.56%) patients in the group with prolonged hospitalization had at least stage 1 pressure ulcers, pressure ulcers were detected in 175 (21.39%) patients in the group without prolonged hospitalization, and there was

no significant difference between them ( $p=0.518$ ). Our rate of delirium, which contributes to the deterioration of the general condition of inpatients, was found to be 193 (21.10%). Anxiolytics were preferred in 216 (23.61%) patients during their hospitalization. The most preferred anxiolytic drug was quetiapine, with the first frequency in patients 124 (13.55%), and haloperidol with the 67 (7.32%) second frequency in patients. Lorazepam was used in 25 (2.73%) patients. No significant difference was found between prolonged stay and anxiolytic use ( $p=0.051$ ). It was determined that 481 (52.57%) of the patients had relatives and no caregiver relatives of three patients could be found. The demographic data of the patients are shown in Table 2.

**Table 2.** Comparison of length of stay times according to patient characteristics

	Length of Stay>28		Length of Stay<28 days		Total	%	p
Gender(female)	50/97	51.55%	428/818	52.32%	478	52.24%	0.885
Diabetes mellitus	14/97	14.43%	71/818	8.68%	85	9.29%	0.650
Hypertension	13/97	13.40%	109/818	13.33%	122	13.33%	0.983
Coronary artery disease	23/97	23.71%	64/818	7.82%	87	9.51%	<b>0.003</b>
Chronic renal failure	5/97	5.15%	38/818	4.65%	43	4.70%	0.823
Congestive heart failure	8/97	8.25%	36/818	4.40%	44	4.81%	0.094
<b>Nutrition</b>					915	100.00%	
Orally	52/97	53.61%	432/818	52.81%	484	52.90%	0.882
Percutan gastrostomy	14/97	14.43%	147/818	17.97%	161	17.60%	0.388
TPN	19/97	19.59%	190/818	23.23%	209	22.84%	0.42
<b>Conditions</b>					915	100.00%	
Pain	39/97	40.21%	265/818	32.40%	304	33.22%	0.123
General condition disorder	43/97	44.33%	438/818	53.55%	481	52.57%	0.086
Oral intake disorder	43/97	44.33%	440/818	53.79%	483	52.79%	0.78
<b>Nonsurvivors</b>	46/97	47.42%	236/818	28.85%	282	30.82%	<b>0.02</b>
<b>Tracheostomy</b>	15/97	15.46%	5/818	0.61%	20	2.19%	<b>0.003</b>
<b>Pressure ulcer</b>	18/97	18.56%	175/818	21.39%	193	21.09%	0.518
<b>Pain killer</b>					463	50.60%	
Paracetamol	17/68	25.00%	133/395	33.67%	150	16.39%	<b>0.04</b>
NSAID/steroid	0/68	0.00%	8/395	2.03%	8	0.87%	
Tramadol/Oxycodone	33/68	48.53%	178/395	45.06%	211	23.06%	0.39
Fentanyl	13/68	19.12%	69/395	17.47%	82	8.96%	0.07
Morphine	5/68	7.35%	7/395	1.77%	12	1.31%	<b>0.001</b>
<b>Anxiolytic use</b>					216	23.61%	
Quetiapine	20/42	47.62%	104/174	59.77%	124	13.55%	0.05
Haloperidol	16/42	38.10%	51/174	29.31%	67	7.32%	0.06
Lorazepam	6/42	14.29%	19/174	10.92%	25	2.73%	0.05
<b>Caregiver</b>					915	100.00%	0.53
Relatives	46/97	47.	435/818	53.18%	481	52.57%	0.05
Paid caregiver	51/97	52.58%	380/818	46.45%	431	47.10%	0.05
No caregiver	0/97	0.00%	3/818	0.37%	3	0.33%	

The average length of stay of the patients was found to be  $15.65 \pm 11.43$  days. The rate of hospitalization longer than 28 days was found to be 10.60% (97). The most common reason for extended hospitalization was the reluctance of caregivers to discuss discharge in 47 (48.45%) patients. The second most common cause was clinical instability in 25 (25.77%) patients. Table 3 shows the factors that cause a prolonged stay. A significant difference was detected between the length of stay and the presence of tracheostomy. ( $p=0.003$ ).

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**Table 3.** The factors that cause a prolonged stay.

	n	%
Using antibiotics for infections	23	23,71
Caregivers do not want to discharge	47	48,05
Waiting for the device supply	2	2,06
Unstable vital signs	25	25,77
<b>Total</b>	97	100

## Discussion

Today, palliative care deals with various issues, such as the rehabilitation of patients, identifying and meeting all their social and physical needs, and training and supporting caregivers, in addition to end-of-life care. Although there are studies on the length of stay in palliative care in Türkiye, all reasons for an extended stay have been considered in a medical situation. To our knowledge, there is no study investigating the effect of caregivers in Turkey.

In this study, the most common co-morbidity during hospitalization was cerebrovascular disease. The second most common was cancer patients, who form the basis of palliative care. Cerebrovascular disease was found to be compatible with the study conducted by Yürüyen et al. from Türkiye. Even though cancer was the second most common reason for hospitalization, we found a significant relationship with the prolonged stay. The reason for this may be that even if patients want to die at home, their relatives might prefer them to be in the hospital environment.<sup>13</sup>

In addition to inpatient services, patients' relatives can apply to palliative care centers through home care services or at their request. In our study, we found that the majority of patients admitted to the palliative care

center were from intensive care units. In the study conducted by Miniksar et al., home health services come first in the applications.<sup>14</sup> This data seems contradictory to our results. Still, due to the high number of intensive care beds in our hospital, which serves as a tertiary center, outpatients can be transferred to other palliative care centers with home care

Indications for admission to palliative care may vary depending on the heterogeneity of patients, or there may be more than one indication. While palliative care deals with symptoms of pain, breathlessness, nausea and vomiting, and fatigue<sup>14</sup>, in our study, the most common reasons for hospitalization were poor general condition and nutritional problems. In the study conducted by Dinçer et al., nutritional problems were the most common reason for hospitalization.<sup>16</sup> Even though nutrition is still a controversial issue in palliative care, for Türkiye, sociodemographically, nutrition is at least as important as the pain perceived by caregivers in palliative care. There is even a dialogue between healthcare professionals and caregivers: 'Sir, this patient does not eat or drink, let's stay in the hospital a little longer.' The most common form of nutrition in our study was oral nutrition. The factor prolonging the hospital stay was determined to be the patient receiving total parenteral nutrition. Similar to the relationship between persistent total parenteral nutrition and in-hospital mortality, it was also found to be associated with prolonged hospitalization in our study.<sup>17</sup>

Pain is the main focus of palliative care. In our study, pain was the third most common symptom after admission. Since pain is a subjective symptom, pain is tried to be understood using different methods. The most preferred painkillers in patients with pain were low-potency painkillers such as oxycodone and tramadol. The World Health Organization has also recommended the use of low-potency analgesics in pain palliation, followed by the use of high-potency ones.<sup>18</sup> According to a study conducted in Slovenia, opioid use varies widely in European countries. Even though our opioid use is not yet at the desired levels, it does not seem to be related to the length of stay. The biggest reason for this is that specialists are concerned that patients will become addicted in our country.<sup>19</sup>

We see that in patients with accompanying symptoms such as delirium and anxiety, the most common drugs used were quetiapine followed by haloperidol. Delirium is a hyperactive or hypoactive complex syndrome that has a wide range of symptoms and findings and is seen at very variable frequencies in hospitalized patients. In addition to nonpharmacological measures, pharmacological treatments are frequently needed to prevent delirium in patients. In pharmacological treatments, haloperidol, atypical antipsychotics, as well as benzodiazepines can be used. We believe that haloperidol is the second most preferred drug due to its side effect profile. The use of benzodiazepines has been much reduced because they can cause delirium to become more severe.<sup>20,21</sup>



Palliative care is a complex structure that includes doctors, nurses, other healthcare professionals, as well as caregivers. Caregivers are included in the system to determine all the needs of the patients, to provide optimal care, to determine the needs of the caregivers, and to support the patient psychosocially before the patient's death and during the mourning period.<sup>22</sup> Caregivers may be relatives or provide salaried/voluntary services. Unfortunately, we did not have any volunteer caregivers in our study. In our study, the first factor that affected the prolongation of hospitalization was the caregiver's desire for an extended hospitalization and their desire to prolong the hospitalization as a result of not feeling competent in care. In the multidisciplinary approach, there are caregivers as well as health professionals. However, we cannot think that the caregiver burden is adequately understood even by palliative care center teams. Because clinicians often think patient-oriented, the medical literacy and sociocultural needs of caregivers are often ignored.<sup>23</sup> The second factor for extended hospitalization is the patient's inability to be discharged due to unstable conditions. These patients may choose to die in the hospital or by the joint decision of the clinician and caregivers to let the death occur in the hospital.<sup>24</sup> The third factor that extended hospitalization was infections. In palliative care, determining which treatments to administer and their appropriate dosages remains a topic of debate. However, in Türkiye, where treatment withdrawal or withholding is not practiced, the infection status of patients cannot be overlooked. With expert guidance, infections are managed by completing the optimal duration of antibiotic therapy. This situation was one of the reasons that extended the hospitalization of patients.<sup>25/26</sup>

There are several limitations of the study. Since our study was single-center and retrospective, we could not reach the caregivers' thoughts, concerns, and results regarding the prolongation of hospitalization and discharge. Palliative care requires different approaches due to many different modalities. It is necessary to conduct multi-center prospective studies on palliative care, length of stay, and caregivers. Moreover, to understand the burden of caregivers, national programs are needed to provide necessary training to health professionals and to support caregivers' needs and sociocultural aspects.

The findings of this study highlight several key factors that influence the length of stay for patients in palliative care. Due to various reasons, the data collected from the patient group in palliative care settings may contain numerous variables. Nevertheless, this remains the most thorough investigation into the impact of infectious agents and clinical characteristics in this patient population. Further research involving larger and more diverse patient cohorts is needed to better identify the factors that affect length of stay.

Strengthening home care policies as well as palliative care in hospitals is very important to ensure cost-effectiveness. Collaboration between hospital-based palliative care teams and home-based care teams may increase patient comfort as well as reduce the demand for hospitalization.

With the aging of the world population and the improvement of health care services, the need for palliative care is increasing day by day. To use resources efficiently, there is a need to optimize the length of stay in palliative care with a multidisciplinary approach. New prospective studies are needed on home palliative care and home end-of-life management models.

**Ethical Considerations:** Local ethics committee approval numbered E1-23-4076 was received Ankara Bilkent City Hospital Ethics Committee.

**Conflict of Interest:** The authors declare no conflict of interest.

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