

1           **Factors influencing the length of stay in the palliative care unit in patients**  
2           **discharged to home: results from a tertiary hospital in Turkey**

3   **ABSTRACT**

4   **Background/aim:** Increased length of stay (LOS) in the palliative care unit (PCU) is a  
5   serious burden to the patients and the health care system. The predictors of longer LOS  
6   in a PCU have not been reported so far from Turkey. Our aim in this study was to evaluate  
7   the factors associated with the LOS in the PCU of a tertiary hospital.

8   **Materials and methods:** This cross-sectional analysis of a retrospective cohort evaluated  
9   adult patients' medical records admitted to the PCU between 2017 and 2019. The main  
10   inclusion criteria were four or more days of palliative unit stay and being home discharge  
11   during the study period. Data on demographics, chronic diseases, mobilization disability,  
12   route of feeding, tracheostomy, sleep disturbances, pressure ulcers, and antidepressant  
13   use were collected. Potential factors associated with prolonged LOS tertiles were  
14   examined by ordinal regression analysis.

15   **Results:** A total of 287 discharges from the PCU to home were analyzed. Mean (SD) age  
16   was 70.5 (15.8) years, and there was a male predominance (55.7%). The majority of  
17   patients had malnutrition, mobility limitation, hypertension, malignant disease, and sleep  
18   disturbances. Median LOS was 15 days (4 - 79). Mean age, hypertension, infections,  
19   mobilization limitation, tube feeding, permanent tracheostomy, and pressure ulcers  
20   increased from the short stay tertile (4 - 12 days) to the medium stay tertile (13 - 20 days)  
21   and long stay tertile (> 21 days) of LOS. Mobilization limitation ( $p = 0.013$ , OR: 2.34  
22   (95% CI: 1.19 - 4.60)), tube feeding ( $p = 0.001$ , OR: 2.63 (95% CI: 1.49 - 4.66)),  
23   permanent tracheostomy ( $p = 0.007$ , OR: 4.10 (95% CI: 1.48 - 11.36)), and hypertension  
24   diagnosis ( $p = 0.023$ , OR: 1.80, 95% CI: 1.09 - 2.98) on admission were associated with  
25   being in the medium stay or long stay tertiles of LOS compared to the lowest tertile.

26   **Conclusion:** A longer length of PCU stay is associated with mobilization limitation, tube  
27   feeding, permanent tracheostomy, and hypertension. We found no evidence that age,  
28   infections or pressure ulcers on admission were associated with extra LOS in the PCU in  
29   patients discharged home.

30   **Keywords:** Palliative care, home discharge, tube feeding, pressure ulcer, tracheotomy,  
31   length of stay

## 1 1. Introduction

2 Palliative Care Units (PCU) focus on improving the care and quality of life of complex  
3 patients. World Health Organization defines palliative care as relieving the pain and other  
4 health problems in patients and families who encounter problems arising from a life-  
5 threatening disease . PCUs aim to satisfy spiritual needs by relieving pain and other  
6 physical and psychosocial problems through a comprehensive assessment of problems.  
7 (World Health Organization (WHO) Palliative Care. [https://www.who.int/news-room](https://www.who.int/news-room/fact-sheets/detail/palliative-care)  
8 [/fact-sheets/detail / palliative-care](https://www.who.int/news-room/fact-sheets/detail/palliative-care) accessed 14 march 2021).

9 The discharge plan is an essential component of palliative care activities [1]. An effective  
10 discharge plan reduces both re-hospitalization and healthcare costs [2]. Most patients and  
11 carers claim that their needs and expectations are met before discharge, including  
12 education on care and guidance in preparing the home environment. Indeed, many  
13 individuals requiring palliation may not prefer institutional care. A Japanese study  
14 indicated that 44% of patients preferred staying home during the last period of life, and  
15 the rate of patients who preferred hospital and PCU was 15% and 19%, respectively [3].  
16 On the other hand, effective palliative care reduces healthcare costs, mainly by preventing  
17 unnecessary readmissions and decreasing the length of stay (LOS) in the intensive care  
18 unit [4-5-6]. Hence, early discharge contributes to more effective use of healthcare  
19 sources, which became more critical during the Covid-19 pandemic. Besides, timely  
20 discharge from the PCU can also reduce the risk of potential adverse outcomes due to  
21 prolonged hospitalization. It should also be noted that successfully discharging a patient  
22 home is a quality indicator for a PCU [7,8].

23 To perform a proper home discharge, the patient should no longer have significant health  
24 issues requiring hospitalization. On the other hand, factors associated with prolonged  
25 LOS in the PCU have not been sufficiently investigated. Prolonged terminal disease  
26 phase, difficulties in symptom control, placement problems, need for parenteral  
27 medications, and caregiver's emotional status have been associated with prolonged PCU  
28 stay in several studies published so far [9-10-11].

29 Although there is a clearly defined universal job description of PCUs, institutional  
30 arrangements, working protocols, reimbursement plans, and some other regulations may  
31 vary in different countries. The clinical features of patients admitted to PCUs for various  
32 reasons may also differ according to regions and countries. Therefore, factors associated

1 with prolonged LOS in other countries may not be entirely relevant to Turkey. However,  
2 an extensive literature search has suggested that the predictors of longer LOS in the PCU  
3 in Turkey have not been reported so far. In the present study, we hypothesized that the  
4 clinical variables on admission to PCU could be useful to predict a prolonged LOS.  
5 Effective management of potential factors associated with a prolonged stay can help more  
6 efficiently use the PCUs and improve health outcomes. This study aimed to examine the  
7 baseline characteristics associated with a longer stay in the PCU.

## 8 **2. Methods**

### 9 **2.1. Study design and participants**

10 This was a single-center and retrospective study. The enrollees were the inpatients of a  
11 PCU of a tertiary care hospital hospitalized between April 2017 and April 2019  
12 (University of Health Sciences Turkey, Gulhane Training and Research Hospital, Ankara,  
13 Turkey). The inclusion criteria were hospitalization for four days or more and having  
14 been discharged home at any time before enrollment in the study. The first hospitalization  
15 period was evaluated in subjects with multiple admissions. We excluded the patients  
16 younger than 18 years of age, discharged to nursing facilities, hospitalized on the day of  
17 recruitment, or died before discharge. Patients with unreliable or insufficient data due to  
18 the absence of carer support were also excluded. The Institutional Review Board of Non-  
19 interventional Research, University of Health Sciences (Code: 19 / 196), and the Board  
20 of Medical Speciality Education, Gulhane Training and Research Hospital approved the  
21 study protocol (26 / 09 / 2019 - 10).

22 As part of the routine care, each patient admitted to the current PCU is evaluated by a  
23 team of an experienced anesthesiologist, registered nurses, registered dietitian, social  
24 workers, psychologist, physiotherapist (including swallowing and respiratory therapist),  
25 and spiritual support specialist. When necessary, consultation is requested from other  
26 clinics.

### 27 **2.2. Basic demographic and clinical characteristics**

28 We obtained the data collected on admission to the PCU. The following data are routinely  
29 recorded for each patient: age, height, body weight, previously diagnosed chronic  
30 conditions, surgery history, pressure wound, tracheostomy status, oxygen demand,  
31 mobilization status, nutritional status, insomnia [Sleep-onset (difficulty in falling asleep),  
32 sleep maintenance (difficulty staying asleep), and early awakening in the morning)] [12],

1 and medications. A registered dietitian evaluates the nutritional status using the NRS  
2 2002 tools [13]. In this study, we combined cases with malnutrition risk and absolute  
3 malnutrition in a single category. Pain management, feeding, swallowing and respiratory  
4 therapy, in-bed passive or active physical therapy, rehabilitation exercises, care of  
5 pressure ulcers, incontinence management, sleep regulation, and delirium management  
6 are maintained as stated in the current guidelines. Charlson comorbidity index (CCI) was  
7 calculated as previously described [14].

### 8 **2.3. Outcomes**

9 The primary outcome variable in this study was the prolonged length of stay in the PCU.

### 10 **2.4. Statistical Methods**

11 Statistical Package for Social Sciences (SPSS) (Version 20.0, Chicago, Illinois) program  
12 was used for statistical analysis. The distribution of the data was evaluated by the Shapiro-  
13 Wilk test. We divided the patients into three tertiles according to the number of days of  
14 hospitalization. Tertile 1, 2 and 3 included patients with the short (4 - 12 days), medium  
15 (13 - 20 days) and long (21 - 79 days) LOS. Analysis of continuous variables in these  
16 three groups was performed by One-way-ANOVA or Kruskal Wallis, and analysis of  
17 categorical variables was performed by the Chi-square test. Using ordinal regression  
18 analysis, we examined the variables associated with an increased likelihood of being in  
19 the medium or long LOS tertiles, taking the short stay tertile as the reference. The  
20 variables with significant differences across three LOS tertiles in the univariate analysis  
21 formed the predictor variables in the multivariable model, with age and gender as  
22 traditional covariates in all models. Statistical significance was accepted at the level of  $p$   
23  $< 0.05$ .

## 24 **3. Results**

### 25 **3.1. Basic characteristics**

26 Overall, 287 cases were included in the analysis. The mean (SD) age of the sample was  
27 70.5 (15.8) years, with a male predominance of 56% (Table 1). Hypertension was the  
28 most common comorbidity (47.7%), followed by cancer diagnosis (43.6%),  
29 cardiovascular disease (CVD) (32.8%), diabetes mellitus (DM) (27.2%), infections  
30 (26.5%), and acute/chronic kidney disease (9.8%). The frequency of malnutrition was  
31 96%, and 29% of the patients were on tube feeding. Mobilization limitation was recorded

1 by 83%, and the frequency of pressure ulcers was 36%. The results of other care  
2 indicators are displayed in Table 1.

### 3 **3.2. Analysis of tertiles of LOS**

4 The median LOS was 15 days (4 to 79 days), which was eight days (4 - 12) in tertile-1  
5 (short stay), 15 days (13 - 20) in tertile-2 (medium stay), and 25 days (21 - 79) in tertile-  
6 3 (long stay) (Table 1). Mean age, the frequency of hypertension, infection, mobilization  
7 disability, tube feeding, permanent tracheostomy, and pressure ulcer increased  
8 significantly from the short stay tertile to medium and long stay tertiles, while the ratio  
9 of oral feeding reduced.

10 The proportion of individuals aged 75 and over, cancer, CVD, DM, renal failure,  
11 malnutrition, parenteral feeding, sleep disturbance rate, antidepressant use (mirtazapine,  
12 citalopram, sertraline or escitalopram), and recent readmission were similar in all tertiles  
13 (Table 1).

### 14 **3.3. Factors associated with increased LOS**

15 We performed an ordinal regression analysis using the baseline variables as the potential  
16 predictors that showed a significant relationship with LOS tertiles. The response variables  
17 included age, male gender, hypertension, infections, mobilization disability, tube feeding,  
18 permanent tracheostomy, and pressure ulcers, which formed the multivariate model.  
19 Taking the short stay (tertile-1) as the reference, mobilization disability ( $p = 0.013$ , OR:  
20 2.34 (95% CI: 1.19 - 4.60), tube feeding ( $p = 0.001$ , OR: 2.63 (95% CI: 1.49 - 4.66),  
21 permanent tracheostomy ( $p = 0.007$ , OR: 4.10 (95% CI: 1.48 - 11.36), and hypertension  
22 diagnosis ( $p = 0.023$ , OR: 1.80, 95% CI: 1.09 - 2.98) were the variables independently  
23 associated with being classified in the medium stay and long stay tertiles (Table 2). The  
24 significant relationship between the tertiles of LOS and age, CCI, infections, and pressure  
25 ulcers in the univariate analyses was no longer significant in the multivariable model.

## 26 **4. Discussion**

27 Functions of a PCU have expanded from meeting the basic needs of end-of-life care to  
28 improving specific outcomes over 20 to 30 years [15,16], which is also the case in the  
29 Turkish context. Today, beyond a definite role in end-of-life care, PCUs are expected to  
30 maintain or improve functional status of the patient and provide psychological and social  
31 support also to the families. Accordingly, home discharge is among the significant goals  
32 of care in the PCU, which may be a request by the patient per se [17]. Nevertheless, PCU

1 patients are heterogeneous, and preparation for home discharge requires consideration of  
2 various factors to ensure continuous home care is achievable [18,19]. In the present study,  
3 we identified potential indicators of prolonged LOS that can be assessed on admission to  
4 the PCU. Our participants represented a typical PCU because of the similarities in average  
5 age, gender distribution, proportions of patients with major comorbidities, and median  
6 LOS with some previous national [20,21, 22] and international [23,9] reports.

7 Similar to a previous study from Turkey, more than 80% of the patients we evaluated  
8 were immobile on admission [20]. The likelihood of prolonged LOS in individuals with  
9 mobilization limitation was 2.3 times higher in the medium stay or long stay tertiles than  
10 the short LOS tertile. Since immobile patients require a higher level of care, it is plausible  
11 that the observed risk augmentation was independent of other variables. Also, the  
12 consequences of limited mobility such as pressure ulcers, deep vein thrombosis, muscle  
13 atrophy, difficulty swallowing, and oral intake can further prolong the LOS in the PCU.

14 Recent studies on dementia [24] and traumatic brain injury patients [25] and palliative  
15 care in a similar setting in Turkey showed immobilization among the strongest risk factors  
16 for adverse outcomes including transfer to other settings and mortality.

17 There is little evidence of whether mobilization can be improved in the PCU. In an earlier  
18 study, physical exercise intervention in palliative care was shown to be a feasible way to  
19 improve well-being [26]. However, the study was performed among patients with  
20 incurable cancers who may still make more benefit from such interventions than those  
21 with permanently bed bound individuals like we included in our study. Thus, even though  
22 it is impossible to reverse the mobilization problems in most PCU patients, preventing  
23 and treating the interrelated problems can help shorten the LOS and provide earlier  
24 discharge. Nevertheless, inclusion of palliation cases to the interventional studies is  
25 generally limited by the design [27].

26 Timely initiation of tube feeding, prior to or on admission, in a palliative care patient who  
27 has difficulty in food intake may suggest a faster clinical improvement and discharge.  
28 However, this is not always applicable in clinical practice. A small number of studies  
29 have addressed this question in specific patient groups. Overall, tube feeding did not  
30 impact LOS in a randomized controlled study with dementia patients on palliative care  
31 [28]. However, switching to tube feeding reduced the rate of readmissions after discharge,  
32 suggesting that favourable results can be obtained in the medium to long term following

1 tube feeding initiation in a PCU patient. The effects of tube feeding on LOS in  
2 hospitalized individuals also seem to be related to the underlying causes, as it has been  
3 shown that gastrostomy reduces the LOS in patients with some cancer types [29]. In  
4 contrast, hypoalbuminemia and multimorbidity have been reported as independent  
5 variables associated with delayed discharge in patients with gastrostomy tube placement  
6 [30].

7 In the current study, approximately one-third of patients were on tube feeding on PCU  
8 admission, and nearly two-thirds of them were on gastrostomy. Both gastrostomy and  
9 nasogastric feeding were statistically associated with prolonged LOS in univariate  
10 analysis. In the multivariable model, we combined gastrostomy and nasogastric feeding  
11 in a single definition as tube feeding to prevent multicollinearity. Finally, it appeared that  
12 tube feeding on admission was associated with 2.6 times increased risk of prolonged LOS,  
13 which was statistically significant. This finding is consistent with a previous a study that  
14 showed a linear relationship between LOS in the PCU and PEG feeding [22]. Moreover,  
15 it has also been previously reported that proper enteral feeding at home can reduce the  
16 LOS in the hospital [31].

17 Tracheostomy is lifesaving, and a permanent tracheostomy generally indicates a severe  
18 health condition. Available data indicate that tracheostomy placed early in critically ill  
19 patients reduces the LOS in the intensive care unit [32,33]. However, in chronic patients  
20 with a permanent tracheostomy who require palliation, preparing the patient and home  
21 environment to achieve sustained care after discharge emerges as a challenge to the team  
22 [34]. Thus, even if the patient is eventually discharged home, hospitalization may prolong  
23 the LOS during the PCU period. In our study, 8.4% of cases had permanent tracheostomy  
24 on admission, and it was independently associated with prolonged LOS. To our  
25 knowledge, this relationship has not been previously examined in a PCU. In patients with  
26 tracheostomy, decannulation was possible in only one-fifth of the cases, and the rate of  
27 discharge to home with cannula and cannula/mechanical ventilation was 27% and 41%,  
28 respectively [35]. So far, no study has evaluated the success of home mechanical  
29 ventilation in Turkey, but most relatives of the patients with tracheostomy claim  
30 institutional care instead of home care. All these considerations help explain how  
31 permanent tracheostomy on admission to the PCU can suggest to the clinician a prolonged  
32 LOS is likely.

1 While the development of pressure ulcers prolongs the LOS in acute care units [36], a  
2 longer stay in the PCU also increases the risk of developing pressure ulcers [37]. In the  
3 current study, the finding of pressure ulcers on admission to PCU was one factor that  
4 determined the LOS in unadjusted analysis, which is consistent with previous studies  
5 [20,38]. Our adjusted analysis, however, suggested this relationship was dependent on  
6 additional factors as the significant univariate association became saturated in the  
7 multivariable model (Table 2). This finding is opposing two relevant past studies in the  
8 field [39,40]. A possible explanation may be that due to recent advances in home care,  
9 pressure ulcers can be effectively followed and treated at home [41], which may reduce  
10 carers' concerns about the wound care and facilitates the decision of earlier discharge.  
11 Another independent associate of longer LOS in the current study was hypertension.  
12 Although the effect size of the relationship was smallest among the four identified  
13 predictors a similar finding was previously observed in a similar setting [22]. Of note, a  
14 diagnosis of hypertension on admission does not always mean uncontrolled blood  
15 pressure is present but it suggests that the patient is under increased risk of adverse  
16 cardiovascular events and premature mortality since long time. Moreover, based on recent  
17 findings from a well conducted study, deprescribing of antihypertensive medications is  
18 recommended for patients with multimorbidity at advanced ages [42]. Nevertheless, the  
19 underlying mechanism (e.g., blood pressure variability, interaction cardiovascular  
20 disease, end organ complications) of an association with a hypertension diagnosis and  
21 increased LOS in the PCU needs be sought in future studies.

22 Some limitations of the present study must be indicated. Since the data analysis is cross-  
23 sectional, it is impossible to infer a causal relationship between the tested variables and  
24 LOS. Second, the data in medical records may not precisely indicate all parameters  
25 potentially associated with LOS (e.g., culture positive infections, PEG infections). Since  
26 the information was mostly obtained from the family members or caregivers, an unknown  
27 degree of reporting bias cannot be neglected. On the other hand, most of the investigated  
28 variables (mobilization, tube feeding status, tracheostomy, and pressure ulcer) are severe  
29 conditions and cannot be exposed to recall bias. The strengths of the study are the  
30 inclusion of nearly 300 patients with home discharge from the PCU and the representation  
31 of a typical PCU. Also, despite the possibility above mentioned recall errors, the patients  
32 were recruited from a tertiary referral center with enhanced data repository.



1 In conclusion, the current study showed that cluster problems like mobilization  
2 limitations, tube feeding, permanent tracheostomy and hypertension diagnosis on  
3 admission to the PCU may persist and delay home discharge of patients with advanced  
4 care needs. The study also indicated no relation of LOS to some significant comorbidities  
5 in the PCU. Future studies are required to evaluate whether interventions to improve the  
6 burden of these care needs can potentially contribute to the more effective discharge of  
7 PCU patients to home care.

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1 **Table 1.** Characteristics of patients according to LOS in the PCU

	All	Short stay (Tertile-1)	Medium stay (Tertile-2)	Long stay (Tertile-3)	p
<b>Number (%)</b>	287	96 (33.4)	93 (32.4)	98 (34.1)	
<b>Length of stay, days, range, median</b>	4-79, 15	4-12, 8	13-20, 15	21-79, 25	
<b>Age, years, mean (SD), median</b>	70.5 (15.8), 72.0	67.0 (16.9), 67.0 <sup>a,b</sup>	72.4 (14.2), 74.0	72.3 (15.8), 74.0	<b>0.017*</b>
<b>Gender, male, %</b>	55.7	59.4	46.2 <sup>e</sup>	61.2	0.078
<b>Age&gt;75 Years, %</b>	44.3	38.5	47.3	46.9	0.385
<b>Comorbidities</b>					
<b>Hypertension, %</b>	47.7	36.5 <sup>d</sup>	51.6	55.5	<b>0.023</b>
<b>Cancer, %</b>	43.6	52.1 <sup>d</sup>	43.0	35.7	0.071
<b>Cardiovascular disease, %</b>	32.8	26.0	37.6	34.7	0.208
<b>Diabetes mellitus, %</b>	27.2	24.0	32.3	25.5	0.396
<b>Infection prior to</b>	26.5	15.6 <sup>d</sup>	28.0	35.7	<b>0.006</b>
<b>Pneumonia , %</b>	23.7	3.5	7.7	12.5	<b>0.129</b>
<b>Urinary infection, %</b>	1.4	0.3	-	1	
<b>Other, %</b>	1.4	0.7	0.7	0	
<b>Acute/chr. renal failure, %</b>	9.8	8.3	9.7	11.2	0.794
<b>Other, %</b>	66.6	60.4	67.7	71.4	0.255
<b>Charlson CI, median (IQR)</b>	6.0 (3.0)	5.1 (2.0) <sup>a,b</sup>	6.0 (3.0)	6.0 (3.0)	<b>0.024</b>
<b>Malnutrition (at risk), %</b>	95.8	95.8 <sup>d</sup>	96.8	94.4	0.811
<b>Mobilization disability, %</b>	83.3	68.8 <sup>c</sup>	88.2	92.9	<b>&lt;0.001</b>
<b>Feeding, oral, %</b>	67.6	86.5 <sup>c,d</sup>	64.5	52.0	<b>&lt;0.001</b>
<b>Tube feeding, %</b>	28.9	10.4 <sup>c,d</sup>	32.3	43.9	<b>&lt;0.001</b>
<b>Feeding, nasogastric, %</b>	11.1	3.1 <sup>c,d</sup>	12.9	17.3	<b>0.006</b>
<b>Feeding, PEG, %</b>	17.8	7.3 <sup>c,d</sup>	19.4	26.5	<b>0.002</b>
<b>Feeding, parenteral, %</b>	18.5	19.8	24.7 <sup>e</sup>	11.2	0.051
<b>O<sub>2</sub> requirement on admission, %</b>	38.7	30.2 <sup>d</sup>	38.7	46.9	0.057
<b>Permanent tracheostomy,</b>	8.4	2.1 <sup>d</sup>	7.5	15.3	<b>0.004</b>
<b>Sleep disturbance, %</b>	41.5	38.5	40.9	44.9	0.661
<b>Antidepressant use, %</b>	13.3	17.9	9.0	12.6	0.200
<b>Pressure ulcer, %</b>	36.1	22.6 <sup>d</sup>	34.1 <sup>e</sup>	50.0	<b>0.001</b>
<b>Recent readmission, %</b>		24.0	22.6	13.3	0.127

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LOS: Length of stay, PCU: Palliative care unit, PEG: Percutaneous endoscopic gastrostomy, CI: Comorbidity index, PEG: Percutaneous endoscopic gastrostomy  
 \*Kruskal Wallis Test, others Chi-Square test

<sup>a</sup>adjusted  $p < 0.05$  for short stay vs. medium stay; <sup>b</sup>adjusted  $p < 0.05$  for short stay vs. long stay

<sup>c</sup> $p < 0.05$  for short stay vs. medium stay; <sup>d</sup> $p < 0.05$  for short stay vs. long stay; <sup>e</sup> $p < 0.05$  for medium stay vs. long stay.  $p = \text{NS}$  for other post hoc or binary comparisons.

**Table 2.** Ordinal regression analysis (dependent variable: tertiles of LOS in the PCU; reference category: lowest tertile, short stay)

Variables	Estimate	Std. Error	Wald	df	Sig.	OR	95% CI	
							Lower	Upper
Age	0.002	0.010	0.026	1	0.873	1.00	0.98	1.02
Gender, female	0.314	0.259	1.471	1	0.225	0.73	0.44	1.21
Hypertension	0.588	0.258	5.194	1	<b>0.023</b>	<b>1.80</b>	<b>1.09</b>	<b>2.98</b>
Infection	0.279	0.271	1.057	1	0.304	1.32	1.29	2.25
Charlson comorbidity index	0.062	0.068	0.829	1	0.363	1.04	1.07	1.22
Mobilization disability	0.851	0.344	6.124	1	<b>0.013</b>	<b>2.34</b>	<b>1.19</b>	<b>4.60</b>
Tube feeding	0.967	0.291	11.022	1	<b>0.001</b>	<b>2.63</b>	<b>1.49</b>	<b>4.66</b>
Permanent tracheostomy	1.411	0.520	7.376	1	<b>0.007</b>	<b>4.10</b>	<b>1.48</b>	<b>11.36</b>
Pressure ulcer	0.447	0.272	2.689	1	0.101	1.56	0.92	2.66

Ordinal regression analysis. dependent variable LOS tertiles. The results show study that four out of nine study variables, presence of mobilization disability, tube feeding, permanent tracheostomy, and hypertension were independently associated with increased likelihood of being classified in higher tertiles of LOS in the PCU.

LOS: Length of stay. PCU: palliative care unit. OR: Odds ratio. CI: Confidence interval