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www.fppc.com.tr**Family Practice and Palliative Care**<https://doi.org/10.22391/fppc.814339>**Research Article**

Evaluation of symptoms and mobile services in palliative care patients

**Palyatif bakım hastalarında semptom ve mobil hizmetlerin değerlendirilmesi**Mahcube Cubukcu^a, Ahmet Sen^b, Eda Ture^a^a Department of Family Medicine, University of Health Sciences, Samsun Training and Research Hospital, Samsun, Turkey^b Department of Anesthesia, University of Health Sciences, Samsun Training and Research Hospital, Samsun, Turkey**Abstract**

Introduction: Palliative Mobile Health Unit started to serve in in February 2019 at University of Health Sciences Samsun Training and Research Hospital. In our study, it is aimed to evaluate the symptoms and ongoing status of the registered patients by mobile health services of palliative care unit.

Methods: The population of this descriptive, cross-sectional study consists of individuals who are registered in Samsun Training and Research Hospital's palliative mobile unit and discharged from the palliative service. In our study, all patients enrolled in mobile services were evaluated. The data were obtained from computer records. Pearson chi-square and Mann-Whitney U tests were used to evaluate the data. $p < 0.05$ was considered statistically significant.

Results: Since the introduction of palliative mobile services for discharged patients in our hospital, 112 patients have been reached. At the time of this study, 46.42% of these patients are still provided with palliative mobile service. The average age of the participants is 65.60 ± 16.34 years, and 54.35% of the patients are women. 64.20% of the patients are fully bedridden. The patients we see most frequently (64.24%) are patients with a diagnosis of oncology. Foley catheter is the most performed procedure as an invasive procedure.

Conclusion: Our patients enrolled in the palliative mobile unit were mostly bedridden and oncology patients. With palliative mobile services, it is aimed to improve the quality of life of patients who encounter problems arising from life-threatening diseases after discharge and to evaluate symptom management. It may be appropriate to disseminate palliative mobile services across the country by evaluating the results.

Keywords: Palliative care, mobile health units, medical oncology, catheters

Öz

Giriş: Palyatif Gezici Sağlık Birimi, Şubat 2019'da Sağlık Bilimleri Üniversitesi Samsun Eğitim ve Araştırma Hastanesi'nde hizmet vermeye başladı. Çalışmamızda kayıtlı hastaların semptomları ve devam eden durumlarının palyatif bakım biriminin gezici sağlık hizmetleri ile değerlendirilmesi amaçlanmıştır.

Yöntem: Tanımlayıcı, kesitsel tipteki bu çalışmanın evreni, Samsun Eğitim ve Araştırma Hastanesi palyatif mobil birimine kayıtlı, palyatif servisten taburcu olmuş kişilerden oluşmaktadır. Çalışmamızda, mobil hizmete kayıtlı olan tüm hastalar değerlendirilmiştir. Veriler bilgisayar kayıtlarından elde edilmiştir. Verilerin değerlendirilmesinde Pearson ki-kare ve Mann-Whitney U testi kullanılmıştır. $p < 0,05$ istatistiksel olarak anlamlı kabul edilmiştir.

Bulgular: Hastanemizde, taburcu olan hastalar için palyatif mobil hizmetleri vermeye başlandığından itibaren 112 hastaya ulaşılmıştır. Bu çalışmanın yapıldığı zamanda bu hastaların halen %46,42'sine palyatif mobil hizmeti verilmektedir. Katılımcıların yaş ortalaması $65,60 \pm 16,34$ yıl ve hastaların %54,35'i kadındır. Hastaların %64,20'si yatağa tam bağımlıdır. En sık (%64,24) gördüğümüz hastalar onkoloji tanıli hastalardır. Foley sonda, invaziv girişim olarak en çok yapılmış işlemdir.

Sonuç: Palyatif mobil birimine kayıtlı hastalarımız en çok yatağa tam bağımlı ve onkoloji hastalarıydı. Palyatif mobil hizmetleri ile taburcu sonrası yaşamı tehdit eden hastalıklardan kaynaklanan problemler ile karşılaşan hastaların yaşam kalitesini artırmak, semptom yönetimini değerlendirmek hedeflenmektedir. Palyatif mobil hizmetlerinin sonuçlarını değerlendirmek suretiyle ülke genelinde yaygınlaştırılması uygun olabilir.

Anahtar kelimeler: Palyatif bakım, hareketli sağlık üniteleri, tıbbi onkoloji, kateterler

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Introduction

Palliative care is an approach developed through increasing the life quality of the patient who encounters a problem related with a life-threatening disease and the patient's family, detecting pain early and preventing it with a perfect evaluation, reliving and stopping pain and treating other physical, psycho-social, and spiritual pain. In other words, palliative care is a care service provided for patients who are most of the time old and who have a chronic disease, who cannot provide their own care at home, who always need the help of others, a care taker or who need help for their advanced disease that cannot be treated currently in order to help them to spend their remaining time as painless and as comfortable as possible and to train families about home care [1,2]. The aim of palliative care is to improve patients' quality of life during the remaining part of their lives. In a study examining advanced cancer patients receiving support and those not receiving support, quality of life scores has been shown to be higher in patients receiving support when compared with those whose needs are not met [3].

A retrospective study conducted in Canada has shown that especially emergency service referrals of patients receiving palliative care at home decreased significantly [4]. The directive on application procedures and principles of palliative care services was issued in 2015 in our country [5].

A special place is not required for palliative care services; this service can be provided wherever the patient is [6]. Palliative care services are carried out by palliative care centres in inpatient health facilities, while they are carried out by family physicians and home healthcare units in places other than inpatient health facilities. Application for palliative care service can be made by the patient or family members, or family physician or the physician following or treating the patient in the hospital. Patients who are followed at home by healthcare services can be directed to mobile services if they need follow-up or treatment in palliative care services [7]. All health services provided outside the hospital can be called mobile health service [8]. Palliative care services can be provided at home, in dormitories, elderly nursing centres, hospitals and terminal care units [9].

Health Sciences University Samsun Training and Research Hospital Palliative Mobile Unit was founded in February 2019. Patients who are hospitalized in and discharged from palliative care service are visited in their homes, and their examination, follow-up and treatment plans are customized according to needs of patients.

One major goal of Palliative Mobile services is to evaluate people in their home environment after being discharged from hospital by meeting with them and their caregivers in their unique home environment to evaluate the needs and physical symptoms in their current situation. To prevent the need for recurring palliative care and hospitalization again by shaping the measures and recommending suggestions to increase the quality of life according to the characteristics of the place where they live is another important goal. Also collecting data for administrators to develop a strategy for the most effective use of financial resources and to accomplish a sustainable health organization for our hospital, health system and for patients themselves is the third goal.

Methods

Our study is a single-center and descriptive, cross-sectional study. Between the dates February 1 and April 2019. The responsibility of Health Sciences University Samsun Training and Research Hospital Palliative Mobile Unit is carried out by Family Medicine Clinic. There are two palliative care services in Samsun city centre. One is the palliative care service of our hospital; the other is Gazi State Hospital palliative care service. The information of patients hospitalized in our hospital and Gazi State Hospital is transmitted to our palliative mobile team through telephone. Palliative mobile health team visits patients at home and includes them in the treatment and follow-up program after taking their consent. Palliative mobile team consists of a doctor, a health officer, and a driver. They go to the homes of 5-6 patients on average in a day. Data were obtained from computer records.

Ethical Approval, informed consent, and permissions

Before the study was started, an ethical approved numbered 2020/33646832-799 was received from Health Sciences University Samsun Training and Research Hospital on the date of 14.05.2020.

Statistical analysis

IBM SPSS V 20.0 statistical program was used in the assessment of data. The data were evaluated with descriptive statistics (number, percentage, mean) as well as by Pearson chi-square and Mann-Whitney U test. $p < 0.05$ was considered as statistically significant.

Results

A total of 112 patients were reached since 2019 when palliative mobile services started in Samsun. 46.42% ($n=52$) of these are still receiving palliative mobile service. 48.34% ($n=54$) were excluded from palliative mobile service due to death, while 5.21% ($n=6$) were excluded due to change of residence.

The mean age of patients was 66.60 ± 16.34 years. According to age groups, service was provided most frequently to the age range between 66 and 85 (43.55%, $n=49$). 54.35% ($n=61$) of the patients were women, while 45.65% ($n=51$) were male. 47.53% ($n=53$) were primary high school graduates. 36.90% ($n=41$) were married. 64.20% ($n=72$) were fully dependent 34.25% ($n=38$) were semi-dependent and 1.55% ($n=2$) were independent. There was statistically significant difference between age, educational status, chronic diseases, and palliative mobile health unit's status ($p=0.012$, $p=0.003$, $p=0.037$) (Table 1).

Table 1. Descriptive characteristics of patients and relationship between palliative mobile care services (n=112)

		N (%)	p
Age (years)	19-45	6 (5.42)	0.012*
	46-65	36 (32.31)	
	66-85	49 (43.55)	
	>85	21 (18.72)	
Education status	Not literate	23 (20.42)	0.003**
	Primary high school	53 (47.53)	
	Middle school	9 (7.90)	
	High school	19 (16.87)	
	University	8 (7.28)	
Gender	Women	61 (54.35)	0.078*
	Men	51 (45.65)	
Marital status	Married	41(46.90)	0.067*
	Single	34 (30.55)	
	Widow/Divorced	37 (22.55)	
Employment	Housewife	45 (40.56)	0.348*
	Officer	13 (11.90)	
	Employee	10 (8.25)	
	Retired	44 (39.29)	
Chronic illnesses	Yes	52 (46.46)	0.037*
	No	60 (53.44)	
Residential area	Urban	86 (77.22)	0.065*
	Rural	26 (22.78)	
Total		112 (100)	

*Pearson chi-square

**Mann-Whitney U test

The most frequent (64.24%) disease was oncological disease. The other frequent (34.43% n=39) disease group was Alzheimer’s and Cerebrovascular disease (Table 2).

Table 2. Diagnosis distribution of people receiving palliative mobile care services (n=112)

Diseases	n (%) *
Neurological diseases	
Cerebrovascular disease	24 (21.43)
Alzheimer’s	15 (13.39)
Parkinson’s	7 (6.25)
Other	8 (7.14)
Oncological diseases	
Lung cancer	31 (27.37)
Breast cancer	11 (10.29)
Colon cancer	10 (9.35)
Prostate cancer	9 (8.04)
Brain cancer	7 (6.23)
Other	3 (2.68)
Respiratory system diseases	
KOA	17 (15.18)
Other	15 (13.39)
Cardiovascular diseases	
Hypertension	52 (46.26)
Cardiac insufficiency	9 (8.04)
Other	4 (3.57)
Total	232 (100)

*Percentages are based on more than an answer

The most frequent (46.26%) chronic disease was hypertension (Table 1 and 3). 18.16% of the patients who were provided with palliative mobile care service received pressure sore dressing. Sacrum pressure sores were the most frequent localization with 46 patients (40.80%). The most applied invasive intervention was insertion of foley catheter (n=28) Pressure sore dressing was performed significantly more in those with a neurological diagnosis than those with other diagnoses. (p =0.035) (Table 3)

Table 3. Services during mobile health units and relationship with diseases (n=112)

Services provided	Diseases	n (%)	p value
Patient examination	Cerebrovascular	19 (12.58)	0.347*
	Alzheimer	13 (8.61)	
	Parkinson	16 (10.60)	
	Lung cancer	12 (7.95)	
	Breast cancer	14 (6.47)	
	Colon cancer	19 (12.58)	
	Prostate cancer	20 (13.25)	
	Brain cancer	21 (13.91)	
	Other	17 (14.05)	
	Total	151 (37.56)	
Pressure sore dressing	Cerebrovascular	20 (27.40)	0.035*
	Alzheimer	18 (24.66)	
	Parkinson	22 (30.14)	
	Lung cancer	2 (2.74)	
	Breast cancer	3 (4.11)	
	Colon cancer	5 (6.85)	
	Prostate cancer	1 (1.36)	
	Brain cancer	2 (2.74)	
	Other	0	
	Total	73 (18.16)	
Bladder catheter application	Cerebrovascular	1 (3.57)	0.458*
	Alzheimer	0	
	Parkinson	1 (3.57)	
	Lung cancer	5 (17.86)	
	Breast cancer	8 (28.57)	
	Colon cancer	5 (17.86)	
	Prostate cancer	5 (17.86)	
	Brain cancer	3 (10.71)	
	Other	0	
	Total	28 (6.96)	
Taking blood for examination	Cerebrovascular	5 (9.62)	0.769*
	Alzheimer	1(1.92)	
	Parkinson	1(1.92)	
	Lung cancer	6 (11.54)	
	Breast cancer	8 (15.38)	
	Colon cancer	15 (28.85)	
	Prostate cancer	10 (19.23)	
	Brain cancer	5 (9.62)	
	Other	1 (1.92)	
	Total	52 (12.94)	
Establishing vascular access	Cerebrovascular	3 (7.15)	0.651
	Alzheimer	5 (11.90)	
	Parkinson	4 (9.52)	
	Lung cancer	6 (14.29)	
	Breast cancer	9 (21.43)	
	Colon cancer	10 (23.81)	
	Prostate cancer	5 (11.90)	
	Brain cancer	0	
	Other	0	
	Total	42 (10.45)	
Intramuscular injection	Cerebrovascular	1 (4.92)	0.567*
	Alzheimer	2 (12.50)	
	Parkinson	5 (31.25)	
	Lung cancer	4 (25.00)	
	Breast cancer	1 (4.92)	
	Colon cancer	0	
	Prostate cancer	2 (12.50)	
	Brain cancer	1 (4.92)	
	Other	0	
	Total	16 (3.98)	
Intravenous injection	Cerebrovascular	3 (25.00)	0.265*
	Alzheimer	2 (16.67)	
	Parkinson	1 (8.33)	
	Lung cancer	1 (8.33)	
	Breast cancer	0	
	Colon cancer	0	
	Prostate cancer	3 (25.00)	
	Brain cancer	1 (8.33)	
	Other	1 (8.33)	
	Total	12 (2.96)	
Nasogastric catheter	Cerebrovascular	5 (25.00)	0.012*
	Alzheimer	6 (30.00)	
	Parkinson	7 (35.00)	
	Lung cancer	0	
	Breast cancer	0	
	Colon cancer	0	
	Prostate cancer	0	
	Brain cancer	0	
	Other	2 (10.00)	
	Total	20 (4.98)	
Taking urine	Cerebrovascular	1 (12.50)	0.169*
	Alzheimer	3 (37.50)	
	Parkinson	2 (25.00)	
	Lung cancer	0	
	Breast cancer	0	
	Colon cancer	0	
	Prostate cancer	2 (25.00)	
	Brain cancer	0	
	Other	0	
	Total	8 (2.00)	
Total		402 (100)	

*Pearson chi-square test

Consultation was requested for 32.47% (n=36) of our patients. The branch that required consultation most frequently was medical oncology. Pain was the most reported symptom in 63.5% (n=71) of the patients. Nasogastric catheters were applied more frequently in those with a neurological diagnosis (p = 0.012) (Table 4).

Table 4. Symptoms of the patients and relationship with diseases

Symptoms	Diseases	n (%)	p value
Pain	Cerebrovascular	8 (11.27)	0.067*
	Alzheimer	5 (7.04)	
	Parkinson	6 (8.45)	
	Lung cancer	15 (21.13)	
	Breast cancer	10 (14.08)	
	Colon cancer	12 (16.90)	
	Prostate cancer	6 (8.45)	
	Brain cancer	2 (2.82)	
	Other	7 (9.86)	
	Total	71 (63.5)	
Fatigue	Cerebrovascular	3 (4.92)	0.023*
	Alzheimer	5 (8.20)	
	Parkinson	2 (3.28)	
	Lung cancer	9 (14.75)	
	Breast cancer	10 (16.39)	
	Colon cancer	14 (22.95)	
	Prostate cancer	10 (16.39)	
	Brain cancer	6 (9.84)	
	Other	2 (3.28)	
	Total	61 (54.2)	
Nausea	Cerebrovascular	7 (14.00)	0.341*
	Alzheimer	8 (16.00)	
	Parkinson	2 (4.00)	
	Lung cancer	9 (18.00)	
	Breast cancer	8 (16.00)	
	Colon cancer	5 (10.00)	
	Prostate cancer	3 (6.00)	
	Brain cancer	4 (8.00)	
	Other	4 (8.00)	
	Total	50 (44.7)	
Vomiting	Cerebrovascular	7 (14.89)	0.523*
	Alzheimer	6 (12.77)	
	Parkinson	8 (17.02)	
	Lung cancer	9 (19.15)	
	Breast cancer	5 (10.64)	
	Colon cancer	6 (12.77)	
	Prostate cancer	3 (6.38)	
	Brain cancer	2 (4.25)	
	Other	1 (2.13)	
	Total	47 (42.1)	
Dysphagia	Cerebrovascular	6 (17.65)	0.254*
	Alzheimer	7 (20.59)	
	Parkinson	3 (8.82)	
	Lung cancer	5 (14.71)	
	Breast cancer	1 (2.95)	
	Colon cancer	2 (5.88)	
	Prostate cancer	3 (8.82)	
	Brain cancer	4 (11.76)	
	Other	3 (8.82)	
	Total	34 (30.7)	
Headache	Cerebrovascular	10 (22.22)	0.521*
	Alzheimer	8 (17.78)	
	Parkinson	4 (8.89)	
	Lung cancer	1 (2.22)	
	Breast cancer	5 (11.11)	
	Colon cancer	6 (13.33)	
	Prostate cancer	3 (6.67)	
	Brain cancer	1 (2.22)	
	Other	7 (15.56)	
	Total	45 (40.2)	

*Pearson chi-square test

Discussion

In our country, the elderly population is the fastest growing group among all population groups. Due to this demographic change, which is also called global aging, elderly population rate is constantly increasing [10]. Palliative care services should include services that can be provided to elderly people with chronic conditions that accompany aging [11].

In the study conducted by Uysal et al., average age of the patients receiving palliative care treatment was 60 ± 13 years [12]. In our study, the most common age group of our patients was between 66 and 85 years of age. The average age of our patients was 66.60 ± 16.34 years. In Miniksar and Aydin study, the mean age of the patients was 72.5 ± 14.7 years [13].

The difference in average age among various studies is because all patients enrolled in mobile health care services were registered in the palliative care service. And all palliative care patients selected and referenced by other clinics such as neurology, oncology, internal medicine, and general surgery are evaluated and accepted for admission to the palliative service. The perspective of the clinicians working in these clinics and the success of the palliative care practice in their own hospital make differences in the characteristics of the referenced patients in terms of different hospitals and different studies.

In Cinar et al.'s study, 61.1% of the patients who received palliative care treatment were women [14]. Piot et al. the followed patients were mostly women (63%) 54.35% of the patients registered to our mobile unit were women [15].

In Enginyurt et al.'s study, the rate of patients with Alzheimer's and cerebrovascular disease was 34.82% [16]. In our study, the rate of patients with Alzheimer's and cerebrovascular disease was 34.43%. As can be understood from the definition, palliative care service is mostly provided to late period oncology patients, patients with Alzheimer's and cerebrovascular disease.

In a study conducted in 2014 by Murtagh et al., it was stated that individuals with heart, kidney, liver, and respiratory system disease also need palliative care service [17]. In our study, patients with cardiovascular diseases and respiratory system diseases also benefited from palliative health care services. When it comes to palliative care, only oncology patients should not come to mind.

In Benli and Sunay's study on patients followed in palliative service, 78.52% were fully dependent on the bed [18]. In our study, 64.20% of the patients were also fully dependent. These patients are almost entirely dependent on others in both daily life activities and activities outside home. When it comes to palliative care services, the first patient group that should come to mind is bedridden patients.

In Al-Jamal and Soysal's study, most of the patients who received palliative care service (80%) were terminal oncology patients and 52.9% had died [19]. In our study, most of the patients we provided palliative care service (64.26%) had an oncologic diagnosis and 48.34% died.

Other study indicates that 40% patients who are receiving palliative mobile care service were referred to a medical oncologist [20]. In our study, 32.4% of patients were consulted to a medical oncologist. The patients most frequently referred to our service from other clinics are those with an oncological diagnosis.

A study indicates that the most frequent symptoms were fatigue in 78% and pain in 62% of patients [21]. The most common symptom was pain in 63.5% of our patients. Patients with oncological and neurological problems were the most common groups in our study. Among these patients, fatigue symptoms were found in significant and striking numbers in cancer patients compared to any other patient group with a different diagnosis. ($p = 0.023$). In Saygılı's study also, fatigue symptoms were significantly higher in cancer patients receiving palliative care [22]. In our study, we think that the most common symptom was fatigue since the high rate of oncologic patients. The prevalence of fatigue in both oncological treatment and oncology patients affected our results. In addition to these, one of our admission criteria to palliative care service is worse nutritional conditions and additional symptoms among patients in the same group.

There was a statistically significant difference between age, education status, chronic diseases and receiving palliative mobile care services ($p < 0.005$). There is no study comparing sociodemographic data with mobile health unit in palliative care.

The integration of palliative care services and home health care services has been emphasized [23]. Our healthcare professionals working in our palliative mobile health unit were also working in home health care services. This way, the patients who need palliative care can be provided palliative care at home-by-home health care services if it is possible to conduct their medical follow-up and treatment at home, and by palliative care units in the hospital if follow-up and treatment should be carried out in hospital.

Limitations

The weakness of our study was its retrospective design and the data being obtained from files. The strongest aspect of our study is its being the first study to evaluate the palliative mobile services in Turkey.

Conclusion

Our patients registered in University of Health Sciences Samsun Training and Research Hospital palliative mobile health unit were mostly fully dependent and oncology patients. There was a statistically significant difference between age, education status, chronic diseases and receiving palliative mobile health unit. Simple interventions such as foley catheter applied in the home environment, infection and pressure sore control may reduce the rate of return to hospital. Nutritional assessment and simple recommendations can reduce symptoms and be cost effective. Palliative mobile health unit have been provided in some cities for about two years in our country. By evaluating the results of this service, it will be possible to review its applicability in the country. The findings of this study will guide the future research.

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	Author Contributions	Author Initials
SCD	Study Conception and Design	MC, ET, AS
AD	Acquisition of Data	ET, AS, MC
AID	Analysis and Interpretation of Data	MC
DM	Drafting of Manuscript	MC, ET
CR	Critical Revision	MC, ET, AS

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