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ORIGINAL ARTICLE

Characteristics of Patients Receiving Home Care Services from A Tertiary Care Facility and Examination of Provided Medical Services

Üçüncü Basamak Bir Bakım Kuruluşundan Evde Bakım Hizmeti Alan Hastaların Özellikleri ve Sunulan Sağlık Hizmetlerinin İncelenmesi

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ABSTRACT

Aim: Understanding the patient characteristics and medical needs that drive the programming and operation of home care services is crucial. This study evaluates the descriptive characteristics of patients receiving home care services and examines the medical services provided.
Material and Methods: This cross-sectional study included 164 patients receiving home care services from Trabzon Kanuni Training and Research Hospital, Turkiye, for at least one year. Patient records from 2022 were reviewed to gather data on the number of home visits, reasons for visits and procedures performed.
Results: Of the patients, 60.4% were female, and 83.6% were aged ≥65 years. The majority (72.6%) were bedridden, 30.5% used urinary catheters, and 32.9% had pressure ulcers. A total of 2774 home visits (median=16) were conducted, with the most common procedures being blood tests and wound dressing. Risk factors identified included functional bed use and pressure ulcers for wound dressing, rural location and diabetes for blood tests, and rural location, urinary catheter use and history of pulmonary embolism for urinalysis.
Conclusion: This study highlights the intricate relationship between patient characteristics and the delivery of home care services. By identifying specific patient needs such as functional bed use, presence of pressure ulcers, rural residence, diabetes, urinary catheter use and history of pulmonary embolism, we can enhance the planning and execution of home care services. These insights are vital for shaping service delivery policies that aim to maximize resource utilization and improve overall efficiency in healthcare provision.

Keywords: Home care services, Patient characteristics, Elderly population, Medical procedures.

ÖZ

Amaç: Evde sağlık hizmetlerinin planlanması ve yürütülmesinde, hasta özelliklerinin ve tıbbi ihtiyaçların bilinmesi önem arz etmektedir. Bu çalışmada evde sağlık hizmeti alan hastaların tanımlayıcı özellikleri ve sunulan tıbbi hizmetler değerlendirildi.
Gereç ve Yöntem: Ocak 2023 tarihinde yürütülen bu kesitsel çalışmaya en az bir yıl boyunca üçüncü basamak bir sağlık kurumundan evde sağlık hizmeti alan hastalar dahil edildi (n=164). Hasta kayıtları incelenerek tanımlayıcı özelliklerin yanı sıra ev biriminin her hasta için son bir yılda (Ocak - Aralık 2022) yaptığı ziyaret sayısı, bu ziyaretlerin nedenleri ve yapılan işlemler kaydedildi.
Bulgular: Hastaların %60,4'ü kadın, %83,6'sı 65 yaş ve üzeriydi. Hastaların %72,6'sının yatağa tam bağımlı olduğu, %30,5'inin idrar sondası kullandığı ve %32,9'unun bası ülseri olduğu belirlendi. Toplam 2774 (ortanca=16) ev ziyareti yapıldı ve en sık uygulanan tıbbi prosedürler kan tetkiki ve yara pansumanıydı. Yara pansumanı için; fonksiyonel yatak kullanımı ve bası yarası, kan tahlili için; kırsal yerleşim ve diyabet, idrar tahlili için; kırsal yerleşim, idrar sondası kullanımı ve pulmoner emboli öyküsünün olması risk faktörleri olarak belirlendi.
Sonuç: Evde sağlık hizmeti alan hastaların özellikleri ve sunulan hizmetler belirlendi ve bu iki olgunun birbirleriyle ilişkili oldukları görüldü. Bu veriler evde sağlık hizmetleri için ihtiyaçları ortaya koyarak hizmet sunum politikasının şekillenmesine katkıda bulunacaktır.

Anahtar Kelimeler: Evde sağlık hizmetleri, hasta bakım planı, yaşlı nüfus

Introduction

Home care services (HCS) encompass a wide array of services and equipment provided at patients' homes to enhance comfort, function and overall health (1). Beyond medical care, HCS includes personal care, household support, and addresses social needs. In Turkiye, HCS involves comprehensive patient examination, analysis, treatment, follow-up, and rehabilitation, including social and psychological counseling within the home and family environment, primarily overseen by family physicians and hospital home health units (2).

HCS particularly benefits individuals facing mobility limitations, advanced age, or those who are bedridden and dependent on others for daily life (3,4). As evidenced by data from the Turkish Statistical Institute, Turkiye's elderly population is steadily growing due to declining fertility rates and increased life expectancy, rising by 21.4% over the past five years to nearly 9 million individuals (5). This demographic trend suggests an impending increase in the demand for HCS.

Patients requiring HCS often present with multiple comorbid conditions such as cerebrovascular diseases, cardiovascular diseases, dementia, chronic lung diseases, end-stage cancer, geriatric syndromes,

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chronic kidney failure and obesity (6). This necessitates a holistic and continuous approach to medical care, leading to the integration of additional practices in HCS such as chronic disease management, nutritional support, immunization, coagulopathy management, provision of medical devices, and post-surgical care.

While existing literature discusses the characteristics of patients receiving HCS and provides insights into their medical conditions, there remains a gap in understanding how these patient-specific factors influence the delivery of services. Understanding the medical needs and characteristics of HCS recipients is crucial for effective service management. This study aims to elucidate the descriptive characteristics of patients registered in the HCS unit of a tertiary hospital and analyze the medical services provided over a one-year period. By doing so, it aims to provide HCS providers with valuable insights for staff planning, logistical organization and time management, all critical for optimizing service delivery.

Material and Methods

Study Design and Participants

This cross-sectional study was conducted in January 2023 within the HCS unit of a tertiary care facility. The study included all patients enrolled in the unit and receiving HCS continuously for at least one year. Permission for the study was obtained from the hospital management and approved by the Trabzon Kanuni Training and Research Hospital, Clinical Research Ethics Committee with 27.06.2022 date and 2022/38 number.

The study was conducted at a center serving both rural and urban areas, providing a representative sample of the broader home health service population in the region.

Healthcare Personnel and Organization

The center employs a total of 11 healthcare personnel organized into 3 separate teams, each serving distinct geographic locations. Each team consists of a physician, nurse, and health officer responsible for conducting home visits. Additionally, there is a coordinating physician overseeing these teams and providing consultative support, along with an administrative officer handling secretarial duty.

Patient Follow-up and Visit Protocol

Each team manages a caseload ranging from 150 to 180 registered patients. Visits are scheduled and conducted by appointment, with each patient receiving at least one visit within a maximum interval of 3 months. During these visits, physicians conduct comprehensive assessments regardless of patient complaints. They evaluate the patient's condition, document relevant information in patient records, arrange treatments as necessary, and initiate consultations when indicated.

Data Collection

The initial step involved obtaining the active registered patient list from the HCS secretariat as of the study date. From this list of 318 patients, records of 164 individuals who had received home health care continuously for at least one year were systematically reviewed. Demographic characteristics including age, gender, marital status and educational status were documented, alongside descriptive features such as bed dependency, excretory and nutritional status, presence of pressure ulcers, and concurrent diseases.

Nutritional status was assessed using the Mini Nutritional Assessment, pressure ulcer risk with the Braden Scale, and independence in daily living activities using the Katz Index. These assessments were conducted by certified physicians based on direct patient examination, with information supplemented by caregivers where necessary. All measurements were taken using calibrated devices.

Additionally, data on the number of visits conducted by the HCS team for each patient throughout the year (January to December 2022), the reasons for these visits, and the specific procedures performed were collected and incorporated into the study dataset.

Data Analysis

Data were analyzed using SPSS version 23.0 (IBM, Chicago, USA). Descriptive statistics were computed, and normal distribution of numerical variables was assessed using the Kolmogorov-Smirnov Z test. Numerical data were further analyzed using Spearman correlation analysis and the Mann-Whitney U test where appropriate.

Logistic regression analysis was employed to identify independent risk factors influencing the implementation of each medical procedure. Variables demonstrating a significance level of $p<0.05$ in individual comparisons were included in the regression model. Numerical data were presented as median [interquartile range], while categorical data were expressed as frequencies and percentages. Statistical significance was set at $p<0.05$.

Results

A total of 164 patients were included in the study, with a median age of 80 [14] years, and 99 (60.4%) were female. Detailed demographic characteristics and comorbidities are summarized in Table 1 and 2.

Visit data were unavailable for 2 patients receiving home health services, leaving 162 patients for analysis. Over the study period (January to December 2022), a total of 2774 visits were conducted, with a median of 16 [14] visits per patient (Table 3). The distribution of medical procedures performed during these visits is also detailed in Table 3.

Significantly more visits were observed among patients residing in urban areas, those fully dependent on bed use, using air beds, urinary catheters, enteral nutrition solutions, and with tracheostomy or pressure ulcers ($p=0.047$, $p=0.037$, $p=0.013$, $p<0.001$, $p=0.042$, $p=0.005$, $p=0.045$, $p=0.003$, respectively).

Multiple regression analysis (Table 4) revealed

the impact of patient characteristics on the implementation of key medical procedures such as wound dressing, blood tests, and urinalysis, which are commonly performed during home visits.

Table 1. Descriptive characteristics of patients

	n (%)
Age	
<18	5 (3.0)
18-64	22 (13.4)
65-84	87 (53.1)
>85	50 (30.5)
Living place	
Urban	68 (41.5)
Rural	96 (58.5)
State of being bedridden	
Fully dependent	119 (72.6)
Semi-dependent	40 (24.4)
Not dependent	5 (3.0)
Caregiver	
Child	89 (54.3)
Bride or groom	20 (12.2)
Mother or father	17 (10.4)
Wife or husband	16 (9.8)
Other relative	11 (6.7)
Hired caregiver	11 (6.7)
Functional bed	46 (28.0)
Air bed	44 (26.8)
Excretion status	
Diaper	140 (85.4)
Urinary catheter	50 (30.5)
Colostomy	4 (2.4)
Nutritional status	
Oral intake	117 (71.3)
Nutrition with PEG/NG	51 (31.1)
Use of enteral nutrition solution	62 (37.8)
Malnutrition status (n=106)	
Normal nutritional status	9 (8.5)
At risk of malnutrition	44 (41.5)
With malnutrition	53 (50.0)
Respiratory status	
Tracheostomy	22 (13.4)
Use of assisted breathing apparatus	35 (21.3)
Pressure ulcer	54 (32.9)

PEG: percutaneous endoscopic gastrostomy
NG: nasogastric tube

Table 2. Comorbidities of patients

	n (%)
Neurological disease	142 (86.6)
Dementia	79 (48.2)
Cerebrovascular event	70 (42.7)
Epilepsy	28 (17.1)
Parkinson's disease	19 (11.6)
Cerebral palsy	8 (4.9)
Cardiac disease	75 (45.7)
Atrial fibrillation	35 (21.3)
Coronary artery disease	30 (18.3)
Heart failure	24 (14.6)
Valvular heart disease	16 (9.8)
Hypertension	119 (72.6)
Hyperlipidemia	25 (15.2)
Diabetes	54 (32.9)
Hypothyroidism	18 (11.0)
Orthopedic disease	39 (23.8)
Lung disease	
Chronic obstructive pulmonary disease	18 (11.0)
Asthma	11 (6.7)
Pulmonary embolism	11 (6.7)
Psychiatric illness	45 (27.4)
Anxiety	19 (11.6)
Depression	17 (10.4)
Malignancy	13 (7.9)
Chronic kidney disease	11 (6.7)

Table 3. Medical procedures performed during home visits and how many patients these procedures were performed on.

	Number of patients n (%)	Total number of procedures
Wound dressing	69 (42.6)	423
Blood test	122 (75.3)	464
Coagulation monitoring (INR)	33 (20.4)	138
Urinalysis	46 (28.4)	123
Culture	10 (6.2)	13
Vaccination	39 (24.1)	56
Electrocardiogram	3 (1.9)	3
Urinary catheter	59 (36.4)	264
Nasogastric tube	9 (5.6)	22

Table 4. Multiple regression analysis data showing the effect of patient characteristics on wound dressing, blood test and urinalysis.

	Odds ratio[confidence interval]	p value
Wound dressing		
Using a functional bed	2.9 [1.1-7.6]	0.029
Having pressure ulcer	3.3 [1.4-7.7]	0.006
Blood test		
Living in rural	2.8 [1.3-6.1]	0.012
Having diabetes	2.9 [1.1-7.7]	0.038
Urinalysis		
Living in rural	3.4 [1.4-7.9]	0.005
Using a urinary catheter	3.1 [1.3-7.3]	0.010
History of pulmonary embolism	8.3 [1.9-35.6]	0.004

Variables observed to have p<0.05 in single comparisons were included in the multiple regression model.

Discussion

Our study revealed that patients received a median of 16 visits per year from HCS. The most common procedures during these visits were blood testing, wound dressing and urinary catheterization, aligning with findings from previous studies (Aslan et al., 10). However, our study observed a higher visit frequency compared to some literature reports (7,9).

Certain patient characteristics emerged as independent risk factors influencing the need for specific procedures. Patients using functional beds and those with pressure sores required more frequent wound dressings. Similarly, rural residence and diabetes were associated with increased need for blood testing while urinary catheter use and a history of pulmonary embolism were linked to higher rates of urinalysis.

The majority of HCS recipients in our study were women, consistent with broader trends observed in Turkiye (4,8,11,12), where elderly women constitute a significant portion of the population benefiting from HCS. This trend may reflect both longer life expectancy among women and their higher utilization rates of healthcare services.

A notable finding was the high prevalence of bedridden patients in our study, exceeding 70%. This contrasts with previous estimates, potentially due to our inclusion criteria focusing on patients receiving continuous HCS for at least one year, thereby capturing more chronic and severe cases. However, it's concerning

that less than one-third of these patients had access to functional or pneumatic beds, which are crucial for preventing complications like pressure ulcers.

Malnutrition emerged as a significant concern, with a substantial portion of patients at risk, often requiring specialized nutritional support such as percutaneous endoscopic gastrostomy (PEG) or nasogastric tube (NG) feeding. Malnutrition can significantly impact various aspects of patient health, including wound healing, immune function and overall quality of life.

Chronic conditions such as neurological and cardiovascular diseases were prevalent among our cohort, necessitating ongoing medical management through HCS. This highlights the importance of comprehensive care plans that address both acute medical needs and long-term management strategies, including regular monitoring and immunization schedules.

It is important to note the limitations of our study, including its retrospective nature and cross-sectional design, which preclude establishing causal relationships. Additionally, not all data may have been fully captured due to the study's retrospective nature, impacting the comprehensiveness of our findings.

Conclusion

This study has illuminated the demographic profiles and medical needs of patients receiving HCS at a tertiary hospital in a semi-rural setting. Patients requiring intensive monitoring include those with functional bed dependency, urinary catheter use, pressure ulcers, diabetes, a history of pulmonary embolism, and those residing in rural areas. These findings underscore the necessity for personalized care plans and the expertise of healthcare professionals in administering specialized procedures such as wound dressing and catheterization.

The dissemination of our findings can inform the development of comprehensive health policies tailored to address the specific needs identified within HCS. Implementing digital platforms to document patient characteristics and risk profiles holds considerable promise for enhancing service delivery and overall quality. Future research endeavors should explore these digital solutions further to optimize the effectiveness of HCS.

In conclusion, understanding the dynamic relationship between patient profiles and service requirements is pivotal for efficient resource allocation and improved outcomes in home care settings. This study contributes valuable insights to ongoing efforts aimed at refining and expanding HCS, ultimately enhancing care delivery for diverse patient populations.

Ethical Approval

Permission for the study was obtained from the hospital management and approved by the Trabzon Kanuni Training and Research Hospital, Clinical Research Ethics Committee with 27.06.2022 date and 2022/38 number.

Authorship Contribution Statement

Conception: C.Y., V.A., B.A.Y., Design: C.Y., V.A., B.A.Y., Supervision: C.Y., V.A., B.A.Y., Data Collection and/or Processing: C.Y., V.A., B.A.Y., Analysis and/or Interpretation: C.Y., Literature Review: C.Y., Writer: C.Y., V.A., B.A.Y., Critical Review: C.Y., V.A., B.A.Y.

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