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Original Article

Evaluation of Quality Indicators in Home Health Services Delivery

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Abstract

Background: We aimed to evaluate the quality indicators monitored within the scope of quality standards health.

Methods: In this descriptive study, patients who visited the home health services unit in 2021, were included. Patient age and diagnostic data were obtained from the Basic Health Statistics Module. Other information such as the number of patient visits and nutritional status were obtained from the indicator data collection form followed by the quality management unit of our hospital and from the home health services unit. We included the data of Antalya Training and Research Hospital. Microsoft Excel and SPSS 25.0 program were used in the analysis of the data, and the data obtained were shown as numbers and ratios (%).

Results: When the quality indicators of home health services delivery were examined, the timely response rate of the application was 100%, the nutritional status of all patients was evaluated using the Nutritional Risk Score (NRS-2002) evaluation form at the first patient visit; the patients receiving health care from the home health unit of our hospital visited an average of three times in a year, and the health service from the home health unit was determined: the annual average rate of medical appointments kept with patients who receive medical care at the scheduled time is 83%.

Conclusion: Quality indicators are being met well, and good-quality care services are being delivered in the home health service of the training and research hospitals.

Keywords: Aging; Home health care; Indicators

Introduction

The average age of the population in the world and our country is increasing day by day. The increase in the elderly population and life expectancy brings important health and care problems, and an increase in chronic diseases due to aging creates a care problem even in individuals with no health problems (1). To meet the health and social services needed by the increasingly elderly population, home health service models have been developed (2), and this service gains importance (3). According to TUIK data, the ratio of the elderly to the total population was 9.7% in 2021, which will be 12.9% in 2030 and 22.6% in 2060 (4). This change in the population's age structure significantly impacts health systems and brings along problems, especially in delivering home health services (HHS) (5). As the rate of chronic diseases, multiple morbidities, and func-

tional and cognitive disorders increases (5), the need for HHS increases rapidly (6). HHS visitation is important for patients and relatives of patients who have difficulty reaching the hospital for various reasons (7). Providing adequate service to elderly individuals in the home environment positively affects the quality of life of these individuals (8). Within the scope of HHS, services are provided to patients with terminal cancer or advanced muscle diseases, bedridden patients, people with respiratory system diseases, people who need phototherapy (9,10).

In Turkey, the first legislation was enacted by the Ministry of Health in 2005, and it started to be implemented in 2010 with the Directive on Implementation Procedures and Principles of Home Health Services published by the Ministry of Health (11). Later, in 2015, legislative changes were made, radical changes were made in practice in 2017, and responsibility for the program was transferred to the Public Hospitals Institution of Turkey (2,7).

A set of quality standards in health at home was created with the Regulation on the Development and Evaluation of Quality in Health, dated June 27, 2015. The standards are intended to bring about a holistic approach to quality management for home health services (12).

HHS is defined as "examination, analysis, treatment, medical care, follow-up and rehabilitation services, including social and psychological counseling services, provided to individuals who need home health services due to various diseases at home and in their family environment" (13). HHS standards were added to the health quality standards (HQS) hospital set published in 2020 by the Department of Quality in Health, Accreditation, and Employee Rights in our country. Four home health services indicators are followed in the indicator management guide published in 2021, which aims to improve the presentation of HHS (14,15).

Considering the increasing importance of HHS delivery, it is essential to monitor and evaluate the quality of care provided and initiate improvement studies resulting from the data obtained. Especially in health services, quality indicators are used to measure, monitor, and evaluate health care quality by evaluating the structure, process, and results. Quality indicators are used to compare and standardize health care quality, thus enabling national and international comparisons (5). In this context, in Turkey, home health services quality indicators included in the health quality standards indicator management guide published by the Ministry of Health are monitored. These monitored indicators are the timely admission rate, annual average visits per patient, the rate at which appointments are kept at the scheduled time, and the rate of nutritional risk assessment (16). As a result of this evaluation, a determination can be made whether care is provided to patients receiving home health services under evidence-based care standards (17).

We aimed to monitor the quality of care of patients receiving home health services with quality indicators monitored within the scope of health quality standards and evaluate them within the framework of patient safety.

Methods

This research was planned to be retrospective, descriptive, and cross-sectional. The patients followed up by the home health care unit between Jan 1 and Dec 31, 2021, and examined by a risk assessment for malnutrition, appointments kept at the scheduled time, the average number of visits per year, and rate of visits by the relevant team within two working days after being referred to the unit. Relevant data were obtained from the hospital quality unit. This study was carried out at Antalya Training and Research Hospital, which provides tertiary health care. Patient age and diagnostic data were obtained from the Basic Health Statistics Module. Other information, such as the number of patient visits, and patient nutritional status, were obtained from the quality management unit and home health care unit of Antalya Training and Research Hospital, Antalya,Turkey.

The disease and age distributions of the patients were taken from the basic health statistics mod-

ule. Microsoft Excel and SPSS 25.0 (IBM Corp., Armonk, NY, USA) were used to evaluate the data, and the data obtained are shown as numbers and ratios (%). The HHS was affiliated with our hospital. The vehicles allocated to the unit were provided with a team of three drivers, two nurses, one medical secretary, seven specialist physicians, one dietitian, one social worker, and three general practitioners. Calculations were performed according to the calculation methods in the guide published by the Ministry of Health and are presented below (16).

$$\text{Timely Compliance Rate of Application} = \frac{\text{Number of patients visited during the business day after referral to the unit}}{\text{Number of patients referred to the unit by the home health coordination center}} * 100$$

$$\text{Rate of Appointments kept at the Scheduled Time} = \frac{\textit{Number of appointments kept at the scheduled time}}{\text{Number of scheduled appointments}} * 100$$

$$\text{Average Annual Visits Per Patient} = \frac{\text{Total number of visits made during the year}}{\textit{Total number of individual patients visited within the scope of home health services}}$$

$$\text{Rate of Conducting Nutrition Risk Assessment} = \frac{\textit{Number of visits with nutritional risk assessment}}{\text{Total number of visits}} * 100$$

Ethical Approval

The study was approved by the Ethics Committee of Clinical Research Ethics Committee of the Health Sciences University Hospital (16.06.2022-12/19).

Results

This study determined the level of meeting the training and research hospital home health unit's quality indicators. The rate of visits by the home health team within two working days after the patients were referred to the home health unit of the hospital by the home health coordination center is presented in Table 1. An average of 90 patients per month and 1070 patients annually were referred to the hospital home health unit by the home health coordination center, and home health teams reached these patients within two working days. The lowest number of patients were referred to the hospital home health unit by the home health coordination center in Oct (57 patients) and the highest number of patients in Mar (112 patients). In other words, the number of patients not visited by the relevant team within two working days after being referred to the unit by the home health coordination center was zero, and the timely response rate was 100%.

Table 1: Timely Fulfillment Rate of Application

Variable	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*	*Total*
Number of patients visited by the relevant team within two working days after being referred to the unit by the home health coordination center	105	108	122	101	77	90	64	92	86	57	83	85	1070
Number of patients referred to the unit by the home health coordination center	105	108	122	101	77	90	64	92	86	57	83	85	1070
The timely compliance rate of application (%)	100	100	100	100	100	100	100	100	100	100	100	100	100

The nutritional status of the patients was evaluated in terms of malnutrition during patient visits by the home health unit of our hospital, and the data are presented in Table 2. The nutritional status of all patients was evaluated using the Nutritional Risk Score (NRS-2002) evaluation form during the first patient visit made by the home health unit teams of our hospital. The rate of risk assessment at the first visit was 100%. Based on the total number of visits, it can be seen that this rate is low in the first three months.

Table 2: Rate of Conducting Nutritional Risk Assessment

Variable	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*	*Total*
Number of visits with nutritional risk assessment	745	789	910	856	775	939	723	924	955	724	853	1012	10205
Total number of visits	899	946	1074	856	775	939	723	924	955	724	853	1012	10680
Nutrition risk assessment rate	83	83	85	100	100	100	100	100	100	100	100	100	1151
Number of first visits	105	108	122	101	77	90	64	92	86	57	83	85	1070
Number of patients with NRS-2002 evaluation form at the first visit	105	108	122	101	77	90	64	92	86	57	83	85	1070
Proportion of patients with NRS-2002 evaluation form at first visit (%)	100	100	100	100	100	100	100	100	100	100	100	100	100

The rate for keeping visiting appointments with the patients who receive health services from the home health unit of our hospital at the scheduled time is presented in Table 3.

Table 3: The Rate of Appointments Being Kept at the Scheduled Time

Variable	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*	*Total*
Number of appointments kept at the scheduled time	77	56	86	58	77	87	71	80	96	74	88	90	940
Number of scheduled appointments	94	72	120	77	106	98	84	90	101	83	107	107	1139
Rate of appointments kept at the scheduled time (%)	82	78	72	75	73	89	85	89	95	89	82	84	83
Rate of Non-Execution on Scheduled Time													
Number of appointments that could not be kept at the scheduled time	17	16	34	19	29	11	13	10	5	9	19	17	199
The rate of appointments not being kept at the scheduled time (%)	18	22	28	25	27	11	15	11	5	11	18	16	17

The annual average rate of appointments kept at the scheduled time is 83%. The lowest (72%) rate of keeping scheduled appointments is in March, while the highest (95%) is in September.
The average visit rate per patient within a year of patients receiving health care from the home health unit of our hospital is presented in Table 4, which shows that 10,680 visits are made to patients annually by the home health unit teams, and each patient is visited with an average of three times.

Table 4: Average of Annual Visits Per Patient

Variable	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*	*Total*
Total number of visits made during the year	899	946	1074	856	775	939	723	924	955	724	853	1012	10680
Total number of individual patients visited within the scope of home health services	337	342	391	301	284	342	265	329	339	216	318	357	3829
Average annual visits per patient	3	3	3	3	3	3	3	3	3	3	3	3	3

Individuals with chronic diseases generally benefit from home health services. From this point of view, patients who benefit from this service in our hospital also have neurological and psychiatric diseases, cardiovascular diseases, and hematological and oncological diseases, respectively (Fig.1).

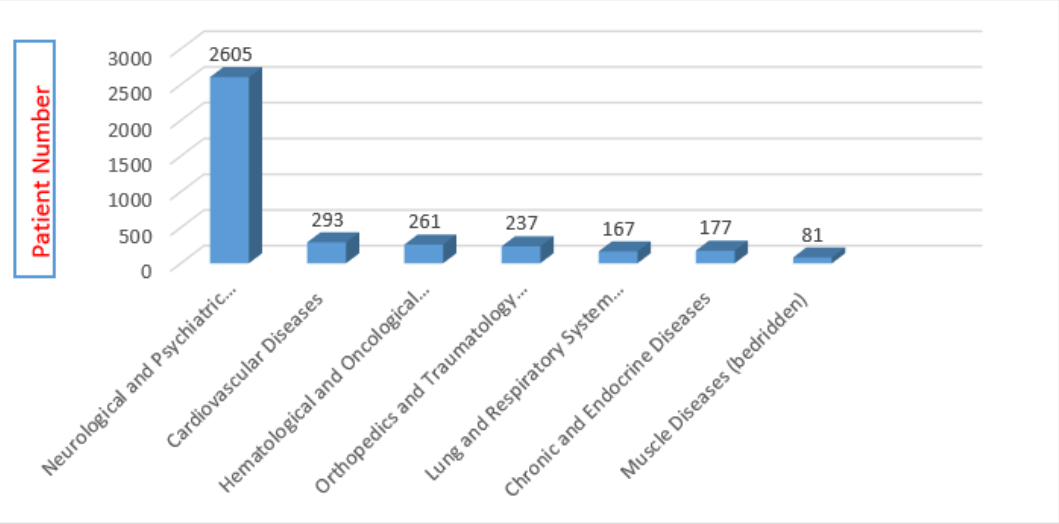

Fig. 1: Distribution by Diseases

Although everyone in need of care can benefit from home health care services, it is known that elderly patients receive this service primarily. When the age distribution of patients receiving

home health care services in our hospital is examined, the patient group aged 65 and over is more than the other ages (49.8%). The rate of individuals aged 86, and over who receive home health care services is 30.2% (Fig. 2).

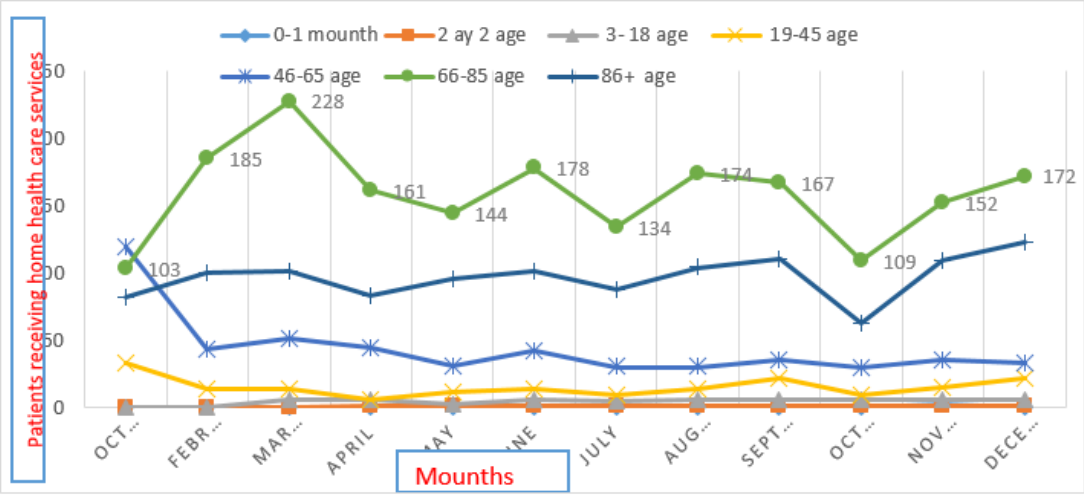

Fig. 2: Distribution of Patients Receiving Home Health Services by Age

Discussion

With this research, it was possible to evaluate the level of meeting quality indicators and the level of quality in the care services provided by using the quality indicators followed by the home health unit of the training and research hospital. Through the indicators monitored, home care service is delivered well. In this context, within the scope of the monitored indicator, the rate of being visited by the home health team within two working days after being referred to the home health unit by our hospital is 100%. Therefore, services are provided following the legislation.

It is vital to holistically evaluate patients receiving home health services and identify their nutritional problems. For this reason, the nutritional status of the patients was evaluated by the home health unit teams using the NRS-2002 evaluation form. This rate is low, especially in the first three months. There are reasons for this, such as the fact that HHS indicators have just begun to be monitored, problems in compliance, the need for additional training of the teams, the low number of home health team personnel, and the practice of visiting more than one patient in a day. Monitoring the nutritional status of patients receiving home health care as a quality indicator is compatible with the literature. In the examination, studies were found in which the nutritional status of home care patients was used as a quality indicator. Besides the evaluation of the nutritional status in home care patients, evaluations are also carried out of activities of daily living, mobility at home, dehydration, deterioration of oral health, social isolation, bladder incontinence, falls, instrumental activities of daily living, daily pain intensity, negative mood, insufficient pain control, pressure sores, decreased independence, signs of personal neglect, and communication quality indicators such as difficulty (18-20). Currently, only four quality indicators are used for home health care patients in our country. In the future, quality indicators that will increase the quality of care may also be monitored.

Visiting appointments for patients who receive health services from the home health unit of our hospital are low at the scheduled time. Although this rate is below 100%, the target value was determined to be 75% by the hospital, and it was determined that the target value was reached.

The reasons for not realizing scheduled appointments are thought to be related to the patient and the hospital. At least one physician and one assistant health person are required for each home health unit team. Depending on the characteristics of the patient and the service to be provided, a dietitian, psychologist, social worker, or physiotherapist may be included in the team (7). For this reason, providing a physician for each team may be challenging when the teams are being formed. To increase the availability of vehicles for patient transfers, ensure the service standard among the teams, and provide quality service, especially during the pandemic process, three teams in our hospital offer this service at home.

An average of three visits per patient per year were made for the patients who received health services from the home health unit of our hospital. The contracted manager's performance criteria stated that the home health services visit frequency value should be above two. The home health unit of our hospital met this criterion and contributed to increasing the efficiency of home health service delivery (19). The number of visits to home health services offered by hospitals (average 3.64) was higher than that of primary health care institutions (2).

The quality of home care is monitored through quality indicators. Foebel et al. (2015) evaluated the quality of care provided to the elderly and their ability to meet their needs. The study, which developed a comprehensive system of quality indicators for home care in China, identified the absolute and relative importance of 77 indicators as potentially valid measures of home care quality. These quality indicators are generally structure, process, and result oriented. Some determined indicators are the evaluation of the nutritional status of home care patients, readmission rate, patient satisfaction rate, and turnover rate of home care nurses (6). The addiction status of the patients was high and that 43% of them had mood disorders (21). In a study conducted in our country, a consensus was reached on the set of 78 indicators related to elderly care, which are elderly population and welfare status, elderly care institutions, admission to elderly care, care recipients, home care, caregivers, health expenditures, and health status (22).

Elderly individuals of advanced age and chronic diseases generally benefit from home health services. 68.4% of the patients were over 65 (23). 44.2% of individuals are between the ages of 74-84 (8). The TUSEB home health services report stated that the patients who benefited from home health services mainly were individuals over the age of 65(24), and 51% were between the ages of 65 and 85.

In our study, the most common diagnoses for patients were hypertension, Alzheimer's or dementia, heart diseases, diabetes, and cerebrovascular diseases. In another study, the most common diseases in individuals receiving home health care were cardiological, endocrinological, neurological, and respiratory diseases (1,25). Another study determined that 37.2% had hypertension (HT), 31.2% had arthritis, 25.2% had coronary artery disease, and 22.3% had diabetes mellitus (DM) (8). The TUSEB home health services report showed that cardiovascular diseases are the most frequent, neurological and psychiatric diseases rank second, and chronic and endocrine diseases rank third (24).

In an aging society, it is crucial to provide high-quality long-term care to older individuals (25). Because home health services are a developing process, there are many advantages and disadvantages regarding hospital management, patients, and staff. The problems encountered are the inability to identify the individual who needs this service, difficulties forming a team due to limited human resources, privacy and information security for the patient, and employee security for the health personnel. On the other hand, there are many advantages for elderly individuals to receive comfortable and safe health services at home, such as reducing the risk of hospital infection and using the hospital's capacity effectively (26). When elderly and chronically ill individuals receive safe and high-quality health services at home, costs are reduced, and patient satisfaction increases (27).

Quality of care is complex and multidimensional, and while quality home care can provide long-

term independent living in the community, inadequate care can cause an unnecessary decline in health (28,29). Home care is an important part of nursing and includes various health services such as bloodletting, catheter insertion, and wound care (30). The HHS report published by TUSEB stated that the service provided by the home health services unit includes services provided by the home health services unit, which are patient examination, followed by wound dressing, education practices, and bloodletting for examination, respectively (24). Similarly, one study stated that patient examination and wound follow-up were the most common procedures (2). The most frequently performed procedures in home visits by our hospital's home health unit teams are patient examination, patient education, blood collection for examination, bladder catheter application, and wound care (31). The operations performed are similar.

It is important to establish and monitor performance indicators that can measure quality by examining the structure, process, and results of care (32). Quality management in health services will increase the efficiency of health institutions and make patients and their relatives feel safe (20). To ensure quality and safety during home care services, it is necessary to establish and implement a home care quality indicators system (9). Within the framework of the eleventh development plan, home health services will be expanded, access to health services provided to the elderly, especially those living in rural areas, will be facilitated, and preventive and curative services will be strengthened for the elderly (33). Turkey ranks 68th among 167 countries in terms of the elderly population (4). With the increasing proportion of elderly, home care services will inevitably become widespread.

Limitations

The limitation of our study is that it was conducted in a single center and only in a training and research hospital. Therefore, it may not be generalizable to other hospitals. However, it has been shown that home health services quality indicators can be monitored in different indicators where the compliance rate is good. Thus, home health services delivery achieves important clinical goals.

Conclusion

Most individuals who receive home health services are 65 yr and older and use this service primarily because of their neurological and psychiatric diseases.

We aimed to determine the monitoring levels of home health care delivery indicators in the indicator management guide at our institution. Our hospital has done an excellent job of meeting the required levels for the quality indicators of HHS, which have just started to be monitored. Considering the recent epidemic, the access of individuals to health services has been further restricted, and the importance of HHS in terms of the health system has been better understood. Evaluating and comparing home health care quality indicators, especially according to hospital role groups, will contribute to the quality of care.

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Conflict of interests

The authors have no conflicts of interest to declare.

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