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Evaluation of home health services provided to children in Batman province

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ABSTRACT

Aims: To evaluate the home health services provided to children in Batman, a province in the Southeastern Anatolia Region of Turkiye, where the birth rate and consanguineous marriages are high.

Methods: For this descriptive and cross-sectional study, data from 460 patients aged 0-18 years who received services from the Home Health Unit of Batman Training and Research Hospital between January 10, 2018, and January 10, 2023, were retrospectively scanned through the Hospital Information Management System.

Results: 57.6% of the patients were male and 42.4% were female. The mean age of the patients was 10.64±4.5 years; the proportion of patients aged 0-6 years was 20%, 7-12 years was 41.1%, and 13-18 years was 38.9%. Mental retardation was observed in 15%, cerebral palsy in 42.8%, hydrocephalus in 7.8%, epilepsy in 17%, spina bifida/meningocele/meningomyelocele in 4.1%, neuromuscular and motor disorders (paresis/plegia, etc.) in 10.4%, and osteogenesis imperfecta in 3%. While 99.6% of reasons for physician visits were non-emergency, the most common reason for visits by non-physician health personnel was dressing and monitoring of fever, pulse, and blood pressure, at 94.8%. The proportion of patients in need of nursing services was 98.7%; the proportion of patients with pressure sore signs was 87.8%; and the proportion of fully dependent patients was 93.9%.

Conclusion: To provide home health services more effectively and efficiently, it is necessary to increase social awareness, improve health literacy to eliminate regional differences, and expand telehealth applications. For better quality service delivery, it is of vital importance to provide periodic training to those engaged in patient care, especially on managing bed sores. In this way, home health services for children can become more accessible and effective.

Keywords: Home health, home care, child health, telehealth, chronic disease, disability

INTRODUCTION

Home health care (HHC) is a health service provided by professional health teams in their residences to people in all age groups who have difficulty applying to the hospital in person due to their health conditions and who are more appropriate to receive services in their environment.[1] Home health care is a multidisciplinary approach that includes examination, analysis, treatment, medical care, rehabilitation, and social and psychological counseling. As advances in medicine prolong life expectancy and increase the number of people in need of special care with chronic diseases and disabilities, the need for home health care is growing more and more significantly every day.[2]

The decrease in child mortality due to medical and economic developments and the increase in the number of children with chronic diseases and disabilities due to increased survival have led to an increase in the population of children in need of care. Along with all these, making many medical equipment suitable for home use and the understanding of family-centered care have increased the importance of home health services for children in the elderly.[3] Because the provision of home health care services reduces the number of hospitalizations and shortens the duration of hospitalization significantly in children as well as in adults; as a result, it positively affects the physical, social, and psychological development of the child.[4]

In Turkiye, the legal regulation on the provision of home health care services was made for the first time in 2005, and its scope was expanded and made widespread with new regulations made in the following years.[5] All individuals who are included in the scope of home health care services are routinely visited at certain intervals by home health care teams affiliated with hospitals. In addition, additional visits are made when needed. The team consists of at least three people and may

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include a physician, allied health personnel (nurse, midwife, or health officer), physiotherapist, psychologist, social worker, dietician in addition to driver. The main tasks of the home health service include examination, analysis, examination, treatment, medical care, rehabilitation services, making appointments with hospitals as a result of consultation, arranging medical conditions and medication reports, and providing medical equipment.[5,6]

Our study aims to evaluate the home health services provided for children in Batman, one of the provinces in the Southeast, which is the region with the highest birth rate[7] and consanguineous marriage rate[8] in Turkiye according to the Turkish Statistical Institute (TÜİK) data, many different parameters such as demographic characteristics, the diagnosis of the disease of the person, the reason for the visit and the determinations made as a result of the visit. This will shed light on new regulations to be made to further expand the scope and improve the quality of home health services.

METHODS

Approval for the study was obtained from the Scientific Researches Ethics Committee of Batman Training and Research Hospital (Date: 25.01.2024 Decision No: 374). All procedures were carried out according to the ethical rules and the principles of the Declaration of Helsinki.

For this descriptive and cross-sectional study, the data of 460 children aged 0-18 years who received services from the Home Health Unit of Batman Training and Research Hospital between January 10, 2018, and January 10, 2023, were retrospectively scanned in the Hospital Information Management System (HIMS). The criteria for inclusion in the study were to receive home health care for whatever reason and to be between the ages of 0-18. Children aged 0-18 years who were not registered at the Home Health Services Unit but temporarily received home health services were excluded. Additionally, people over 18 were excluded from the study even if they received regular home health services.

All children were visited at least twice a month by mobile teams of the Home Health Services Unit, and additional visits were made as needed. Each team consisted of at least three people, including a physician, home patient care technician, and auxiliary health personnel, in addition to the driver. When needed, psychologists, social workers, physiotherapists, and dieticians were included in the team. Information on age, gender, diagnosis, reasons for admission and visit, need for medical care, need for social support services, need for psychological support, need for consultation, need for nursing services, need for palliative care, need for rehabilitation, need for dietician, need for chaplain, presence of pressure symptoms and were screened. In addition, the child's bed dependency status, disability group, devices used, and disability report status were also screened.

Statistical Analysis

SPSS v.25 package program was used for data analysis. Descriptive statistics were presented as mean±standard deviation or median (minimum-maximum) for continuous variables and as frequency and (%) for categorical variables.

RESULTS

The study included 460 patients who were under the follow-up of the home health services unit. 57.6% of the patients were male and 42.4% were female. The mean age of the patients was 10.64±4.5 years (minimum age 1- maximum age 18 years and median age 11 years) (Table 1). The male/female ratio was: 1.35.

Table 1. Distribution of demographic data

Variable	Groups	n	%
Gender	Male	265	57.6
	Female	195	42.4
	Total	460	100.0
Age group	0-6 years	92	20.0
	7-12 years	189	41.1
	13-18 years	179	38.9
	Total	460	100.0
Years	Mean-SD	10.64 (4.50)	
	Min-Max-Median	1-18-11	

SD: Standart deviation

The proportion of patients aged 0-6 years was 20%, 7-12 years was 41.1% and 13-18 years was 38.9% (Figure).

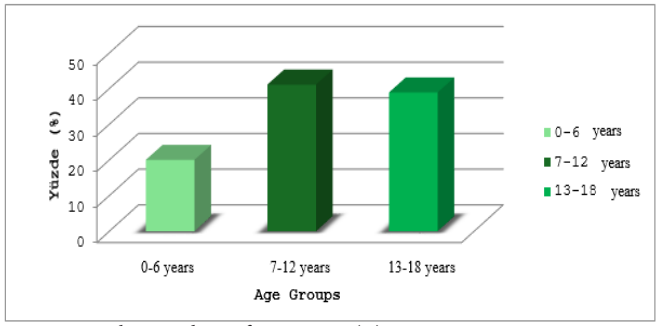

Figure. Distribution chart of age groups (%)

The distribution of "mental retardation, cerebral palsy, hydrocephalus, epilepsy, spina bifida/meningocele/meningomyelocele, neuromuscular, and motor disorders (Paresis/Plegia, etc.) and osteogenesis imperfecta" in the patients who participated in the study is shown in Table 2 both in the whole group and by gender.

When the reasons for home health care application of the patients participating in the study were analyzed, it was seen that the first rank was HHC application and utilization request with a rate of 91.3%, the second rank was reporting renewal request with a rate of 7% and the last rank was requested for examination, dressing, etc. based on complaints with a rate of 1.7%. Reasons for visits by physicians and non-physician health personnel during home visits to patients were also analyzed in (Table 3).

Table 2. Diagnosis distribution

		Gender					
		Male		Female		Total	
		Number	%	Number	%	Number	%
Mental retardation	No	222	83.8%	169	86.7%	391	85.0%
	Yes	43	16.2%	26	13.3%	69	15.0%
	Total	265	100.0%	195	100.0%	460	100.0%
Cerebral palsy	No	147	55.5%	116	59.5%	263	57.2%
	Yes	118	44.5%	79	40.5%	197	42.8%
	Total	265	100.0%	195	100.0%	460	100.0%
Hydrocephalus	No	247	93.2%	177	90.8%	424	92.2%
	Yes	18	6.8%	18	9.2%	36	7.8%
	Total	265	100.0%	195	100.0%	460	100.0%
Epilepsy	No	218	82.3%	164	84.1%	382	83.0%
	Yes	47	17.7%	31	15.9%	78	17.0%
	Total	265	100.0%	195	100.0%	460	100.0%
Spina bifida/meningocele/ meningomyelocele	No	255	96.2%	186	95.4%	441	95.9%
	Yes	10	3.8%	9	4.6%	19	4.1%
	Total	265	100.0%	195	100.0%	460	100.0%
Neuromuscular and motor disorders (Paresis/Plegia etc.)	No	231	87.2%	181	92.8%	412	89.6%
	Yes	34	12.8%	14	7.2%	48	10.4%
	Total	265	100.0%	195	100.0%	460	100.0%
Osteogenesis imperfecta	No	264	99.6%	182	93.3%	446	97.0%
	Yes	1	0.4%	13	6.7%	14	3.0%
	Total	265	100.0%	195	100.0%	460	100.0%

Table 3. Distribution of reasons for application and visit

Variable	Groups	n	%
Home health service reason for application	HHC application and benefit request	420	91.3
	Report renewal request	32	7.0
	Complaint-based examination, dressing etc. requests	8	1.7
	Total	460	100.0
Reasons for visiting a doctor	Non-emergency reasons	458	99.6
	Cerebral palsy	2	0.4
	Total	460	100.0
Reasons for visiting non-doctor health personnel	FPTP tracking	22	FPTP
	Dressing	2	0.4
	Dressing+FPTP follow-up	436	94.8
	Total	460	100.0

*HHC: Home health care ** FPTP: Fever-pulse-tension pressure

The findings obtained from the patients who participated in the study by questioning "medical care, social support, psychological support, consultation, nursing service, palliative care, rehabilitation, dietician, religious worker needs and whether there are compression symptoms" are shown in Table 4.

The findings obtained from the patients who participated in the study by questioning "bed dependency, disability group/branch, devices used, and disability report status" are shown in Table 5.

DISCUSSION

Due to the increase in life expectancy at birth, the increase in the number of people in need of care due to old age and various accompanying diseases, the advantages of aging in place; and the importance of home health services are becoming more and more evident day by day.[1,2] In addition, the intensity in hospitals due to global, regional and seasonal epidemics, the risk of infection during hospital admission, the difficulty in reaching the hospital, and the social and psychological advantages of receiving health services in the

Table 4. Distribution of patient needs by gender

		Gender					
		Male		Female		Total	
		Number	%	Number	%	Number	%
Is there a need for medical care?	No	261	98.5%	195	100.0%	456	99.1%
	Yes	4	1.5%	0	0.0%	4	0.9%
	Total	265	100.0%	195	100.0%	460	100.0%
Is there a social support service?	No	265	100.0%	195	100.0%	460	100.0%
	Yes	0	0.0%	0	0.0%	0	0.0%
	Total	265	100.0%	195	100.0%	460	100.0%
Is there a need for psychological support?	No	265	100.0%	195	100.0%	460	100.0%
	Yes	0	0.0%	0	0.0%	0	0.0%
	Total	265	100.0%	195	100.0%	460	100.0%
Is there a need for consultation?	No	253	95.5%	191	97.9%	444	96.5%
	Yes	12	4.5%	4	2.1%	16	3.5%
	Total	265	100.0%	195	100.0%	460	100.0%
Is there a need for nursing care?	No	4	1.5%	2	1.0%	6	1.3%
	Yes	261	98.5%	193	99.0%	454	98.7%
	Total	265	100.0%	195	100.0%	460	100.0%
Is there a need for palliative care?	No	265	100.0%	194	99.5%	459	99.8%
	Yes	0	0.0%	1	0.5%	1	0.2%
	Total	265	100.0%	195	100.0%	460	100.0%
Is there a need for rehabilitation?	No	263	99.2%	195	100.0%	458	99.6%
	Yes	2	0.8%	0	0.0%	2	0.4%
	Total	265	100.0%	195	100.0%	460	100.0%
Is there a need for a dietician?	No	263	99.2%	195	100.0%	458	99.6%
	Yes	2	0.8%	0	0.0%	2	0.4%
	Total	265	100.0%	195	100.0%	460	100.0%
Do you need a chaplain?	No	265	100.0%	195	100.0%	460	100.0%
	Yes	0	0.0%	0	0.0%	0	0.0%
	Total	265	100.0%	195	100.0%	460	100.0%
Are there pressure symptoms?	No	32	12.1%	24	12.3%	56	12.2%
	Yes	233	87.9%	171	87.7%	404	87.8%
	Total	265	100.0%	195	100.0%	460	100.0%

Table 5. Distribution of various parameters according to gender

		Gender					
		Male		Female		Total	
		Number	%	Number	%	Number	%
Bed dependency	Independent	0	0.0%	4	2.1%	4	0.9%
	Semi-dependent	11	4.2%	13	6.7%	24	5.2%
	Fully dependent	254	95.8%	178	91.3%	432	93.9%
	Total	265	100.0%	195	100.0%	460	100.0%
Person's disability group	Neurology	257	97.0%	190	97.4%	447	97.2%
	Muscle diseases	6	2.3%	1	0.5%	7	1.5%
	Orthopedics	1	0.4%	1	0.5%	2	0.4%
	Psychiatry	0	0.0%	2	1.0%	2	0.4%
	Brain surgery	1	0.4%	0	0.0%	1	0.2%
	Physical therapy and rehabilitation	0	0.0%	0	0.0%	0	0.0%
	Oncology	0	0.0%	1	0.5%	1	0.2%
	Urology	0	0.0%	0	0.0%	0	0.0%
	Total	265	100.0%	195	100.0%	460	100.0%
Devices used	No device used	253	95.5%	186	95.4%	439	95.4%
	HV+OK	10	3.8%	6	3.1%	16	3.5%
	OK	2	0.8%	3	1.5%	5	1.1%
	Total	265	100.0%	195	100.0%	460	100.0%
Disability report status	No	10	3.8%	9	4.6%	19	4.1%
	Yes	255	96.2%	186	95.4%	441	95.9%
	Total	265	100.0%	195	100.0%	460	100.0%

HV: Household ventilator, OK: Oxygen concentrator

environment where the person lives increase the popularity and necessity of home health services.[9] The significant increase in the number of children in need of care because some of the previously untreatable pediatric diseases are being treated due to advances in medicine has made home health care services for children between the ages of 0-18 an indispensable health practice, just as it is for elderly individuals.[3]

Home health care services, which were once provided by primary care centers in Turkiye, have been provided by secondary and tertiary care hospitals affiliated with Public Hospitals since 2017.[5] Thanks to the widespread mobile health services provided within the scope of home health services in Turkiye, mobile teams of home health services provided on-site services in subsistence shelter centers and tents after the February 6, 2023 earthquakes due to the difficulties in reaching hospitals and the unavailability of some hospitals. For this reason, a strong home health care infrastructure is essential in the aftermath of earthquakes.[9]

The mean age of children receiving home health care services in our study, which was found to be 10.64±4.5, is similar to the result of 11±4.2 in the study conducted by Çadırcı et al.[10] in 2019 in Şanlıurfa, a Southeastern Anatolian province in Turkiye. In the literature, the majority of children receiving home health care services are infants.[11] In our study, the majority of the patients, 41.1%, were between the ages of 7 and 12, whereas in the study conducted by Ayar et al.[12] in Ankara, the highest number of children aged 0-6 years was found with 39.7%. The reason for this age difference may be the difference in health literacy due to regional socioeconomic and cultural changes in Turkiye. We think that the lack of sufficient awareness about home health services in Batman province and the delay in application for home health services due to this is the most likely reason. However, although the mean age of 8.87±4.6 years in Ayar et al.[12] study is significantly lower than our study, it is still high compared to the literature. This shows that there are significant differences in the approach to home health services for children between countries, similar to the differences between regions in Turkiye.

The male/girl ratio of 1.35 in our study overlaps with the result of 1.34 found by Çadırcı et al.[10] and is close to the result of 1.17 found by Ayar et al.[12] According to the World Health Organization (WHO), the ratio of boys/girls at birth in Turkiye in 2020 is 1.05.[13] This result shows that boys are more likely to have chronic diseases/disabilities that require home health care services than girls. Furthermore, according

to 2023 TUIK data, the infant mortality rate is higher in boys than in girls.[14] This situation shows that gender differences should also be taken into consideration when planning for home health services and other health services.

While the rate of children with cerebral palsy was 42.8% in our study, this rate was 57.9% in the study by Çadırcı et al.[10] and 58.7% in the study by Ayar et al.[12] In a study conducted by Pulgar et al.[15] in the United States of America, this rate was found to be 69.8%, which was higher than both our study and the other two studies in Turkiye.

In our study, when the reasons for application for home health care services were analyzed, the first place was HHC application and utilization request with a rate of 91.3%, while the second place was reported renewal request with a rate of 7%. Performing procedures such as report renewal with Telehealth applications that can be performed with remote access instead of home visits will enable more efficient use of the limited capacity of home health care teams. The implementation of the Remote Patient Assessment System in Turkiye as of May 2024 shows that procedures such as report renewal and prescribing medication to the patient can be easily performed with remote access. Studies show that the use of technology in home health services, including remote access, can be as effective as one-to-one home visits.[16]

In our study, the most common reasons for visits by non-physician health personnel were dressing+FPTP follow-up with 94.8%, FPTP follow-up only with 4.8% and dressing only with 0.4%. In our study, dressing could not be differentiated as small or large dressing. However, the fact that the home health services team made a home visit even for FPTP follow-up suggests that some of the dressings performed by the team at home may be performed by the patient's relatives. For this reason, it is necessary to provide training on simple medical procedures and patient care to the relatives of patients receiving home health care services. In this way, both the workload of mobile teams will be reduced, and patients will feel more comfortable psychologically because simple medical procedures can be performed by their relatives with whom they have better communication.[17]

In our study, the fact that almost all of the patients (98.7%) needed nursing services shows that nursing services should be prioritized in-home health services planning in accordance with the literature.[18] This result may indicate that nursing students should be trained not only for treatment and care in health institutions but also for home health services during nursing education. In addition, nursing services can also be carried out by patient care technicians who are specially trained in this field.

The finding of pressure findings in 87.8% of our patients shows that one of the most important problems in children who need home health care services, as in adults, is pressure problems that occur as a result of living bedridden for a long time. Ferris et al.[19] conducted a meta-analysis of studies between 1946 and 2017 and found that the rate of pressure ulcers in palliative care patients in all age groups was 12.4%. In their literature review, Moore et al.[20] reported that the rate of pressure ulcers in European countries varied between countries, ranging from 4.6-27.2% with an average of 10.8% and that this rate was found to be 10.95% in Turkiye. In our study, no distinction was made between pressure ulcers and non-ulcerated findings. Nevertheless, it is inevitable that some of the pressure findings detected will turn into ulcers. For this reason, the fact that 87.8% of the children were found to have compression symptoms reveals that a very high proportion of children had to face compression symptoms. The fact that 93.9% of the children who participated in our study were fully dependent may be one of the important reasons why we detected high-pressure symptoms in addition to incomplete or incorrect care. The decrease in the rate of pressure ulcers in children receiving home health care services can be realized by increasing the awareness of both health professionals and patient relatives and by providing periodic training to the patient relatives who take care of the child. In the study conducted by Öğür et al.[21] it was reported that providing training to patient relatives decreased pressure ulcers.

In our study, 93.9% of the patients were fully dependent. Various genetic diseases that occur in children due to consanguineous marriages, which are common in southeastern provinces and still occur to a certain extent in Batman, may have caused diseases that lead to complete dependence in children. This rate was found to be 37% in the study conducted by Gülük et al.[2] in Istanbul including all age groups and 43.6% in the study conducted by Demirkol et al.[22] in Bolu including all age groups. Although only children between the ages of 0 and 18 years were included in our study, it is not possible to say that this difference is only due to age difference. Because the studies conducted by Güdük et al.[2] and Demirkol et al.[22] also included children among the participants. Regional, socioeconomic, and cultural differences are likely to have affected health literacy. When the disability status of the children included in our study was analyzed, it was observed that 97.2% had neurological disabilities. This contributed to the high rate of full dependency. Another important conclusion to be drawn here is the possibility that the families of some children who should receive home health care services even if they are not fully dependent may not have applied for home health care services. In light of all these indicators, promotional activities should be carried out to increase public awareness of home health care services, especially for children, and new regulations should be implemented to further expand on-site health services.

Due to the high rate of fully dependent patients in our study, the rate of EVT and/or OC use was found to be higher than in other studies in the literature.[2,10,22] Since these devices need regular maintenance, they should be checked by home health teams during home visits, relatives should be informed, and help from the biomedical technical team should be requested when necessary.

Limitations

In Turkiye, regional geographical diversity and infrastructural conditions, as social, cultural, and economic differences may lead to differences in both hospital services and home health care services. In addition, these differences may also shape the demand for health service provision. This may be an obstacle

to the generalization of the results of our study. The fact that the study was conducted only in children between the ages of 0-18 reveals that the results should be evaluated only for this age group. However, this justification can also be considered as an advantage of the study in terms of providing child-specific information. The disadvantages of the study include the retrospective nature of the study and the possibility that some of the patient's condition determinations such as bed-bound compression findings may be evaluated differently by different teams.

CONCLUSION

This study revealed that children need home health services due to various diseases, but social awareness on this issue may not be sufficiently formed. It was observed that allied health personnel play an important role in home health services, especially nursing services are at the forefront. This situation reveals that nursing education should be reorganized in terms of home health services. In addition, it is vital to provide education to the relatives of the patients to prevent bedridden pressure ulcers. In conclusion, to provide home health services more effectively and efficiently, it is necessary to increase social awareness, improve health literacy to eliminate regional disparities and expand telehealth practices. In this way, home health services for children can become more accessible and effective.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was carried out with the permission of Ethics Committee of Batman Training and Research Hospital (Date: 25.01.2024, Decision No: 374).

Informed Consent

Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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