

HEALTH LITERACY OF FAMILY CAREGIVERS AND RELATED FACTORS

BAKIM VERİCİLERİN SAĞLIK OKURYAZARLIĞI VE İLİŞKİLİ FAKTÖRLER

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Abstract

Objective: The health literacy level of caregivers is essential for patient care. This study was conducted as a descriptive study to determine the health literacy level of caregivers.

Materials and Methods: This is a descriptive and correlational research. The study consists of 263 caregivers of the patients who were hospitalized between March and June 2019. All of the participants in the study were chosen over the age of eighteen. The sociodemographic information form, Barthel Index, and Health Literacy Scale (HLS) were used as the data collection tools.

Results: Based on the scores obtained from Health Literacy Scale and its sub-dimensions, it was found that the health literacy level of caregivers was high. It was found that there was a positive correlation between perceived health of caregiver and HLS total score. It was also seen that there was a negative correlation between the total dependence of the patient, age of the patient, the number of illnesses the caregiver had, the number of hospitalizations of the patient and HLS total score.

Conclusion: As a conclusion, in this study which was conducted to determine the level of the health literacy of family caregivers and related factors, it was found that the level of health literacy among family caregivers affected some of the care-related variables. Further studies on the level of health literacy among family caregivers, identifying deficiencies, and taking necessary precautions are important for improving patient care and its quality.

Keywords: health literacy, caregivers, humans, home care service

Özet

Amaç: Bakım verenlerin sağlık okuryazarlığı düzeyi hasta bakımı için önemlidir. Bu çalışma, bakım verenlerin sağlık okuryazarlık düzeyini belirlemek amacıyla tanımlayıcı bir çalışma olarak yapılmıştır.

Gereç ve Yöntem: Tanımlayıcı ve ilişki arayıcı araştırmadır. Araştırma Mart ve Haziran 2019 tarihleri arasında hastaneye yatırılan hastaların 263 bakım vericisini içermektedir. Araştırmadaki katılımcıların hepsi 18 yaş üzerinden seçilmiştir. Veri toplama aracı olarak sosyodemografik bilgi formu, Barthel İndeksi ve Sağlık Okuryazarlığı Ölçeği (SOY) kullanılmıştır.

Bulgular: Sağlık Okuryazarlığı Ölçeği ve alt boyutlarından alınan puanlara göre bakım verenlerin sağlık okuryazarlık düzeylerinin yüksek olduğu belirlendi. Bakım verenin algılanan sağlığı ile SOY toplam puanı arasında pozitif, hastanın yaşı, toplam bağımlılığı, hastanın yaşı, bakım verenin sahip olduğu hastalık sayısı, hastanın hastaneye yatış sayısı ve bakım verenin hastaneye yatış sayısı ile SOY toplam puanı arasında negatif korelasyon bulunmuştur.

Sonuç: Sonuç olarak, aile bakım verenlerinin sağlık okuryazarlığı düzeyini ve ilişkili faktörleri belirlemek amacıyla yapılan bu çalışmada, aile bakım verenlerinin sağlık okuryazarlık düzeylerinin bakımla ilgili bazı değişkenleri etkilediği bulunmuştur. Aile bakım verenlerinin sağlık okuryazarlığı düzeyinin belirlenmesi, eksikliklerin saptanması ve gerekli önlemlerin alınması konusunda daha fazla araştırma yapılması hasta bakımının ve kalitesinin iyileştirilmesi açısından önemlidir.

Anahtar Kelimeler: sağlık okuryazarlığı, bakım verenler, insan, evde bakım hizmetleri

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INTRODUCTION

Individuals with chronic diseases and disability experience difficulty in performing activities of daily living. While the individuals experiencing this difficulty are given professional care by nurses in healthcare institutions, home care is provided by family caregivers. Family caregivers should possess good observing and helping skills to ensure the continuity of care from the hospital at home. Caregiving is a multifaceted concept. The definition, scope, and complexity of the concept of caregiving vary due to demographic changes, increasing life expectancy, and family lifestyle changes. Therefore, caregivers provide care to individuals directly or indirectly in different ways (1). All these factors directly affect the health literacy level of caregivers.

Health literacy refers to the ability to read and understand health-related information. Overall, health literacy is defined by the ability of an individual to access health-related information, to understand and apply the information given by health professionals, and to apply the practices related to health (2). It is important for the caregiver to have sufficient information about the disease and the conditions related to the disease (3). For example, one of the most important care needs of a bedridden person is repositioning. If the caregiver does not adequately grasp the importance of repositioning, pressure sores can form and further grow into deeper wounds in the advanced stages, in which sepsis and death become inevitable if proper hygiene and treatment cannot be provided for the individual receiving the care (4,5). Therefore, the health of the person receiving care is directly linked with the level of health literacy of the family caregiver. A study found that the vast majority of caregivers needed training and mentoring on caregiving (6).

The ability of people to use preventive health practices, to understand the offered health services, to apply to a healthcare

institution, to communicate with health professionals, and to appropriately manage the treatment process is related to their level of health literacy. Low health literacy results in some negative consequences. Not undergoing screening tests as part of preventive health services constitutes a problem among the group of individuals with low health literacy levels (7). In food shopping, an insufficient understanding of the product labels may result in misuse and consequent deterioration in health status (8). In a study by Lee et al. on women in Taiwan, it was found that checking foods for their expiration dates was associated with the participants' level of health literacy (9). In a study conducted to examine the relationship between the rates of repeated admission to the emergency department and the level of health literacy, the rate of admission to hospitals, particularly to the emergency services, was found to be high because the individuals were incapable of clearly discerning their own health status, which was closely related to their level of health literacy (10). In a cohort study examining the relationship between the healing of diabetic foot ulcers and health literacy, Health Literacy Scale (HLS) scores and wound healing were found to be significantly related, demonstrating the importance of the relationship between care and health literacy (11).

It is important for the caregiver to have a certain level of health literacy in order to manage care effectively. Therefore, our study was based on evaluating the health literacy level of family caregivers. Given that caregivers have an enormous impact on the health of the individual receiving their care, it would benefit the patients' health to identify and implement necessary measures and practices on the basis of the caregivers' level of health literacy. The study was planned as descriptive and correlational research to investigate the health literacy of family caregivers and related factors.

METHODS

Research Design

The present study was descriptive and correlational research. The study was carried out on a population of adult family caregivers (aged ≥ 18 years) of adult patients (aged ≥ 18 years) who received inpatient treatment at Akşehir State Hospital in Konya, Turkey. The sample size was calculated using the standard deviation (SD) value of the HLS (SD = 12.4), which was established by Temel and Aras (12). In cases where the study population was unknown, the sample size was calculated using the formula $n = (z \times SD/d)^2$ (13). The sample size was therefore calculated as $n = (1.9616 \times 12.4/1.5)^2 = 263$, using the formula where the confidence level and deviation were accepted as 95% and $d = 1.5$, respectively. Random sampling was used for sample selection. The research consists of relatives of patients receiving inpatient treatment at Akşehir State Hospital. For this reason, it was applied to caregivers who agreed to participate in the research in all clinics, without any patient group or clinic limitations. The inclusion criteria were as follows: the family caregiver speaks Turkish and is the primary caregiver of the patient.

Data Collection

The data were collected by the researcher in the patient's room using the face-to-face interview technique. Data collection, performed by applying data collection tools, required 5–10 minutes and comprised the collection of information from the sociodemographic identification forms for family caregivers and patients, the Barthel Index, and the HLS.

Family Caregiver Sociodemographic Identification Form

Created based on the literature reviews conducted (14-19) the form includes 24 questions that assess the caregiver's educational background, perception of his/her Each is evaluated separately as well as together

own health status, financial status, and relationship with the patient, as well as the kind of support s/he provides for the patient, how and where s/he obtains the information s/he lacks in terms of knowledge on caregiving, whether s/he has knowledge about the use of medical devices, whether s/he has difficulty in accessing healthcare services, and whether s/he has received training on this subject.

Patient Sociodemographic Identification Form

Created by the researcher, the form includes 6 questions about the patient's age, sex, educational and professional background, social security status, and the number of noncommunicable diseases that s/he has.

Barthel Index

It was developed by Mahoney and Barthel (1965) and consists of 10 items that evaluate the patient's ability to perform activities of daily living. In this index, patients are assessed for their capability to perform activities of daily living in terms of bowel care, bladder care, self-care, toilet use, nutrition, dependency status, mobility, dressing, and bathing (20). The most appropriate option corresponding to the current status of the individual is marked. The scores are in the range of 0–100. The higher the score, the higher the level of independency of the individual. Its validity in Turkey was evidenced by Kucukdeveci et al. (2000) in patients with stroke and spinal cord injury (21). The Cronbach's α value was 0.93 for patients with stroke and 0.88 for patients with spinal cord injuries.

Health Literacy Scale

The validity and reliability of the Turkish version of the HLS was determined by Temel and Zühal (2017) (12). It consists of four subscales: "Accessing Information," "Understanding Information," "Appraising/Evaluating," "Applying/Using." in terms of total scale scores. The minimum score for the whole scale is 25 and the

in the scale, which enables the evaluation of the levels of health literacy of the individuals maximum score is 125. The scale items are structured in the form of a Likert-type scale, with responses of the family caregivers being as follows: 5: Not difficult at all, 4: Barely difficult, 3: Slightly difficult, 2: Extremely

difficult, and 1: I am unable to do it/I have no skills to do it. All items of the scale have an affirmative sentence structure. The number of items obtained in this study, possible score ranges, minimum-maximum scores and Cronbach's α values for each subscale of HLS are shown in Table 1.

Table 1. The number of items, ranges of attainable scores, min–max scores, and Cronbach’s α values obtained in the present study in each subscale of the Health Literacy Scale

	Health Literacy Scale and its subscales	Number of items	Min.–Max. attainable score	Cronbach’s α
Health Literacy Scale Total	25	25–125	105.3 ± 17.5 (50–125)	0.94
Accessing Information	5	5–25	21.3 ± 5.1 (5–25)	0.94
Understanding Information	7	7–35	27.7 ± 5.9 (8–35)	0.79
Appraising/Evaluating	8	8–40	35.0 ± 5.9 (12–40)	0.87
Applying/Using	5	5–25	21.4 ± 3.4 (9–25)	0.70

The subscale *Accessing Information* consists of 5 questions (1–5). The score range for this subscale is 5–25 and its Cronbach’s α reliability coefficient is 0.71. In the present study, the Cronbach’s α reliability coefficient was found to be 0.94. The subscale *Understanding Information* consists of 7 questions (6–12). The score range for this subscale is 7–35 and its Cronbach’s α reliability coefficient is 0.79. In the present study, the Cronbach’s α reliability coefficient was found to be 0.79. The subscale *Appraising/Evaluating* consists of 8 questions (13–20). The score range for this subscale is 8–40 and its Cronbach’s α reliability coefficient is 0.66. In the present study, the Cronbach’s α reliability coefficient was found to be 0.87. The subscale *Applying/Using* consists of 5 questions (21–25). The score range for this subscale is 5–25 and its Cronbach’s α reliability coefficient is 0.62. In the present study, the Cronbach’s α reliability coefficient was found to be 0.70. **The HLS total score** ranges from 25 to 125 and its Cronbach’s α reliability coefficient is 0.92. In the present study, the Cronbach’s α reliability coefficient was found to be 0.94. The higher the score, the higher the level of health literacy.

The reliability coefficients for the correlations between the subscale scores and the total score were found to be 0.74–0.91 and significant for all items. The content validity index was 0.90. In terms of the assessment of construct validity of the scale, the Kaiser–Meyer–Olkin value was 0.893 and the Bartlett's test value was $X^2 = 2187.116$ ($p = 0.001$).

Statistical Analysis

The advanced statistical software SPSS 20.0 was used to analyze the data. The descriptive statistics were presented as numbers, percentages, means, and SDs. The data included numbers, percentages, means, SDs, medians, and quartiles. Normality of the HLS score data was assessed using Kolmogorov–Smirnov test. Further, Mann–Whitney U test was used to assess samples in pairs, and Kruskal–Wallis test was used to assess samples in groups of ≥ 3 . The statistical significance level was set at $p < 0.05$. Hierarchical multiple regression analysis was used to assess the determinants of health literacy in the family caregivers of hospitalized patients. Sociodemographic determinants were used in Model 1 and care-related variables were used in Model 2. The HLS total score was used as a continuous variable.

Ethical Aspects of Research

Before starting the research, the approval of the A University Faculty of Medicine for Non-drug and Non-medical Device Research Ethics Committee of was obtained (2018/1447) and the necessary official permissions were obtained from the institutions where the research was planned to be conducted. Oral and written informed consent was obtained from all the participants.

RESULTS

The results obtained in the research conducted to determine the health literacy level of the family caregivers of inpatients are presented below.

Sociodemographic Characteristics of the Family Caregivers (n = 263)

Among the family caregivers participating in the study, 63.9% were females, 67.3% were unemployed (housewife/retired), 84.8% were married, 68.1% lived in a district, 95.8% had social security, 43.7% were primary school graduates, 53.6% had an income level equal to their expenses, and 66.5% did not have a chronic disease.

Distribution of Patient- and Care-related Variables (n = 263)

According to the results obtained regarding the care-related variables of the family caregivers participating in the study, 36.1% cared for their spouse, 69.6% lived in the same house with the patient, 46.8% did not have another caregiver assisting them, and 61.6% did not care for a patient whose care required using a medical device. Among those caring for a patient whose care required using a medical device, 92.2% knew how to use the medical device needed by their patient. Further, 90.5% did not receive a care pension, 76.4% received help from healthcare professionals regarding the patient's care, 79.5% had difficulty in understanding what the healthcare professionals said, 88.6% were capable of easily asking questions to healthcare professionals, 96.6% were capable of noticing changes in the patients' condition, 93.5% were capable of communicating these changes to

healthcare professionals, and 81% had no difficulty in accessing healthcare services. Among the patients receiving care from the family caregivers included in this study, 52.1% were aged 18–64 years, 50.6% were females, 42.6% were primary school graduates, 82.5% were unemployed (housewife/retired), 94.7% had social security, and 72.6% had a chronic disease.

Mean, SD, Minimum, and Maximum Values of the Care-Related Quantitative Variables (n = 263)

The mean age of the family caregivers participating in this study was 48 ± 14.7 years, while the mean age of the patients was 61.1 ± 17.8 years. The mean Barthel Index score of the patients receiving care was 72.8 ± 30.4 , the mean number of family caregivers with a chronic disease was 0.5 ± 0.9 , and the mean dependency level of the patients was 5.2 ± 2.9 . The mean hours of daily care were 17.4 ± 8.4 hours, while the mean duration of caregiving for the patients was 35.9 months. The mean number of hospitalizations in total for the group of patients over the last year was 2.9 ± 2.2 , and the mean level of perceived health of the family caregivers was 6.7 ± 2.1 (Table 2).

Table 2. Mean, standard deviation, minimum, and maximum values of care-related quantitative variables

Care-related quantitative variables	X ± SD	Min.–Max.
Barthel Index score	72.8 ± 30.4	0–100
Caregiver's age	48.0 ± 14.7	19–85
Number of the chronic diseases the caregiver has	0.5 ± 0.9	0–4
Patient's dependency level	5.2 ± 2.9	0–10
Hours of patient care	17.4 ± 8.4	1–24
Duration of caregiving (months)	35.9 ± 80.4	1–696
Number of hospitalizations of the patient	2.9 ± 2.2	1–11
Caregiver's perceived health level	6.7 ± 2.1	0–10
Patient's age	61.1 ± 17.8	18–93

Comparing the Family Caregivers on the HLS Total Score by Sociodemographic Characteristics (n = 263)

In the HLS total score, significant differences were observed in terms of sex, profession, marital status, place of residence, educational background, monthly income, presence of chronic disease, receiving care pension, receiving help from healthcare professionals, having difficulty in understanding what healthcare professionals say, capability of comfortably asking questions to healthcare professionals, capability of noticing changes in the patient, communicating changes in the patient to healthcare professionals, having difficulty in accessing healthcare services, patient's age, and patient's sex ($p < 0.05$). Further analysis in terms of

educational background revealed differences between the illiterate and those with a primary, secondary, or high school degree or an undergraduate or graduate degree and between the literate with primary school degree and those with a high school degree or an undergraduate or graduate degree. Further analysis in terms of monthly income revealed differences between the group with an income less than expenses and the other income groups as well as between the group with an income equal to expenses and the group with an income higher than expenses. No statistically significant differences were noted in terms of social security, living in the same house with the patient, presence of another caregiver, patient's social security, and presence of patient's chronic disease ($p > 0.05$) (Table 3).

Table 3. Determinants of health literacy (Multiple Regression Analysis–Hierarchical Model)

Model-1 Sociodemographic Determinants of Family Caregivers	β	t	p
Constant		8.949	<0.001
Age	-0.090	-1.126	0.261
Sex (female = 1)	-0.045	-0.695	0.488
Profession (not working = 1)	0.048	0.687	0.493
Marital status (married = 1)	0.132	2.206	0.028
Place of residence (village/town = 1)	-0.126	-2.084	0.038
Family caregiver's educational background	0.327	4.123	<0.001
Monthly income (income less than expenses, income equal to expenses = 1)	-0.031	-0.515	0.607
Presence of chronic disease (yes = 1)	0.151	1.442	0.151
Number of diseases	-0.045	-0.433	0.666
Perception level of health	0.242	3.986	<0.001
Model 1:	R = 0.507	R ² = 0.257	F = 8.729, p < 0.001

Table 3. Determinants of health literacy (Multiple Regression Analysis–Hierarchical Model)

Model-2 Care-related Variables	β	t	p
Duration of caregiving (months)	0.102	1.930	0.055
Receiving care pension (yes = 1)	-0.070	-1.317	0.189
Number of hospitalizations of the patient	0.015	0.280	0.780
Receiving help from healthcare professionals (no = 1)	-0.153	-2.612	0.010
Having difficulty in understanding healthcare professionals (yes = 1)	0.160	-2.990	0.003
Capable of comfortably asking questions to healthcare professionals (no = 1)	-0.118	-2.330	0.021
Capable of noticing changes in the patient (no = 1)	-0.049	-0.844	0.400
Capable of communicating changes to healthcare professionals (no = 1)	-0.172	-2.986	0.003
Having difficulty in accessing healthcare services (yes = 1)	-0.211	-3.963	<0.001
Barthel Index score	0.043	0.834	0.405
Model 2:	R = 0.686	R ² = 0.471	F = 10.763, p < 0.001

Determinants of Health Literacy in Family Caregivers (Multiple Regression Analysis–Hierarchical Model)

The determinants of health literacy in the family caregivers of hospitalized patients were assessed using hierarchical multiple regression analysis. In Model 1 in which the sociodemographic determinants were analyzed, the level of health literacy was found to be positively correlated with the characteristics of being married ($\beta = 0.132$), having a better educational background ($\beta = 0.327$), and having better perception of health by caregivers ($\beta = 0.242$), whereas it was negatively correlated with the place of residence being a village/town ($\beta = -0.126$). Sociodemographic determinants explain the level of health literacy by 25%. In Model 2 in which the care-related variables were analyzed, the variables of not receiving help from healthcare professionals ($\beta = -0.153$), having difficulty in understanding what healthcare professionals say ($\beta = -0.160$), incapability of comfortably asking questions to healthcare professionals ($\beta = -0.118$), incapability of communicating changes in the patient to healthcare professionals ($\beta = -0.172$), and having difficulty in accessing healthcare services ($\beta = -0.211$) were found to be the determinants of the level of health literacy and to negatively affect health literacy. Care-related variables explain the level of health literacy by 47% (Table 3.).

DISCUSSION

Planned as a descriptive and correlational research to investigate the health literacy of family caregivers and related factors, the present study found the mean health literacy score of family caregivers to be 105.3 ± 17.5 . Considering that the highest attainable score on HLS is 125, this mean value indicates that the participants had a high level of health literacy. Similar to our study, Levin et al.'s (2014) study found that caregivers had high health literacy levels. In this section, the findings are discussed in line with the research questions.

There was no significant correlation between age and the HLS total score. In a study by Dadipoor et al. age and health literacy were found to be significantly inversely correlated (23). In another study reporting findings similar to ours, no significant correlation was found between age and health literacy (24). In a study conducted on cancer patients, age was found to be an important factor affecting the level of health literacy (25). In a study by Turkoglu et al. on patients with bladder tumors, patients aged <65 years were reported to have a higher level of health literacy (26). As age increases, it can be thought that the level of health literacy decreases due to the decline in the cognitive abilities of individuals.

A significant correlation was observed between sex and the HLS total score, and the HLS total score was higher in males than in females. In a study investigating the patients' level of health literacy, sex and health literacy were found to have no statistical correlation according to the responses given by the participants to the questions asked (27). In another study conducted on individuals with chronic diseases, it was found that males had a higher level of health literacy (28). In the study of Kayser et al. (2015), it was found that the health literacy level of men was higher than the health literacy level of women (29). Apart from sex, the level of literacy is also one of the factors affecting the level of health literacy. It is thought that the statistical difference between the two sexes in our study was due to the fact that the literacy levels of males were higher than those of females.

Educational background and the HLS total score were found to be significantly correlated. In a study by Oscalices et al. on patients with heart failure, it was found that the individuals with a poor educational background also had a poor level of health literacy (30). In a study conducted on the caregivers of children with type 1 diabetes, the literacy level of caregivers was found to affect their level of health literacy and that the children receiving care from

caregivers with a high level of health literacy had better glycemic control (31). In the study where they evaluated the e-health literacy level of caregivers of patients with prostate cancer, it was found that income level and health literacy level were significantly related (32). Educational background is one of the factors that directly affect the level of health literacy. For this reason, someone with a high level of education is expected to be more capable of understanding what they read and interpreting and applying the information given. It is therefore possible that individuals with a poor educational background have lower levels of health literacy.

There was a highly significant correlation between the income status and the HLS total score. In a previous study, it was determined that the mean health literacy score of patients with an income less than their expenses was lower than that of other groups (33). It is thus thought that income status affects seeking health information and maintaining health behavior.

A significant correlation was found between the presence of chronic disease and the HLS total score. In the study of Heijmans et al., it was stated that the number of chronic diseases in individuals is related to a low level of health literacy (34). In another study, it was found that individuals with only one chronic disease have a higher level of health literacy than those with multiple chronic diseases (35). There are a number of different practices aimed to delay or prevent the occurrence of chronic diseases. Such practices relate to nutrition, lifestyle, and sports that bear significant importance for a healthy life. Therefore, it is important for individuals who are in the risk group for chronic diseases to bring these practices into action. It is predicted that the incidence of chronic diseases will increase because individuals with a poor level of health literacy are not informed about such practices and therefore cannot practice or understand them.

Individuals who did not have difficulty in understanding healthcare professionals and

individuals who could comfortably ask questions to healthcare professionals had higher HLS total scores. In a study similar to ours, it was stated that patients could always understand doctors and nurses and could ask questions comfortably (33). It is thought that the information obtained from healthcare professionals and the quality of communication with healthcare professionals directly affects the level of health literacy.

Individuals who did not have difficulty in accessing healthcare services had higher HLS total scores. In the study conducted by Temel and Aras, those who had no difficulty in accessing healthcare services had a high mean score of health literacy (12). In another study, individuals stated that they often come to health institutions with a second person (42). This may suggest that the person cannot find the unit that s/he is supposed to consult to in the health institution or has difficulty in accessing the health institution. Having difficulty in accessing healthcare services might be attributed to various reasons, such as transportation restriction, not knowing where to apply, illiteracy, and not understanding what healthcare professionals are saying. These reasons are thought to potentially have direct effects on the level of health literacy of the individual.

In the study conducted by Lakhan et al. to determine the level of health literacy, it was found that better educational background, age, and sex positively predicted health literacy (36). According to the study conducted by Hazer and Ateşoğlu (37) to investigate the effects of the level of health literacy on successful aging in the elderly, perceived health status alone accounted for 18% of health literacy; perceived health status and educational status together accounted for 25% of health literacy; and perceived health status, education level, and marital status together accounted for 27% of health literacy.

CONCLUSION

In conclusion, in the present study, which was conducted to determine the level of health literacy among family caregivers and the

related factors, it was found that the family caregivers' levels of health literacy affected some of the care-related variables. According to the HLS total score, family caregivers with a high level of health literacy did not have difficulty in understanding healthcare professionals, could ask them questions comfortably, and had no difficulty in accessing healthcare services. For the family caregivers, being married, educational background, perceived health level, living in a village/town, not receiving help from healthcare professionals, having difficulty in understanding healthcare professionals, incapability of comfortably asking questions to healthcare professionals, incapability of communicating changes in the patient to healthcare professionals, and having difficulty in accessing healthcare services were found to be predictors of the HLS total score.

Increasing the level of health literacy among family caregivers is important with regards to the quality of care provided. Therefore, it is necessary to increase the level of health literacy among family caregivers. Health literacy education should be provided starting from the basic education level. Further studies on the level of health literacy among family caregivers, identifying deficiencies, and taking necessary precautions are important for improving patient care and its quality.

Ethical Aspects of Research

Before starting the research, the approval of the A University Faculty of Medicine for Non-drug and Non-medical Device Research Ethics Committee of was obtained (2018/1447) and the necessary official permissions were obtained from the institutions where the research was planned to be conducted. Oral and written informed consent was obtained from all the participants.

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Declaration of Conflicting Interests

The authors declare that there is no conflict of interest.

REFERENCES

1. Moss KO, Kurzawa C, Daly B, Prince-Paul M. Identifying and addressing family caregiver anxiety. *J Hosp Palliat Nurs* 2019;21(1):14-20. doi:10.1097/NJH.0000000000000489
2. Simonds SK. The concept of planned, hospital-based patient education programs. *Health Educ Monogr* 1974;2:1-10. doi:10.1177/10901981740020S102
3. Sert H, Doğan SG, Çetinkaya S, Pelin M, Seven A. Health status of inpatients and caregivers' information needs: pilot study. *Intensive Care Nurs* 2019;23:57-63.
4. Özel B. Management of patients with pressure sores. *Arch Med Rev J* 2014;23:492-505.
5. Christensen D. The impact of health literacy on palliative care outcomes. *J Hosp Palliat Nurs* 2016;18(6):544-549. doi:10.1097/NJH.0000000000000292.
6. Dağdeviren TS, Dağdeviren M, Demir N, Atatorun M, Özşahin OA, Adahan D. Sociodemographic characteristics of the caregivers of patients receiving medical home. *Ank Med J* 2019;19:232-243.11. doi:10.17098/amj.578108
7. Çopurlar CK, Kartal M. What is health literacy? How to measure it? Why is it important? *TJFMPC* 2016;10(1):40-45. doi:10.5455/tjfmpe.193796.
8. Kickbusch I, Pelikan JM, Apfel F, Tsouros AD. Health literacy: the solid facts. Geneva, Switzerland: World Health Organization. Regional Office for Europe; 2013.
9. Lee SYD, Tsai TI, Tsai YW, Kuo KN. Health literacy and women's health-related behaviors in Taiwan. *Health Educ Behav* 2012;39(2):210-218. doi:10.1177/1090198111413126
10. Öztaş D, Güzeldemirci GB, Özhasenekler A, et al. The evaluation of repetitive admissions to the emergency department by the perspective of health literacy. *Ank Med J* 2016;16(3):255-262. doi:10.17098/amj.35931
11. Margolis DJ, Hampton M, Hoffstad O, Malay DS, Thom S. Health literacy and diabetic foot ulcer healing. *Wound Repair Regen* 2015;23(3):299-301. doi:10.1111/wrr.12311

12. Temel AB, Aras Z. Evaluation of validity and reliability of the Turkish version of Health Literacy Scale. *Florence Nightingale J Nurs* 2017;25:85-94. doi:10.17672/fnhd.94626
13. Karasar N. *Scientific method: concept, principles, Techniques 15th Edition*. Ankara, Turkey: Nobel Publication Distribution, 2005.
14. Bliss, D., Rolnick, C., Jackson, J., Arntson, C., Mullins, J., & Hepburn, K. Health literacy needs related to incontinence and skin damage among family and friend caregivers of individuals with dementia. *Journal of Wound, Ostomy, and Continence Nursing*. Ostomy and Continence Nurses Society/WOCN 2013; 5(5), 515–523.
15. Dişsiz, G., & Yılmaz, M. Complementary and alternative therapies and health literacy in cancer patients. *Complementary Therapies in Clinical Practice* 2016; 23, 34–39.
16. Mohamad, M. S., Zabidah, P., Fauziah, I., & Sarnon, N. Mental health literacy among family caregivers of schizophrenia patients. *Asian Social Science* 2012; 8(9), 74
17. Nakayama, K., Osaka, W., Togari, T., Ishikawa, H., Yonekura, Y., Sekido, A., & Matsumoto, M. Comprehensive health literacy in Japan is lower than in Europe: a validated Japanese-language assessment of health literacy. *BMC Public Health* 2015; 15(1), 505.
18. Sukys, S., Cesnaitiene, V. J., & Ossowsky, Z. M. Is health education at university associated with students' health literacy? Evidence from cross-sectional study applying HLS-EU-Q. *BioMed Research International*. 2017; 8516843.
19. Temel, A. B., & Çimen, Z. Health literacy, health perception and related factors in elderly individuals with chronic disease. *Journal of Ege University Nursing Faculty* 2017;33(3), 105–125.
20. Mahoney, F. I., & Barthel, D. W. Functional evaluation: the Barthel index: A simple index of independence useful in scoring improvement in the rehabilitation of the chronically ill. *Maryland State Medical Journal* 1965; 14, 61–65.
21. Küçükdeveci, A. A., Yavuzer, G., Tennant, A., Süldür, N., Sonel, B., & Arasil, T. Adaptation of the modified Barthel Index for use in physical medicine and rehabilitation in Turkey. *Scandinavian journal of rehabilitation medicine* 2000; 32(2), 87-92.
22. Levin, J. B., Peterson, P. N., Dolansky, M. A., & Boxer, R. S. (2014). Health literacy and heart failure management in patient-caregiver dyads. *Journal of Cardiac Failure* 20(10), 755-761.
23. Dadipoor S, Ramezankhani A, Alavi A, Aghamolaei T, Safari-Moradabadi A. Pregnant women's health literacy in the south of Iran. *J Family Reprod Health* 2017;11(4):211-218.
24. Aydın D, Aba YA. Relation between mothers' level of health literacy and their perception of self-sufficiency in breastfeeding. *E-journal of dokuz Eylül University Nursing Faculty* 2019;12:31-39.
25. Chen YC, Chou HL, Lo YL. Exploring the determinations of health literacy and mediating effects of empowerment in cancer patients; 30th International Nursing Research Congress: Theory-to-Practice: Catalyzing Collaborations to Connect Globally. Held 25-29 July 2019 in Calgary, Alberta, Canada, Oral Presentation.
26. Turkoglu AR, Demirci H, Coban S, et al. Evaluation of the relationship between compliance with the follow-up and treatment protocol and health literacy in bladder tumor patients. *Aging Male* 2019;22(4):266-271. doi:10.1080/13685538.2018.1447558
27. Ölmez EH, Barkan OB. Determination of health literacy levels and evaluation of patient-physician relationship. *Balkan J Soc Sci* 2015;4(8):121-127.
28. Öncü E, Vayısoğlu SK, Güven Y, Aktaş G, Ceyhan H, Karakuş E. How individuals with hypertension view chronic disease management and how their views are related to health literacy (in Turkish). *Anatol J FM* 2018;1(1):31-32. doi:10.5505/anatoljfm.2018.92486.
29. Kayser, L., Hansen-Nord, N. S., Osborne, R. H., Tjønneland, A., & Hansen, R. D. (2015). Responses and relationship dynamics of men and their spouses during active surveillance for prostate cancer: health literacy as an inquiry framework. *BMC Public Health* 15, 1-10.
30. Oscalices MIL, Okuno MFP, Lopes MCBT, Batista REA, Campanharo CRV.

- Health literacy and adherence to treatment of patients with heart failure. *Rev Esc Enferm USP* 2019;53:e03447. doi:10.1590/S1980-220X2017039803447
31. Hassan K, Heptulla RA. Glycemic control in pediatric type 1 diabetes: role of caregiver literacy. *Pediatrics* 2010;125(5):e1104-e1108. doi:10.1542/peds.2009-1486
32. Song, L., Kimberly, T., Greene, G., & Chen, R. C. (2017, March). eHealth literacy and partner involvement in treatment decision making for men with newly diagnosed localized prostate cancer. In *Oncology nursing forum* (Vol. 44, No. 2, p. 225). NIH Public Access.
33. Uğurlu Z, Akgün HS. Evaluation of health literacy in patients applying to health institutions and the appropriateness of educational materials used for health literacy. *Mersin Univ Sağlık Bilimleri Derg* 2019;12:96-106. doi:10.26559/mersinsbd.449973
34. Heijmans M, Waverijn G, Rademakers J, Van Der Vaart R, Rijken M. Functional, communicative and critical health literacy of chronic disease patients and their importance for self-management. *Patient Educ Couns* 2015;98(1):41-48. doi:10.1016/j.pec.2014.10.006
35. Rheault H, Coyer F, Jones L, Bonner A. Health literacy in indigenous people with chronic disease living in remote Australia. *BMC Health Serv Res* 2019;19(1):523. doi:10.1186/s12913-019-4335-3
36. Lakhan P, Askew D, Harris MF, Kirk C, Hayman N. Understanding health talk in an urban aboriginal and Torres Strait Islander primary healthcare service: A cross-sectional study. *Aust J Prim Health* 2017;23(4):335-341. doi:10.1071/PY16162
37. Hazer O, Ateşoğlu L. The effect of health literacy on successful aging in the elderly: Ankara province example. *Turk Klin Intern Med Nurs-Spec Top* 2017;5(2):48-56.