

Health Literacy Level of Patients with Hypertension Presenting to the Emergency Department

Acil Servise Başvuran Hipertansiyon Hastalarının Sağlık Okuryazarlık Düzeyi

ABSTRACT

Objective: This study aimed to determine the health literacy level of hypertension patients presenting to the emergency department.

Method: This descriptive study was conducted with 250 hypertension patients presenting to the emergency department of a public hospital between February and May 2024. Data were collected using a Descriptive Information Form and the Health Literacy Scale. Data were analyzed using the independent samples t-test, one-way analysis of variance (ANOVA), and the Tukey test.

Results: The patients' mean duration of hypertension diagnosis was 7.70 ± 7.03 years, and 84.8% of them were using hypertension medications regularly. The health literacy of hypertension patients was found to be at a moderate level. The mean scale score was higher, and statistically significant differences were observed between patients under 65 years of age, those who were married, had at least a high school education, lived in a city but were not employed, had a disease duration of less than 10 years, had no history of hospitalization, and those who took medications irregularly ($P < 0.05$).

Conclusion: The study determined that the health literacy level of hypertension patients presenting to the emergency department was moderate. When planning activities to improve individuals' health literacy, the characteristics identified in this research should be taken into consideration.

Keywords: Chronic disease, emergency department, health literacy, hypertension, nursing

ÖZET

Amaç: Bu çalışmada, acil servise başvuran hipertansiyon hastalarının sağlık okuryazarlık düzeyinin belirlenmesi amaçlanmıştır.

Yöntem: Tanımlayıcı tipteki çalışma, Şubat-Mayıs 2024 tarihleri arasında bir devlet hastanesinin acil servisine başvuran 250 hipertansiyon hastası ile yapılmıştır. Veriler; Tanıtıcı Bilgi Formu ve Sağlık Okuryazarlık Ölçeği kullanılarak toplanmıştır. Araştırma verilerinin analizinde bağımsız örneklem t testi, tek yönlü varyans analizi (ANOVA) ve Tukey Testi kullanılmıştır.

Bulgular: Hastaların hipertansiyon tanı yılının $7,70 \pm 7,03$ olduğu ve %84,8'inin hipertansiyon ilaçlarını düzenli kullandığı belirlenmiştir. Hipertansiyon hastalarının sağlık okuryazarlığının orta düzeyde olduğu saptanmıştır. Hastaların Sağlık Okuryazarlık Ölçeği toplam puan ortalamasının; 65 yaş altı, evli, lise ve üzeri eğitimi olan, ilde yaşayan ve çalışmayanlarda, hastalık süresi 10 yıldan kısa, hastanede yatış öyküsü olmayan ve düzensiz ilaç kullananlarda daha yüksek olduğu ve istatistiksel olarak önemli derecede farklı olduğu tespit edilmiştir ($P < 0,05$).

Sonuç: Çalışmada, acil servise başvuran hipertansiyon hastalarının sağlık okuryazarlığının orta düzeyde olduğu belirlenmiştir. Bireylerin sağlık okuryazarlık düzeyinin artırılması yönelik faaliyetler planlanırken, sağlık okuryazarlığı ile ilgili araştırmada bulunan özellikler göz önünde bulundurulmalıdır.

Anahtar Kelimeler: Kronik hastalık, acil servis, sağlık okuryazarlığı, hipertansiyon, hemşirelik

ORIGINAL ARTICLE

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Introduction

Hypertension represents a critical global public health concern due to its high prevalence and the severe complications it causes.¹ It is the most common preventable and treatable chronic disease and a leading cause of premature mortality worldwide.² Many individuals with hypertension remain undiagnosed because its symptoms are often asymptomatic or go unrecognized by patients. For this reason, hypertension is often

referred to as the "silent killer".³ Approximately 46% of individuals with hypertension are unaware of their condition, and only 42% receive both diagnosis and treatment.³ Globally, an estimated 1.28 billion individuals aged 30–79 years in underdeveloped and developing countries are affected by hypertension.³ The Health Statistics Yearbook 2022 reports that 16.1% of individuals aged 15 years and older in Türkiye have hypertension.⁴ Prevalence increases with age, reaching approximately 50% in those over 50 and 70% in those over 70.⁵ This age-related rise highlights hypertension's significance as a chronic disease and a major risk factor.⁶

The primary goal of hypertension treatment is to lower blood pressure in order to reduce the risk of cardiovascular disease and morbidity. The treatment of hypertension involves both lifestyle modifications and pharmacological therapy.^{2,7} Health literacy is a crucial determinant in the effective management of hypertension. Studies have shown that hypertensive patients with low health literacy experience more medication errors, lower treatment adherence, and a reduced quality of life.⁸⁻¹⁰ Non-compliance with medication results in inadequate blood pressure control, greater hypertension-related complications, higher treatment costs, and increased mortality.⁸

Health literacy refers to an individual's ability to locate, understand, and apply key health information needed to make appropriate healthcare decisions. Individuals with adequate health literacy are capable of reading and understanding written educational materials, communicating effectively with healthcare professionals, making informed healthcare decisions, and adjusting medication dosages as necessary. Limited health literacy is a significant risk factor for inadequate blood pressure control and negatively impacts health outcomes.¹¹ Studies have found that limited health literacy is associated with poor medication adherence, inadequate self-management, and increased hospitalizations and emergency department visits.¹²⁻¹⁴

Hypertension often remains asymptomatic until complications develop, making effective blood pressure control essential. To achieve this control, patients must access reliable sources of information and accurately understand and apply the guidance provided. These skills, collectively referred to as health literacy, are critical for effectively managing and controlling hypertension, as well as preventing cardiovascular and renal diseases.^{15,16}

A review of the literature indicates that treatment and medication adherence, self-care, self-efficacy, and quality of life have been examined in relation to hypertension and health literacy.¹⁷⁻²¹ Additional studies have explored the relationship between health literacy and emergency department utilization.²²⁻²⁴ However, no studies have assessed the health literacy levels of hypertensive patients admitted to the emergency department. Therefore, this study was conducted to assess the health literacy levels of hypertension patients admitted to the emergency department.

Methods

Study Design and Study Sample

The purpose of this descriptive study was to assess the health literacy levels of individuals diagnosed with hypertension who sought care in the emergency department in Aksaray. The study

MAIN POINTS

- Hypertension is a common chronic disease that often progresses without symptoms and can lead to serious health consequences.
- Health literacy plays a crucial role in the effective management of hypertension, treatment adherence, and the improvement of quality of life.
- This study was conducted to evaluate the health literacy levels of hypertension patients who presented to the emergency department.
- The health literacy levels of the patients were generally found to be moderate.
- Health literacy is significantly associated with factors such as age, education level, marital status, income, employment status, and place of residence.
- Nurses, by actively participating in patient education, can enhance hypertension management by improving health literacy.

population consisted of patients diagnosed with hypertension who presented to a state hospital emergency department between February and May 2024. The study included individuals aged 18 and above with hypertension who sought care at a state hospital emergency department between February and May 2024. Participants were included if they voluntarily consented, were conscious, had no communication barriers preventing questionnaire completion, had no diagnosed psychiatric disorders, and had a hypertension diagnosis of one year or more. Hypertension patients were included in the sample regardless of the reason for their admission to the emergency department. Power analysis was used to determine the sample size. In this analysis, the minimum sample size for the study was calculated as 225 people in the a priori power analysis using the GPower V3.1.9.7 program, assuming an effect size of 0.18, power (1-β) of 80%, and type I error (α) of 0.05. The sample selection was based on effect sizes from similar studies in the literature.²⁵ Taking into account missing or invalid data entries, the study was completed with 250 hypertension patients.

Measures

The data collection tool was structured in two parts. The first part contained a questionnaire aimed at gathering information on the socio-demographic profile and medical background of participants diagnosed with hypertension. The second section used the Health Literacy Scale (HLS) to assess participants' health literacy levels.

Introductory Information Form

The questionnaire, developed by the researchers based on a literature review, comprised 29 items assessing patients' socio-demographic and disease-related characteristics.^{25,26} The first section included nine items addressing socio-demographic variables (age, gender, employment status, education level, and marital status). The second section contained twenty items evaluating disease-related factors, such as the year of hypertension diagnosis, family history of hypertension, type of hypertension treatment, hypertension-related emergency department visits, frequency of blood pressure measurement, exercise status, dietary habits, and treatment adherence.

Table 1. Distributions of demographic characteristics

Characteristics	n (250)	%
Age ($\bar{X} \pm SD$)	58.04 \pm 12.89	
\leq 64 age	179	71.6
\geq 65 age	71	28.4
Gender		
Woman	126	50.4
Man	124	49.6
Marital status		
Married	204	81.6
Single	46	18.4
Education level		
Primary school	207	82.8
High school and above	43	17.2
Employment status		
Not working	61	24.4
Working	189	75.6
Economic status		
Income is less than expenses	35	14.0
Income equals expense	135	54.0
Income is more than expense	80	32.0
Living place		
Province	63	25.2
District	125	50.0
Village	62	24.8
Smoking/tobacco use status		
Never used	146	58.4
Not using now	51	20.4
Using	53	21.2

\bar{X} , Mean; SD, Standard deviation.

Health Literacy Scale (HLS)

The scale developed by Suka et al.²⁷ was used to assess the health literacy levels of adult individuals. Türkoğlu and Kılıç²⁸ conducted the Turkish validity and reliability study of the scale in 2021. The scale comprises three subscales: Functional Health Literacy, Interactive Health Literacy, and Critical Health Literacy. The Functional Health Literacy subscale, which assesses basic reading and writing abilities, consists of five items (1, 2, 3, 4, 5). The Interactive Health Literacy subscale reflects advanced literacy and social skills and consists of five items (6, 7, 8, 9, 10). The Critical Health Literacy subscale encompasses advanced cognitive and social skills that facilitate the critical appraisal of health information and informed health decision-making, consisting of four items (11, 12, 13, 14). The scale items are rated on a five-point Likert scale, ranging from one (strongly disagree) to five (strongly agree). A minimum score of 14 and a maximum score of 70 can be obtained from the scale. An increase in the total score of the scale indicates a higher level of health literacy. The Cronbach's alpha value was 0.81,²⁸ and in this current study, it was calculated as 0.93.

Data Collection Method

Data were gathered via face-to-face interviews, each averaging 15-20 minutes in duration. The questions in the data collection forms were read aloud to the participants by the researcher, and their responses were recorded accordingly. Data were collected in the emergency department's green zone after hypertensive patients received acute treatment.

Statistical Analysis

The study data were analyzed using IBM SPSS Statistics 26.0 (IBM, Armonk, NY, USA). Categorical variables were summarized using frequency distributions, while numerical variables were described with mean, standard deviation, and median. The Kolmogorov-Smirnov test ($n > 30$) assessed normality of distribution. Results indicated that total health literacy scores and sub-dimension scores met the assumption of normal distribution. Therefore, parametric tests were employed for group comparisons. Differences in scores between two independent groups were assessed using the Independent Samples t-test, while comparisons among more than two independent groups were conducted via one-way analysis of variance (ANOVA) with post hoc Tukey tests. A significance threshold of $P < 0.05$ was applied in all statistical analyses.

Ethical Principles of the Study

The study adhered to the principles of the Declaration of Helsinki. Ethical approval was obtained from Aksaray University Clinical Research Ethics Committee (Approval Number: 2023/23-28, Protocol Number: 147-SBKAEK, Date: 07.12.2023), and institutional permission (No. E-23240534-771-232992648, dated January 2, 2024) was granted by the Aksaray Provincial Health Directorate Public Hospitals Services Presidency Scientific Research Permissions Unit of a provincial health directorate public hospital services. Hypertensive patients were informed of the study's purpose and that participation was voluntary; those who consented were included. Research and publication adhered to established ethical guidelines throughout the conduct and dissemination of the study.

Results

The mean age of participants was 58.04 \pm 12.89 years. Of the patients, 50.4% were female, 81.6% were married, 42.4% were housewives, and 82.8% had completed only primary school. The majority (75.6%) of participants were unemployed. Fifty percent of participants resided in districts, and 54% reported that their income equaled their expenses (Table 1).

Table 2 indicates that the mean duration since hypertension diagnosis among participants was 7.70 \pm 7.03 years, and 49.2% had been hypertensive for less than five years. Sixty-four percent of participants had a family history of hypertension. Fifty-two point four percent of patients reported never having been hospitalized; the majority (94.4%) indicated they had received information about their condition, with 73.2% specifically citing their physician as the source. Ninety-two percent of patients were taking antihypertensive medication, and 84.8% reported adhering to their medication regimen regularly. Among hypertensive patients, 28.8% had a history of diabetes mellitus, and 10.4% had chronic obstructive pulmonary disease

Table 2. Distributions of disease-related characteristics

Characteristics	n (250)	%	Characteristics	n (250)	%
Year of hypertension diagnosis			Frequency of blood pressure measurement		
≤ 5 year	123	49.2	Every day	44	17.6
6-10 year	79	31.6	Once a week	24	9.6
≥ 11 year	48	19.2	Once every 2 weeks	4	1.6
Having a family history of hypertension			Once a month	14	5.6
Yes	160	64.0	When you feel bad	149	59.6
No	90	36.0	Other	15	6.0
History of hospitalization			Feeling that your blood pressure is increasing		
No	120	52.4	Headache	229	91.6
Once	55	21.2	Dizziness, weakness	92	36.8
More than one	75	26.4	Palpitations	50	20.0
Status of being informed about your illness			Frequent urination	18	7.2
Yes	236	94.4	Epistaxis	13	5.2
No	14	5.6	Herbal/alternative treatment method used to control blood pressure		
Person from whom information about the disease was obtained			Drinking lemon water	81	32.4
Physician	183	73.2	Swallowing garlic	38	15.2
Nurse	53	21.2	Drinking ayran	9	3.6
Patient	10	4.0	Drinking linden	4	1.6
I researched it myself	4	1.6	Belief in the effectiveness of the applied method		
Take of medication related to hypertension			Yes	99	39.6
Yes	230	92.0	No	151	60.4
No	20	8.0	Emergency department admissions due to hypertension in the last year		
Taking hypertension medications regularly			Yes	250	100
Yes	207	84.8	No	0	0
No	43	15.2	Reason for applying to emergency department		
Presence of disease in addition to hypertension			Headache	230	92.0
Diabetes mellitus	72	28.8	Chest tightness	75	30.0
Cardiovascular disease	39	15.6	ringing in the ears	20	8.0
Chronic obstructive pulmonary disease	26	10.4	Swelling in the feet and legs	8	3.2
Hyperlipidemia	20	8.0	Vision problems	5	2.0
Joint/Bone disease	14	5.6	Regular exercise status		
Gastrointestinal system disease	4	1.6	Yes	46	18.4
Thyroid	3	1.2	No	204	81.6
Regular doctor check-ups			Diet recommendation due to hypertension		
Yes	163	65.2	Yes	198	79.2
No	87	34.8	No	52	20.8
Blood pressure measurement status			The situation of following the recommended diet due to hypertension		
Yes	207	82.8	Yes	123	49.2
No	43	17.2	No	127	50.8

Table 3. Distribution of Health Literacy Scale Total Score Average and Sub-Dimension Score Averages

Scale	$\bar{X} \pm SD$	Median	Min-Max
Health Literacy Scale Total	39.17 ± 13.59	39	14-70
Functional	13.78 ± 5.98	13	5-27
Interactive	14.36 ± 5.42	15	5-25
Critical	11.02 ± 4.31	11	4-20

\bar{X} , Mean; SD, Standard deviation; Min, Minimum; Max, Maximum.

(COPD). Sixty-five point two percent of patients reported attending regular medical check-ups, and 82.8% had their blood pressure measured. Most hypertensive patients (91.6%) associated elevated blood pressure with headaches, while 36.8% experienced increases in blood pressure accompanied by dizziness and weakness. Thirty-two point four percent of participants reported drinking lemon-infused water to manage their blood pressure, whereas 60.4% did not believe in the efficacy of nonpharmacological methods. Ninety-two percent of hypertensive patients reported presenting to the emergency department with headache complaints. Eighty-one point six percent of patients did not exercise regularly, and 50.8% did not adhere to the recommended diet (Table 2).

The mean total score on the Health Literacy Scale was 39.17 ± 13.59, with sub-dimension means of 13.78 ± 5.98 for the functional domain, 14.36 ± 5.42 for the interactive domain, and 11.02 ± 4.31 for the critical domain (Table 3).

According to Table 4, it was found that individuals who participated in the study and were under 65 years of age, married, had a high school education or higher, were unemployed, not hospitalized, not taking regular medications, had higher incomes, and lived in urban areas had higher health literacy scores, with the difference being statistically significant ($P < 0.001$) (Table 4).

When the disease-specific characteristics of hypertension patients were compared with their health literacy levels, a statistically significant difference was found between the year of hypertension diagnosis and the total score on the Health Literacy Scale. Specifically, as the year of hypertension diagnosis increased, the mean health literacy score decreased. Furthermore, the mean total score of individuals with no history of hospitalization was significantly higher than that of those with a history of hospitalization ($P < 0.05$). The mean total score of patients using irregular medications for hypertension treatment was significantly higher than that of those using regular medications ($P < 0.05$) (Table 5).

Discussion

Hypertension, whose incidence is rising daily, is a common chronic disease among cardiovascular conditions.^{3,7} The quality of life of hypertensive patients is influenced by factors such as health literacy and self-management effectiveness.¹⁰ Patients require adequate health literacy to adopt lifestyle changes, adhere to regular medication and exercise routines, and establish these behaviors as habits.^{9,26} This study investigated the health literacy level of hypertensive patients admitted to the emergency department of a state hospital.

In the current study, the total mean Health Literacy Scale (HLS) score was found to be 39.17 ± 13.59, indicating a moderate level of health literacy among participants. Esen's study on hypertensive individuals also reported a moderate level of health literacy, but the mean scores in that study were higher than those in our study.²⁹ Other studies have also shown that health literacy in hypertensive patients is generally moderate, and that increased health literacy positively impacts treatment adherence and self-care behaviors.^{6,26} Conversely, some studies have identified limited or inadequate health literacy levels in individuals with hypertension, and it has been suggested that this may be associated with increased rates of uncontrolled blood pressure.¹⁶ Similarities and differences between studies are thought to stem from variations in the sample groups' sociodemographic characteristics, such as age, education level, income, and access to healthcare services.

In the present study, hypertensive patients aged 65 and older had a lower mean total HLS score compared to patients aged 64 and younger. A study by Kwon et al.³⁰ reported that health literacy scores decreased with increasing age. Similarly, a study conducted in Iran showed that health literacy levels decreased with age.³¹ Öncü et al.¹⁶ found lower health literacy levels in elderly hypertensive patients. Karataş et al.⁶ also observed lower health literacy in individuals aged 71 and older. Age-related declines in physical and cognitive abilities can make reading, understanding, and accessing information more difficult. Consequently, a decline in health literacy levels is anticipated.

A statistically significant relationship was observed between patients' income and total and functional Health Literacy Scale scores. Patients whose income exceeded their expenses had significantly higher mean HLS scores than those whose income was equal to or less than their expenses. Similarly, Li and Guo's study³² found a positive association between income and health literacy. A cohort study in China also reported a significant impact of socioeconomic status on health literacy.³³ Darvishpour et al.³⁴ similarly reported that health literacy levels increased with higher incomes. This relationship may reflect greater access to technology and healthcare services as income increases.

Married patients had higher mean HLS scores than single patients in this study. Sohrabi et al.³⁵ found that single patients had lower health literacy levels. Erdoğan Yüce and Muz's study³⁶ of individuals with chronic illnesses found lower health literacy levels in married individuals. In a study conducted by Kwon et al.,³⁰ the effect of marital status on health literacy varies according to the age factor. These discrepancies may arise from spousal influences or differences in the study populations.

Table 4. Distribution of Health Literacy Scale Total Score Average and Sub-Dimension Score Averages

Characteristics	n	Health Literacy Scale			
		Total $\bar{X} \pm SD$	Functional $\bar{X} \pm SD$	Interactive $\bar{X} \pm SD$	Critical $\bar{X} \pm SD$
Age					
≤ 64 age	179	42.68 ± 12.38	15.32 ± 5.56	15.37 ± 4.91	11.98 ± 4.14
≥ 65 age	71	30.32 ± 12.50	9.90 ± 5.21	11.83 ± 5.84	8.59 ± 3.77
t:p		7.098: 0.001*	7.078: 0.001*	4.861: 0.001*	5.984: 0.001*
Marital status					
Married	204	40.73 ± 11.90	14.47 ± 5.48	14.84 ± 4.82	11.40 ± 3.96
Single	46	32.28 ± 17.98	10.73 ± 7.11	12.23 ± 7.25	9.30 ± 5.31
t:p		3.915: 0.001*	3.936: 0.001*	2.991: 0.003*	3.034: 0.003*
Education level					
Primary school	207	36.59 ± 12.74	12.84 ± 5.70	13.54 ± 5.19	10.20 ± 4.03
High school and above	43	51.58 ± 10.44	18.32 ± 5.19	18.32 ± 4.80	14.93 ± 3.39
t:p		7.219: 0.001*	5.814: 0.001*	5.560: 0.001*	7.160: 0.001*
Employment status					
Not working	61	49.54 ± 10.96	17.54 ± 5.16	17.75 ± 4.67	14.24 ± 3.90
Working	189	35.83 ± 12.66	12.57 ± 5.73	13.27 ± 5.20	9.97 ± 3.91
t:p		7.586: 0.001*	6.020: 0.001*	5.981: 0.001*	7.407: 0.001*
Occupation					
Housewife	106	33.47 ± 13.13	11.09 ± 5.80	12.50 ± 5.22	9.88 ± 4.32
Retired	85	36.26 ± 12.48	12.35 ± 5.86	13.81 ± 5.20	10.11 ± 3.85
Worker/officer	59	50.24 ± 11.75	17.20 ± 5.74	18.14 ± 4.82	14.90 ± 3.73
F:p		31.565: 0.001*	19.765: 0.001*	21.455: 0.001*	28.914: 0.001*
Income					
Low	35	37.08 ± 13.51	12.06 ± 5.77	13.51 ± 5.44	11.51 ± 4.86
Middle	135	35.56 ± 14.14	11.44 ± 6.24	13.49 ± 5.73	10.63 ± 4.45
Good	80	40.72 ± 14.18	14.76 ± 6.02	14.98 ± 5.27	10.99 ± 4.39
F;p		3.301: 0.038*	7.497: 0.001*	1.979:0.140	0.679:0.508
Living place					
Province	63	46.79 ± 12.53	16.92 ± 5.28	16.96 ± 4.81	12.90 ± 4.01
District	125	36.71 ± 12.99	13.01 ± 5.74	13.48 ± 5.39	10.20 ± 4.14
Village	62	36.40 ± 13.08	12.16 ± 6.04	13.50 ± 5.31	10.74 ± 4.42
F;p		14.687: 0.001*	13.133: 0.001*	10.391: 0.001*	8.883: 0.004*

*P < 0.05; \bar{X} , Mean; SD, Standard deviation; t, Independent Sample T Test; F, One-Way Analysis of Variance (ANOVA); Difference, Tukey Test, P, Significance level.

Hypertensive patients with at least a high school education had higher mean total and sub-dimension HLS scores compared to those with only a primary school education. A literature review shows that higher education correlates with higher mean HLS scores.³⁷ Karataş et al.⁶ found that hypertensive patients with a university degree had higher health literacy than those with lower education levels. Our findings align with these results. Higher education may enhance health literacy by improving individuals' ability to understand health information, apply it in daily life, and develop disease self-efficacy.

In this current study, the total and subscale mean health literacy scale scores of unemployed hypertensive patients were found to be statistically significantly higher than those of employed

patients. A limited number of studies on this subject can be found in the literature, and there are differences in the research results. A study conducted in Denmark reported that unemployed individuals had lower health literacy levels compared to employed individuals.³⁸ In another study conducted with migrant workers in Thailand, employment status was associated with lower health literacy levels and hypertension prevalence.³⁹ It is thought that this may be related to the fact that unemployed individuals have more free time and are more likely to watch health-related television programs and follow healthcare professionals who share up-to-date health-related information on social media.

This study found that the average health literacy score of hypertensive patients living in the province was significantly higher

Table 5. Comparison of disease-specific characteristics and HLS total scores

Characteristics	n	Health Literacy Scale			
		Total X̄ ± SD	Functional X̄ ± SD	Interactive X̄ ± SD	Critical X̄ ± SD
Year of hypertension diagnosis					
≤ 5 year	123	43.60 ± 12.70	15.56 ± 5.00	15.67 ± 5.00	12.36 ± 4.16
6-10 year	79	33.91 ± 13.23	11.22 ± 5.67	12.72 ± 5.53	9.96 ± 4.18
≥ 11 year	48	28.35 ± 12.45	7.81 ± 4.23	11.70 ± 5.64	8.83 ± 4.74
F:p		29.226: 0.001*	38.091: 0.001*	12.913: 0.001*	14.658: 0.001*
Family history of HT					
Yes	160	38.01 ± 14.36	12.99 ± 6.49	13.88 ± 5.52	11.14 ± 4.76
No	90	36.97 ± 14.08	12.19 ± 5.98	14.17 ± 5.62	10.60 ± 4.10
t:p		0.561:0.575	0.974:0.331	0.406:0.685	0.912:0.362
History of hospitalization					
No	120	41.15 ± 14.28	14.58 ± 6.31	15.30 ± 5.43	11.27 ± 4.55
Once	55	37.81 ± 12.70	12.47 ± 5.52	13.89 ± 5.21	11.45 ± 4.45
More than one	75	31.80 ± 13.36	9.88 ± 5.77	11.93 ± 65.40	9.98 ± 4.40
F:p		10.806: 0.001*	14.285: 0.001*	9.049:0.000	2.384:0.094
Taking hypertension medications regularly					
Yes	207	36.95 ± 14.21	12.47 ± 6.32	13.78 ± 5.58	10.69 ± 4.46
No	43	40.64 ± 14.05	13.66 ± 6.15	14.97 ± 5.39	12.00 ± 4.67
t:p		10.806: 0.001*	14.285: 0.001*	9.049: 0.001*	2.384: 0.001*

*P < 0.05; X̄, Mean; SD, Standard deviation; t, Independent Sample T Test; F, One-Way Analysis of Variance (ANOVA); Difference, Tukey Test; P, Significance level.

than that of patients living in districts and villages. This result is similar to other studies in the literature. A study by Gutierrez et al.⁴⁰ found that hypertensive patients living in rural areas had lower health literacy levels. Çelik and Kuçlu's study⁴¹ reported that the health literacy of individuals living in rural areas was lower than that of those living in urban areas. A study conducted in South Korea found that the health literacy levels of hypertensive patients did not differ depending on their location.⁴² However, it was reported that elderly individuals living in urban areas had higher self-management behaviors. This difference is thought to be due to factors such as education, geographic location, cultural differences, and the accessibility of healthcare services in the region.

In this current study, when health literacy scores were compared with gender in hypertensive patients, no significant difference was found between male and female hypertensive patients. Similar to our study, there are studies in the literature indicating no statistically significant difference between gender and health literacy levels.⁴³ A study by Yu et al.⁴⁴ also found no significant effect of gender on health literacy. These findings suggest that gender alone is not a determining factor in health literacy levels in hypertensive patients. Rather, sociodemographic characteristics (education, income, age, etc.) and social environment are influential.

In this study, when the duration of diagnosis and health literacy levels in hypertension patients were compared, it was found that as the duration of disease increased, the health literacy of the patients decreased. A review of the literature reveals studies that parallel our study. A study by Nutbeam and Muscat indicated that an increase in the duration of diagnosis resulted in a decrease in health literacy scores.⁴⁵ A systematic review indicated that a long

duration of disease in chronic diseases (diabetes, hypertension, etc.) hinders adherence to treatment and negatively impacts health literacy.⁴⁶ Similarly, a survey conducted in the United States indicated that a long duration of diagnosis negatively impacts health literacy.⁴⁷ A long duration of diagnosis may lead to burnout, decreased motivation, and a lack of time to seek up-to-date information. This is predicted to result in a decrease in individuals' health literacy levels. Our findings are consistent with the literature and suggest that supportive programs should be developed to increase individuals' health literacy as the duration of disease increases.

This study showed that the total mean health literacy scale score of hypertension patients without a history of hospitalization was significantly higher than that of individuals with a history of hospitalization. Similar results are found in the literature. A study by Villar et al.⁴⁷ found a positive relationship between health literacy and self-monitoring behaviors in hypertension patients. It was noted that individuals with high health literacy can manage their illness without complications.⁴⁷ This could be explained by the fact that individuals who are not hospitalized may have lower anxiety and stress levels and are more successful in disease management by effectively using health information. However, contrary to this finding, there are also studies in the literature indicating that health literacy levels are low in individuals without a history of hospitalization. A study by Darabi et al.⁴⁶ indicated that individuals with lower education levels and limited access to information have lower disease awareness and, therefore, lower health literacy levels. The differences in the findings suggest that health literacy is associated with multiple factors in addition to a

history of hospitalization, such as education level, socioeconomic status, access to information, and chronic disease experience.

This study showed that hypertension patients who used medication irregularly had significantly higher health literacy levels than those who used medication regularly. Several studies support this finding in the literature. A study by Kırac and Öztürk⁴⁸ found that individuals who regularly used medication had lower health literacy levels than those who did not. A study conducted in the United States also found that individuals with low health literacy had higher medication adherence.⁴⁹ Conversely, the literature also contains findings indicating that limited health literacy negatively impacted medication adherence in hypertension patients. Karataş's study found a significant relationship between health literacy and self-efficacy, demonstrating that medication use habits are influenced by health literacy levels.⁶ This finding in our study suggests that patients' regular medication use is not always associated with health literacy, while individuals with low health literacy levels take their medications regularly. This suggests that various factors may be associated with regular medication use. It is anticipated that factors such as individuals' cultural characteristics, healthcare professional guidance, social support levels, and access to healthcare services may also contribute to this difference. In conclusion, this study demonstrates that while health literacy is an important factor in hypertension management, regular medication use is not always consistent with high health literacy. Therefore, healthcare professionals should not focus solely on individual medication use; they should provide training and counseling to improve patients' ability to understand, interpret, and apply health information.

Limitations of the Study

The limitations of the study include the fact that it was conducted with patients who presented to the emergency department of a state hospital, and responses were obtained while patients were in the emergency care setting.

Conclusion

The health literacy of hypertensive patients in this study was found to be at a moderate level. The study findings suggest that studies should be conducted to increase health literacy in the elderly, those with lower education and income levels, those diagnosed less than 10 years ago, those without a history of hospitalization, and those not taking regular medications. Education is vital for empowering individuals with hypertension to manage their condition and maintain a healthy, high-quality life. Health literacy plays a crucial role in preventing hypertension risk factors and complications, ensuring medication adherence, and facilitating disease self-management. Nurses, who are in direct communication with patients, play a crucial role in identifying patients' educational needs and are recommended to plan and implement systematic education and counseling services for individuals with low or inadequate health literacy. To this end, patient education and counseling programs can be planned, and strategies can be implemented to increase treatment adherence using written and digital information tools. Furthermore, informing patients about regular medication use, disease management, and regular follow-up procedures can increase health literacy.

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