



Evaluation of Health Literacy and Health Perception in Individuals with Chronic Diseases

Kronik Hastalığı Olan Bireylerde Sağlık Okuryazarlık ve Sağlık Algısının Değerlendirilmesi

Hilal Kale Aktas¹, Recep Aktas¹, Okcan Basat²

¹Gediz District Health Directorate, Kutahya; ²Department of Family Medicine, Gaziosmanpaşa Training and Research Hospital, University of Health Sciences, Istanbul, Türkiye

ABSTRACT

Aim: Health literacy is essential for treatment adherence and significantly affects disease management. This study aims to assess the health literacy and perception levels of individuals with chronic diseases.

Material and Method: The study was a single-centered cross-sectional study. The study population included patients who applied to the Family Medicine Outpatient Clinic in The Training and Research Hospital. The study analyzed data from 360 patients, examining their socio-demographic information and health status using a questionnaire. The questionnaire was prepared using a face-to-face method. The participants' health literacy levels were assessed using a health literacy questionnaire, and their health perceptions were determined using a health perception questionnaire.

Results: Out of the 360 participants in the study, 56.9% were women. The mean health perception score was 47.13±15.47, and the mean health literacy score was 102.19±15.98. A positive correlation was found between individuals' health literacy levels and their level of care for their health. The study observed that individuals with high health literacy did not struggle to access and comprehend medical information. They could use health services promptly and effectively ($p1<0.001$, $p2:0.005$; respectively).

Conclusion: Research has demonstrated a positive and significant correlation between health literacy and understanding of health information among individuals who manage their health. The level of health literacy is determined by factors such as age, income level, and educational status.

Keywords: health literacy; chronic disease; family practice

ÖZET

Amaç: Sağlık okuryazarlığı, tedaviye uyumda önemli bir unsurdur ve hastalık yönetimi sürecini önemli ölçüde etkilemektedir. Bu çalışma, kronik hastalığı olan bireylerin sağlık okuryazarlığı ve algı düzeylerini değerlendirmeyi amaçlamaktadır.

Materyal ve Metot: Çalışma tek merkezli kesitsel bir çalışmadır. Çalışmanın evrenini Eğitim ve Araştırma Hastanesi Aile Hekimliği Polikliniğine başvuran hastalar oluşturmuştur. Çalışmada 360 hastadan elde edilen veriler analiz edilmiş, sosyo-demografik bilgileri ve sağlık durumları bir anket kullanılarak incelenmiştir. Anket yüz yüze görüşme yöntemi kullanılarak hazırlanmıştır. Katılımcıların sağlık okuryazarlığı düzeyleri sağlık okuryazarlığı anketi ile değerlendirilmiş ve sağlık algıları sağlık algısı anketi ile belirlenmiştir.

Bulgular: Çalışmaya katılan 360 kişinin %56,9'u kadındır. Ortalama sağlık algısı puanı 47,13±15,47'dir ve ortalama sağlık okuryazarlığı puanı 102,19±15,98'dir. Bireylerin sağlık okuryazarlığı düzeyleri ile sağlıklarını önemseme düzeyleri arasında pozitif bir ilişki bulunmuştur. Çalışmada sağlık okuryazarlığı yüksek olan bireylerin tıbbi bilgiye ulaşma ve anlama konusunda zorluk yaşamadıkları, sağlık hizmetlerini zamanında ve etkili bir şekilde kullanabildikleri saptanmıştır (sırasıyla $p1<0,001$, $p2:0,005$).

Sonuç: Bu araştırma, kendi sağlıklarını yöneten bireylerin sağlık okuryazarlığı düzeyi ile sağlık bilgilerinin anlama düzeyi arasında pozitif ve anlamlı bir ilişki olduğunu ortaya koymuştur. Sağlık okuryazarlığı düzeyi yaş, gelir düzeyi ve eğitim durumu gibi faktörler tarafından belirlenmektedir.

Anahtar kelimeler: sağlık okuryazarlığı; kronik hastalık; aile hekimliği

İletişim/Contact: Hilal Kale Aktas, Gediz Provincial Health Directorate, Family Medicine Department, Kutahya, Türkiye • **Tel:** 0505 605 45 45 • **E-mail:** dr.hilalkale@gmail.com • **Geliş/Received:** 30.01.2023 • **Kabul/Accepted:** 15.03.2024

ORCID: Hilal Kale Aktas: 0000-0001-9812-8376 • Recep Aktas: 0000-0002-5576-6623 • Okcan Başat: 0000-0002-5222-9136

Introduction

Chronic illnesses stand as a prevalent cause of global mortality and morbidity, placing substantial strain on healthcare systems and public budgets^{1,2}. Health literacy is vital to mitigating this burden, a key determinant in accessing healthcare services and fostering a healthy lifestyle. Its impact extends beyond individual well-being, influencing social productivity and contributing to the reduction of mortality and morbidity, consequently alleviating healthcare costs³⁻⁵.

Health perception encapsulates individuals' well-being assessments, shaped by beliefs, attitudes, education, emotions, and environmental factors⁶⁻⁸. Integral to this is perceived health perception, the beliefs, attitudes, and actions individuals adopt to maintain their health⁹. Recognizing its fundamental role in overall health and well-being, sustaining healthy behaviors becomes paramount over time¹⁰.

This study aims to explore the interplay between health literacy and the health perception of individuals grappling with chronic diseases.

Materials and Methods

This study was conducted between December 1, 2020, and February 1, 2021, at the Family Medicine Outpatient Clinic in The Training and Research Hospital. The study comprised 360 patients with chronic illnesses. Patients were provided with detailed information about the survey's objectives. After obtaining patients' consent, their health status was assessed through face-to-face interviews using a socio-demographic form designed by the researchers. The participants were administered the Health Literacy Scale and Health Perception Scale, and the results were recorded. The study was approved by the Clinical Research Ethics Committee of the Istanbul Gaziosmanpasa Training and Research Hospital under the Ministry of Health on 23.09.2020 (No. 159).

We utilized the simple random sampling method to determine the sample size for our study population. The study population encompassed 4800 individuals aged 18 and above, all of whom had applied to the Family Medicine Outpatient Clinic in the Training and Research Hospital for one year. To guarantee the representativeness of our sample, we used key parameters: $q=0.5$, $d=0.05$, and $p=0.5$. Based on these considerations, we established that a minimum of 358 individuals with chronic diseases should be included

in our study. This meticulous approach ensures statistical reliability and strengthens the study's capacity to yield meaningful insights representative of the broader population.

The scales utilized in this study were developed based on the research conducted by Aras et al.¹¹ on the validity and reliability of the Turkish version of the Health Literacy Scale and by Kadioğlu et al.¹² on the validity and reliability of the Turkish version of the Health Perception Scale.

The Health Perception Scale is a five-point Likert-type scale developed by Diamond et al.¹³ The scale comprises 15 items and four sub-factors, namely 'center of control', 'self-awareness', 'certainty', and 'importance of health'. The scale includes six items with a positive attitude (1st, 5th, 9th, 10th, 11th, and 14th) and nine items with negative statements (2nd, 3rd, 4th, 6th, 7th, 8th, 12th, 13th, and 15th). 'strongly agree' is assigned a score of 5, 'agree' is assigned a score of 4, 'undecided' is assigned a score of 3, 'disagree' is assigned a score of 2, and 'strongly disagree' is assigned a score of 1. Negative statements are scored in reverse. The scoring system for statements is as follows: The scale ranges from a minimum score of 15 to a maximum score of 75.

The Health Literacy Scale is a 25-item Likert-type scale that was developed by Toci et al.¹⁴ It consists of four subscales: 'Access to Information' (items 1-5), 'Understanding Information' (items 6-12), 'Appraising/Evaluating' (items 13-20), and 'Applying/Using' (items 21-25). The minimum score for the entire scale is 25, and the maximum score is 125. The scale items are answered by the participants on a Likert scale as 5:I have no difficulty at all, 4:I have little difficulty, 3:I have some difficulty, 2:I have a lot of difficulty, 1:I am unable to do it / I have no ability / impossible". The scale contains only positive items, and there are no reverse items. Low scores indicate inadequate, problematic, and weak health literacy status, while high scores indicate adequate and very good status. As the score increases, the individual's health literacy level also increases.

Licensed Statistical Package for Social Sciences SPSS for Windows, program version 22.0 (IBM, Türkiye), was used for statistical analysis. Shapiro-Wilk's test assessed whether parameters were suitable for normal distribution. Descriptive statistical methods were used, such as mean, standard deviation, and

frequency. The One-way ANOVA test was used to compare parameters that showed a normal distribution between more than two groups, and the Tukey HSD test was used to determine the group responsible for the difference.

The Kruskal-Wallis test and Dunn's test were used to determine the group responsible for the differences in the parameters that did not exhibit normal distribution among more than two groups. The Student t-test was used for comparisons between two groups for the parameters exhibiting normal distribution, and the Mann-Whitney U test was used for comparisons between two groups for the parameters not exhibiting normal distribution. Pearson's correlation analysis was used to examine the relationships between the parameters that were normally distributed, while Spearman's rho correlation analysis was used for those that were not. The Chi-Square test was used to compare qualitative data, and $p < 0.05$ was considered statistically significant.

Results

Participants ranged from 27 to 83, with a mean age of 52.05 ± 11.62 . Among attendees, 56.9% were women, and 69.2% were married. Moreover, 72.8% of participants held high school or university degrees. Detailed socio-demographic data are presented in Table 1.

It has been observed that as participants age, they place greater importance on their health. There is a significant correlation between age and health ($p < 0.05$). A negative correlation of 19.3% was observed between increasing participant age and their understanding of medical knowledge ($p < 0.01$). A negative correlation of 13.3% ($p < 0.05$) was noted between the participants' age and health literacy level.

A noteworthy observation is the low correlation between effective healthcare service utilization and understanding medical knowledge among individuals older than 65 ($p < 0.05$). Details of the age-related correlations are summarized in Table 2.

Examining the influence of education on health literacy, individuals with university degrees exhibited significantly higher health literacy levels than those with secondary or high school education ($p_1 < 0.01$, $p_2 < 0.01$, respectively).

Individuals with higher incomes place greater importance on their health and utilize healthcare facilities more effectively than those with lower incomes

Table 1. Socio-demographic data of participants

		Min-Max	Mean \pm SD
Age		27-83	52.05 ± 11.62
		n	%
Age group	45 and younger	118	32.8
	46-54 age	90	25
	55-64 age	94	26.1
	65 and older	58	16.1
Gender	Female	205	56.9
	Male	155	43.1
Marital status	Married	249	69.2
	Unmarried	111	30.8
Education status	Illiterate	12	3.3
	Elementary	63	17.5
	Middle school	23	6.4
	High School	91	25.3
Work experience	University	171	47.5
	1-3 years	86	23.9
	3-5 years	38	10.6
	5-10 years	63	17.5
Income status	10 years and over	173	48.1
	Low income	56	15.6
	Middle income	77	21.4
	High income	227	63.1

Table 2. Evaluation of the correlation between age and sub-dimensions of the scale

		Age	
		r	p
Health Perception Scale	Control center	0.145	0.006
	Precision	0.114	0.030
	Importance of health	0.089	0.092
	Self-awareness	0.042	0.431
	Total	0.206	0.000
Health Literacy Scale	Access to information	-0.021	0.691
	Understanding information	-0.193	0.000
	Appraisal/Evaluation	-0.127	0.016
	Apply/use	-0.072	0.173
	Total	-0.133	0.011

($p_1 < 0.01$, $p_2 < 0.01$, respectively). Moreover, individuals with higher incomes have greater access to medical knowledge and a better understanding of it than those with lower incomes, with statistically significant differences ($p_1 < 0.01$, $p_2 < 0.01$, respectively). The health literacy level of high-income groups is significantly higher than that of low-income groups ($p < 0.01$). Table 3 presents the correlation between participants' income levels and the scales.

Research findings underscore that individuals possessing high levels of health literacy display adeptness in quickly accessing medical knowledge, interpreting medical information, utilizing health services

Table 3. Evaluation of sub-dimensions of scale among income levels

		Income			p
		Low	Normal	High	
		Avg±SD	Avg±SD	Avg±SD	
Health perception scale	Control center	12.61±4.12	13.94±3.75	12.85±3.16	0.036
	Precision	11.93±3.36	12.79±2.93	11.74±3.17	0.040
	Importance of health	11.21±1.95	10.75±2.08	11.04±2	0.391
	Self-awareness	11.25±1.99	11.19±1.93	11.01±1.86	0.592
	Total	47±6.65	48.68±4.95	46.64±5.25	0.018
Health literacy scale (median)	Access to information	21.04±3.73 (22)	18.99±4.45 (20)	21.44±3.2 (22)	0.000
	Understanding information	29.54±4.46 (30)	24.68±6.72 (25)	29.52±4.36 (31)	0.000
	Appraisal/Evaluation	33.11±5.16 (33)	29.52±7.59 (31)	33.5±5.12 (34)	0.000
	Apply/use	21.07±3.08 (21.5)	18.51±4.6 (20)	20.67±3.28 (21)	0.001
	Total	104.75±13.53 (108)	91.69±21.24 (96)	105.12±12.7 (108)	0.000

Table 4. Evaluation of the correlation between the health perception scale and health literacy scale sub-dimensions

Health Literacy Scale		Health Perception Scale				
		Control center	Precision	Importance of health	Self-awareness	Total
Access to information	r	-0.239	-0.329	0.146	0.203	-0.219
	p	0.000	0.000	0.005	0.000	0.000
Understanding information	r	-0.269	-0.344	0.132	0.139	-0.274
	p	0.000	0.000	0.012	0.008	0.000
Appraisal/Evaluation	r	-0.284	-0.378	0.174	0.225	-0.258
	p	0.000	0.000	0.001	0.000	0.000
Apply/Use	r	-0.220	-0.404	0.275	0.186	-0.209
	p	0.000	0.000	0.000	0.000	0.000
Total	r	-0.302	-0.425	0.206	0.220	-0.287
	p	0.000	0.000	0.000	0.000	0.000

effectively, prioritizing their health, and maintaining realistic perceptions of their health ($p_1 < 0.01$, $p_2 < 0.01$, $p_3 < 0.05$, $p_4 < 0.01$, respectively).

It has been determined that individuals with low health literacy face challenges in accessing and comprehending medical information ($p_1 < 0.01$, $p_2 < 0.01$, respectively). Table 4 provides the correlation between the scales.

Discussion

The study identified a significant negative correlation between increasing age and health literacy, corroborating findings that individuals over 65 exhibit a lower understanding of medical knowledge. Intriguingly, this age group maintained positive thoughts about their health conditions despite lower health literacy. Addressing the unique health literacy needs of older individuals is crucial for promoting informed decision-making and self-management of chronic illnesses.

The socio-economic structure is an important factor in accessing knowledge about health literacy. Among participants aged 65–70, the health literacy levels of low-income individuals were 1.95 times lower than those of low-income owners. Similarly, it has been shown that low-income individuals benefit less from healthcare services and have a lower understanding of medical knowledge¹⁵.

In their cohort study, Kobayashi et al.¹⁶ found that internet access was significantly associated with increased health literacy, particularly among those with higher socio-economic status. The study also revealed that 15.6% of participants had low income, while 63.1% had high income. Interestingly, individuals with normal income reported lower perceptions of their general health than those with high income. It has been demonstrated that individuals with lower socio-economic status have lower health literacy levels than those with higher socio-economic status. Therefore, it is likely that those who are at risk of social inequalities will have lower health literacy levels.

Schaeffer et al.¹⁷ used the Health Literacy Scale European Union Questionnaire (HLS-EU-Q) with 2000 participants. They found that 66% had advanced education levels. The study also revealed that higher education students had significantly higher health literacy. Protheroe et al.¹⁸ used the Newest Vital Sign with 972 participants and found that 28.5% had low health literacy levels. It is important to note that individuals with lower levels of education may face more significant challenges in accessing accurate health information. Our study found that 3.3% of participants were illiterate, 25.3% had completed high school, and 47.5% had completed university. Notably, university graduates demonstrated a significantly higher level of health literacy than the other groups. Additionally, a positive correlation was observed between education level and health literacy. Medical information sources and access methods are well-known with the rise in education levels.

The role of health perception in managing chronic diseases is significant. Kolac¹⁹ discovered a positive correlation between education level and health perception. Similarly, Yilmaz et al.²⁰ demonstrated a positive correlation between individuals' education level and health perception. Our study found that illiterate individuals had lower general health perceptions than other groups. Individuals are more likely to engage in positive health behaviors as education levels increase. The level of education has a positive impact on people's health behaviors and perceptions. Therefore, higher education levels are expected to lead to better health perception.

It has been found that inadequate information can misinterpret health conditions. It is predicted that an increase in literacy levels will lead to more realistic assessments of one's health.

This study investigates the intricate relationship between health literacy and the perceptual dynamics among individuals grappling with chronic illnesses. The findings underscore that advancing age, lower educational attainments, and diminished income levels are restrictive factors for this demographic. A positive correlation emerges, demonstrating that heightened educational levels correspond to an augmented health perception.

A pivotal conclusion drawn from this exploration is the imperative role of enhancing health literacy to foster improved compliance with treatment regimens and facilitate informed management of chronic conditions. This research substantiates the proactive engagement of individuals with chronic diseases in seeking and leveraging reliable information about their health.

Furthermore, recognizing the unique challenges faced by individuals with chronic illnesses, particularly during their interactions at family medicine outpatient clinics, is paramount. Allocating additional time for patients to articulate their concerns and extending tailored support, especially to those with low health literacy, becomes a crucial aspect of holistic healthcare provision. The directional focus towards precise and credible resources, coupled with the provision of written and visual aids, emerges as an effective strategy to augment patient understanding.

The research was conducted at the family medicine outpatient clinic of a training and research hospital. The suggestion is that conducting similar studies in multiple centers would provide a more comprehensive understanding of the relationship between health literacy and the perception of individuals with chronic illnesses.

In summary, the study emphasizes the importance of addressing health literacy to improve the perception, compliance, and overall health management of individuals with chronic illnesses, with specific attention to demographic factors and the role of education.

Ethical Approval

Ethics Committee Approval: Ethics committee approval was obtained from the Ministry of Health Istanbul Gaziosmanpasa Training and Research Hospital Clinical Research Ethics Committee; date: 23.09.2020; no: 159.

References

1. Hajat C, Stein E. The global burden of multiple chronic conditions: A narrative review. *Prev Med Rep.* 2018;12:293–284.
2. Essue BM, Laba M, Knaul F, Chu A, Minh HV, Nguyen TKP, et al. Economic burden of chronic health and injuries for households in low and middle income countries. In: Jamison DT, Gelband H, Horton S, editors. *Disease control priorities: improving health and reducing poverty.* Washington (DC): The international bank for reconstruction and development;2017: Chapter 6.
3. Bakan A, Yıldız M. 21–64 yaş grubundaki bireylerin sağlık okuryazarlık düzeylerinin belirlenmesine ilişkin bir çalışma. *Sağlık ve Toplum.* 2019;29(3):40–33.
4. Ishikawa H, Yano E. Patient health literacy and participation in the healthcare process. *Health Expect.* 2008;11(2):113–22.
5. Tokuda Y, Doba N, Butler JP, Paasche-Orlow MK. Health literacy and physical and psychological wellbeing in Japanese adults. *Patient Educ Couns.* 2009;75(3):411–7.
6. Senol V, Cetinkaya F, Unalan D, Balci E, Oztürk A. Determinants of self-rated health in general population in Kayseri, Turkey. *Türkiye Klinikleri J Med Sci.* 2010;30(1):96–88.
7. Valaitis RK, O'Mara L, Wong ST, Macdonald M, Murray N, Misener RM, et al. Strengthening primary health care through primary care and public health collaboration: the influence of intrapersonal and interpersonal factors. *Prim Health Care Res Dev.* 2018;19(4):391–378.
8. Yalnızoğlu Caka S, Topal S, Karakaya Suzan O, Cınar N, Altınkaynak S. Hemşirelik öğrencilerin sağlık algısı ile özgüvenleri arasındaki ilişki. *J Hum Rhythm.* 2017;3(4):203–198.
9. Klein Velderman M, Crone MR, Wiefferink CH, Reijneveld SA. Identification and management of psychosocial problems among toddlers by preventive child health care professionals. *Eur J Public Health.* 2010;20(3):8–332.
10. Wortman J, Lucas RE, Donnellan MB. Stability and change in the big five personality domains: evidence from a longitudinal study of Australians. *Psychol Aging.* 2012;27(4):867–74.
11. Aras Z, Temel Bayık A. Sağlık okuryazarlığı ölçeği'nin türkçe formunun geçerlik ve güvenilirliğinin değerlendirilmesi. *Florence Nightingale Hemşirelik Dergisi.* 2017;25(2):94–85.
12. Kadioğlu H, Yıldız A. Sağlık algısı ölçeği'nin türkçe çevriminin geçerlilik ve güvenilirliği. *Türkiye Klinikleri Journal of Medical Sciences.* 2012;32(1):53–47.
13. Diamond JJ, Becker JA, Arenson CA, Chambers CV, Rosenthal MP. Development of a scale to measure adults' perceptions of health: preliminary findings. *Journal of Community Psychology.* 2007;35(5):557–61.
14. Toçi E, Burazeri G, Kamberi H, Jerliu N, Sorensen K, Brand H. Socio-economic correlates of functional health literacy among patients of primary health care in Kosovo. *Public Health.* 2014;128(9):848–842.
15. Vogt D, Schaeffer D, Messer M, Berens EM, Hurrelmann K. Health literacy in old age: results of a German cross-sectional study. *Health Promot Int.* 2018;33(5):747–739.
16. Kobayashi LC, Wardle J, Von Wagner C. Internet use, social engagement and health literacy decline during ageing in a longitudinal cohort of older English adults. *J Epidemiol Community Health.* 2015;69(3):278–83.
17. Schaeffer D, Berens EM, Vogt D. Health Literacy in the German Population. *Dtsch Arztebl Int.* 2017;114(4):60–53.
18. Protheroe J, Whittle R, Bartlam B, Estacio EV, Clark L, Kurth J. Health literacy, associated lifestyle and demographic factors in adult population of an English city: a cross-sectional survey. *Health Expect.* 2017;20(1):119–112.
19. Kolac N, Balci AS, Sisman FN, Atacer BE, Dincer S. Health perception and healthy lifestyle behaviors in factory workers. *Bakırköy Tıp Dergisi.* 2018;14:267–74.
20. Yılmaz AT, Culha I, Kersu O, Gumus D, Unsal A, Kosgeroglu N. Cerrahi hastalarının sağlık algıları ve etkileyen faktörler. *J Acad Soc Sci.* 2018;68:99–89.