Araştırma Makalesi/Research Article

EXAMINING THE LEVEL OF HEALTH LITERACY OF INDIVIDUALS WITH CARDIOVASCULAR DISEASE

KARDİYOVASKÜLER HASTALIĞI OLAN BİREYLERİN SAĞLIK OKURYAZARLIĞI DÜZEYİNİN İNCELENMESİ

Sevda KORKUT[1], Songül KARADAĞ[2], Cansu YILMAZ[3], Abdurrahman OĞUZHAN[4]

¹ Erciyes University, Faculty of Health Sciences, Department of Nursing, Kayseri/Türkiye, Assist Prof.
² Cukurova University, Faculty of Health Sciences, Department of Nursing, Adana/Türkiye, Assoc. Prof.
³ Tokat Gaziosmanpaşa University, Faculty of Health Sciences, Department of Nursing, Tokat/Türkiye, Lecturer
⁴ Erciyes University, Medicine Faculty, Department of Cardiology, Kayseri/Türkiye, Prof. Dr.

Abstract
Objective: Health literacy is important for health protection, prevention of diseases, effective treatment of diseases and improvement of quality of life. This study was conducted to determine the levels of general health literacy of individuals with cardiovascular disease and the related factors.
Method: This descriptive study was conducted with 440 patients who were admitted to the cardiology clinic/polyclinic. The data of the study were collected by using Patient Identification Form and Adult Health Literacy Scale.
Results: The mean total score of the scale was found to be 12.79±3.97. The total score of the health literacy of the individuals differed in terms of gender, educational level, occupation, income status, smoking, duration of smoking, body mass index, the presence of additional chronic disease, whether or not they were on a diet and how well they had adapted to that diet. It was also found that there was a significant correlation between the total score of the health literacy scale with age, and duration of smoking (p<0.01).
Conclusion: Increasing health literacy provides many benefits such as improving health, increasing the quality of life, gaining positive health behaviors and early diagnosis of diseases. Health literacy of the participants was at a moderate level. Improving the health literacy of individuals with cardiovascular disease will positively affect their treatment process and increase their quality of life. For this reason, it is recommended to conduct the necessary trainings to increase the health literacy levels of individuals with cardiovascular disease and evaluate the effectiveness of these trainings.
Keywords: Health literacy, nursing, cardiovascular disease

Özet
Amaç: Sağlık okuryazarlığı, sağlığın korunması, hastalıkların önlenmesi, hastalıkların etkin tedavisi ve yaşam kalitesinin iyileştirilmesi için önemlidir. Bu çalışma kardiyovasküler hastalığı olan bireylerin genel sağlık okuryazarlık düzeylerini belirlemek ve ilişkili faktörleri saptamak amacıyla yapılmıştır.
Yöntem: Bu tanımlayıcı çalışma kardiyoloji kliniğine/polikliniğine başvuran 440 hasta ile gerçekleştirilmiştir. Araştırmanın verileri Hasta Tanımlama Formu ve Yetişkin Sağlık Okuryazarlığı Ölçeği kullanılarak toplanmıştır.
Bulgular: Ölçeğin toplam puan ortalaması 12.79±3.97 olarak bulunmuştur. Bireylerin sağlık okuryazarlığı toplam puanı cinsiyet, eğitim düzeyi, meslek, gelir durumu, sigara kullanımı, sigara içme süresi, beden kitle indeksi, ek kronik hastalık varlığı, diyet yapma durumu ve diyete uyum gösterme durumuna göre farklılık göstermiştir. Ayrıca sağlık okuryazarlığı ölçeği toplam puanı ile yaş ve sigara içme süresi arasında anlamlı bir ilişki olduğu bulunmuştur (p<0.01).
Sonuç: Sağlık okuryazarlığının yükseltilmesi sağlığın geliştirilmesi, yaşam kalitesinin artırılması, olumlu sağlık davranışlarının kazandırılması ve hastalıkların erken teşhis edilmesi gibi birçok yarar sağlamaktadır. Katılımcıların sağlık okuryazarlığının orta düzeyde olduğu belirlenmiştir. Kardiyoväküler hastalığı olan bireylerin sağlık okuryazarlığının geliştirilmesi bireylerin hem tedavi sürecini olumlu etkileyecek hem de yaşam kalitelerini artıracaktır. Bu nedenle kardiyovasküler hastalığı olan bireylerin sağlık okuryazarlık düzeylerinin artırılması için gerekli eğitimlerin yapılması ve bu eğitimlerin etkinliğinin değerlendirilmesi önerilmektedir.
Anahtar Kelimeler: Sağlık okuryazarlığı, hemşirelik, kardiyovasküler hastalık

INTRODUCTION

Individuals take responsibility and make various decisions regarding the prevention of diseases and the protection of health (1). These decisions significantly affect the effectiveness and quality of health care and are mostly based on the health-related knowledge and skills of individuals. This is known as health literacy in the literature (2). Health literacy was first introduced by Scott Simonds in an article entitled "Health Education and Social Policy" in 1974 (3). However, it has been widely used in the literature following the publication of an American study entitled "the National Assessment of Adult Literacy (NAAL)" in 2003. Health literacy signifies that individuals have the necessary knowledge, skills, and self-confidence level to change their lifestyle and living conditions in order to promote their own health and community health (4). Therefore, health researchers, clinicians, and legislators all continue to give great importance to this issue today (5).

Health literacy is essential both for a healthy society and a sustainable healthcare system (6). In the 21st century, the importance of health literacy and the factors affecting this situation are increasing in the management of chronic diseases that have high morbidity and mortality rates, require effective medical management and lead to an increase in health expenditures (7). Because low levels of health literacy have many negative effects on both individuals and healthcare systems, such as increasing health care costs, health-related complications, death, impaired quality of life, non-adherence to treatment, and dissatisfaction with healthcare services (8).

Cardiovascular diseases (CVD) are one of the first diseases that come to mind when chronic diseases are mentioned (9). CVDs are one of the leading causes of death throughout the world. The World Health Organization (WHO) has stated that CVDs are the leading cause of death globally, with an estimated 17.9 million people died from CVDs in 2019 (10). The 2020 report published by the European Society of Cardiology stated that more than 1.8 million people die from CVDs each year in the European Union (11). According to the Turkish Statistical Institute, 36.8% of all deaths in 2019 were caused by circulatory system diseases (12). Even though the awareness of CVD has increased and significant progress has been made in the fight against risk factors in recent years, these diseases have still appeared to be the most important cause of death in both developed and developing countries (12,13).

When the studies on health literacy were examined, it was determined that most of these studies were conducted on samples selected from the general population rather than a specific patient or disease group, or on a group with more than one chronic disease, and they were mostly descriptive studies that determined the health literacy level of the participants (14,15). Few studies for individuals with cardiovascular disease were found (16,17). In a study investigating the health literacy of cardiology patients, it was determined that approximately three out of every five patients (58.1%) had an insufficient or limited level of health literacy (16). According to this result, it is seen how important it is to evaluate health literacy and present the current situation in patients with cardiovascular disease. When the literature is examined, it has been determined that more studies are needed to evaluate the health literacy of individuals with cardiovascular disease. Therefore, this study was conducted in order to determine the general health literacy level of patients with CVD in Turkey and the related factors.

MATERIAL AND METHOD

Participants And Study Design

This study was conducted with a descriptive design. 440 patients with CVD who were admitted to the cardiology outpatient clinic or treated at the clinic of a tertiary hospital participated in this study between April 2017 and August 2018. The inclusion criteria were as follows: no verbal communication impediment, being aged over 18 years, literate, having no visual or hearing

impairment, having no impaired time and place orientation, having no psychiatric disorders, being able to understand and answer questions, and being a volunteer to participate in the study.

Data Collection Methods

The data were gathered through face-to-face interview techniques by the researchers. The Patient Identification Form and the Adult Health Literacy Scale were used to collect data for the study.

Patient Information Form: The researchers prepared this form in accordance with the literature. The form includes questions about socio-demographic characteristics (gender, age, educational status, occupation, etc.), disease-related characteristics (presence of additional chronic disease, medications, diet) and habits (smoking, alcohol consumption) (18-24).

Adult Health Literacy Scale: This scale was developed by Sezer and Kadıoğlu (2014) to specify the qualifications of individuals about health literacy and test its reliability. The scale has a total of 22 items about drug use and health information and one figure aimed for determining the names and locations of organs throughout the body. The scale includes 4 question types: yes/no questions (13), fill-in-the-blank questions (4), multiple-choice questions (4), and matching questions (2). The questions are scored separately for each type. In yes/no questions: 1 point is given to those who choose positive expressions and 0 points is given to those who choose negative expressions. In fill-in-the-blank questions, a correct answer receives 1 point and a wrong answer receives 0 points. In multiple-choice questions, two or more correct answers receive 1 point. Choosing the wrong answer or both a right answer and a wrong answer receives 0 points. In matching questions, more than two correct answers are scored as 1 and the others are scored as 0. The score on the scale ranges from 0 to 23 points. A high scale score signifies a high health literacy level (25). In Sezer and Kadıoğlu's study (2014), the Cronbach's alpha coefficient of the scale was 0.77. In the present study, the Cronbach's alpha coefficient of the scale was found to be 0.75.

Data Analysis

The study's data were analyzed using IBM SPSS Statistics 21.0 (IBM Corp, Armonk, NY). Frequency (n), percentage (%), and mean (standard deviation) values were used for descriptive statistics. Body Mass Index (BMI) was calculated by dividing participants body weight in kilograms by your height in meters squared. In the evaluation of BMI, the classification made by the WHO was taken as reference and the categorization was made as normal (18.5-24.9 kg/m^2), overweight (25-29.9 kg/m^2) and obese (30 and above kg/m^2) (26). Histograms and Q-Q graphs were used to assess whether or not the data were normally distributed. Mann-Whitney U and Kruskal Wallis used for comparison of some characteristics of individuals and Adult Health Literacy Scale scores. The correlations between the total score of the scale and some demographic and lifestyle characteristics were determined by Spearman's correlation coefficient. The value of $p<0.05$ was considered as statistically significant.

Ethical Approval

While ethical approval was obtained from the University Clinical Trials Ethics Committee (2015/445), permission was taken from the related institution. The patients were informed about the purpose of the study. Written consent from the patients who agreed to participate in the study was obtained. Throughout the study, the principles of the Declaration of Helsinki were followed.

RESULTS

The demographic characteristics of the participants are given in Table 1. The mean age of the participants was 54.62 (10.87). 54.8% of them were male, 45.9% were mildly overweight, 93.2% were married, 53.6% were primary school graduates, 41.4% were housewives, 80.2% had a middle-income level, and 41.6% lived with their partner and children (Table 1).

Table 1. Demographic characteristics of participants

Characteristics	Mean (SD)
The mean age (year)	54.62(10.87)
	n(%)
Gender	
Female	199 (45.2)
Male	241 (54.8)
BMI (kg/m2)	
Normal (18.5-24.9)	87 (19.8)
Overweight (25-29.9)	202 (45.9)
Obese (30 and ↑)	151 (34.3)
Marital status	
Married	410 (93.2)
Single	30 (6.8)
Education	
Literate	124 (28.2)
Primary education	236 (53.6)
High school	51 (11.6)
University	29 (6.6)
Occupation	
Employee	15 (3.4)
Civil servants	21 (4.8)
Retired	116 (26.3)
Housewife	182 (41.4)
Other*	106 (24.1)
Income status	
Good	54 (12.3)
Middle	353 (80.2)
Bad	33 (7.5)
People living together with	
Alone	7 (1.6)
Partner	177 (40.2)
Partner and children	183 (41.6)
Other**	73 (16.6)

* Farmer, Tailor, Painter, Student, Technician, Transporter, Contractor, Grocery Store, Driver, Press, Plasterer, Welder, Builder, Coffee Shop
** Mother, father, brother, grandchild, father-in-law, mother-in-law, nephew

The characteristics of the participants regarding the disease and lifestyle are given in Table 2. It was determined that 53.0% of the individuals suffered from additional chronic diseases other than CVD, 60.9% had diabetes mellitus, 85.9% had previous hospitalization experience, and 90.7% were using medications regularly. While 58.4% stated that they had a diet program, and only 56.0% of them followed the diet. 93.9% of the participants indicated that they had not consumed alcohol, and 47.0% stated that they had not smoked. 71.7% claimed that they smoked less than a single pack per day (Table 2).

Table 2. Characteristics of the participants regarding the disease and lifestyle

Characteristics	n(%)
Additional chronic diseases	
Yes	233 (53.0)
No	207 (47.0)
Chronic diseases*	
Diabetes mellitus	142 (60.9)
Chronic obstructive pulmonary disease	30 (12.8)
Asthma	23 (9.8)
Thyroid diseases	28 (12.0)
Rheumatoid arthritis	19 (8.1)
Kidney failure	14 (6.0)
Cancer	10 (4.2)
Other**	42 (18.0)
Previous experince of hospitalization	
Yes	378 (85.9)
No	62 (14.1)
Using medication regularly	
Yes	399 (90.7)
No	41 (9.3)
A diet program	
Yes	257 (58.4)
No	183 (41.6)
Type of the diet*	
Salt-free diet	195 (57.8)
Diabetic diet	84 (24.9)
Less cholesterol diet	52 (15.4)
Other***	6 (1.7)
Following the diet (n=257)	
Yes	144 (56.0)
No	113 (44.0)
Smoking	
Yes/Smokes	104 (23.6)
No/has never smoked	207 (47.0)
Has quitted	129 (29.4)
Duration of smoking (n=233)	
20 years and under	77 (33.0)
21-30 years	46 (19.7)
31-40 years	79 (33.9)
41 years and over	31 (13.4)
Daily smoking amount (n = 233)	
1 package and under	167 (71.7)
2 packages	58 (24.9)
3 packs and more	8 (3.4)
Alcohol consumption	
Yes	10 (2.2)
No/Never consumes	413 (93.9)
Has stopped	17 (3.9)

* More than one answer is given.
** Parkinson's, Gout, Stomach Diseases, Behçet's Disease, Hepatitis, Cirrhosis, Liver Failure, Epilepsy, Ulcerative Colitis, Serabral Vascular Disease, Ankylosis Spondylitis, Systemic Lupus Erythematosus, Bronchitis, Cystic Fibrosis, Osteoarthritis.
*** Diet low in protein, Na, K, P.

The responses to Adult Health Literacy Scale items and scale average are given in Table 3. The total mean score of the scale was 12.79±3.97. It was found that while the lowest score was 2, the highest score was 21. Most of the participants correctly identified the names of the organs (item 23) (93.2%). The vast majority of those who took part in the study had no trouble explaining their health problem to a doctor or nurse (item 18) or receiving health services (item 15), described which clinics they would go to if they got sick (item 14), followed health news (item 20), but did not read newspapers, magazines, etc. (item 21). The participants correctly answered the question related to family planning methods (item 7) at the lowest rate (6.6%) (Table 3).

Table 3. Responses to Adult Health Literacy Scale items and scale average

Scale items	Correct Answer n(%)	Wrong Answer n(%)
1.Signs of low blood pressure	300 (68.2)	140 (31.8)
2.Signs of high blood pressure	158 (35.9)	282 (64.1)
3. Regular weight check	147 (33.4)	293 (66.6)
4. Knowing whether weight according to the height is between normal values is	245 (55.7)	195 (44.3)
5.Degree of body temperature for fever in adults	138 (31.4)	302 (68.6)
6.What can be done first in a fever situation?	88 (20.0)	352 (80.0)
7.Reliable methods for prevention of pregnancy	29 (6.6)	411 (93.4)
8.If you take the first tablet of the medication that you need to take twice a day at 8 a.m., what time do you take the second?	260 (59.1)	180 (40.9)
9.If you take the first dose of the medication that you have to take every two days on Tuesday, on which day will you take your second dose?	335 (76.1)	105 (23.9)
10.When do you take a medicine that you have to take on an empty stomach?	193 (43.9)	247 (56.1)
11.If you feel burning, swelling, or indigestion in your stomach after a meal, which clinics can you consult?	296 (67.3)	144 (32.7)
12.If you feel burning and pain while urinating, which clinics can you consult?	273 (62.0)	167 (38.0)
13.Time for screening tests	172 (39.1)	268 (60.9)
14.Matching various clinics with diseases	378 (85.9)	62 (14.1)
15.Do you know what your patient rights are when you receive health services?	310 (70.5)	130 (29.5)
16. Do you have trouble consulting with a health institution or obtaining services for your health problems?	344 (78.2)	96 (21.8)
17.Do you know how to make an appointment at the hospital?	307 (69.8)	133 (30.2)
18.Do you have difficulty expressing your health problems to the doctor/nurse?	338 (76.8)	102 (23.2)
19. Can you ask the nurse about your health condition easily?	342 (77.7)	98 (22.3)
20.Can you follow the news about health?	305 (69.3)	135 (30.7)
21.Do you read health-related newspapers/magazines etc.?	88 (20.0)	352 (80.0)
22.Do you have difficulty reading and understanding health-related brochures?	175 (39.8)	265 (60.2)
23.Names of organs	410 (93.2)	30 (6.8)
	Mean (SD)	**Min-Max**
The Average Total Score of the Scale	12.79 (3.97)	2.0-21.0

The comparison of some characteristics of individuals and Adult Health Literacy Scale scores are given in Table 4. The total score of the health literacy of the individuals differed in terms of gender, educational level, occupation, income status, smoking, duration of smoking, BMI, the presence of additional chronic diseases, whether or not they were on a diet, and how well they had adapted to that diet. These results revealed that those who were male, had no additional chronic diseases, followed their diet, had university degrees, were civil servants, and had normal BMI, had higher scale scores (Table 4).

Table 4. Comparison of some characteristics of individuals and Adult Health Literacy Scale scores

Characteristics	Mean (SD)	p
Gender		
Female	12.03 (4.16)	**<0.001***
Male	13.42 (3.70)	
Additional chronic diseases		
Yes	12.35 (4.04)	**0.009***
No	13.29 (3.84)	
Previous experince of hospitalization		
Yes	12.73 (3.90)	0.232*
No	13.16 (4.40)	
Taking medication regularly		
Yes	12.72 (3.96)	0.195*
No	13.51 (4.09)	
A diet program		
Yes	12.40 (4.04)	**0.014***
No	13.34 (3.81)	
Following the diet (n=257)		
Yes	13.16 (3.89)	**<0.001***
No	11.40 (4.02)	
Education		
Literate	10.16 (4.08)	
Primary education	13.32 (3.43)	**<0.001****
High school	14.98 (3.16)	
University	15.93 (2.32)	
Occupation		
Employee	14.20 (1.69)	
Civil servants	14.90 (2.94)	
Retired	12.68 (3.67)	**<0.001****
Housewife	11.80 (4.08)	
Other**	14.00 (4.02)	
Income status		
Good	15.46 (2.81)	
Middle	12.58 (3.97)	**<0.001****
Bad	10.69 (3.51)	
Smoking		
Yes/Smokes	13.66 (3.61)	
No/has never smoked	12.18 (4.12)	**0.004****
Has quitted	13.07 (3.87)	
Alcohol consumption		
Yes	13.70 (3.36)	
No/Never consumes	12.72 (3.96)	0.325**
Has stopped	13.94 (4.42)	
BMI		
Normal (18.5-24.9)	13.71 (3.93)	
Overweight (25-29.9)	12.66 (3.94)	**0.038****
Obese (30 and ↑)	12.44 (3.98)	
Daily smoking amount (n=233)		
1 package and under	13.29 (3.88)	
2 packages	13.68 (3.34)	0.433**
3 packs and more	11.62 (4.03)	
Duration of smoking (n=233)		
20 years and under	13.96 (3.76)	
21-30 years	13.76 (3.60)	
31-40 years	13.55 (3.52)	**<0.001****
41 years and over	10.61 (3.56)	

*Mann-Whitney U,　　**Kruskal Wallis

The correlation of the Adult Health Literacy Scale total score with some characteristics of individuals are given in Table 5. It was also found that while there was a significant correlation between the total score of the health literacy scale with age, and duration of smoking ($p<0.01$) (Table 5).

Table 5. Correlation of the Adult Health Literacy Scale total score with some characteristics of individuals

	Total score	
Characteristics	**r**	**p**
Age	-.294	0.000*
Daily smoking amount	-.003	0.115
Duration of smoking (year)	-.234	0.000*

*$p<0.01$

DISCUSSION

Taking sound decisions and adopting the right practices with regard to health are important for both health protection and the treatment of diseases. Adequate levels of health literacy can ultimately reduce the rates of hospitalization and unnecessary hospital costs, as well as provide labor and time savings (27).

When examining the total score of the scale, it was found that patients answered approximately half of the questions correctly. The lowest score was 2, and the highest score was 21. The results of the current study revealed that the health literacy mean score was 12.79±3.97. The highest score of the scale is 23 points. Other studies featuring the same scale stated that the mean health literacy rate was 9.24 and 12.98 (28,29). The same scale was used in these studies. Therefore, we cannot say that this difference is due to the measurement tool. It is thought that the different scores obtained from the studies may be caused by many factors such as study samples, educational status of the participants, health belief.

There are conflicting results in the literature related to the effect of gender on health literacy levels. While some studies found that women's health literacy levels were higher than men's (22,23,30,31), others found that men's health literacy levels were higher than women's (6,28,32). Ahmadzadeh et al. (18), Mohamadniamotlagh et al. (20) and Okyay & Abacıgıl (33) found that there was no significant difference between the overall scale score and gender. In this study, the health literacy level appeared to be significantly higher among males. When considering results about gender and health literacy levels in the present study and other studies, it can be asserted that the relationship between gender and health literacy can vary. It can be thought that the main reason for this situation is due to the different research sample. Because in some societies, gender differences in social status, and especially being female, put one at risk of being socioeconomically deprived, particularly concerning health and access to health services (34). Although health literacy has gender implications in the literature, knowledge of the factors explaining health literacy differences between men and women remain unclear in many low- and middle-income countries (35).

Various studies have examined the correlation between age and health literacy. While some studies have reported a significant difference between age and health literacy (19,23,24), Ahmadzadeh et al. (18) found no significant difference between health literacy and age. The current study revealed that there was a significant correlation between age and health literacy scores. In particular, the use of technological tools or various resources is more common among young people to access information. Therefore, it can be thought that they can access information more easily. These factors may increase the level of health literacy in the young population.

In order to protect patients' health and treat diseases, it is important that people perceive and apply health-related information correctly. Thus, a society's level of education plays a critical role in terms of improving its health literacy level (36). In the present study, the health literacy level increased with increasing educational level ($p<0.001$). When compared with the literature, it is seen that the results are similar (18,19,23,28,37). It is

274

believed that individuals with a high level of education are more likely to be careful about protecting their health as well as more conscious when it comes to accessing health services for the treatment of diseases. They are also more likely to be aware of how to benefit from the health service, and are able to describe their health problems more clearly, comprehensively, and comfortably, as well as understand and apply their treatment correctly.

Studies have reported that the health literacy level increases as an individual's level of income increases (23,24,30,38). The results of the present study revealed that the health literacy level of the participants increased with an increasing level of income. This result therefore indicates that as the socio-economic level of individuals rises, they have easy access to health education services and they can understand and interpret health-related messages correctly.

When examining the relationship between the presence of chronic disease and health literacy; Tilahun et al. (39), Beyoğlu and Avcı (28), and Çimen and Bayık Temel (30) found that the health literacy level of non-chronic patients was higher. In contrast, Štefková et al (40) stated that the health literacy level of non-chronic patients was lower; Çaylan et al. (41) said that there was no significant difference between the health literacy level and the presence of chronic disease. In the study, on the other hand, it was determined that the health literacy level of individuals who did not have any additional chronic disease was high. When considering that the participants were followed up due to the diagnosis of CVD, it can be asserted that health literacy level increases with the information obtained from the healthcare personnel, television, internet or other sources used to cope with the disease and those with high levels of health literacy did not have additional diseases because they gave importance to preventive health services.

While Çaylan et al. (41) reported that there was no correlation between smoking and drinking habits and health literacy levels, Liu et al. (42) concluded that there was a negative correlation between them. In the present study, a significant correlation was found between smoking years and the total scale scores. In other words, the total score of the scale increased as the duration of smoking of individuals decreased. This can be explained by the fact that health knowledge is transformed into behaviour and individuals get away from health-damaging habits.

CONCLUSIONS

In the study, the participants' health literacy score was at a moderate level. In addition, the total score of the health literacy of the individuals differed in terms of age, gender, educational level, occupation, income status, smoking, duration of smoking, BMI, the presence of additional chronic diseases, whether or not they were on a diet, and how well they had adapted to that diet.

Nurses are health professionals who are responsible not only for the treatment of illness but also for protecting, sustaining and improving the health of individuals, families and communities. Nurses play an important role in improving the health literacy level of individuals by adopting certain strategies. Nurses can increase their health literacy levels by supporting individuals with low health literacy. Especially in order to prevent problems caused by low level of health literacy, they work in cooperation with other health personnel to give trainings to individuals and to evaluate these trainings.

Increasing health literacy provides many benefits such as improving health, increasing the quality of life, gaining positive health behaviors and early diagnosis of diseases. Improving the health literacy of individuals with cardiovascular disease will also positively affect their treatment process and increase their quality of life. For this reason, it is recommended to conduct the necessary trainings to increase the health literacy levels of individuals with cardiovascular disease and evaluate the effectiveness of these trainings.

Conflicts of interest

REFERENCES

1. Hunleth JM, Steinmetz EK, McQueen A, James AS. Beyond adherence: Health care disparities and the struggle to get screened for colon cancer. Qual Health Res 2015;26(1):17-31.

2. Australian Commission on Safety and Quality in Health Care. Consumers, The Health System and Health Literacy: Taking Action to Improve Safety and Quality. Sydney: Commonwealth of Australia; 2013.

3. Simonds SK. Health education as social policy. Health Education Monograph 1974;2(1):1-25.

4. Berckman ND, Davis TC, McCormack L. Health literacy: What is it? J Health Commun 2016;15(Suppl 2):9-19.

5. Egbert N, Nanna KM. Health literacy: Challenges and strategies. OJIN: Online J Issues Nurs 2009;14(3):1-9.

6. Tanrıöver MD, Yıldırım HH, Demiray Ready FN, Çakır B, Akalın E. Turkey Health Literacy Survey, Health Sen Publications-25, Ankara, 2014. Retrieved from http://www.sagliksen.org.tr/cdn/uploads/gallery/pdf/8dcec50aa18c21cdaf86a2b33001a409.pdf

7. Yakar B, Gömleksiz M, Pirinçci E. Health literacy levels and affecting factors of patients who applied to a university hospital polyclinic. Euras J Fam Med 2019;8(1):27-35.

8. Balçık PY, Taşkaya S, Şahin B. Health literacy. TAF Preventive Medicine Bulletin. 2014;13(4):321-6. (In Turkish)

9. Doyle G, Cafferkey K, Fullam J. The European health literacy survey: Results from Ireland. Dublin, HLS EU, 2012: 1-94.

10. World Health Organization, Cardiovascular Diseases (CVDs). 11 June 2021. Retrieved from https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds).

11. European Society of Cardiology. Fighting cardiovascular disease– a blueprint for EU action 2020; p.2 Available at: file:///C:/Users/karta/Downloads/05748%20CVD%20plan_digital%20edition.pdf

12. Turkish Statistical Institute. Turkey Statistics 2019, 2019. Available at: https://data.tuik.gov.tr/Bulten/Index?p=Olum-ve-Olum-Nedeni-Istatistikleri-2019-33710. (In Turkish)

13. Rehan F, Qadeer A, Bashir I, Jamshaid M. Risk factors of cardiovascular disease in developing countries. International Current Pharmaceutical Journal 2016;5(8):69-72.

14. Bakan AB, Yıldız M. A study on determining the health literacy levels of individuals aged 21-64. Sağlık ve Toplum 2019;29(3):33-44.

15. Şantaş G. Health literacy researches in Turkey: A content analysis for graduate theses. Turkish Journal of Science and Health 2021;2(2):54-60.

16. Teleş M, Kaya S. Evaluation of health literacy in patients who presented to cardiology polyclinics. Hacettepe Journal of Health Administration 2019;22(4):711-48.

17. Peterson PN, Shetterly SM, Clarke CL, Bekelman DB, Chan PS, Allen LA, et al. Health literacy and outcomes among patients with heart failure. JAMA 2011;305(16):1695-701.

18. Ahmadzadeh Kh, Farshidi H, Nikparvar M, Ezati-Rad R, Mahmoodi M. The relationship between health literacy level and quality of life in heart failure patients. Journal of Health Literacy. Summer 2021;2(6):61-8.

19. Cabellos-García AC, Castro-Sánchez E, Martínez-Sabater A, Díaz-Herrera MA, Ocaña-Ortiz A, Juárez-Vela R, et al. Relationship between determinants of health, equity, and dimensions of health literacy in patients with cardiovascular disease. Int. J. Environ. Res. Public Health 2020;17:2082. https://doi.org/10.3390/ijerph17062082

20. Mohamadnia Motlagh K, Reisi Dehkordi F, SHamsi M, Birjandi M, Rezaei N, Moghadam FA. The relationship between attitude toward self-care behaviors and health literacy in cardiac patients hospitalized in an educational hospital. Journal of Health Literacy 2019;4(2):27-34.

21. Eronen J, Paakkari L, Portegijs E, Saajanaho M, Rantanen T. Assessment of health literacy among older Finns. Aging Clinical and Experimental Research 2019;31:549-56. https://doi.org/10.1007/s40520-018-1104-9

22. Albus C. Health literacy: Is it important for cardiovascular disease prevention? European Journal of Preventive Cardiology 2018;25(9):934-5.

23. Diederichs C, Jordan S, Domanska O, Neuhauser H. Health literacy in men and women with cardiovascular diseases and its association with the use of health care services - Results from the population-based GEDA2014/ 2015-EHIS

survey in Germany. PLoS ONE 2018;13(12):e0208303. https://doi.org/10.1371/journal. pone.0208303

24. Sørensen K, Pelikan JM, Röthlin F, Ganahl K, Slonska Z, Doyle G, et al. Health literacy in Europe: Comparative results of the European health literacy survey (HLS-EU). Eur J Public Health 2015;25(6):1053-8.

25. Sezer A, Kadıoğlu H. Development of adult health literacy scale. Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi 2014;17(3):165-70. (In Turkish)

26. World Health Organization, Body mass index (BMI). 1 October 2022. Retrieved from https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/body-mass-index

27. Lorini C, Santomauro F, Donzellini M, Capecchi L, Bechini A, Boccalini S, et al. Health literacy and vaccination: A systematic review. Human Vaccines & Immunotherapeutics 2018;14(2):478-88. https://doi.org/10.1080/21645515.2017.1392423

28. Beyoğlu MM, Avcı DK. Examination of the relationship between health literacy, concern and anxiety in adults with diabetes mellitus or hypertension and comparison with individuals without chronic disease. J Surg Med 2020;4(6):456-9. https://doi.org/10.28982/josam.747645

29. Türkoğlu Ç. Analyzing the relationship between health literacy and self-care ability level: The case of Isparta. Süleyman Demirel University Institute of Social Sciences Department of Health Management Master's thesis. 2016.

30. Çimen Z, Bayık Temel A. Investigation of health literacy, perception of health and related factors in elderly patients with chronic illness. Ege Üniversitesi Hemşirelik Fakültesi Dergisi 2017;33(3):105-25. (In Turkish)

31. Lee HY, Lee J, Kim NK. Gender differences in health literacy among Korean adults: Do women have a higher level of health literacy than men? Am J Mens Health 2015;9(5):370-9. https://doi.org/10.1177/1557988314545485

32. Liu Y, Wang Y, Liang F, Chen Y, Liu L, Li Y, et al. The health literacy status and influencing factors of older population in Xinjiang. Iran J Public Health 2015;44(7):913-9.

33. Okyay P, Abacıgıl F. Turkey health literacy scale reliability and validity study. Ankara: Anıl Advertising Printing; 2016.

34. Witter S, Govender V, Ravindran TKS, Yates R. Minding the gaps: Health financing, universal health coverage and gender. Health Policy and Planning 2017;32:1-9. https://doi.org/10.1093/heapol/ czx063.

35. Budhathoki SS, Pokharel PK, Good S, Limbu S, Bhattachan M, Osborne R.H. The potential of health literacy to address the health related UN sustainable development goal 3 (SDG3) in Nepal: A rapid review. BMC Health Services Research 2017;17(1):237. https://doi.org/10.1186/s12913-017-2183-6

36. Bilir N. Health literacy. Türkiye Halk Sağlığı Dergisi 2014;12(1):61-8. (In Turkish)

37. Kosicka B, Deluga A, Bąk J, Chałdaś-Majdańska J, Bieniak M, Machul M, et al. The level of health literacy of seniors living in eastern region of Poland. Preliminary study. Healthcare 2020;8:277. https://doi.org/10.3390/healthcare8030277

38. Berens EM, Vogt D, Messer M, Hurrelmann K, Schaeffer D. Health literacy among different age groups in Germany: Results of a cross-sectional survey. BMC Public Health 2016;16(1):1151.

39. Tilahun D, Abera A, Nemera G. Communicative health literacy in patients with non-communicable diseases in Ethiopia: A cross-sectional study. Tropical Medicine and Health 2021;49:57. https://doi.org/10.1186/s41182-021-00345-9

40. Štefková G, Čepová E, Kolarčik P, Geckováb MA. The level of health literacy of students at medical faculties. Kontakt 2018;20(4):363-9.

41. Çaylan A, Yayla K, Öztora S, Dağdeviren HN. Assessing health literacy, the factors affecting it and their relation to some health behaviors among adults. Biomedical Research 2017;28(15):6803-7.

42. Liu YB, Liu L, Li YF, Chen YL. Relationship between health literacy, health-related behaviors and health status: A survey of elderly Chinese. Int. J. Environ. Res. Public Health 2015;12:9714-25. https://doi.org/10.3390/ijerph120809714