Clinical Research

Assessment of Health Literacy Level in Akcadag, Malatya, Turkey

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ABSTRACT

Objective: Health literacy is the knowledge, motivation and abilities of individuals to reach information about health, to understand, interpret and apply this information. In this study, it was aimed to evaluate the health literacy level and the factors affecting the health literacy levels of the population aged 18 and over.

Material and Method: Fieldwork was conducted between March and July 2016. The sample size was calculated as 375 among 16.325 males and females aged 18 and over from the population registered to seven family medicine units. Turkish version of the European Health Literacy Survey Questionnaire and the Newest Vital Sign scale were used in this study.

Results: It was determined that 7.2% of the group were illiterate. 50.7% of the participants were male, 78.4% married and 10.9% were in the 65 and over age group. 77.6% of the group whose HLS-EU-Q general health literacy index score average was determined as 27.5±7.41 were in the category of inadequate or problematic health literacy. The average score of the NVS scale for the group was 2.60±1.74. In health literacy indices and the NVS scale, the average score of males was higher than the average of females. As the level of education increased, the average scores of the NVS scale and general health literacy index increased.

Conclusion: The inclusion of clear information on health in areas frequently used by the community, and the availability of health professionals' effective communication techniques during their training will be effective in increasing the level of health literacy.

Keywords: *Literacy, Health, Health Literacy.*

ÖZET

Malatya İli Akçadağ İlçesinde Sağlık Okuryazarlığı Düzeyinin Değerlendirilmesi

Amaç: Sağlık okuryazarlığı, bireylerin, sağlık ile ilgili bilgilere ulaşmaya, bu bilgileri anlamaya, yorumlamaya ve uygulamaya yönelik bilgi, motivasyon ve yetenekleridir. Bu araştırmada 18 ve üzeri yaş grubundaki nüfusun sağlık okuryazarlığı düzeyinin ve sağlık okuryazarlığı düzeyini etkileyen faktörlerin değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntem: Araştırmanın saha çalışması, Mart-Temmuz 2016 tarihleri arasında gerçekleştirildi. Yedi aile hekimliği birimine kayıtlı olan nüfuslardan 18 yaş ve üzeri olan, erkek ve kadın toplam 16.325 kişi arasından örneklem büyüklüğü 375 hesaplandı. Araştırmada European Health Literacy Survey Questionnaire Türkçe versiyonu ve Newest Vital Sign ölçeğinin Türkçe versiyonu kullanıldı.

Bulgular: Grubun %7,2'si okuryazar değildi. Katılımcıların %50,7'si erkek, %78,4'ü evli ve %10,9'u 65 ve üzeri yaş grubundaydı. SOYA-AB genel sağlık okuryazarlığı indeksi puan ortalaması 27,5±7,41 tespit edilen grubun %77,6'sı yetersiz veya sorunlu sağlık okuryazarlığı kategorisinde bulunmaktaydı. Grubun EYYB ölçeği puan ortalaması 2,60±1,74 olarak tespit edildi. Sağlık okuryazarlığı indekslerinde ve EYYB ölçeğinde erkeklerin puan ortalamaları kadınların ortalamalarından daha yüksekti. Eğitim düzeyi yükseldikçe EYYB ölçeğinin ve genel sağlık okuryazarlığı indeksinin puan ortalamaları artmaktaydı.

Sonuç: Toplum tarafından sık kullanılan alanlarda sağlık ile ilgili anlaşılır bilgilendirmelere yer verilmesi ve sağlık profesyonellerinin eğitimleri süresince hasta ile etkin iletişim tekniklerini öğrenerek, iletişim esnasında daha anlaşılabilir bir dil kullanmalarının, sağlık okuryazarlığı düzeyini yükseltme konusunda etkili olacağı düşünülmektedir.

Anahtar Sözcükler: *Okuryazarlık, Sağlık, Sağlık Okuryazarlığı.*

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Literacy is not only an individual but also a social transformation associated with health literacy for economic growth, sociocultural and political change (1).

Health-related activities take place in a wide range of areas, such as home, work and health care facilities. All of the work such as reading a child's temperature, a worker's appropriate method for a material which needs to be carried, the salt content of two different brands of canned vegetables and filling the health insurance application for the elderly is applied to health information of printed literacy skills for different health-related purposes (2).

Patients at low literacy levels are at a disadvantage in terms of levels of knowledge about drug treatments and how to use these drugs in comparison with patients with higher literacy levels. Illness-related complications are seen more frequently in patients with low literacy levels. A low level of literacy not only affects the individual's health condition negatively but also has consequences that can negatively affect the glycemic control of the child with diabetes. This suggests that a low level of literacy is a factor that affects not only the

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individual negatively but also the environment (3-6).
It is a prerequisite for the patient to understand how to administer the medication for a successful treatment adaptation. If a patient does not understand how to do simple medical treatment or cannot find any information about it, and the treatment is left to his abilities, he will apply it as the way he understands the treatment and over time the problem will become more apparent (7).

Literacy in Turkey:

According to figures disclosed on the website of United Nations Development Program it is seen that the literacy rate in Turkey above 15 years of age is 94.9% and the mean schooling period which should be increased is 7.6 years of education per person in 2013-2014 (8). In Turkey, according to the TSI (Turkish Statistical Institute) 2015 data, 4.71% of the population aged 18 and over, 1.53% of men and 7.86% of women aged 18 and over are illiterate (9).

Definition and Priority of Health Literacy:

Everyone dealing with the development and protection of health, disease prevention and early diagnosis, health care, health and health policy concerns all aspects of health literacy. There is evidence that health systems regulated in line with the requirements of people and communities are more effective, less costly, improve health literacy and patient participation and are more prepared for health-related crises (2, 10).
According to the definition of the American Medical Association, health literacy is the combination of the abilities to perform basic reading and numerical operations necessary to fulfill functions in the health environment (11).
Health literacy is the ability to read health information, distinguish and understand convenient parts in order to create reliable judgments (12).
Sorensen and colleagues made a comprehensive definition by bringing together 17 definitions of health literacy in the literature. According to this definition, health literacy is linked to literacy and consists of knowledge, motivation and abilities oriented on gathering health information and then to understand, interpret and apply it in order to protect the quality of life, to protect from disease, to make decisions in daily life for the improvement of health (1).
With the loss of the importance of communicable diseases since the previous century, chronic diseases such as cardiovascular diseases, cancers, chronic respiratory diseases and diabetes have begun to take place among the causes of death. Information on what should be done to prevent chronic diseases, the identification of these diseases and treatment of patients should be communicated to the public (13, 14).
According to Turkey Health Literacy Survey findings made by Tanrıöver et al. (15), health literacy levels are influenced by age and the level of education; the level of health literacy was found to be higher in those under the age of 65 than those over 65 years of age. According to the same research, as the level of education increases, the level of health literacy also increases. In a study done, inadequate and problematical health literacy prevalences in Turkey has been found as 24.5% and 40.1%, respectively.
In a study conducted by A. Jovic-Vranes and colleagues using the TOFHLA scale and in which the level of health literacy was classified as inadequate, borderline and adequately, 41% of the patients were found to have inadequate and borderline literacy. Functional health literacy varies significantly according to research findings, such as location, gender, age, marital status, personal health perception, and chronic conditions. It has been found that those who are urban, married, young, male and working, have a higher education level, have a good health perception, and have no chronic conditions are more likely to have adequate health literacy (16).
This study was conducted to evaluate the health literacy level of the population aged 18 years and over in the district of Akcadag, Malatya.

MATERIAL AND METHOD

This study, which has cross-sectional and descriptive characteristics, was conducted to evaluate the health literacy level in the district of Akcadag, Malatya.
Akcadag, which is a district in the province of Malatya in Eastern Anatolia region of Turkey, is located in western part of Malatya and was established on lowlands and highlands.
The population of the research was 18 years old and over 16.325 people registered to 7 family doctors working in all family health centers in the Akcadag district of Malatya. Using the Epi Info program, out of a total of 16.325 men and women aged 18 years and over who are enrolled in seven family medicine units, the size of the sample was found to be 375 with 50% expected frequency of inadequate health literacy and problematical health literacy, 95% confidence interval and 5% error margin. Those who were registered in the list of family medicine centers were arranged from young to old, beginning with age 18 and then made a selection from the list of names created by assigning a number to each person using the random numbers table. The fieldwork took place between March 2016 and July 2016. Face-to-face interviews were held after verbal approvals of those who agreed to participate in the study were taken.
In collecting data, after taking necessary permissions appropriate questions from sociodemographic questionnaire prepared by the researcher, European Health Literacy Survey Questionnaire (HLS-EU-Q), which was translated into Turkish for Saglik-Sen Turkey Health Literacy Research, Newest Vital Sign scales and other parts from this study were used.
In the first part of the questionnaire, a sociodemographic form consisting of 16 questions was used.
The second part of the questionnaire consisted of 56 questions. In this chapter, the European Health Literacy

Questionnaire which includes 47 questions and is aimed at measuring the perceived difficulties in health-related tasks was asked to gather responds ranging from very easy to very difficult based on the four point likert scale for each question (very easy, easy, difficult and very difficult).

In the third section, the Newest Vital Findings scale, which measures the ability to read, understand and analyze the information written on the food label found on an ice cream box, consisting of 6 questions was used.

In the fourth chapter, data were collected by a questionnaire consisting of 17 questions surveying medical history, drug usage habits and the habits of preventive health services, health services and emergency health services.

European Health Literacy Survey Questionnaire (HLS-EU-Q):

The European Health Literacy Survey Questionnaire was developed by the European Health Literacy Survey Consortium consisting of 9 institutes from Austria, Bulgaria, Germany, Greece, Ireland, Netherlands, Poland and Spain with a view to comparing the health literacy of selected European countries within the scope of European Health Literacy Project (1). The questionnaire was designed with a 12-cell matrix model consisting of four information processing processes (access, understanding, appraise, apply) related to health information within the three areas of health (health care, disease prevention, health promotion) (17).

In the Turkish version of the European Health Literacy Survey Questionnaire translated by Tanrıöver et al., the Cronbach alpha values calculated for the general health literacy index, 3 main sub-indices and 4 process indexes and the internal consistency of the Newest Vital Findings scale were found to be over 0.80 in all indexes and were proven to be highly reliable (15).

Separate indices can be calculated from the HLS-EU-Q questionnaire for 1 general, 3 health domains, 4 information processing processes and 12 every other subgroup (18). The indices are calculated with the scores (very difficult = 1, difficult = 2, easy = 3, very easy = 4) which are calculated from the given answers to each relevant question.

In order to be able to do these calculations, the index questions must be answered at the minimum number determined. The calculated indices and the number of questions to be calculated for these indices, the total number of questions, the minimum number of questions to be answered in order to calculate the relevant index, and the lowest and highest possible scores are given in Table 1 (15, 18, 19).

***Table 1**: Characteristics of calculation of health literacy indexes.*

Index	Question Numbers	Total Number of Questions	The Minimum Number of Questions to be Answered	Lowest Possible Score	Highest Possible Score
General HL index	Q1.1-Q1.47	47	43	0	50
Healthcare HL index	Q1.1-Q1.16	16	15	0	50
Disease Prevention HL index	Q1.17-Q1.31	15	14	0	50
Health Promotion HL index	Q1.32-Q1.47	16	14	0	50

Index calculation method (15):

***Formula*:** Index = (mean-1) x (50/3).

***Index*:** The health literacy index of the specific subject, the area and process under which the calculation is made.

***Mean*:** For each individual, the mean of the scores corresponding to the answers of the items involved in the calculation.

***1*:** The lowest possible value of the mean (causes the lowest value of the index to be zero)

***3*:** Mean interval.

***50*:** The highest value selected for the criterion.

Index Categories:

***0-25 points*:** Inadequate health literacy
> *25-33 points*: Problematic health literacy
> *33-42 points*: Sufficient health literacy
> *42-50 points*: Excellent health literacy

The Newest Vital Sign (NVS):

The NVS scale was used for the purpose of comparing health literacy according to its outcomes and the results of the HLS-EU-Q survey. Participants are asked to read the information (this test cannot be applied to non-literate people) written on the nutrition label of the ice cream container related to portion, energy, protein, carbohydrate, fat, fiber, sodium and contents. It is based on the principle that they will answer 6 questions that will be asked after they have been given enough time for the reading (15, 20). The questions examine, how many calories will be taken if the entire ice cream in the box is finished up (correct answer: 1000), the maximum amount of ice cream that can be consumed in a situation where more than 60 grams of carbohydrate should not be consumed (correctly accepted responses: half-box, 200 ml, 2 portions), the amount of saturated fat that would be consumed daily if someone who consume 42 grams of saturated fat per day consumes 1 portion of ice cream along with other consumed foods left to eat ice cream (correct answer: 33 grams), what percentage consumes a person out of 2500 calories per day who consumes one portion of ice cream per day (correct answer: 10%), whether this consumption of ice cream is safe for someone with allergies to penicillin, peanuts, latex gloves, bee stings (correct answer: not safe) and if not safe the reason (correct answer: it can

cause allergic reaction because it can contain peanut oil) (15,20–22).

In the NVS scale, the wrong answer given to each question is counted zero and the correct answer is counted one point. At the end of the test, the scores corresponding to the answers of each question are collected and the result is obtained. The highest score that can be taken is six, the lowest score is zero (15).

Score Categories:

***0-1 points*:** High likelihood of limited literacy
2-3 points: Possibility of limited literacy
4-6 points: Adequate health literacy

Ethical Issues:

In this study international ethical standards were followed. Written permissions were obtained from Fırat University Ethical Committee for Non-Interventional Research, Ministry of Interior District Governorate of Malatya and Sağlık-Sen.

Data Analysis:

The data were transferred to the program Statistical Package for Social Science, version 22 (SPSS 22).

In the study, statistical significance level is determined as $p < 0.05$ and Kolmogorov-Smirnov test was used to determine the normal distribution of the data, t-test was used to compare only two groups, ANOVA test was used to compare more than two groups, Turkey test was used to determine the difference between more than two groups.

Limitations of the Study:

Participants may have lost their interests because of the high number of questions, especially because they said they were bored from the beginning of the fourth chapter. There was a condition of being literate in order to apply the NVS scale.

Budget of the Study:

No financial support from any institution or person has been taken.

RESULTS

The mean age of the study group was 42.83 ± 15.84.It was determined that 50.7% of the participants were male, 10.9% were in the age group of 65 and over. It was seen that 7.2% of the group were illiterate and 45.1% were housewives or unemployed. 39.2% of the participants had at least one long-term (at least 6 months long) health problem or illness, 4.8% rated their health very good overall, 12.8% did not apply to the doctor in the last 12 months 22.9% of the group did not know their family physician, only 21.3% of the patients said that they generally go to the family physician and others usually prefer a 2nd step health care institution. (Table 2).

Table 2: *Distribution of data related to the sociodemographic, occupational, educational socioeconomic and general health status of the study group.*

Sociodemographic Characteristics (n =375)		n	%*
Gender	Female	185	49.3
	Male	190	50.7
Age Group	18-24	55	14.7
	25-34	73	19.5
	35-44	77	20.5
	45-54	73	19.5
	55-64	56	14.9
	65 and over	41	10.9
Marital Status	Married	294	78.4
	Single	64	17.1
	Other**	17	4.5
Educational Status	Illiterate	27	7.2
	Literate	29	7.7
	Elementary School	78	20.8
	Secondary School	85	22.7
	High School	110	29.3
	≥Associate Degree	46	12.3
Profession	Housewife/Unemployed	169	45.1
	Civil Servant	31	8.3
	Worker	36	9.6
	Retired	46	12.3
	Self-employed ***	68	18.1
	Student	25	6.7
Total Monthly Household Income****	≤Minimum Wage	173	46.1
	1301-2500	130	34.7
	2501-3500	51	13.6
	≥3501	21	5.6
Health Care Coverage	Very Easy	139	37.1
	Partially Easy	203	54.1
	Very Difficult	33	8.8
General Health Status	Very good	18	4.8
	Good	216	57.6
	Moderate	121	32.3
	Bad	17	4.5
	Very Bad	3	0.8

**The column percentage is taken.*
***Separated / Divorced / Widowed*
****Tradesman, Farmer*
*****Turkish lira*

The mean scores of the responses by the study group to the health literacy questionnaire are given in Table 3. The highest mean score was obtained in the item: "Understand your doctor's or pharmacist's instruction on how to take a prescribed medicine?" in the understanding information about health care category with 88.8% giving very easy or easy as responses to the question.

In the general health literacy index, 33.3% of the group were found to be in inadequate, 44.3% in problematic, 20.3% in sufficient and 2.1% in the excellent health literacy category. In the NVS scale, out of the illiterate group, 81.6% of the literate group said that they did not feel safe if they ate ice cream when they were allergic to penicillin, peanuts, latex gloves, bee sting and 52.3% said the reason for not being safe was the peanut fat containment. The least correct answer with 22.1% was the question of what percentage of the 2500 calories is the amount of calories in a portion of ice cream (If you usually eat 2,500 calories in a day, what percentage of your daily value of calories will you be eating if you eat one serving?).

***Table 3**: Distribution of "very difficult or difficult" responses by the Study Group to the questions of the Health Literacy Survey and Standard Deviation with Mean Score of Responses Given.*

Relation to HLS-EU matrix n =375		Survey items	n	%	Mean Score ± SS
HEALTH CARE	1	Q1.1. find information about symptoms of illnesses that concern you?	113	30.1	2.73±0.72
		Q1.2. find information on treatments of illnesses that concern you?	113	30.1	2.70±0.76
		Q1.3. find out what to do in case of a medical emergency?	163	43.5	2.56±0.74
		Q1.4. find out where to get professional help when you are ill?	78	20.8	2.86±0.62
	2	Q1.5. understand what your doctor says to you?	50	13.3	3.12±0.66
		Q1.6. understand the leaflets that come with your medicine?	175	46.7	2.42±0.88
		Q1.7. understand what to do in a medical emergency?	171	45.6	2.54±0.70
		Q1.8. understand your doctor's or pharmacist's instruction on how to take a prescribed medicine?	42	11.2	3.16±0.67
	3	Q1.9. judge how information from your doctor applies to you?	163	43.5	2.54±0.77
		Q1.10. judge the advantages and disadvantages of different treatment options?	230	61.3	2.21±0.80
		Q1.11. judge when you may need to get a second opinion from another doctor?	136	36.2	2.62±0.62
		Q1.12. judge if the information about illness in the media is reliable?	176	46.9	2.52±0.69
	4	Q1.13. use information the doctor gives you to make decisions about your illness?	161	42.9	2.58±0.67
		Q1.14. follow the instructions on medication?	61	16.3	3.09±0.69
		Q1.15. call an ambulance in an emergency?	78	20.8	2.97±0.79
		Q1.16. follow instructions from your doctor or pharmacist?	40	10.7	3.15±0.63
DISEASE PREVENTION	1	Q1.17 find information about how to manage unhealthy behaviour such as smoking, low physical activity and drinking too much?	147	39.2	2.65±0.70
		Q1.18 find information on how to manage mental health problems like stress or depression?	197	52.5	2.48±0.70
		Q1.19. find information about vaccinations and health screenings that you should have?	141	37.6	2.66±0.67
		Q1.20. find information on how to prevent or manage conditions like being overweight, high blood pressure or high cholesterol?	145	38.7	2.64±0.65
	2	Q1.21. understand health warnings about behaviour such as smoking, low physical activity and drinking too much?	121	32.3	2.74±0.66
		Q1.22. understand why you need vaccinations?	99	26.4	2.82±0.66
		Q1.23. understand why you need health screenings?	96	25.6	2.80±0.61
	3	Q1.24. judge how reliable health warnings are, such as smoking, low physical activity and drinking too much?	182	48.5	2.54±0.65
		Q1.25. judge when you need to go to a doctor for a check-up?	108	28.8	2.78±0.60
		Q1.26. judge which vaccinations you may need?	200	53.3	2.47±0.66
		Q1.27. judge which health screenings you should have?	196	52.3	2.47±0.65
		Q1.28. judge if the information on health risks in the media is reliable?	213	56.8	2.43±0.67
	4	Q1.29. decide if you should have a flu vaccination?	112	29.9	2.78±0.69
		S1.30. decide how you can protect yourself from illness based on advice from family and friends?	78	20.8	2.89±0.58
		Q1.31. decide how you can protect yourself from illness based on information in the media?	159	42.4	2.60±0.66
HEALTH PROMOTION	1	Q1.32. find information on healthy activities such as exercise, healthy food and nutrition?	119	31.7	2.72±0.67
		Q1.33. find out about activities that are good for your mental well-being?	170	45.3	2.54±0.71
		Q1.34. find information on how your neighbourhood could be more health-friendly?	129	34.4	2.69±0.66
		Q1.35. find out about political changes that may affect health?	217	57.9	2.14±0.95
		Q1.36. find out about efforts to promote your health at work?	203	54.1	2.14±0.98
	2	Q1.37. understand advice on health from family members or friends?	37	9.9	3.12±0.58
		Q1.38. understand information on food packaging?	142	37.9	2.58±0.94
		Q1.39. understand information in the media on how to get healthier?	116	30.9	2.74±0.64
		Q1.40. understand information on how to keep your mind healthy?	143	38.1	2.65±0.65
	3	Q1.41. judge where your life affects your health and wellbeing?	136	36.3	2.69±0.64
		Q1.42. judge how your housing conditions help you to stay healthy?	103	27.5	2.80±0.61
		Q1.43. judge which everyday behaviour is related to your health?	124	33.1	2.72±0.64
	4	Q1.44. make decisions to improve your health?	102	27.2	2.79±0.62
		Q1.45. join a sports club or exercise class if you want to?	253	67.5	1.96±0.91
		Q1.46. influence your living conditions that affect your Health and wellbeing?	172	45.9	2.51±0.73
		S1.47. take part in activities that improve health and well-being in your community?	242	64.5	2.09±0.87

1. Access information, 2. Understand information, 3. Appraise information, 4. Apply information.

The mean scores of the NVS scales for women were 2.05±1.88 and for males were 3.09±1.43 (p <0.001).Similarly, in the general health literacy index, the mean score of males (30.20±6.07) was higher than the mean score of females (24.77±7.67) (p <0.001). The mean scores of the NVS scale (F =27.237, p <0.001) and the general health literacy indices (F =30.938, p <0.001) showed statistically significant differences according to age groups (Table 4).

Table 4: *NVS Scale Scores and General Health Literacy Index Means by Age Groups in Multiples of 10 and Educational Status.*

	Scale*	Group	n	Mean±SS	
Age Group	NVS (n =348)	≤24	55	4.07±1.13	**F =27.237 p <0.001****
		25-34	73	3.35±1.53	
		35-44	77	2.63±1.70	
		45-54	69	1.84±1.60	
		55-64	45	1.51±1.17	
		≥65	29	1.34±1.42	
	HLS-EU (n =375)	≤24	55	34.18±5.06	**F =30.938 p<0.001****
		25-34	73	30.42±5.01	
		35-44	77	28.35±6.27	
		45-54	73	25.44±6.82	
		55-64	56	23.72±6.30	
		≥65	41	20.81±8.30	
Educational Status	NVS (n =348)	Non-school graduate	29	0.27±0.45	**F =235.057 p <0.001****
		Elementary school	78	0.88±0.83	
		Secondary school	85	2.36±0.87	
		High school and higher	156	4.02±1.19	
	HLS-EU (n =375)	Non-school graduate	56	17.41±5.30	**F =189.369 p <0.001****
		Elementary school	78	22.83±4.59	
		Secondary school	85	28.16±3.97	
		High school and higher	156	33.16±4.83	

**Non-literates were not included when the NVS scale was calculated.*
***It was found that there were differences between the two groups in all comparisons.*

The mean general health literacy indexes (29.54 ± 6.76) and NVS scale mean scores (3.08 ± 1.65) of participants without any long-term illnesses were significantly higher than those with long-term illnesses (24.40 ± 7.31 and 1.75 ± 1.55) (p <0.001).

DISCUSSION

In this study, 49.3% of the participants were female. In Turkey health literacy study conducted by Tanrıöver et al. (15) 46.2% of the participants, in the European health literacy research 51.2% of the research group, in the Turkish adaptation of European health literacy scale 67.5% of the study group and in the study of Turkey health literacy scale 46.3% of the study group were determined to be female (19, 23).

The mean age of the study group was 42.83±15.84. The mean age in Turkey health literacy research was 41.4±0.3,the mean age of the European health literacy survey was 46.0±18.0 in Austria, 46.5±18.4 in Bulgaria, 48.4±19.1 in Germany, 46.2±19.5 in Greece, 46.3±18.5 in Spain, 43.3±17.6 in Ireland, 46.2±18.8 in Netherlands and 44.7±18.4 in Poland (15, 19).The mean age of our study group is similar to the reviewed literature.

As for the educational status of the group, 35.7% of them had primary and lower education whereas 12.3% had university and higher education. According to data from TSI 2015, 4.71% of the population aged 18 and over in Turkey were found to be illiterate with 7.86% of women aged 18 and over and 1.53% of men aged 18 and over were found to be illiterate (9). In the study conducted by A. Jovic-Vranes et al. (16), 12.4% of the participants were found to have primary and lower education, 52.4% had secondary education and 35.2% had high school and higher education. In this study, 45.1% of the study group were unemployed. In the study conducted by Üçpunar (24), it was found that 67.8% (n =238) of the study group consisted of employees. In the European health literacy research, 8.1% of the participants from 8 countries were unemployed and the frequency of unemployment was lowest in Austria (2.3%), and highest in Spain and Ireland (13.9%) (19). The unemployment frequency in women living in districts and villages is higher than in other researches due to the higher frequency of being housewives.

In this study, 39.2% of the study group had at least one long-term health problem. 62.4% of participants rated their health as very good or good and 5.3% as very bad or bad. In Turkey health literacy research conducted by Tanrıöver et al. (15), at least one long-term health problem or disease was detected in 40.0% of the participants. In the same study, 60.3% of the participants were found to have a very good or good health perception in general, and 5.9% were found to have a very bad or bad health perception. In the European health literacy research, it was found that 35.1% of the participants had at least one long-term health problem and 66.9% rated their health as very good or good, and 8.2% considered it as very bad or bad. Among the 8 countries, those who assessed their health as very bad or bad most frequently were found to be the (18.7%) participants from Bulgaria and those who the most frequently who rated as very good or good (80.6%) were the Irish participants (19).

In this study, 77.6% of the study group had inadequate or problematic general health literacy level. In Turkey health literacy research conducted by Tanrıöver et al. (15), it is seen that 64.6% of the respondents had inadequate or problematic general health literacy level. In the European health literacy survey, inadequate or problematic general health literacy was found 47.6% in all samples of 8 countries, and the highest rate of inadequate or problematic general health literacy was found in Bulgaria (62.1%) (19). The high frequency of inadequate or problematic health literacy in our study group may be related to the fact that the region in

which our research was conducted comprises of towns and villages.

In our study, NVS scale mean score was found to be 2.60±1.74.This mean value corresponds to a limited level of health literacy according to the NVS scale. In Turkey health literacy research, the NVS scale mean score was determined as 2.2±0.04 (limited health literacy) (15). In the European health literacy survey, the mean score for the NVS scale was 3.5±2.1 (limited health literacy) for the whole sample.

According to the responses of our study group to the health literacy survey, the mean score of the general health literacy index was 27.5±7.41. It was determined that the highest mean score of the 3 subindices of the health field was found in the health service literacy index (29.0±8.02), and the lowest mean score index was found in the health promotion literacy index (26.0±8.45).The highest mean score of the information process indexes was found in the understanding of health knowledge index (29.9±7.60), and the lowest score was in the health information evaluation literacy index (26.2±7.64).The scale that was used in our study, was also used in Turkey health literacy research and higher mean scores were found in all indices in comparison to our research (15). The mean score of general health literacy index in the European health literacy survey was 33.8±8.0.The mean score of healthcare field literacy index was obtained highest from health care literacy index (34.7±8.3) and lowest from health promotion literacy index (32.5±9.1) for the whole sample (19).

In our study, the NVS scale scores, general health literacy index, indices of 3 healthcare fields (health service, prevention of disease and health promotion) and 4 indices of the process (information access, understanding, evaluation, application) were different according to sex, the mean score of men was higher. In Turkey health literacy research conducted by Tanrıöver et al. (15), general health literacy index and the NVS scale mean scores were significantly lower in women. In the European health literacy research it has been found that gender has the weakest impact on general health literacy, in the Netherlands where this impact is the strongest women had a higher level of health literacy than men (19).

The lowest scores were found in the oldest group (65 and over), and the highest scores were found in the youngest group (24 and under).As age increased, health literacy scores decreased. In Turkey health literacy research conducted by Tanrıöver et al. (15), mean score in general health literacy index (31.1±0.15) and NVS scale mean score (2.3 ± 0.04) of 18-64 age group were found higher than mean score in general health literacy index (23.5±0.71) and NVS scale mean score (1.3±0.22) of 65 years and older age group. Age was identified as a strong determinant of health literacy in the European health literacy research. Unlike the findings from other countries, the general health literacy index in the Netherlands tended to be higher in older groups than in young people. In the study conducted by Jovic-Vranes et al. (16), participants were categorized according to their age as 44 or under (24.8%), 45-54 (21.0%), 55-64 (33.3%), 65 years and over and it was found that the scale score decreased as the age group increased according to the TOFHLA scale, and the highest score was obtained for the group 44 years old and under (87.19 ± 9.60). It was found that our findings were similar to these studies and the level of health literacy decreased with the increase of the age group.

In this study, it was observed that as the level of education increased, the mean scores of the general health literacy index and the NVS scale increased as well. In Turkey health literacy research conducted by Tanrıöver et al. (15), as the education level increases the general index of health literacy and NVS scale score has been found to increase linearly and this has been shown to support our findings. In the study conducted by Lanpher et al. (25) it has been found that those with lower levels of education had lower levels of health literacy than those with higher levels of education. In the Turkish Adaptation of European Study of the Health Literacy Scale, it was seen that the level of health literacy was low in those with a low level of education and the level of health literacy was high in those with a low level of education (23). In the studies conducted by Üçpunar (24) and Filiz (26), as the level of education increased, sufficient health literacy was also seen to increase.

In this study, the mean of health literacy scores for those without any long-term illness was higher than those with long-term illness. In European health literacy research it was found that at least one long-term health problem was found in 73.3% of those with a score of 0 to 5 according to the general health literacy index, while at least one long-term health problem was found in 26.3% who had 45-50 points (19). In the study conducted by Jovic-Vranes et al. (16), it was found that 63.2% of those with inadequate health literacy had at least 1 chronic condition, all of those without chronic condition had sufficient health literacy levels, and the level of health literacy varied according to the presence of chronic conditions.

Mean score in general health literacy index (29.64 ± 6.75) and NVS scale score (3.07 ± 1.67) of participants who assessed their health status in general as very good or good were statistically and significantly higher with respect to participants who assessed their health status as moderate, poor or very poor. In the study conducted by A. Jovic-Vranes et al. (16), the levels of health literacy were found to be different from those of individuals who evaluated their personal health perception as poor, moderate and good. In the European health literacy research, personal health perception and health literacy were found to be associated (19).

On the subject of significant relationship between health perception and health literacy and that those with good health perceptions have higher health literacy levels than those with poor perceptions, the reviewed literature also supported our study.

Conclusion and Recommendations:

The HLS-EU general health literacy index mean score was found to be 27.5±7.41.The mean score of the NVS scale for the group was 2.60±1.74. From the questions in the NVS scale the 5th question (Is it safe for you to eat this ice cream?) had the most number of correct answers (81.6%) and the 4th question (If you eat 2500 calories per day in general, what percentage of your daily calorie intake do you get when you eat a portion of ice cream?) had the least number of correct answer (22.1%).

According to our research findings, the following suggestions can be made:

- Information that enhances the level of health literacy should be included in places frequently used by the community such as health institutions, schools, mosques, markets.
- Documents designed to inform the users of foods and medicines such as food labels, drug prospectuses should be prepared according to the socioeconomic and sociocultural level of the society and visual information for the illiterates should be provided.
- Trainings to improve the level of health literacy should be planned with age groups and education levels.

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