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Health Literacy Level: Akyazı Example

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Abstract

Aim: Within the scope of this research, it was aimed to determine the health literacy levels of individuals residing in Sakarya/Akyazı and in terms of which socio-demographic characteristics of individuals differ.

Methods: 428 participants were reached using the convenience sampling method. However, due to missing data, data from 400 participants were included in the analyses. The Turkey Health Literacy Scale (T-SOY) developed by Okyay et al., (2016) was used to determine the health literacy level of the individuals. The questionnaire prepared by Teleş (2018) was used to determine the socio-demographic characteristics of the patients.

Results: 60% of the participants are male, 70% are married, 35.8% are 30 years old and under, 48.5% are associate degree graduates, and 68% are full-time employees. Health literacy levels are higher in women, individuals without chronic diseases, non-smokers, individuals aged 30 and under, individuals with postgraduate education, individuals with an income of 10501 TL or more, and individuals with public insurance, compared to the opposite groups.

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Conclusion: Cultural change over time can be tracked through health literacy assessments. Particularly stakeholders in the health-education-politics-media quadrant can accelerate efforts to increase the level of health literacy by assuming more active roles.

Keywords: Health, Health literacy, socio-demographic characteristics.

INTRODUCTION

Health literacy is defined as "the knowledge, motivation and competence that will enable people to access, understand, evaluate and use the necessary health information to make decisions in their daily lives regarding their health, to improve and maintain their quality of life, to improve their health and prevent diseases" (Sørensen et al., 2012). Health literacy has a powerful impact on individuals' lives in terms of health. Individuals with inadequate or low health literacy may benefit from health care services at a level that is inadequate or cannot meet their needs (U.S. Department of Health & Human Services). In addition, individuals with low levels of health literacy; It is stated that they use preventive health services inadequately, are delayed in seeking treatment services during the symptomatic period, are inadequate in understanding their health status and in adhering to medical recommendations, cannot manage their self-care, and these situations lead to an increase in health costs and mortality (Sykes et al., 2013; Yılmazel & Çetinkaya, 2016). The level of health literacy has a very important place in common chronic diseases such as diabetes, cancer, hypertension, heart disease, stroke and depression, which have a significant cost burden in the healthcare system (Doyle et al., 2012). It is stated that as the level of health literacy increases, survival rates and hospital admission times decrease (Paasche-Orlow & Wolf 2007; Tokuda et al. 2009). It is stated that there is an important relationship between insufficient health literacy and diabetes complications (Doyle et al., 2012). However, it has been stated that the health literacy level of patients is a strong determinant of inhaler use in the management of asthma (Williams et al., 2002).

It has been shown that there is a strong relationship between diabetes management and inadequate health literacy, and that the specific problems related to cognitive functioning of older adults with diabetes affect their health skills and health literacy (Nguyen et al., 2013). In another study, cognitive ability affected the variance of health literacy scores by 24% in patients with hypertension (Hasnain-Wynia and Wolf, 2010). Insufficient health literacy is also stated as an

obstacle for individuals not to participate in screening programs for the early diagnosis of cancer (Brewer, 2009).

In randomized studies, low levels of functional literacy; It has been concluded that it causes an increase in hospital and emergency room admissions, low use of health services for disease prevention, poor medication compliance, impaired ability to interpret health messages, and higher mortality in patients aged 65 and over (Colbert et al., 2013; Koskan et al., 2010).

The results of the studies indicate that the level of health literacy varies depending on the socio-demographic characteristics of individuals such as gender, age and education level. In a study conducted in Taiwan with 3491 participants, the health literacy level of male and female patients was evaluated with a scale developed according to their self-reports. It has been shown that women with insufficient health literacy levels correlate with the scale results of their self-reports, while men with low health literacy levels give exaggerated answers and their self-reported health literacy levels are higher (Lee et al., 2013). In the study conducted in Australia, it was found that the health literacy levels of individuals with low education levels, immigrant individuals and individuals with private health insurance were lower than other individuals. In the study conducted by von Vagner et al. in England, the health literacy levels of older individuals were found to be lower than younger individuals (Von Wagner et al., 2007).

In the study conducted by Okyay et al. (2016) in Turkey, the level of health literacy was insufficient in 13.1% of the participants; It was found problematic in 39.6%, adequate in 32.9%, and excellent in 14.5%. Accordingly, 52.7% of the participants have problematic or insufficient health literacy. In this study, it is noteworthy that approximately one in every two elderly people aged 65 and over has an insufficient literacy level. A significant relationship was found between individuals' own health perceptions and literacy level (Okyay et al., 2016). In the study conducted by Tokuda et al. (2009), it was stated that there was a positive relationship between education level and health literacy. It has also been determined that individuals who perceive their physical and mental health as poor have low health literacy.

In line with the explanations made, it is thought that health literacy is a stronger determinant than income, employment status, education level, race or ethnic group in terms of eliminating health inequalities, which has an important place in health policies (WHO, 2013). Within the scope of this research, it was aimed to determine the health literacy levels of individuals residing in Sakarya/Akyazı and in terms of which socio-demographic characteristics of individuals differ.

1. RESEARCH METHODOLOGY

The population and sample of the research: The population of this study, which is cross-sectional research, consists of individuals over the age of 18 residing in Akyazı district of Sakarya. Participants were determined based on convenience sampling, one of the non-probability sampling methods. The study process was planned to apply an online survey to the participants. It was determined that the population over the age of 18 in Akyazı district is 67,698. It was determined that the number of participants should be at least 354 by using the sample number determination formula, where the number of people in the universe is known. In this context, 428 participants were reached through an online survey between 3 October and 30 December 2022. Due to missing data, 400 analyzable data were obtained.

Research Questions: Within the scope of the research, answers are sought to the following questions:

What is the health literacy level of individuals?

According to which socio-demographic characteristics do health literacy levels differ?

Data collection tools: The Turkey Health Literacy Scale (T-SOY) developed by Okyay et al. (2016) was used to determine the health literacy level of the patients. T-SOY consists of 32 items. A questionnaire prepared by Teleş (2018) will be used to determine patient socio-demographic characteristics. According to the validity and reliability analysis of the T-SOY scale, the Cronbach Alpha value was found to be 0.95. This means that the scale is reliable. It was determined that the total explained variance was 41.53% and consisted of three dimensions. Item loadings vary between 0.726 and 0.381. Item loadings of 0.3 and above indicate that the scale is valid. Within the scope of the current study, it was found that the scale had a two-factor structure as "treatment services health literacy" and "disease prevention-health promotion health literacy" and the total explained variance was 39.44%. Factor loadings of the items variance between 0.764-0.313.

To allow appropriate calculations and facilitate comparisons, health literacy index scores are obtained by standardizing a metric in the range of 0-50 according to the following formula (Doyle et al., 2012);

Index score = (Average – 1)x(50/3)

Health literacy levels of the participants can be determined according to their health literacy index scores. In such a case, the health literacy index score is characterized as follows (Sørensen, 2015).

0-25 index score=Insufficient health literacy

>25 – 33 index score=Limited health literacy

>33 – 42 index score=Adequate health literacy

>42 – 50 index score=Excellent health literacy

The questionnaire used to determine socio-demographic characteristics includes 20 questions. Questions were included to determine socio-cultural characteristics such as age, gender, marital status, income status, chronic disease status, insurance coverage, level of utilization of health services, level of evaluation of health status.

Data Analysis: In this research, Skewness and Kurtosis values were examined for the test. Kurtosis and Skewness values were considered normal since they were between -1.5 and +1.5. Descriptive statistics such as frequency, percentage, mean and standard deviation were used to analyze the data. In addition, one-sample t-test, Anova, Pos Hoc Gabriel test were used in the difference analysis of the means between the groups.

Ethical Approval: In order to conduct the research, ethical approval numbered E-26428519-044-54219 was received from a state university ethics committee on 02.08.2022.

2. ANALYSIS

According to the descriptive findings in Table 1, 60% of the participants are male, 70% are married, 35.8% are 30 years old and under, 48.5% are associate degree graduates, 68% are full-time workers, 36.3% are with an income of 6501-8500 TL, 42.5% have good health status.

Table 1. Descriptive information

		Number	%
Gender	Female	160	40.0
	Male	240	60.0
Marital status	Married	282	70.5
	Single	118	29.5
Age groups	<30	143	35.8
	<40	137	34.3
	<50	74	18.5
	<60	36	9.0
	>59	10	2.5
Education	Uneducated	6	1.5
	Primary school	18	4.5
	High school	44	11.0
	College	194	48.5
	Undergraduate	58	14.5

	Postgraduate	80	20.0
Place of Residence	District center	323	81.0
	Village	77	19.0
Employment Status	Full time	272	68.0
	Part time	8	2.0
	Housewife	60	15.0
	Not working	34	8.5
	Retired	2	.5
	Student	24	6.0
Income	4500 TL and below	126	31.5
	4501-6500	81	20.3
	6501-8500	145	36.3
	8501-10500	40	10.0
	10501 TL and above	8	2.0
Health insurance type	Public	226	56.5
	Private	8	2.0
	Public and Private	15	3.8
	Not insurance	151	37.8
Health status	Bad	4	1.0
	Middle	162	40.5
	Good	170	42.5
	Very good	64	16.0
Chronic Disease Status	Yes	26	6.5
	No	374	93.5
Continuous Drug Use	Yes	27	6.8
	No	373	93.3
Regular sport	Yes	107	26.8
	No	293	73.3
Alcohol Use	Yes	49	12.3
	No	351	87.8
Smoking	Yes	144	36.0
	No	256	64.0
Total		400	100.0

According to Table 2, it can be said that 76% of the participants applied for private examination at least twice in the last year. It was also determined that 31.8% of them consulted a family doctor 4 or more times.

Table 2. Descriptive information regarding the participants' application to any health institution or health personnel in the last year

	Emergency Service Admission n (%)	Polyclinic Clinic Admission n (%)	Family Physician Admission n (%)	Other Health Personnel Admission n (%)	Number of Private Institution Applications n (%)
No admission	180 (45.0)	181 (45.3)	89 (22.3)	279 (69.8)	2 (0.5)
1 time admission	132 (33.0)	81 (20.3)	57 (14.3)	77 (19.3)	92 (23.0)
2 time admission	50 (12.5)	77 (19.3)	73 (18.3)	33 (8.3)	305 (76.3)
3 time admission	22 (5.5)	37 (9.3)	54 (13.5)	8 (2.0)	0 (0.0)
4 or more admission	16 (4.0)	24 (6.0)	127 (31.8)	3 (0.8)	1 (0.3)
Total	400 (100.0)	400 (100.0)	400 (100.0)	400 (100.0)	400 (100.0)

Table 3 includes the findings regarding the participants' average health literacy scores for treatment services and the difference analysis between groups. In this context, women's health literacy level regarding treatment services is higher than men. However, it is lower in individuals with chronic diseases than in individuals without. It is also higher in non-smokers than in smokers, and this difference between them is statistically significant.

Table 3. Comparison of health literacy treatment service dimension according to participants' socio-demographic and health-related characteristics

		n	Mean±SD	F	p
Gender					
	Female	160	4.29±0.442	0.165	0.001
	Man	240	4.13±0.462		
Marital status					
	Married	282	4.18±0.445	1.241	0.421
	Single	118	4.22±0.496		
Place of Residence					
	District center	323	4.20±0.460	0.000	0.280
	Village	77	4.14±0.464		
Chronic Disease Status					
	Yes	26	4.01±0.464	0.099	0.038
	No	374	4.20±0.458		
Continuous Drug Use					
	Yes	27	4.04±0.439	0.816	0.082
	No	373	4.20±0.461		
Regular sport					
	Yes	107	4.22±0.477	0.172	0.447
	No	293	4.18±0.455		
Alcohol Use					
	Yes	49	4.13±0.491	1.101	0.287
	No	351	4.20±0.456		
Smoking					
	Yes	144	4.10±0.484	2.164	0.003
	No	256	4.24±0.440		

p<0.05

Table 4 contains the differences regarding the difference analysis according to the dimension of disease prevention and health promotion, health literacy level and socio-demographic characteristics of individuals. Health literacy levels of single individuals are higher than married individuals, those living in the district are higher than those living in villages, and non-smokers are higher than those who smoke.

Table 4. Comparison of the health literacy dimension of disease prevention and health promotion according to the socio-demographic and health-related characteristics of the participants

		n	Mean±SD	F	p
Gender					
	Female	160	4.06±0.436	0.045	0.295

	Man	240	4.01±0.455		
Marital status					
	Married	282	4.00±0.420	8.159	0.031
	Single	118	4.11±0.502		
Place of Residence					
	District center	323	4.06±0.451	0.357	0.028
	Village	77	3.93±0.424		
Chronic Disease Status					
	Yes	26	3.91±0.420	0.126	0.143
	No	374	4.04±0.449		
Continuous Drug Use					
	Yes	27	3.88±0.399	0.553	0.061
	No	373	4.04±0.449		
Regular sport					
	Yes	107	4.06±0.474	1.019	0.523
	No	293	4.02±0.438		
Alcohol Use					
	Yes	49	4.00±0.422	0.016	0.54
	No	351	4.04±0.452		
Smoking					
	Yes	144	3.95±0.420	1.433	0.008
	No	256	4.08±0.457		

p<0.05

Table 5 shows the average level of health literacy according to age groups and the findings regarding the difference analysis between groups. The difference between the groups was determined by using Post hoc Gabriel test, as the group numbers were not equal and the group numbers were different. In this context, the health literacy level of age groups is higher in individuals aged 30 and under.

Table 5. Comparison of health literacy, treatment, service, disease prevention and health promotion dimensions by age groups

		n	Mean±SD	F	p
Treatment service	<30	143	4.22±0.474	2.677	0.032
	30-39	137	4.22±0.434		
	40-49	74	4.21±0.468		
	50-59	36	4.05±0.455		
	>59	10	3.83±0.422		
	Total	400	4.19±0.461		
Prevention of diseases and promotion of health	<30	143	4.10±0.486	2.785	0.026
	30-39	137	4.03±0.435		
	40-49	74	4.01±0.414		
	50-59	36	3.90±0.393		
	>59	10	3.74±0.266		
	Total	400	4.03±0.448		

Post-hoc test results comparing health literacy subscale scores between age groups

	Age groups	n	Mean±SD	p
Treatment service	<30	143	4.22±0.474	0.031
	>59	10	3.83±0.422	
	30-39	137	4.22±0.434	0.031

	>59	10	3.83±0.422	
Prevention of diseases and promotion of health	<30	143	4.10±0.486	0.039
	>59	10	3.74±0.266	

p<0.05

Table 6 shows the average of health literacy levels according to educational status groups and the findings regarding the difference analysis between groups. The difference between the groups was determined by using Post hoc Gabriel test, as the group numbers were not equal and the group numbers were different. In this context, the health literacy level of education groups is higher in individuals with postgraduate education.

Table 6. Comparison of health literacy treatment services, disease prevention and health promotion dimensions according to education level groups

		n	Mean±SD	F	p
Treatment service	Primary school	22	4.02±0.425	4.022	0.003
	High school	45	4.06±0.469		
	College	194	4.18±0.430		
	Undergraduate	59	4.18±0.447		
	Postgraduate	80	4.34±0.510		
	Total	400	4.19±0.461		
Prevention of diseases and promotion of health	Primary school	22	3.92±0.407	3.174	0.006
	High school	45	3.90±0.392		
	College	194	4.01±0.446		
	Undergraduate	59	4.08±0.381		
	Postgraduate	80	4.17±0.503		
	Total	400	4.03±0.448		

Post-hoc test results comparing health literacy subscale scores between education level groups

		n	Mean±SD	p
Treatment service	Postgraduate	80	4.34±0.510	0.018
	Primary school	22	4.02±0.425	
	Postgraduate	80	4.34±0.510	0.009
	High school	45	4.06±0.469	
Prevention of diseases and promotion of health	Postgraduate	80	4.17±0.503	0.008
	High school	45	3.90±0.392	
	Postgraduate	80	4.17±0.503	0.045
	College	194	4.01±0.446	

p<0.05

Table 7 shows the average of health literacy levels according to income groups and the findings regarding the difference analysis between groups. The difference between the groups was determined by using Post hoc Gabriel test, as the group numbers were not equal and the group numbers were different. In this context, the health literacy level of income groups is higher in individuals with income of 10501 TL and above.

Table 7. Comparison of health literacy, treatment services, disease prevention and health promotion dimensions according to income groups

	Income Groups	n	Mean±SD	F	p
Treatment service	4500 ve altı	126	4.14±0.466	3.042	0.017
	4501-6500	81	4.15±0.457		
	6501-8500	145	4.19±0.425		
	8501-10500	40	4.38±0.523		
	10501 ve üzeri	8	4.49±0.468		
	Total	400	4.19±0.461		
Prevention of diseases and promotion of health	4500 ve altı	126	4.02±0.474	3.094	0.016
	4501-6500	81	3.93±0.401		
	6501-8500	145	4.05±0.415		
	8501-10500	40	4.16±0.511		
	10501 ve üzeri	8	4.34±0.474		
	Total	400	4.03±0.448		
Post-hoc test results of health literacy subscale scores comparison between income groups					
	Income Groups	n	Mean±SD		p
Treatment service	4500 and below	126	4.14±0.466		0.034
	8501-10500	40	4.38±0.523		
Prevention of diseases and promotion of health	4501-6500	81	3.93±0.401		0.049
	10501 and above	8	4.34±0.474		
p<0.05					

Table 8 shows the average of the health literacy level by insurance type groups and the findings regarding the difference analysis between the groups. The difference between the groups was determined by using Post hoc Gabriel test, as the group numbers were not equal and the group numbers were different. In this context, the health literacy level of insurance groups is higher in individuals with public insurance.

Table 8. Comparison of health literacy, treatment, service, disease prevention and health promotion dimensions by insurance type groups

	Insurance Type	n	Mean±SD	F	p
Treatment service	Public	226	4.22±0.465	1.427	0.234
	Private	8	3.97±0.482		
	Public and Private	15	4.29±0.497		
	Not insurance	151	4.15±0.447		
	Total	400	4.19±0.461		
Prevention of diseases and promotion of health	Public	226	4.09±0.459	4.027	0.008
	Private	8	3.77±0.180		
	Public and Private	15	4.07±0.513		
	Not insurance	151	3.95±0.419		
	Total	400	4.03±0.448		
Post-hoc test results comparing health literacy subscale scores between insurance type groups					
	Insurance Type	n	Mean±SD		p
Prevention of diseases and promotion of health	Public	226	4.09±0.459		0.015
	Not insurance	151	3.95±0.419		
p<0.05					

3. DISCUSSION

Within the scope of this research, it was aimed to determine the health literacy level of individuals and to reveal in which socio-demographic characteristics this level differs. In this regard, data obtained from 400 people residing in Sakarya/Akyazı were analyzed. According to the study findings, it was determined that 45% of the participants did not visit the emergency room and 45.3% did not visit the outpatient clinic or clinic for any reason within a year. However, it was determined that 31.8% of them applied to a family physician four or more times a year, and 76.3% of them applied to a private health institution twice a year.

Within the scope of the study, it was determined that the average scores of the treatment and service sub-dimensions of health literacy differed according to the gender of the individuals and were higher in female. Studies in the literature have also determined that the level of health literacy varies according to gender and is higher in female. Despite this, there are some studies showing that it is higher in men and at equal levels in both gender groups (Garcia-Codina, 2019; Okyay et al., 2016). It is thought that the reason for the difference in findings may be due to the fact that the study samples in this study and in the literature consist of (heterogeneous) individuals with different socio-demographic structures and the use of different health literacy scales.

In addition, it was determined that the level of health literacy regarding treatment and service was lower in those with chronic diseases than in those without, and in smokers compared to non-smokers. Similarly, in the literature, it is stated that individuals who do not have chronic diseases and do not smoke have higher health literacy levels (Azlan et al., 2002).

The relationship between education level and health literacy is consistent with the literature. HLS-EU studies conducted in Europe and the National Assessment of Adult Literacy studies conducted in America have shown that there is a positive relationship between education level and health literacy (5,38). A study conducted throughout our country by Tanrıöver et al. (2014) and Özkan et al. (2018) emphasized that as the level of education increases, the level of health literacy increases and that the level of education is an important determinant of health literacy. Individuals with an income of 10,501 TL and above also have a higher mean score in the health literacy sub-dimension, the treatment and service dimension. According to the National Assessment of Adult Literacy study, it was determined that people with income below the poverty line have lower health literacy levels (Hersh et al., 2015). Similarly, the HLS-EU study emphasized

that people with low income and difficulty paying their bills are an important risk group for health literacy. Aygun et al. (2021) study found a significant relationship between income level and health literacy, and it was stated that health literacy increased with increasing income level.

It was determined that the mean scores on another dimension, disease prevention and health promotion, were higher in single individuals than in married individuals, and were higher among non-smokers than among smokers, and showed a significant difference. There are studies in the literature, similar to our study, that found higher health literacy levels in unmarried people than married people (Yiğitbaş et al., 2021; Çelikyürek et al., 2020; Yakar et al., 2019) and no significant difference was found between both groups (Bakan and Yıldız, 2019; Barber, 2009; Bánfai-Csonka et al., 2020, González-Chica et al., 2016). Unlike these results, in a study conducted with a group aged 65 and over, the total health literacy score was found to be significantly higher in married people (Temel & Çimen, 2015).

In addition, it has been determined that the level of health literacy regarding disease prevention and health promotion is higher in individuals who have a postgraduate education, have an income of 10,501 TL or more, live in the district center, and have both private and social health insurance. In the research conducted across Turkey using the scale in this study, a significant relationship was found between health literacy total and both sub-dimension scores and education level. Scores are significantly higher in the highest education group (Özkan et al., 2018). In many studies conducted both in Turkey and in different countries, it has been observed that those with low education levels have significantly lower health literacy levels (Okyay et al., 2016, Barber et al., 2009; Çelikyürek et al., 2020; Levin et al., 2020; Bánfai-Csonka et al., 2020; Yakar et al., 2019; Yiğitbaş and Genç, 2021). Baker et al. (2002), Beachump et al. (2020), Özdemir and Akça (2021) found that those with lower income levels have lower health literacy levels; Çelikyürek et al. (2020) showed that those with higher incomes have higher levels of health literacy. In a study conducted in China, health literacy scores were found to be significantly higher in non-smokers and non-alcoholics (Liu et al., 2015). In a study conducted in Australia, the rate of non-smokers was found to be significantly higher in those with high health literacy levels, while no significant relationship was found with alcohol use (Jayasinghe et al., 2016). In the study by Dişsiz and Yılmaz (2016), the health literacy levels of individuals living in rural areas and towns and with low education levels were found to be low.

4. CONCLUSION AND RECOMMENDATIONS

When evaluated in general terms, the available information points to the importance of improving health literacy. In order for individuals to stay healthy, protect and improve their health, it is possible to understand and interpret basic health information and develop appropriate behavior; only in this way can public health be improved and the correct use of health services can be ensured.

In order to optimize the health literacy levels of all individuals, it is important to create projects that concern all segments of society, to increase measurement tools suitable for the cultural structure of our country, and to provide health literacy information by taking into account the social and economic status of people. In particular, primary health care professionals need to be empowered in order to improve health literacy. Health policies that encourage the use of protective and preventive health services should be developed.

Cultural change over time can be tracked through health literacy assessments. Particularly stakeholders in the health-education-politics-media quadrant can accelerate efforts to increase the level of health literacy by assuming more active roles.

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