https://dergipark.org.tr/tr/pub/ijhmt Doi Number: 10.31201/ijhmt.1572124

Int Journal of Health Manag. and Tourism 2024, 9(3), 368-398

JHMT Editorial

Internatıonal Journal of Health Management and Tourism

An Analysis of the Health Literacy Levels of Students in A Public University's Faculty of Health Sciences

Olgun YILDIZ* Ayşe ŞAHİN**

* Independent Researcher, Ankara, Turkey, ORCID Number: 0009-0008-8948-0894

**Asst. Prof. Dr., Ardahan University, Faculty of Health Sciences, Department of Health Management, Ardahan, Türkiye, ORCID Number: 0000-0001-9019-4109

Received: 17.10.2024
Accepted: 16.11.2024
Research Article

Abstract

Aim: This study aimed to assess health literacy levels among Health Sciences students at a public university and examine associations between health literacy and sociodemographic characteristics.

Methods: A descriptive, cross-sectional design targeted the entire student population (N=176). No sampling was used, as the study targeted the entire population. Data were collected via face-to-face surveys using a socio-demographic form and the THLS-32 Scale. Of 176 surveys, 151 were returned, with three excluded due to incomplete responses, yielding an 84.09% response rate.

Results: Findings indicated that 66.3% of participants had sufficient or excellent health literacy. Female students scored higher on TS-AI perceptions than males, and Health Management students scored higher than Emergency Aid and Disaster Management students. Final-year students and those with social security had higher TS perceptions.

Corresponding author: Asst. Prof. Dr. Ayşe ŞAHİN, e-mail: aysesahin@ardahan.edu.tr

Cite This Paper:
Yıldız, O., Şahin, A. (2024). An analysis of the health literacy levels of students in a public university's faculty of health sciences. *International Journal of Health Management and Tourism, 9(3): 368-398.*

Conclusion: This study found generally high health literacy levels, with notable differences by gender, department, academic year, and social security status. The findings emphasize the need for tailored university health literacy programs and digital platforms to address gaps in evaluation and access skills, particularly for students lacking social security. Integrating health literacy into public health initiatives could further promote a health-literate student population.

Keywords: Health literacy, university students, THLS-32 Scale

INTRODUCTION

The concept of literacy refers to an individual's ability to engage with written language in their daily activities. Consequently, literacy has a significant impact on individuals' actions, attitudes, and norms in their daily lives (Barton & Hamilton, 2012). Indeed, as socially active beings, humans rely on literacy as a fundamental skill to comprehend and interpret the world around them throughout their lives. It is believed that literate individuals not only contribute to their personal development but also play a role in addressing and improving societal issues (Güneş, 1997). Health literacy, specifically, is defined as "the ability to read, listen, comprehend, think critically, and make decisions regarding health-related information" (Huang et al., 2020). Increasing health literacy levels leads to improvements in quality of life and the consumption of more beneficial health services, while simultaneously reducing the costs associated with healthcare consumption (Ateş et al., 2024)

The Concept of Health Literacy

Health literacy has become an increasingly important concept in public health and healthcare services since the 1970s (Simonds, 1974). It refers to individuals' ability to access, comprehend, and utilize health information. The World Health Organization (WHO) defines health literacy as the ability to correctly understand and make decisions about health-related information to protect, improve, and enhance quality of life (Nutbeam, 1998; WHO, 2013). Anbarasan et al. (2019) emphasized that health literacy determines individuals' capacity to make informed health-related decisions. The Ministry of Health defines this concept within the framework of cognitive and social skills (Health Promotion and Development Glossary, 2011), while the Institute of Medicine describes health literacy as the ability to read, understand, and use health information to make appropriate health decisions (Nielsen-Bohlman et al., 2004). Hussein et al. (2018) define health

literacy as the ability of individuals to use personal data and skills to make health decisions, highlighting its crucial role in improving healthcare systems. Sorensen et al. (2012) describe health literacy as the ability to access, comprehend, and apply health information to improve health and prevent disease. Berry et al. (2017) argue that health literacy encompasses the skills necessary to access and use information to make decisions and perform actions that impact health. Furthermore, health literacy is considered a critical competence for managing and utilizing health information and is recognized as a fundamental component of health promotion and development (Kirchhoff et al., 2022).

The Importance of Health Literacy

Health literacy (HL) began to gain significance in the 1900s and became a broader conceptual framework with the increasing number of studies on the topic in the 2000s (Özman, 2023). Initially discussed in the United States and Canada, HL has gradually become an important concept in healthcare services and public health on a global scale. In Europe, the HLS-EU project developed the first large-scale survey on health literacy, which played a key role in expanding understanding in this field. This project highlighted how HL enhances individuals' abilities to maintain and improve their quality of life, particularly by making it easier to understand and navigate healthcare systems in developed societies (Kickbusch & Maag, 2008). Consequently, the project illustrated the essential role of HL in helping individuals better manage their health by providing the knowledge and skills needed to make informed decisions. Therefore, the significance of HL has become evident at both individual and societal levels, with direct effects on public health and the healthcare system.

Individuals with low health literacy (HL) face significant challenges in disease management, medication adherence, and self-care, often leading to restricted access to healthcare services and difficulties managing chronic conditions. Studies indicate that those with low HL tend to have limited knowledge, participate less in preventive health services, and experience higher hospitalization rates (Taggart et al., 2012; Nutbeam, 2008). Beyond individual health, HL profoundly impacts public health. Low HL levels contribute to inadequate understanding of health information, insufficient disease knowledge, and poor medication adherence, resulting in worsened health outcomes, higher mortality risks, inefficient healthcare utilization, increased costs, and widened health disparities (Nielsen-Bohlman et al., 2004; Berkman et al., 2011; Sheridan et al., 2011). Moreover, low HL hampers effective communication with healthcare

providers, further limiting healthcare access (Yılmaz, Çolak & Ersoy, 2009). Enhancing HL is essential not only for individuals' self-care but also for the well-being of their families and communities..

Another important aspect of HL is its role in the management of non-communicable diseases (NCDs). The growing prevalence of NCDs and the associated increase in healthcare costs have further emphasized the importance of HL (Joshi et al., 2024). Current research indicates that HL is one of the most promising and cost-effective approaches to preventing and managing non-communicable diseases (Pleasant, 2014; Pleasant et al., 2015). Individuals with high HL levels are more capable of accessing healthcare services, scheduling appointments, managing insurance procedures, and handling medical costs (Dexter et al., 1998; Wilson et al., 2003). This facilitates more effective integration into healthcare systems and enhances the quality of healthcare services.

In conclusion, improving HL is of great importance not only for individual health but also for public health. In societies with adequate HL levels, individuals positively impact both their own health and the overall health of the community. The World Health Organization has also identified HL as a key tool for achieving the Sustainable Development Goals (WHO, 2017). Therefore, enhancing HL not only helps individuals maintain a healthy lifestyle but also improves the efficiency of healthcare systems (Nutbeam, 2000; McQueen et al., 2007).

Factors and Conditions Influencing Health Literacy

Health literacy (HL) is influenced by various factors and plays a significant role in individuals' capacity to access, understand, and utilize health information. Key factors include education, socioeconomic status, age, gender, occupation, lifestyle, and others. Individuals with higher levels of education tend to better comprehend health information and access healthcare services more easily, while those with lower educational attainment often have HL levels below average (Lael-Monfared et al., 2019; Özman, 2023). Low-income individuals face greater difficulties in accessing and utilizing healthcare services, negatively affecting their HL levels (Özman, 2023). Furthermore, advancing age can impair individuals' ability to understand health information, leading to lower HL levels (Hüseyin et al., 2018). While women generally have better access to health information, men often exhibit lower HL levels (Hüseyin et al., 2018). Individuals working in the healthcare sector tend to have higher HL levels (Özman, 2023). Additionally, lifestyle behaviors play a role in HL, as individuals with healthier living habits are shown to have higher

HL levels (Hüseyin et al., 2018). A lack of digital literacy can also limit access to health information, thereby lowering HL levels (Özman, 2023).

Levels of Health Literacy

Recent studies on health literacy have emphasized the importance of individuals being informed about their health. In this context, health literacy levels are categorized into three types: functional, interactive, and critical (Nutbeam, 2000; Ishikawa, 2008). Functional health literacy refers to individuals' ability to acquire basic knowledge, such as understanding health risks and how to use healthcare services, and applying this information in their daily lives (Nutbeam & Lloyd, 2021). Interactive health literacy involves more advanced skills, enabling individuals to adapt new information to changing circumstances and make decisions in collaboration with others. Those with this level of literacy can effectively evaluate various sources of information and utilize communication channels to make informed health decisions (Nutbeam & Lloyd, 2021). Critical health literacy, the most advanced level, involves the ability to critically analyze information from different sources. This level of literacy provides both individual and societal benefits by creating a profound impact on health determinants (Chinn, 2011).

Recent Studies on Health Literacy

In recent years, numerous studies have examined health literacy (HL), highlighting how it is shaped by various factors, including education level, age, gender, socioeconomic status, and lifestyle. Sezer (2012) found that HL scores improve with higher education levels, establishing a positive correlation between health literacy and healthy lifestyle choices. Similarly, Türkoğlu (2016) revealed a significant association between HL and self-care practices in Isparta, noting that factors such as occupation, age, and family size influence HL, with individuals using alternative medicine reporting higher HL levels.

Research among university students has shown varied HL levels influenced by sociodemographic factors. Malatyalı (2018) reported that 62.8% of students in Sivas had sufficient or excellent HL, with higher scores among women and correlations with age, gender, family education, and income. Altınok (2019) observed that HL levels among health sciences students differed by department and health status, although age, class year, and family background in healthcare had no significant effect. Further emphasizing the impact of lifestyle on HL, Arıkan (2020) found a moderate, positive relationship between healthy behaviors and HL, underscoring the importance of promoting HL development.

Additional studies explore HL among specific age groups and academic settings. Kavuncuoğlu (2020) found age effects on HL in Erzurum, with those aged 25-44 showing generally sufficient or excellent HL levels. Juvinyà-Canal et al. (2020) investigated HL in Spain, reporting that nursing students had the highest scores among university students and that HL levels varied by academic department. Alp (2021) observed that among students in Burdur, HL did not significantly differ by gender, location, faculty, or income level, although self-control was a factor in healthy behaviors.

More recent studies have broadened the scope of literacy to include digital and health competencies in public health contexts. Farooq (2023) examined digital literacy among medical students in Lahore, finding high proficiency in operational skills and privacy protection, with female students scoring higher in privacy protection while male students excelled in other dimensions. Tekin and Tekin (2024) found a weak positive correlation between health literacy levels and healthy lifestyle behaviors among Faculty of Health Sciences students.In Turkey, Yılmaz and Günal (2023) found that female students had higher HL levels than males in a health sciences faculty, with HL increasing across academic years, although participants demonstrated only average competency in interpreting health policies. In their study, Çın et al. (2024) associated the high COVID-19 awareness and health literacy (SOY) scores and the low levels of COVID-19 phobia among Faculty of Health Sciences students with their enrollment in the Faculty of Health Sciences. Akgül et al. (2023) explored the link between HL and COVID-19 awareness, observing that higher HL among health sciences students correlated with heightened COVID-19 awareness and significant differences in COVID-19 awareness based on gender, residence, and high school background. Assessing and enhancing health literacy (HL) in faculties of health and medicine is of great importance, given the future roles these students will undertake within the healthcare system. Understanding HL levels accurately and implementing educational programs to improve these levels are critical steps toward fostering a health-literate community of healthcare professionals in the future.

1. RESEARCH METHODOLOGY

Purpose of the Research: This study aimed to assess health literacy levels among Health Sciences students at a state university and examine associations with sociodemographic characteristics.

Sampling and Data Collection: This study is quantitative, descriptive, and cross-sectional research. The research aimed to evaluate health literacy among all students enrolled in the Faculty of Health Sciences at a state university between November 1, 2022, and February 1, 2023 (N=176). The study did not employ any sampling method, aiming to reach the entire population. Out of the 176 questionnaires distributed, 151 were returned, with three questionnaires excluded due to incomplete or biased responses, resulting in a response rate of 84.09%.

The research questions are as follows:

I. What are the health literacy levels of the participants?

II. Do participants' health literacy levels differ according to socio-demographic characteristics?

Data Collection Tools: The data collection instrument used in this study consisted of two sections and a total of 42 questions:

Socio-Demographic Data Form: This section gathered information regarding participants' gender, age, marital status, place of residence, social security status, and other relevant sociodemographic details.

Turkey Health Literacy Scale-32 (THLS-32): Developed by the Turkish Ministry of Health in 2016, the THLS-32 is based on the "European Health Literacy Survey-HLS-EU" and has been validated and tested for reliability in Turkey. It contains 32 items structured into *two* main dimensions: Treatment and Service (TS) and Disease Prevention/Health Promotion (DPHP). These dimensions are further divided into *four* processes (Accessing Health-Related Information-AHRI, Understanding Health-Related Information-UHRI, Appraising Health-Related Information-AHRI, and Applying Health-Related InformationAHRI), making a total of *eight* subdimensions.

The TSOY-32 scale consists of 32 items, with a 5-point Likert scale (1 = Very easy, 2 = Easy, 3 = Difficult, and 4 = Very difficult, 5= No opinion). Codes 1-4 are recoded to 4-1 before scoring, and the total score is standardized to a 0-50 scale using:

Formula:

$$Index = (Mean - 1) * (\frac{50}{3})$$

Definitions:

Index: The calculated individual-specific index.

Mean: The average score

1: Lowest possible mean (for an index minimum of 0).

3: Mean range.

50: Maximum chosen score.

The index values derived from the results are used to categorize health literacy into four levels:

0-25 points: inadequate

>25-33 points: problematic – limited

>33-42 points: sufficient

>42-50 points: excellent

Data Analysis: Data were transferred to IBM SPSS 22.00 for statistical analysis. The Kolmogorov-Smirnov test was applied to assess the normality of the data distribution, which revealed a non-normal distribution. Consequently, non-parametric tests were employed, including the Mann-Whitney U Test and Kruskal-Wallis H Test, to analyze differences. Spearman's correlation coefficient was used to examine relationships between variables. Descriptive statistics, such as frequency distributions, percentages, standard deviations, and arithmetic means, were calculated for sociodemographic and other relevant data. All data were analyzed within a 95% confidence interval and a 5% margin of error.

Ethical Approval: Ethical approval for this study was granted by the Non-Interventional Clinical Research Ethics Committee of Ardahan University. It is assumed that all students who participated in the study answered the questionnaire honestly, accurately, and impartially. However, the data collected from these students cannot be generalized to other universities in Turkey.

2. ANALYSIS

The distribution of socio-demographic characteristics of the students who participated in the research is shown in Table 1.

Table 1: Distribution of Socio-Demographic Characteristics of Participants (n=148)

	Frequency (f)	**Percentage (%)**		**Frequency (f)**	**Percentage (%)**
Gender			**Department**		
Female	96	64.9	Emergency Aid and Disaster Management (EADM)	51	34.5
Male	52	35.1	Health Management (HM)	97	65.5
Marital Status			**Class**		
Single	147	99.3	EADM-1	32	21.6

Married	1	0.7	EADM-3	19	12.8
Age			HM-1	34	23.0
18-19 yaş	34	23.0	HM-3	28	18.9
20-21 yaş	59	39.9	HM-4	35	23.6
22 yaş ve üzeri	55	37.2	**Social Security**		
Place of Residence			None	50	33.8
Village	38	25.7	SGK	86	58.1
District	49	33.1	Other	12	8.1
City	61	41.2	**Income Status**		
Chronic Disease			Income less than expenses	58	39.2
Yes	11	7.4	Income equals expenses	73	49.3
No	137	92.6	Income more than expenses	17	11.5

Of the participants, 64.9% were female, the vast majority were single (99.3%), and 39.9% belonged to the 20-21 age group. In terms of the families' place of residence, 41.2% lived in urban areas. While 92.6% of the students had no chronic illness, 65.5% were studying in the Health Management (HM) department, 23.6% were HM-4th year students, 58.1% were covered by the Social Security Institution (SGK), and 49.3% reported that their income was equal to their expenses.

The normality and reliability analyses, as well as the mean scores of the data, are presented in Table 2.

Table 2: Normality and Reliability Analysis with Participants' Mean Scores (n=148)

Dimension	Kolmogorov-Smirnov (p)	Cronbach's Alpha	Mean	Std. Deviation (SD)
Treatment and Service (TS)	.001	.902	3.15	.58
Access to Information (TS-AI)	.000	.680	3,.3	.61
Understanding Information (TS-UI)	.000	.722	3.11	.67
Evaluating Information (TS-EI)	.000	.675	**2.93**	.72
Applying/Using Information (TS-AUI)	.000	.737	**3.32**	.64
Disease Prevention and Health Promotion (DPHP)	.008	.927	3.17	.61
Access to Information (DPHP-AI)	.000	.781	3.17	.70
Understanding Information (DPHP-UI)	.000	.707	**3.18**	.63
Evaluating Information (DPHP-EI)	.000	.739	**3.18**	.66
Applying/Using Information (DPHP-AUI)	.000	.817	**3.14**	.73
Access to Health-Related Information (A-HRISİ-BU)	.000	.833	3.20	.60
Understanding Health-Related Information (U-HRI)	.000	.829	3.14	.60
Evaluating Health-Related Information (E-HRI)	.017	.814	**3.06**	.63
Applying/Using Health-Related Information (AU-HRI)	.000	.850	**3.23**	.62

Total Score for THLS-32 Scale	.000	.951	**3.16**	.57

p=<.05

Based on the data presented in Table 2 and the analyses conducted, it was determined that the data did not follow a normal distribution, as the Kolmogorov-Smirnov test results indicated p<.05. Therefore, non-parametric tests (Mann-Whitney U and Kruskal-Wallis H tests) were chosen for further analysis. The reliability analysis results showed high internal consistency, with the overall (THLS-32) Cronbach's Alpha coefficient for the scale being (α=.951), along with high consistency in the Treatment and Service (TS) subdimension (α=.902) and the Disease Prevention and Health Promotion (DPHP) subdimension (α=.927). This indicates that the scale is reliable and provides consistent results.

Additionally, the arithmetic mean scores of the participants were examined for the overall scale and all subdimensions, and it was found that the mean perception scores of participants were above 3 for all. Therefore, it was concluded that participants have a health literacy level above the average.

2.1. Findings for the First Research Question

The first research question in the study was defined as: "I. What are the health literacy levels of the participants?" To address this question, the index mean scores and health literacy levels for the overall scale and all subdimensions were examined.

The index mean scores related to the health literacy levels of the participants are presented in Table 3.

Table 3: Participants' Mean Index Scores and Health Literacy Levels Based on the THLS-32 Scale and its Subdimensions (n=148)

Health Literacy Index Mean Scores								**Health Literacy Levels**							
Dimension	**Mean**	**Std. Dev.**	**Std. Error**	**95% Confidence Interval**		**Min.**	**Max.**	**Inadequate** (0-25)		**Problematic** (>25-33)		**Sufficient** (>33-42)		**Excellent** (>42-50)	
		(SD)	**(SE)**	**Min.**	**Max.**			**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Treatment and Service (TS)	**35.8**	9.64	.79	34.2	37.4	5.21	50	22	14.9	22	14.9	64	**43.2**	40	**27**
Access to Information (TS-AI)	37.1	10.2	.84	35.5	38.8	0	50	26	17.6	7	4.7	71	48	44	29.7
Understanding Information (TS-UI)	35.2	11.1	.91	33.4	37	0	50	28	18.9	15	10.1	70	47.3	35	23.6
Evaluating Information (TS-EI)	32.3	11.7	.96	30.4	34.2	0	50	43	29.1	18	12.2	61	41.2	26	17.6
Applying/Using Information (TS-AUI)	38.7	10.7	.88	37	40.5	0	50	18	12.2	8	5.4	63	42.6	59	39.9

Disease Prevention and Health Promotion (DPHP)	**36.1**	10.2	.84	34.4	37.8	8.33	50	25	16.9	21	14.2	57	**38.5**	45	**30.4**
Access to Information (DPHP-AI)	36.2	11.7	.96	34.3	38	4.17	50	28	18.9	8	5.4	68	45.9	44	29.7
Understanding Information (DPHP-UI)	36.3	10.5	.86	34.6	38	0	50	24	16.2	9	6.1	76	51.4	39	26.4
Evaluating Information (DPHP-EI)	36.4	11.1	.91	34.5	38.2	0	50	27	18.2	17	11.5	59	39.9	45	30.4
Applying/Using Information (DPHP-AUI)	35.6	12.1	.99	33.6	37.6	0	50	17	11.5	20	13.5	64	43.2	45	30.4
Access to Health-Related Information (A-HRI)	36.6	9.95	.82	35	38.3	8.33	50	19	12.8	20	13.5	67	**45.3**	42	**28.4**
Understanding Health-Related Information (U-HRI)	35.74	9.93	.82	34.1	37.4	2.08	50	21	14.2	23	15.5	67	**45.3**	37	**25**
Evaluating Health-Related Information (E-HRI)	**34.28**	10.45	.86	32.6	36	4.17	50	29	19.6	28	18.9	58	**39.2**	33	**22.3**
Applying/Using Health-Related Information (AU-HRI)	**37.05**	10.59	.87	35.3	38.8	0	50	17	11.5	20	13.5	62	**41.9**	49	**33.1**
Total Score for THLS-32 Scale	**35.95**	9.46	.78	34.4	37.5	10.42	50	19	12.8	31	20.9	59	**39.9**	39	**26.4**

Based on Table 3, the overall index mean score for the THLS-32 scale was found to be 35.95 (95% CI: 34.42-37.49, min.:10,42-max:50). The index mean score for the Treatment and Service (TS) dimension was 35.80 (95% CI: 34.24-37.37, min.:5,21-max:50), which is lower than the overall mean, while the Disease Prevention and Health Promotion (DPHP) dimension had a mean score of 36.10 (95% CI: 34.44-37.76, min.:8,33-max:50), higher than the overall mean.

When examining the subdimensions related to evaluating health-related information, it was observed that the score for the Applying/Using Health-Related Information (AU-HRI) subdimension was the highest at 37.05 (95% CI: 35.33-38.77), while the Evaluating Health-Related Information (E-HRI) subdimension had the lowest score at 34.28 (95% CI: 32.58-35.98).

According to the information in Table 3, 66.3% of the overall study group had sufficient or excellent health literacy levels. The findings related to the subdimensions are as follows: 70.2% of participants had sufficient or excellent health literacy in the TH dimension, 68.9% in the DPHP

dimension, 73.8% in the A-HRI subdimension, 70.3% in the U-HRI subdimension, 61.5% in the E-HRI subdimension, and 75% in the AU-HRI subdimension.

2.2. Findings for the Second Research Question

The second research question of the study was defined as: "II. Do participants' health literacy levels differ according to their socio-demographic characteristics?" The evaluation of the data was conducted through difference analyses using non-parametric tests (Mann-Whitney U and Kruskal-Wallis H tests).

Table 4: Comparison of the THLS-32 Scale and Subdimensions by Gender (n=148)

Dimension	Gender	N	Mean Rank	Mann-Whitney U	p-value
Treatment and Service (TS)	Male	52	70.19	2272.0	.368
	Female	96	76.83		
Access to Information (TS-AI)	Male	52	63.72	1935.5	**.023***
	Female	96	80.34		
Understanding Information (TS-UI)	Male	52	71.75	2353.0	.562
	Female	96	75.99		
Evaluating Information (TS-EI)	Male	52	76.06	2577.0	.740
	Female	96	73.66		
Applying/Using Information (TS-AUI)	Male	52	71.31	2330.0	.498
	Female	96	76.23		
Disease Prevention and Health Promotion (DPHP)	Male	52	73.84	2461.5	.890
	Female	96	74.86		
Access to Information (DPHP-AI)	Male	52	72.59	2396.5	.686
	Female	96	75.54		
Understanding Information (DPHP-UI)	Male	52	71.46	2338.0	.519
	Female	96	76.15		
Evaluating Information (DPHP-EI)	Male	52	77.57	2655.5	.517
	Female	96	72.84		
Applying/Using Information (DPHP-AUI)	Male	52	72.16	2374.5	.621
	Female	96	75.77		
Access to Health-Related Information (A-HRI)	Male	52	67.07	2109.5	.119
	Female	96	78.53		
Understanding Health-Related Information (U-HRI)	Male	52	71.81	2356.0	.572
	Female	96	75.96		
Evaluating Health-Related Information (E-HRI)	Male	52	76.81	2616.0	.629
	Female	96	73.25		
Applying/Using Health-Related Information (AU-HRI)	Male	52	71.96	2364.0	.594
	Female	96	75.88		
Total Score for THLS-32	Male	52	72.28	2380.5	.643
	Female	96	75.70		

*: $p<.05$.

According to Table 4, it was found that only the perception of TS-AI (Access to Information in the Treatment and Service dimension) showed a significant difference according to gender ($U=1935.5$; $p=.023$, $p<.05$). According to this result, women (Mean Rank=80.34) had

higher TS-AI perceptions compared to men (Mean Rank=63.72). No significant gender differences were found in any of the other subdimensions of the scale (p>.05).

Table 5: Comparison of the THLS-32 Scale and Subdimensions by Age (n=148)

Dimensions	Age Group	N	Mean Rank	Kruskal-Wallis H- χ^2	p-Value	Difference (Post-hoc LSD)
Treatment and Service (TS)	18-19 years[1]	34	65.88	5.531	.063	
	20-21 years[2]	59	69.58			
	22 + years[3]	55	85.11			
Access to Information (TS-AI)	18-19 years[1]	34	62.15	8.317	**.016***	(1-3)
	20-21 years[2]	59	69.98			
	22 + years[3]	55	86.98			
Understanding Information (TS-UI)	18-19 years[1]	34	70.68	4.269	.118	
	20-21 years[2]	59	68.04			
	22 + years[3]	55	83.79			
Evaluating Information (TS-EI)	18-19 years[1]	34	71.78	0.978	.613	
	20-21 years[2]	59	71.87			
	22 + years[3]	55	79.00			
Applying/Using Information (TS-AUI)	18-19 years[1]	34	62.62	6.930	**.031***	(1-3)
	20-21 years[2]	59	70.97			
	22 + years[3]	55	85.64			
Disease Prevention and Health Promotion (DPHP)	18-19 years[1]	34	66.63	1.662	.436	
	20-21 years[2]	59	75.25			
	22 + years[3]	55	78.55			
Access to Information (DPHP-AI)	18-19 years[1]	34	69.82	0.539	.764	
	20-21 years[2]	59	76.07			
	22 + years[3]	55	75.71			
Understanding Information (DPHP-UI)	18-19 years[1]	34	69.84	1.397	.497	
	20-21 years[2]	59	72.36			
	22 + years[3]	55	79.68			
Evaluating Information (DPHP-EI)	18-19 years[1]	34	70.35	0.682	.711	
	20-21 years[2]	59	73.78			
	22 + years[3]	55	77.84			
Applying/Using Information (DPHP-AUI)	18-19 years[1]	34	60.57	4.831	.089	
	20-21 years[2]	59	77.77			
	22 + years[3]	55	79.60			
Access to Health-Related Information (A-HRI)	18-19 years[1]	34	66.07	2.575	.276	
	20-21 years[2]	59	73.43			
	22 + years[3]	55	80.85			
Understanding Health-Related Information (U-HRI)	18-19 years[1]	34	70.90	2.394	.302	
	20-21 years[2]	59	70.01			
	22 + years[3]	55	81.55			
Evaluating Health-Related Information (E-HRI)	18-19 years[1]	34	70.71	0.885	.642	
	20-21 years[2]	59	72.80			
	22 + years[3]	55	78.67			
Applying/Using Health-Related Information (AU-HRI)	18-19 years[1]	34	60.28	6.024	**.049***	(1-3)
	20-21 years[2]	59	74.66			
	22 + years[3]	55	83.12			
Total Score for THLS-32	18-19 years[1]	34	65.49			

	20-21 years[2]	59	72.81	3.228	.199
	22 + years[3]	55	81.88		

*: p<.05

According to Table 5, statistically significant differences were found between participants' ages and their perceptions in the health literacy subdimensions. In terms of Access to Information in the Treatment and Service (TS-AI) dimension, participants aged 22 and above (Mean Rank = 86.98) had higher perceptions compared to those aged 18-19 (Mean Rank = 62.15) (χ^2=8.317; p=.016). Similarly, in the Applying/Using Information in the Treatment and Service (TS-AUI) dimension, participants aged 22 and above (Mean Rank = 85.64) had higher perceptions than those in the 18-19 age group (Mean Rank = 62.62) (χ^2=6.930; p=.031). Furthermore, in the Applying/Using Health-Related Information (AU-HRI) dimension, participants aged 22 and above (Mean Rank = 83.12) had higher perceptions than those in the 18-19 age group (Mean Rank = 60.28) (H=6.024; p=.049). These findings indicate that age has an effect on health literacy perceptions.

Table 6: Comparison of the THLS-32 Scale and Subdimensions by Academic Department (n=148)

Dimensions	Department	N	Mean Rank	Mann-Whitney U	p-value
Treatment and Service (TS)	EADM	51	62.61	3080.0	**.014***
	HM	97	80.75		
Access to Information (TS-AI)	EADM	51	62.30	3095.5	**.011***
	HM	97	80.91		
Understanding Information (TS-UI)	EADM	51	61.31	3146.0	**.006***
	HM	97	81.43		
Evaluating Information (TS-EI)	EADM	51	67.10	2851.0	.125
	HM	97	78.39		
Applying/Using Information (TS-AUI)	EADM	51	63.75	3021.5	**.025***
	HM	97	80.15		
Disease Prevention and Health Promotion (DPHP)	EADM	51	67.84	2813.0	.170
	HM	97	78.00		
Access to Information (DPHP-AI)	EADM	51	69.78	2714.0	.326
	HM	97	76.98		
Understanding Information (DPHP-UI)	EADM	51	69.99	2703.5	.346
	HM	97	76.87		
Evaluating Information (DPHP-EI)	EADM	51	67.71	2820.0	.158
	HM	97	78.07		
Applying/Using Information (DPHP-AUI)	EADM	51	64.47	2985.0	**.037***
	HM	97	79.77		
Access to Health-Related Information (A-HRI)	EADM	51	65.81	2916.5	.073
	HM	97	79.07		
Understanding Health-Related Information (U-HRI)	EADM	51	64.73	2972.0	**.043***
	HM	97	79.64		
Evaluating Health-Related Information (E-HRI)	EADM	51	67.14	2849.0	.129
	HM	97	78.37		

Applying/Using Health-Related Information (AU-HRI)	EADM	51	63.58	3030.5	**.024***
	HM	97	80.24		
Total Score for THLS-32	EADM	51	65.01	2957.5	.051
	HM	97	79.49		

*: p<.05

According to Table 6, significant differences were found in participants' perceptions of the Treatment and Service (TS) dimension and its related subdimensions based on the academic department they were enrolled in. For the overall TS perception, students in the Health Management (HM) department (Mean Rank= 80.75) had higher perceptions compared to students in the Emergency Aid and Disaster Management (EADM) department (Mean Rank = 62.61) (U=3080.0; p=.014). Similarly, in the TS-AI (Access to Information) dimension, HM students (Mean Rank = 80.91) had higher perceptions than EADM students (Mean Rank = 62.30) (U=3095.5; p=.011). In the TS-UI (Understanding Information) dimension, HM students (Mean Rank = 81.43) scored significantly higher than EADM students (Mean Rank = 61.31) (U=3146.0; p=.006). For the TS-AUI (Applying/Using Information) dimension, HM students (Mean Rank = 80.15) also had higher perceptions compared to EADM students (Mean Rank = 63.75) (U=3021.5; p=.025).

Additionally, in the DPHP-AUI (Applying/Using Information in Disease Prevention and Health Promotion) dimension, HM students (Mean Rank = 79.77) had higher perceptions compared to EADM students (Mean Rank = 64.47) (U=2985.0; p=.037).

For the U-HRI (Understanding Health-Related Information) dimension, HM students (Mean Rank = 79.64) had higher perceptions compared to EADM students (Mean Rank = 64.73) (U=2972.0; p=.006). Similarly, in the Sİ-BKU (Applying/Using Health-Related Information) dimension, HM students (Mean Rank = 80.24) scored significantly higher than EADM students (Mean Rank = 63.58) (U=3030.5; p=.024).

Due to the presence of only 2 students in HM-2 and 3 students in EADM-2, these groups were excluded from the study to avoid significant bias in the data.

Table 7: Comparison of THLS-32 Scale and its Sub-Dimensions According to Participants' Classes (n=148)

Dimensions	Class	N	Mean Rank	Kruskal Wallis H-χ2	p-value	Difference (Post-hoc LSD
Treatment and Service (TS)	EADM-1[1]	32	52.00			
	EADM-3[2]	19	80.47			(1-3)

	HM-1[3]	34	82.96	19.746	**.001***	(1-5)
	HM-3[4]	28	62.14			(4-5)
	HM-4[5]	35	93.50			
Access to Information (TS-AI)	EADM-1[1]	32	47.56	25.188	**.000***	(1-2)
	EADM-3[2]	19	87.13			(1-3)
	HM-1[3]	34	77.07			(1-5)
	HM-3[4]	28	66.14			(4-5)
	HM-4[5]	35	96.46			
Understanding Information (TS-UI)	EADM-1[1]	32	56.69	14.771	**.005***	(1-5)
	EADM-3[2]	19	69.11			
	HM-1[3]	34	82.09			
	HM-3[4]	28	66.13			
	HM-4[5]	35	93.04			
Evaluating Information (TS-EI)	EADM-1[1]	32	61.92	10.431	.034	
	EADM-3[2]	19	75.82			
	HM-1[3]	34	86.00			
	HM-3[4]	28	60.70			
	HM-4[5]	35	85.16			
Applying/Using Information (DPHP-AUI)	EADM-1[1]	32	51.36	18.691	**.001***	(1-5)
	EADM-3[2]	19	84.63			
	HM-1[3]	34	79.81			
	HM-3[4]	28	65.46			
	HM-4[5]	35	92.23			
Disease Prevention and Health Promotion (DPHP)	EADM-1[1]	32	61.31	16.307	**.003***	(1-5)
	EADM-3[2]	19	78.84			
	HM-1[3]	34	74.46			(4-5)
	HM-3[4]	28	58.98			
	HM-4[5]	35	96.66			
Access to Information (DPHP-AI)	EADM-1[1]	32	63.73	13.182	**.010***	(1-5)
	EADM-3[2]	19	79.97			
	HM-1[3]	34	74.72			(4-5)
	HM-3[4]	28	59.02			
	HM-4[5]	35	93.54			
Understanding Information (DPHP-UI)	EADM-1[1]	32	63.72	14.540	**.006***	(1-5)
	EADM-3[2]	19	80.55			
	HM-1[3]	34	75.12			(4-5)
	HM-3[4]	28	57.52			
	HM-4[5]	35	94.06			
Evaluating Information (DPHP-EI)	EADM-1[1]	32	64.36	16.518	**.002***	(1-5)
	EADM-3[2]	19	73.34			
	HM-1[3]	34	73.46			(4-5)
	HM-3[4]	28	58.71			
	HM-4[5]	35	98.04			
Applying/Using Information (DPHP-AUI)	EADM-1[1]	32	56.31	14.229	**.007***	(1-5)
	EADM-3[2]	19	78.21			
	HM-1[3]	34	77.82			
	HM-3[4]	28	65.55			
	HM-4[5]	35	93.04			
Access to Health-Related Information (A-HRI)	EADM-1[1]	32	55.16	18.703	**.001***	(1-5)
	EADM-3[2]	19	83.76			
	HM-1[3]	34	76.18			(4-5)
	HM-3[4]	28	61.68			
	HM-4[5]	35	95.79			

Understanding Health-Related Information (U-HRI)	EADM-1[1]	32	59.42	15.996	**.003***	(1-5) (4-5)
	EADM-3[2]	19	73.66			
	HM-1[3]	34	79.22			
	HM-3[4]	28	60.30			
	HM-4[5]	35	95.51			
Evaluating Health-Related Information (E-HRI)	EADM-1[1]	32	62.20	13.852	**.008***	(1-5) (4-5)
	EADM-3[2]	19	75.45			
	HM-1[3]	34	80.06			
	HM-3[4]	28	58.11			
	HM-4[5]	35	92.94			
Applying/Using Health-Related Information (AU-HRI)	EADM-1[1]	32	53.81	18.464	**.001***	(1-5) (4-5)
	EADM-3[2]	19	80.03			
	HM-1[3]	34	78.97			
	HM-3[4]	28	63.09			
	HM-4[5]	35	95.20			
Total Score for THLS-32	EADM-1[1]	32	56.58	19.508	**.001***	(1-5) (4-5)
	EADM-3[2]	19	79.21			
	HM-1[3]	34	77.76			
	HM-3[4]	28	59.27			
	HM-4[5]	35	97.34			

*: p<.05

In Table 7, it was found that there are significant differences in participants' perceptions of the THLS-32 scale overall and its sub-dimensions based on the classes they have attended. In terms of TS perception, it was determined that EADM first-year students (Mean Rank=52.00) had lower scores compared to HM first-year (Mean Rank=82.96) and HM fourth-year (Mean Rank=93.50) students (χ^2=19.746; p=.001). Similarly, in the TS-AI dimension, EADM first-year students (Mean Rank=47.56) had lower scores compared to HM first-year (Mean Rank=77.07), HM fourth-year (Mean Rank=96.46), and EADM third-year (Mean Rank=87.13) students (χ^2=25.188; p=.000).

In the TS-UI dimension, HM fourth-year students (Mean Rank=93.04) exhibited higher perceptions compared to EADM first-year students (Mean Rank=56.69) (χ^2=14.771; p=.005). Likewise, in the TS-AUI dimension, HM fourth-year students (Mean Rank=92.23) had higher perceptions compared to EADM first-year students (Mean Rank=51.36) (χ^2=18.691; p=.001).

For general DPHP perception, HM fourth-year students (Mean Rank=96.66) scored higher than EADM first-year students (Mean Rank=61.31) and HM third-year students (χ^2=16.307; p=.003). Additionally, in the DPHP-AI, DPHP-UI, and DPHP-EI dimensions, the perceptions of HM fourth-year students were found to be significantly higher than those of EADM first-year and HM third-year students (p<.05).

In the A-HRI and U-HRI dimensions, HM fourth-year students (Mean Ranks=95.79 and 95.51, respectively) had significantly higher perceptions compared to EADM first-year and HM third-year students (χ^2=18.703; p=0.001 and χ^2=15.996; p=.003). Finally, in terms of total THLS-32 scores, HM fourth-year students (Mean Rank=97.34) exhibited higher perceptions compared to EADM first-year (Mean Rank=56.58) and HM third-year (Mean Rank=59.27) students (χ^2=19.508; p=.001).

Table 8: Comparison of THLS-32 Scale and its Sub-Dimensions According to Participants' Social Security Status (n=148)

Dimension	Social Security	N	Mean Rank	Kruskal Wallis H-χ^2	p-value	Difference (Post-hoc LSD
Treatment and Services (TS)	None[1]	50	61.31	7.672	**.022***	(1-2)
	SGK[2]	86	80.08			
	Other[3]	12	89.50			
Access to Information (TS-AI)	None[1]	50	60.31	9.475	**.009***	(1-2) (1-3)
	SGK[2]	86	80.12			
	Other[3]	12	93.33			
Understanding Information (TS-UI)	None[1]	50	66.63	3.372	.185	
	SGK[2]	86	77.10			
	Other[3]	12	88.67			
Evaluating Information (TS-EI)	None[1]	50	65.66	3.260	.196	
	SGK[2]	86	79.11			
	Other[3]	12	78.29			
Applying Information (TS-AUI)	None[1]	50	63.79	5.048	.080	
	SGK[2]	86	79.27			
	Other[3]	12	84.96			
Disease Prevention and Health Promotion (DPHP)	None[1]	50	69.10	1.268	.530	
	SGK[2]	86	76.84			
	Other[3]	12	80.21			
Access to Information (DPHP-AI)	None[1]	50	71.23	.450	.799	
	SGK[2]	86	76.19			
	Other[3]	12	76.04			
Understanding Information (DPHP-UI)	None[1]	50	69.09	1.449	.485	
	SGK[2]	86	76.53			
	Other[3]	12	82.46			
Evaluating Information (DPHP-EI)	None[1]	50	72.38	.197	.906	
	SGK[2]	86	75.44			
	Other[3]	12	76.62			
Applying/Using Information (DPHP-AUI)	None[1]	50	67.96	1.885	.390	
	SGK[2]	86	77.38			
	Other[3]	12	81.12			
Access to Health-Related Information (A-HRI)	None[1]	50	64.51	4.496	.106	
	SGK[2]	86	78.62			
	Other[3]	12	86.62			
Understanding Health-Related Information (U-HRI)	None[1]	50	67.09	3.028	.220	
	SGK[2]	86	76.88			
	Other[3]	12	88.29			

Evaluating Health-Related Information (E-HRI)	None[1]	50	67.61	1.960	.375
	SGK[2]	86	78.02		
	Other[3]	12	77.96		
Applying/Using Health-Related Information (AU-HRI)	None[1]	50	65.67	3.399	.183
	SGK[2]	86	78.35		
	Other[3]	12	83.67		
Total Score for THLS-32	None[1]	50	65.59	3.563	.168
	SGK[2]	86	78.16		
	Other[3]	12	85.38		

*: p<.05.

According to Table 8, participants' perceptions of Treatment and Services (TS) show a statistically significant difference based on their social security status (χ^2=7.672; p=.022). Specifically, students with social security (Mean Rank=80.08) have higher perceptions of TH compared to those without social security (Mean Rank=61.31). Additionally, a significant difference was also found in the Treatment and Services Access to Information (TS-AI) sub-dimension based on social security status (χ^2=9.475; p=.009). Participants without any social security have the lowest health literacy perceptions in the TS-AI dimension (Mean Rank=60.31). These findings indicate that having social security has a significant impact on health literacy perceptions.

Table 9: Comparison of THLS-32 Scale and its Sub-Dimensions According to Participants' Family Income Levels (n=148)

Dimension	Income Level	N	Mean Rank	Kruskal Wallis H-χ2	p-value	Difference
Treatment and Services (TS)	Income < Expenses[1]	58	67.85	4.953	.084	
	Income = Expenses[2]	73	75.23			
	Income > Expenses[3]	17	94.03			
Access to Information (TS-AI)	Income < Expenses[1]	58	73.93	.928	.629	
	Income = Expenses[2]	73	72.81			
	Income > Expenses[3]	17	83.71			
Understanding Information (TS-UI)	Income < Expenses[1]	58	67.81	6.395	**.041***	(1-3)
	Income = Expenses[2]	73	74.47			
	Income > Expenses[3]	17	97.44			
Evaluating Information (TS-EI)	Income < Expenses[1]	58	69.42	4.662	.097	
	Income = Expenses[2]	73	73.84			
	Income > Expenses[3]	17	94.68			
Applying Information (TS-AUI)	Income < Expenses[1]	58	68.29	4.175	.124	
	Income = Expenses[2]	73	75.38			
	Income > Expenses[3]	17	91.91			
Disease Prevention and Health Promotion (DPHP)	Income < Expenses[1]	58	72.99	3.006	.222	
	Income = Expenses[2]	73	71.77			
	Income > Expenses[3]	17	91.35			

Access to Information (DPHP-AI)	Income < Expenses[1]	58	73.15	3.981	.137
	Income = Expenses[2]	73	71.12		
	Income > Expenses[3]	17	93.62		
Understanding Information (DPHP-UI)	Income < Expenses[1]	58	77.11	2.588	.274
	Income = Expenses[2]	73	69.62		
	Income > Expenses[3]	17	86.56		
Evaluating Information (DPHP-EI)	Income < Expenses[1]	58	72.16	2.264	.322
	Income = Expenses[2]	73	72.97		
	Income > Expenses[3]	17	89.03		
Applying/Using Information (DPHP-AUI)	Income < Expenses[1]	58	70.72	1.896	.387
	Income = Expenses[2]	73	74.64		
	Income > Expenses[3]	17	86.79		
Access to Health-Related Information (A-HRI)	Income < Expenses[1]	58	73.14	2.424	.298
	Income = Expenses[2]	73	72.06		
	Income > Expenses[3]	17	89.62		
Understanding Health-Related Information (U-HRI)	Income < Expenses[1]	58	72.78	3.437	.179
	Income = Expenses[2]	73	71.67		
	Income > Expenses[3]	17	92.50		
Evaluating Health-Related Information (E-HRI)	Income < Expenses[1]	58	70.59	3.887	.143
	Income = Expenses[2]	73	73.19		
	Income > Expenses[3]	17	93.44		
Applying/Using Health-Related Information (AU-HRI)	Income < Expenses[1]	58	68.41	3.344	.188
	Income = Expenses[2]	73	75.86		
	Income > Expenses[3]	17	89.44		
Total Score for THLS-32	Income < Expenses[1]	58	70.71	3.765	.152
	Income = Expenses[2]	73	73.16		
	Income > Expenses[3]	17	93.21		

*: p<.05

According to Table 9, it was determined that only the perceptions of TS-UI (Treatment and Services Understanding Information) showed a statistically significant difference based on the family income levels of the participants (χ^2=6.395; p=.041, p<.05). Specifically, participants whose families' income exceeds their expenses (Mean Rank=97.44) have higher TS-UI perceptions compared to those with families whose income is less than their expenses (Mean Rank=67.81). In contrast, no significant differences were found in the other sub-dimensions of the scale based on family income levels (p>.05).

In addition, no statistically significant differences were found in participants' health literacy perception levels based on socio-demographic variables such as marital status, parents' education levels, place of residence, or the presence of chronic illness, as indicated by the socio-demographic data form.

3. DISCUSSION

This study demonstrates that one of the state university students generally possess a high level of health literacy (HL), with 66.3% showing sufficient or excellent HL levels across several dimensions. Specifically, scores in dimensions such as Access to Health-Related Information (A-HRI) (73.7%) and Applying/Using Health-Related Information (AU-HRI) (75%) were relatively high, suggesting strong capabilities in obtaining and utilizing health information. However, a lower score in the Evaluating Health-Related Information (E-HRI) dimension (61.5%) indicates potential gaps in students' critical appraisal skills, which are crucial for informed health decisions.

Comparative studies underscore both similarities and differences across student populations. For instance, Soysal and Obuz (2020) reported very high HL levels (95.6%) among their participants, contrasting with the results of Şahinöz et al. (2018), who found only 38.4% of students with sufficient HL. Malatyalı (2018) observed that 62.8% of university students had sufficient or excellent HL, a finding more closely aligned with the current study. This variability across studies could reflect differing sample demographics, regional factors, and educational approaches, pointing to the need for more standardized methodologies to measure HL effectively.

This study also aligns with a broader national context provided by the Turkish Ministry of Health (2020), which indicated that only 31.1% of the Turkish population achieved sufficient or excellent HL levels, suggesting that university students generally display higher HL than the national average. This discrepancy may be attributed to the influence of higher education on HL, as supported by Akçilek (2017), who found generally limited HL levels in a broader population using the THLS-32 scale, and by Doğru (2021), who also reported limited HL.

Gender differences were observed in the Treatment and Services dimension, with female students scoring higher, likely due to socio-cultural factors that encourage women to engage more with health-related responsibilities. Similar results were observed by Türkoğlu (2016), Çopurlar et al. (2017), Matsumoto and Nakayama (2017), Ergün (2019), Akgül and Tanrıkulu (2023), Çın et al. (2024) who also found that women generally exhibited higher HL levels. However, contrasting studies (UNESCO, 2012; Sezer, 2012; Nacar, 2018; Alp, 2021; Ilgaz, 2021; Doğru, 2021; Ateş et al., 2024) reported no significant gender differences, while Gül (2022) found lower

HL among women in Manisa, attributing this to socio-cultural factors such as lower general literacy levels and patriarchal influences. These variations suggest that gender's impact on HL may be context-dependent, shaped by regional and cultural factors. But Tekin and Tekin (2024) identified in their study that male participants exhibit higher levels of health literacy.

The relationship between HL and age is another notable finding, with older students scoring higher in certain HL dimensions, likely due to cumulative educational experiences and increased exposure to health information. This positive association between age, class level, and HL has been supported by studies like Halladay et al. (2017), Doğrucan Katrancı (2019), Erman (2023), Çın et al. (2024). However, opposing finding from Aktaş et al. (2020) and Ateş et al. suggest that younger individuals may exhibit higher HL due to greater digital health resource engagement, highlighting the potential influence of generational access to technology.

There is no significant difference in participants' HL levels based on where they lived. Similar results were reported by Şahinöz et al. (2018), Ertem (2019) and Akgül and Tanrıkulu (2023), who found no significant effect of place of residence on HL. However, other studies (Dündar and Dede, 2012; Üçpınar, 2014; Zhang et al., 2016) found that individuals living in rural areas had lower HL levels than those in urban areas. These inconsistencies may stem from differences in access to local healthcare services, variations in digital infrastructure, changes in methods of accessing information over the years, and the limited availability of the internet in rural areas. This highlights the need for further research into the impact of rural-urban disparities on HL.

Our study found no significant differences in health literacy (HL) levels based on the income status of participants' families. Ertem (2019) reached a similar conclusion in a study conducted with university students in Ankara. Conversely, several studies have found that individuals with higher income levels tend to have higher HL levels (Özdemir et al., 2010; Liu et al., 2015; Gözlü, 2018; Yeşildal & Kaya, 2021; Karabulut, 2021; Kerkez, 2023; Çın et al, 2024).

This study did not find significant associations between HL and chronic illness status, consistent with findings by Malatyalı (2018), Yılmaz and Günal (2023), Akgül and Tanrıkulu (2023), and Ateş et al (2024). Conversely, studies by Tekin and Tekin (2024), Mitic and Rootman et al. (2012), Paasche-Orlow et al. (2007), Çimen (2015), and indicated lower HL among individuals with chronic illnesses, potentially due to the complexity of medical information and psychological barriers. Zhang et al. (2016) further noted that low HL is often associated with

psychological issues like depression, suggesting that chronic illness may exacerbate HL challenges for some individuals.

Field of study also appeared to influence HL, with Health Management (HM) students demonstrating higher HL levels than those in Emergency Aid and Disaster Management (EADM), possibly due to HM students' more extensive exposure to health-related courses. This finding is consistent with research from HLS-EU (2012), Nacar (2018), Yağız (2020), Soylar and Kadıoğlu (2020), and Kavuncuoğlu (2023), which highlighted the role of curriculum in HL development. However, other studies (İkinci et al., 2012; Kulenovic et al., 2015; Akgül and Tanrıkulu, 2023) found no significant program-based differences, potentially due to variations in curricular emphasis on HL across institutions.

Lastly, individuals with social security had higher HL levels, likely because social security facilitates access to healthcare services, thus enhancing health-related knowledge. This finding aligns with studies by Güven (2016) and Yıldırım (2022), though studies by Kendilci (2022), Kerkez (2023) reported no significant effect of social security on HL, which may be attributed to broader systemic factors affecting healthcare access.

In conclusion, this study reinforces the significance of HL for individual and public health, particularly among university students. It highlights the need for targeted strategies, such as university-based HL education programs and digital health literacy platforms, to bridge identified gaps in HL dimensions like evaluation skills. Future research should incorporate larger, diverse samples and employ qualitative methods to explore the socio-cultural and psychological factors that influence HL. Enhanced focus on faculty-specific and cross-departmental HL comparisons would offer valuable insights into the role of curriculum in shaping HL. Additionally, initiatives to integrate HL education into public health campaigns and community centers could contribute to a more health-literate society.

Limitations: This study assumes that participants answered survey questions sincerely and accurately. Limitations include its restriction to a single institution and voluntary student participants, along with a cross-sectional design limited to one time period. Thus, the findings cannot be generalized.

Conflict of Interest: The authors have no conflicts of interest to declare.

Funding: The authors declared that this study had received no financial support.

References

Akbolat, M., Kahraman, G., & Erigüç, G., Sağlam, H. (2016). Sağlık Okuryazarlığı Hasta-Hekim İlişkisini Etkiler Mi? Sakarya İlinde Bir Araştırma.15(4), 354-362.

Akçilek, E. (2017). Üniversite Öğrencilerinde Sağlık Okuryazarlığı ve Yaşam Kalitesinin İncelenmesi. Yüksek Lisans Tezi, İstanbul Medipol Üniversitesi Sağlık Bilimleri Enstitüsü, İstanbul.

Akgül, E., Tanrıkulu, F., & Dikmen, Y. (2023). Sağlık Bilimleri Alanında Öğrenim Gören Üniversite Öğrencilerinin Sağlık Okuryazarlık Düzeyleri ile COVID-19 Farkındalıkları. Etkili Hemşirelik Dergisi, 16(4), 536-548.

Aktaş, G., Öncü, E., Vasıoğlu, S.K., Güven, Y., Ceyhan, H., & Karakuş, E. (2020). Bir il örneğinde hipertansiyon hastalarının sağlık okuryazarlık düzeyi, sağlık hizmetlerinin niteliğine ilişkin değerlendirmeleri ve ilişkili faktörler. 18(1), 10-25

Alp, S. (2021). Sağlık Okuryazarlığı, Öz Kontrol ve Sağlıklı Yaşam Biçimi Davranışları Arasındaki İlişkinin Değerlendirilmesi. Sağlık Yönetimi Ana Bilim Dalı, Yüksek Lisans Tezi, Ankara Üniversitesi Sağlık Bilimleri Enstitüsü, Ankara.

Altınok, C. F. (2019). Sağlık Bilimleri Fakültesi Öğrencilerinin Sağlık Okuryazarlık Durumu ile Sağlıklı Yaşam Biçimi Davranışlarının İncelenmesi. Sağlık Yönetimi Ana Bilim Dalı,Yüksek Lisans Tezi İstanbul Medipol Üniversitesi Sağlık Bilimleri Enstitüsü, İstanbul.

Anbarasan, S., Gurtoo, A., Srinivaasan, M., & Musafir Khan, AP. (2019). Level of healthliteracy among type 2 diabetic persons and its relationtogly cemic control. J AssocPhysiciansIndia; 67:59–62

Arıkan, A. (2020). Sağlık Okuryazarlığı Düzeyinin Sağlıklı Yaşam Biçimi Davranışları Üzerindeki Etkisi: Üniversite Öğrencileri Arasında Bir Araştırma. Sağlık Yönetimi Ana Bilim Dalı, Yüksek Lisans Tezi, Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Ateş, M., Yılmaz, S., Kopuz, K., Karabay, D., & Peker, S. (2024). Sağlık Bilimleri Fakültesinde Okuyan Öğrencilerin Sağlık Okuryazarlık Düzeylerinin Belirlenmesi ve Diğer Fakülte Öğrencileri ile Karşılaştırılması.

Ateşoğlu, L. Hazer, O. (2019). Yaşlılarda sağlık okuryazarlığının başarılı yaşlanma üzerine etkisi: Ankara ili örneği. Akdemir, N. (Ed.). Geriatri ve Gerontolojiye Disiplinler arası Yaklaşım içinde (s. 48-56). 1. Baskı. Ankara: Türkiye Klinikleri.

Barton, D. Hamilton, M. (2012). Reading AndWritinginOneCommunity. New York: Routledge Taylor and Francis Group.

Berkman, N. Sheridan, S. Donahue, K. Halpern, D. Crotty, K. (2011). Low healthliteracy and health outcomes: an updated systematic review. Ann. Intern. Med. 155:97–107

Berkman, N.D. Sheridan, SL. Donahue, KE. (2011). et al.. Health literacy interventions and outcomes; an updated systematic review. Evid Rep Technol Assess;199:1–941.

Berry, LL. Danaher, TS. Beckham, D. Awdish, RLA. Mate, KS. (2017). When patients and their families feel like hostages to health care. Mayo Clin. Proc. 92:1373–81

Chinn, D. (2011). Critical health literacy: A review and critical analysis. Social Science & Medicine, 73(1), 60-67. https://doi.org/10.1016/j.socscimed.2011.04.004.

Çın, D., Emre, A. N., Altunbaş, F., Keser, K., Baskı, H., & Erol, S. (2024). Sağlık Bilimleri Fakültesi Öğrencilerinde Sağlık Okuryazarlığı, Covid-19 Fobisi ve Covid-19 Farkındalığı Arasındaki İlişki. Hemşirelikte Araştırma Geliştirme Dergisi, 26(2), 1-17.

Çimen, Z. (2015). Kronik Hastalığı Olan Yaşlı Bireylerde Sağlık Okuryazarlığı Ve Sağlık Algısı İlişkisi. HALK Sağlığı Ana Bilim Dalı, Yüksek Lisans Tezi Ege Üniversitesi, Sağlık Bilimleri Enstitüsü, , İzmir

Çopurlar, C. K., Akkaya, K., Arslantaş, İ., & Kartal, M. (2017). Health literacy of students who applied to medical and nursing faculty in Dokuz Eylul University. Turkish Journal of Family Medicine and Primary Care, 11(3), 144-151.

Dexter, ER. Levine, SE. Velasco, PM. (1998). Materna schooling and health related language and literacy skills in rural Mexico. Compar EducRev ; 42:139–162.

Doğru, Ş. (2021). Sağlık Yönetimi Ön Lisans, Lisans ve Lisansüstü Öğrencilerinin Sağlık Okuryazarlığı Düzeylerinin Belirlenmesi. Sağlık Yönetimi Ana Bilim Dalı, Yüksek Lisans Tezi, Üsküdar Üniversitesi Sağlık Bilimleri Enstitüsü, İstanbul.

Doğrucan Katrancı, N. (2019). Hipertansiyon Hastalarında Tedaviye Uyum ve Sağlık Okuryazarlık Düzeyinin Belirlenmesi. Yüksek Lisans Tezi. Yozgat Bozok Üniversitesi-Kırıkkale Üniversitesi Sağlık Bilimleri Enstitüsü, Yozgat- Kırıkkale.

Dündar, P. E. Dede, B. (2012). Manisa' da Seçilen Kentsel ve Gecekondu Bölgelerinde Yetişkinlerde Sağlık Okuryazarlığı ve Etkili Faktörler. Erişim: https://tr-scales.arabpsychology.com/ Erişim Tarihi:13/06/2023.

Ergün, S. (2019). "Bakım Vericilerin Sağlık Okuryazarlığı ve İlişkili Faktörler". Hemşirelik Ana Bilim Dalı, Yüksek Lisans Tezi, Necmettin Erbakan Üniversitesi, Konya

Erman P. (2023). Hipertansiyon Tanılı Geriatrik Bireylerde Sağlık Okuryazarlığı İle Antihipertansif İlaç Tedavisine Uyum Arasındaki İlişkinin İncelenmesi. Hemşirelik Anabilim Dalı, Yüksek Lisans Tezi, Eskişehir Osmangazi Üniversitesi Sağlık Bilimleri Enstitüsü, Eskişehir.

Eroğlu, S. (2023). Sağlık Hizmetleri Sistemine Çok Boyutlu Güven Ve Sağlık Okuryazarlığı Arasındaki İlişkinin İncelenmesi: Bir Alan Araştırması; Sağlık Yönetimi Ana Bilim Dalı, Yüksek Lisans Tezi, Yozgat Bozok Üniversitesi, Sağlık Bilimleri Enstitüsü, Yozgat

Ertem, AA. (2019). Sağlık Okuryazarlığının Sağlık Davranışlarıyla İlişkisi (Sağlık Teknikerliği Öğrencileri Üzerine Bir Araştırma). Doktora Tezi, Gazi Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Farooq Z, Imran A, Imran N. Preparing for the future of healthcare: Digital health literacy among medical students in Lahore, Pakistan. Pak J Med Sci. 2024;40(1):14-19. doi: https://doi.org/10.12669/pjms.40.1.8711

Gözlü, K. (2018). Sağlık Okuryazarlığı ve Hekim-Hasta İletişiminin Kalitesi Arasındaki İlişkinin İncelenmesi: Aile Sağlığı Merkezleri Örneği.Doktora Tezi, Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü, Ankara

Gül, N. (2022).Sağlık Okuryazarlığının Sağlık İletişimi Sorunlarına Etkisi: Manisa İli İçin Değerlendirme; Sağlık Yönetimi Ana Bilim Dalı, Yüksek Lisans Tezi, Selçuk Üniversitesi, Sağlık Bilimleri Enstitüsü, Konya

Güneş, F. (1997). Okuma–Yazma Öğretimi ve Beyin Teknolojisi. Ankara: Ocak Yayınları.

Güven, A. (2016). Sağlık Okuryazarlığını Etkileyen Faktörler ve Sağlık Okuryazarlığı ile Hasta Güvenliği İlişkisi (Yayınlanmış Yüksek Lisans Tezi). Hacettepe Üniversitesi, Ankara. Türkiye

Halladay, R.J., Donahue, K.E., Cene, K.W., Li, Q., Cummings, D.M., Engelleyici, A.L., Miller, C.L., Garcia B., Küçük, E., Rachide, M., Tillman, J., Ammerman, A.S. &Dewalt, D.A. (2017). The association of healthliteracy and blood pressurer eduction in a cohort of patients with hypertension: The heart healthy lenoirtrial. Patient Education and Counselling, 100(3), 542-549. doi: 10.1016/j.pec.2016.10.015

HLS-EU. (2008). Consortium. The European HealthLiteracy Project Grant Agreement 2007113. Luxembourg: European Agency for Health and Consumers.

HLS-EU. (2012). HLS-EU Comparative Report Of HealthLiteracy İn Eight Eu Member States. The European Health Literacy Survey HLS-EU.

Huang, S. Kou, S. Tsai, P. Tsai, C. Chen, SS. Lin, C. Hou, WH. (2020). Effectiveness Of Tailored Rehabilitation Education İn İmproving The HealthLiteracy And Health Status Of Postoperative Patients With Breast Cancer A Randomized Controlled Trial. CancerNurs

Hussein, SH. Almajran, A. Albatineh, AN. (2018). Prevalence of health literacy and it scorre lates among patients with type II diabetes in Kuwait: A population based study. Diabetes Res Clin Pract.

Ilgaz, A. (2021). Bir aile sağlığı merkezi'ne kayıtlı bireylerde sağlık okuryazarlığı seviyesi ve ilişkili faktörler. Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi, 8(2), 151-159.

Ishikawa, H., Nomura, K., Sato, M., & Yano, E. (2008). Developing a measure of communicative and critical health literacy: A pilot study of Japanese office workers. Health Promotion International, 23(3), 269–274. https://doi.org/10.1093/heapro/dan017

Joshi, H., Kalauni, B. R., Bhusal, K., Bhandari, R., Subedi, A., & Bhandari, B. (2024). Health literacy among patients with non-communicable diseases at a tertiary level hospital in Nepal-A cross sectional study. Plos one, 19(6), e0304816.

Juvinyà-Canal, D. Suñer-Soler, R. BoixadósPorquet, A. Vernay, M. Blanchard, H. Bertran-Noguer, C. (2020). Health Literacy among Health and Social Care University Students. *International journal of environmental research and public health*, 17(7), 2273. https://doi.org/10.3390/ijerph17072273

Karabulut, M. (2021). Öğretmenlerin Geleneksel/Tamamlayıcı Tıp Uygulamalarına Yönelik Tutumu ile Sağlık Algısı ve Sağlık Okuryazarlığı Arasındaki İlişki (Yayınlanmış Tıpta Uzmanlık Tezi). Afyonkarahisar Sağlık Bilimleri Üniversitesi, Afyonkarahisar. Türkiye

Kavuncuoğlu, D. (2020). Erzurum İl Merkezinde Yetişkinlerin Sağlık Okuryazarlığı Düzeyi ve Etkili Faktörler; Halk Sağlığı Ana Bilim Dalı, Uzmanlık Tezi, Atatürk Üniversitesi Tıp Fakültesi, Erzurum.

Kendilci, K. (2022). Bitlis Eren Üniversitesi Akademik Personellerinde Sağlık Okuryazarlığı, Yaşam Kalitesi ve Etkileyen Faktörlerin İncelenmesi (Yayınlanmış Yüksek Lisans Tezi). İnönü Üniversitesi, Malatya. Türkiye

Kerkez, N. (2022). Sağlık Okuryazarlığı İle Sağlık Algısı İlişkisinin İncelenmesi: Bir Kamu Üniversitesi Örneği; Sağlık Yönetimi Ana Bilim Dalı, Yüksek Lisans Tezi, Muğla Sıtkı Koçman Üniversitesi, Sağlık Bilimleri Enstitüsü, Muğla

Kickbusch, I. Maag, D. (2008). Healthliteracy. In: Heggenhougen K, Quah S, editors. International Encyclopedia of PublicHealth. San Diego: AcademicPress; pp. 204–11.

Kirchhoff, S. Dadaczynski, K. Pelikan, J. M. Zelinka-Roitner, I. Dietscher, C. Bittlingmayer, UH. Okan, O. (2022). Organizational HealthLiteracy in Schools: Concept Development for Health-Literate Schools. International journal of environmental research and public health, 19(14), 8795. https://doi.org/10.3390/ijerph19148795.

Kulenovic, A. Kucukalic, A. Mehmed, A. Ismic, N. (2015). Saraybosna Üniversitesi Tıp Öğrencileri ile Beşeri Bilimler Öğrencileri Arasındaki Yaşam Kalitesinin Karşılaştırılması. Avrupa Psikiyatrisi, 30 (S1), 1-1. doi:10.1016/S0924-9338(15)31447-4

Lael-Monfared, E., Tehrani, H., Moghaddam, Z. E., Ferns, G. A., Tatari, M., & Jafari, A. (2019). Health literacy, knowledge and self-care behaviors to take care of diabetic foot in low-income individuals: Application of extended parallel process model. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 13(2), 1535-1541.

Liu, Y. Wang, Y. Liang, F. Chen, Y. Liu, L. Li, Y. Yao, H. Chu, Q. (2015). The Health Literacy Status and Influencing Factors of Older Population in Xinjiang. Iranian journal of public health, 44(7), 913–919.

Malatyalı, İ. (2018). Sağlık Okuryazarlık Düzeyinin Belirlenmesi: Sivas Cumhuriyet Üniversitesi, Sağlık Yönetimi Ana Bilim Dalı, Yüksek Lisans Tezi, Sağlık Bilimleri Enstitüsü, Sivas.

Matsumoto, M. Nakayama, K. (2017), Development of the healthliteracy on social determinants of health question naire in Japanese adults. BMC Public Health, 17(1), 30. doi:10.1186/s12889-016-3971- 3.

McQueen, D. V., Kickbusch, I., Potvin, L., Pelikan, J. M., Balbo, L., & Abel, T. (2007). Health and modernity: the role of theory in health promotion. Springer Science & Business Media.

Mitic, W., &Rootman, I. (2012). An İnter Sectoral Approach Forim Proving Health Literacy For Canada: A Discussion Paper. Public Health Association Of British Columbia.(Https://Phabc.Org/WpContent/Uploads/2015/09/ Inter sectoral approach for health literacy-FINAL.Pdf)

Nacar, E. (2018). İnönü Üniversitesi Öğrencilerinde Aşılara Bakış Açısı Ve Sağlık Okuryazarlığı İle İlişkisi. Halk Sağlığı Anabilim Dalı, Yüksek Lisans Tezi, İnönü Üniversitesi Tıp Fakültesi, Malatya.

Nielsen-Bohlman, L. Panzer, AM. Kindig, DA. (2004). Health Literacy: A Prescription to End Confusion. Washington, DC: Natl. Acad. Press. https://pubmed.ncbi.nlm.nih.

Nutbeam, D. (1998). Health promotion glossary. Health Promotion International, 13(4), 349-364.

Nutbeam, D. (2000). Health Literacy As A Public Health Goal: A Challenge For Contemporary Health Education And Communication Strategiesin To The 21st Century. Health promot. Int. 15:259–67

Nutbeam, D. (2008). The evolving concept of health literacy. Social Science & Medicine, 67(12), 2072-2078. https://doi.org/10.1016/j.socscimed.2008.09.050

Nutbeam, D., Lloyd, J.E. (2021). Understanding And Responding To Health Literacy As A Social Determinant Of Health. Annual Review Of Public Health, 42, 159–173

Özdemir, H., Alper, Z., Uncu, Y., & Bilgel, N. (2010), Yetişkinler Arasındaki Sağlık Okur Yazarlığı: Türkiye'den Bir Araştırma. Sağlık Eğitimi Araştırması, 25 (3), 464-477

Özman, E.G. (2023). Sağlık Bilimleri Fakültesi Öğrencilerinin Sağlık Okuryazarlığı Bilgi Ve Deneyim Düzeyinin Belirlenmesi, Ordu Üniversitesi Sağlık Bilimleri Enstitüsü, Sağlık Yönetimi Anabilim Dalı, Ordu.

Paasche-Orlow, M. K., & Wolf, M. S. (2007). The causal pathways linking health literacy to health outcomes. American journal of health behavior, 31 Suppl 1, S19–S26. https://doi.org/10.5555/ajhb.2007.31.supp.S19

Pleasant, A.(2014). Advancing Health Literacy Measurement: A Pathway To Beter Health And Health System Performance. Health Commun;19:1481–96

Pleasant, A., Cabe, J., Patel, K. (2015). Et Al.. Health Literacy Research And Practice: A Needed Paradigm Shift. Health Commun; 30:1176–80

Sağlık Bakanlığı (2016). Türkiye Sağlık Okuryazarlığı Ölçekleri Güvenirlilik Ve Geçerlilik Çalışması,(Ed: Abancıgil F; Okyay P) Ankara.

Sezer, A. (2012) Sağlık Okuryazarlığının Sağlıklı Yaşam Biçimi Davranışları ile İlişkisi. Yüksek Lisans Tezi, Marmara Üniversitesi Sağlık Bilimleri Enstitüsü, İstanbul.

Sheridan, SL., Halpern, DJ., Viera, AJ. (2011). Etc. Al. Interventions For Individuals With Low Health Literacy: A Systematic Review. Health Commun;16:30–54.

Simonds, SK. (1974). Health Education As Social Policy. HealthEducation Monograph;2:1–25.

Sorensen, K., Van den Broucke, S., Fullam, J., Doyle, G., Pelikan, J. M., & Slonska, Z. (2012). Health literacy and public health: A systematic review and integration of definitions and models. BMC Public Health, 12(1), 80. https://doi.org/10.1186/1471-2458-12-80

Soylar. P., Ulaş Kadıoğlu. B., (2020). Yetişkin Bireylerin Sağlık Okuryazarlığı ve Obeziteyle İlişkili Bazı Davranışlarının İncelenmesi. Sakarya Tıp Dergisi, 10 (2), 270-276.

Soysal, A., & Obuz, E. (2020). Sağlık Okuryazarlığı: Kahramanmaraş Sütçü İmam Üniversitesi Sağlık Yönetimi Öğrencileri Üzerinde Bir Araştırma. Kahramanmaraş Sütçü İmam Üniversitesi Sosyal Bilimler Dergisi, 17(2), 1198-1217. https://doi.org/10.33437/ksusbd.677560

Şahinöz, T., Şahinöz, S., & Kıvanç, A. (2018). Üniversite Son Sınıf Öğrencilerinin Sağlık Okuryazarlığı Düzeyleri Üzerine Karşılaştırmalı Bir Araştırma. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi, 7(3), 71-79.

Taggart, J., Williams, A., Dennis, S., Newall, A., Shortus, T., Zwar, N., Denney-Wilson, E., &Harris, M. F. (2012). A Systematic Review Of İnterventions İn Primary Care To İmprove Health Literacy For Chronic Disease Behavioral Risk Factors. BMC Family Practice, 13, 49. https://doi.org/10.1186/1471-2296-13-49.

Tekin, Y. E., & Tekin, Ş. B. (2024). Sağlık Bilimleri Fakültesi Öğrencilerinin Sağlık Okuryazarlığı Düzeyleri ve Sağlıklı Yaşam Biçimi Davranışları Arasındaki İlişki. Sürekli Tıp Eğitimi Dergisi, 33(2), 136-145.

Türkoğlu, Ç. (2016). Sağlık Okuryazarlığı İle Öz Bakım Gücü Arasındaki İlişkinin İncelenmesi: Isparta İli Örneği. Yüksek Lisans Tezi. Süleyman Demirel Üniversitesi. Sosyal Bilimler Enstitüsü.

Üçpınar, E. (2014). Yetişkinlerde işlevsel Sağlık Okuryazarlığı Testinin Uyarlama Çalışması. Yüksek Lisans Tezi. Ankara Üniversitesi. Sağlık Bilimleri Enstitüsü.

Yakar, B., Gömleksiz, M., & Pirinççi, E. (2019). Bir üniversite hastanesi polikliniğine başvuran hastaların sağlık okuryazarlığı düzeyleri ve etkileyen faktörler. Eurasian Journal of Family Medicine, 8(1), 27-35.

Yılmaz, F., Yavuz Çolak, M., & Ersoy, K. (2009). Sağlık Okuryazarlığın Hasta Hekim İlişkisine Etkisi. Başkent Üniversitesi, Sayfa, 2.

Wilson, FL., Racine, E., Tekieli, V., Williams, B. (2003). Literacy, Readability And Cultural Barriers: Critical Factors To Consider When Educatin Golder African Americans About Anticoagulation Therapy. J ClinNurs; 12(2):275–282.

World Health organization (WHO). (1998). Health Promotion Glossary. World Health Organization; Geneve, Switzerland

World Health Organization. (2013). Health literacy: The solid facts. WHO Regional Office for Europe: Geneva, Switzerland.

World Health Organization. (2017). Promoting health in the SDGs: report on the 9th Global conference for health promotion, Shanghai, China, 21–24 November 2016: all for health, health for all (No. WHO/NMH/PND/17.5). World Health Organization.

Zhang, Y., Zhang, F., Hu, P., Huang, W., Lu, L., Bai, R., Sharma, M., Zhao, Y. (2016). Exploring Health Literacy İn Medical University Students of Chongqing, China: A CrossSectionalStudy. PlosOne, 11(4), E0152547. https://doi.org/10.1371/Journal.Pone.0152547.