Research Article

Comparing Health Literacy Level in Turkey before and after the COVID-19 Pandemic

Dilek Kolca[1*], Ayhan Ozsahin[2], Gulhan Kalmuk[3]

[1]Department of Health Services, Istınye University, Turkey
[2]Department of Family Medicine, Uskudar University, Turkey
[3]Department of Economics and Administrative Sciences, Istınye University, Turkey

ABSTRACT

The degree of health literacy in Turkey before and after the COVID-19 epidemic is compared in this study. This study's objective is to determine how public health is affected by pandemics in terms of health literacy. The quantitative data gathering approach was used to plan the study. 332 individuals made up the sample. The Turkish Health Literacy Scale, whose reliability and validity were examined by Okyay and Abacgil (2016), was utilized in the study. SPSS 22.0 program was used to examine the data. The outcomes of data collected before and after the pandemic were compared. The participants' overall health literacy index score was determined to be 41.8. Demographic data and scale sub-factors; Significant differences were found in age, education, occupation, social security, and the comparison of income and expenditure. The pre-pandemic health literacy index for Turkey was 29.5. The health literacy index score in this study was 41.8. The research shows that there is a considerable impact of the pandemic on the level of health literacy when the index values before and after the pandemic are compared. The participants' degree of understanding of health related KMO declines as they get older. Those who were health workers showed greater levels of access to health-related information, comprehension, and knowledge evaluation than did participants from other categories. Additionally, it was discovered that when participants' educational levels rise, it gets simpler to access, comprehend, and assess knowledge of health-related topics. Our study also found that as income increases, so does people's capacity to access and understand health-related information.

Keywords: COVID-19; Health literacy; Health communication

INTRODUCTION

Since the beginning of defining and assessing the functional literacy requirements of the adult population, the idea of health literacy has evolved [1]. With these changes, it is now acknowledged that complex literacy abilities are becoming more and more necessary to participate in society. Low literacy negatively affects health and access to health care [2]. Making decisions about people's health services, disease prevention, health promotion, and protection of health quality are all part of health literacy. The ability to access, comprehend, evaluate health information to make decisions about one's own health is also included [3]. Terminology in health-related information causes to low health literacy, which makes it challenging to discriminate nate between reality and fiction. Many individuals with limited health literacy view the challenges they have in comprehending and applying knowledge of health as an impermeable barrier that existed against their will [4]. Access to medical care and treatment is extremely difficult for those who do not endeavor to eliminate this barrier [5].

Health literacy is also described as the capacity of individuals to comprehend health information, make decisions, and select actions within the confines of their culture, language, and system of trust for information [6]. Basic reading and writing abilities as well as the capacity to access, comprehend, review, and put into practice health facts are referred to as health literacy [7]. Simonds (1974) was the first to suggest health literacy as

a strategy that might have an impact on the health system [8]. Health literacy is typically defined as a person's ability to acquire, process, and comprehend essential health information and services required to make wise health decisions [9]. In order to achieve universal health literacy, it is more reasonable to assess open communication methods between the patient and the healthcare provider [10]. It is claimed that health literacy also has an impact on patient safety, access to healthcare, and the standard of care [11]. Health literacy is crucial for accessing and using healthcare services as well as for health education and personal usage of health information. Patients who have access to more accurate health information, which increases their level of health literacy, can benefit from health systems efficiently [12].

MATERIALS AND METHODS

The study was inspired by a PhD thesis. This study was designed to examine the differences in health literacy between Turkey's pre-pandemic era and the COVID-19 process. The "Health Literacy Scale" was used as a means of gathering data. The study was conducted in the province of Istanbul, which has the most COVID-19 cases per capita in Turkey. When the COVID-19 disease was at its worst, which was between October 2021 and December 2021, research was conducted. The study contributes to the body of literature by examining the relationship between health literacy that is a key indicator of public health, and COVID-19 pandemic. The province of Istanbul makes up the research's domain. The study used the Turkish Health Literacy Scale, whose reliability and validity were examined by Okyay and Abacgil (2016) prior to the pandemic [1]. The degree of health literacy among participants with COVID-19 has been identified. Health literacy scale consists of 2 sub-dimensions; 'treatment and service,' 'prevention of diseases/health promotion.' It has 4 processes, each of which defines 2 sub-dimensions: Accessing, comprehending, evaluating, and using health-related knowledge.

RESULTS

The majority of the study's participants 53% are aged 25 years to 34 years, men make up 29.8% of the participants while women make up 70.2% to 69% of participants are single, 31%

are married, and 33.1% have graduated from high school or an undergraduate program. It was shown that 44.6% of the participants had less income than expenses, 51.5% did not have social security, and 41.9% of participants consist of the majority as students. It was determined using the Kaiser-Meyer-Olkin (KMO) test whether the sample size was appropriate for factor analysis. KMO value is 0.921. It is clear that the sample size is adequate for the data because the statistic is bigger than 0.50 [13]. The sample size was determined to be "sufficient" for the factor analysis. Additionally, the acquired chi-square value was acceptable when the Bartlett Sphericity test findings were checked ($\chi^2(10)=4711,434$; $p<0.05$) (Table 1). The Cronbach Alpha coefficient was 0.927 in Okyay and Abacgil's (2016) study and 0.779 in our study. The scale's reliability that is more than 0.60 is acceptable. The participants in this study were found to have sufficient health literacy, with a score of 41.8, as opposed to Okyay and Abacgil's (2016) finding that Turkey's health literacy index average was 29.5 at a low health literacy level. According to the participants in the study by Okyay and Abacgil (2016), 5.8% had good health literacy, 24.8% had adequate health literacy, 42.2% had restricted health literacy, and 27.2% had insufficient health literacy. 52% of the participants in this study had great health literacy, 43% had good health literacy, and 5% had inadequate health literacy, it was discovered. Only knowing the information about understand information relevant to health and the participants' ages were significantly different ($p<0.05$) when the sub-dimensions of health literacy were compared to their ages in Table 2. We looked at the post-hoc Scheffe test scores to determine which groups had different knowledge of treatment and services. The mean of the age groups 25 years-34 years and 35 years-44 years (X=4.17) and the group of people aged 45 and older (X=3.58) were found to differ in comprehension the health-related knowledge.

Table 1: Results of the SOY Scale's Explanatory Factor Analysis

Factors	Eigen Value	Explained Variance %	Cumulative Variance %	Cronbach Alpha Coefficient
1	10,785	33,704	33,704	
2	2,031	6,347	40,052	
3	1,490	4,657	44,708	0,779
4	1,367	4,271	48,979	
5	1,276	3,987	52,966	

Table 2: Age and sub-factors of the health literacy scale: An Anova test

Factors	Variable	N	X	SS	P
Access information relevant to health	15-24	177	4,24	0,70	
	25-34	94	4,25	0,72	0,673
	35-44	43	4,19	0,64	
	45 ve üzeri	18	4,04	0,82	
Understand information relevant to health	15-24	177	3,97	0,80	
	25-34	94	4,17	0,76	0,012*
	35-44	43	4,17	0,71	
	45 ve üzeri	18	3,58	1,07	
Appraise information relevant to health	15-24	177	4,08	0,56	
	25-34	94	4,09	0,67	0,614
	35-44	43	4,07	0,54	
	45 ve üzeri	18	3,89	0,64	

Access information relevant to disease prevention	15-24	177	4,13	0,71	0,736
	25-34	94	4,17	0,65	
	35-44	43	4,11	0,60	
	45 ve üzeri	18	3,98	0,67	
Appraise information relevant to disease prevention	15-24	177	3,78	0,69	0,303
	25-34	94	3,69	0,73	
	35-44	43	3,85	0,74	
	45 ve üzeri	18	3,53	0,692	

The educational status of the participants and the factors of understand health information, appraising health information, and access information relevant to disease prevention are statistically different ($p<0.05$) in **Table 3**. It was determined which groups the difference stemmed from using the post-hoc Scheffe test. The difference between the means of primary school graduates (X=3.50), high school graduates (X=3.95), and post-graduate graduates (X=4.46) was revealed in terms of understand information relevant to health. The difference between undergraduate graduates (X=4.00) and graduate graduates (X=4.36) in the sub-factor of appraise information relevant to health. The averages of primary school pupils (X=3.62) and graduate students (X=4.43) differ in terms of access information relevant to disease prevention sub-factor.

Table 3: Sub-factors of the health literacy scale and educational status: An Anova test

Factors	Variable	N	X	SS	P
Access information relevant to health	Primary School graduate	10	3,93	0,87	0,186
	High school graduate	110	4,22	0,65	
	Associate degree graduate	76	4,28	0,74	
	Bachelor's degree	104	4,15	0,73	
	Postgraduate	26	4,50	0,57	
	PhD graduate	6	4,17	0,86	
Understand information relevant to health	Primary School graduate	10	3,50	1,25	0,008*
	High school graduate	110	3,95	0,73	
	Associate degree graduate	76	3,99	0,89	
	Bachelor's degree	104	4,06	0,75	
	Postgraduate	26	4,46	0,69	
	PhD graduate	6	4,50	0,55	
Appraise information relevant to health	Primary School graduate	10	3,82	0,82	0,029*
	High school graduate	110	4,03	0,55	
	Associate degree graduate	76	4,13	0,59	
	Bachelor's degree	104	4,00	0,60	
	Postgraduate	26	4,36	0,55	
	PhD graduate	6	4,37	0,39	
Access information relevant to disease prevention	Primary School graduate	10	3,62	1,23	0,020*
	High school graduate	110	4,08	0,73	
	Associate degree graduate	76	4,21	0,61	
	Bachelor's degree	104	4,09	0,59	
	Postgraduate	26	4,43	0,56	
	PhD graduate	6	4,33	0,45	
Appraise information relevant to disease prevention	Primary School graduate	10	3,45	0,91	0,105
	High school graduate	110	3,79	0,69	
	Associate degree graduate	76	3,77	0,80	
	Bachelor's degree	104	3,64	0,65	
	Postgraduate	26	4,02	0,71	
	PhD graduate	6	4,04	0,87	

The occupational categories of the participants and the sub-factors of understanding information important to health, accessing information relevant to disease prevention, and appraising information relevant to disease prevention are statistically different, as shown in **Table 4**. ($p<0.05$) The difference's cause was determined using a post-hoc Scheffe test. The test revealed a significant difference in the means for understanding health-related information and accessing information related

to disease prevention between the working group (X=3.77) and doctors (X=4.90). Additionally, compared to doctors (X=4.96), the average access information relevant to disease prevention is lower for employees (X=3.79). Additionally, employees' appraise information relevant to disease prevention is on average lower (X=3.79) than doctors' (X=4.96). Understand information relevant to health regarding social security is significantly dif-ferent statistically in **Table 4** (p<0.05). The post-hoc Scheffe test was used to determine the cause of the difference. In terms of understand information relevant to health, there is a difference between the average of participants with social security (X=4.13) and the average of individuals without social security (X=3.93).

Table 4: Sub-factors of the health literacy scale and occupation: An Anova test

Factors	Variable	N	X	SS	P
Access information relevant to health	Worker	30	3,23	0,70	0,070
	Civil Servant/Retired	58	4,01	0,83	
	Student	139	4,25	0,67	
	Health Manager	13	4,36	0,63	
	Academician	11	4,45	0,43	
	Doctor	5	3,93	0,68	
	Nurse/Midwife	27	4,09	0,84	
	Health Technician	49	4,41	0,55	
Understand information relevant to health	Worker	30	3,77	0,91	0,008*
	Civil Servant/Retired	58	4,05	0,81	
	Student	139	3,92	0,85	
	Health Manager	13	4,46	0,48	
	Academician	11	4,23	1,03	
	Doctor	5	4,90	0,22	
	Nurse/Midwife	27	4,09	0,52	
	Health Technician	49	4,20	0,63	
Appraise information relevant to health	Worker	30	3,87	0,65	0,055
	Civil Servant/Retired	58	3,93	0,66	
	Student	139	4,09	0,58	
	Health Manager	13	4,15	0,54	
	Academician	11	4,33	0,54	
	Doctor	5	4,64	0,54	
	Nurse/Midwife	27	4,13	0,52	
	Health Technician	49	4,13	0,52	
Access information relevant to disease prevention	Worker	30	3,79	0,94	0,010*
	Civil Servant/Retired	58	4,07	0,56	
	Student	139	4,15	0,71	
	Health Manager	13	4,14	0,75	
	Academician	11	4,29	0,46	
	Doctor	5	4,96	0,09	
	Nurse/Midwife	27	4,08	0,59	
	Health Technician	49	4,26	0,49	
Appraise information relevant to disease prevention	Worker	30	3,37	0,86	0,027*
	Civil Servant/Retired	58	3,76	0,72	
	Student	139	3,79	0,70	
	Health Manager	13	3,77	0,73	
	Academician	11	4,07	0,54	
	Doctor	5	4,40	0,45	
	Nurse/Midwife	27	3,66	0,77	
	Health Technician	49	3,75	0,64	

A statistically significant difference between the sub-factors of access information relevant to health and income-expenditure evaluation and understand information relevant to health was identified in **Table 3** (p<0.05). The post-hoc Scheffe test was used to determine the cause of the difference. The test results show that the averages of those whose income is less

than their expenditure (X=4.14) and those whose income is equal to their expenditure (X=4.33) differ from one another in terms of their Access information relevant to health. It can be shown that the averages of participants whose income is less than their expenses (X=3.90) and those whose income is equal to their expenses (X=4.14) differ from one another in how they perceive their understand information relevant to health.

DISCUSSION

Within the context of the COVID-19 pandemic outbreak and in comparison, to pre-pandemic levels, health literacy was assessed in this study. Turkey's level of health literacy was evaluated using the "Turkey Health Literacy Scale-32 (TSOY-32)" developed by Abacgil and Okyay (2016) with cooperation from the General Directorate of Health Promotion of the Ministry of Health. We conducted this study following the pandemic, and the results showed that 52% of participants had excellent health literacy, 43% had good health literacy, and 5% had low health literacy. The general health literacy score for the sample was 41.8, which is significantly higher than the national average. Although Okyay and Abacgil's (2016) study reported that the overall health literacy score was 29.5 before the pandemic, the sample in the study was determined to have a sufficient level of health literacy, with a total health literacy index value of 41.8. It is clear from comparing the two figures that the epidemic has a positive effect on health literacy.

When demographic data and health literacy are compared, contrary to the findings of earlier researchers, there is no evidence of a relationship between gender or marital status and health literacy. However, there was a difference in health literacy levels when age, education, occupation, social security, income, and expenditure were compared. According to Yakar et al. (2019), people with poor vision, married people, people with children, and women with less education than a high school certificate all had lower health literacy levels than the other groups [14]. In another study, the Turkish health literacy scale was used, and the individuals who had completed high school or higher education, those who had received prior health education, and men all shown higher health literacy than the other participants. Low education levels are associated with lower levels of health literacy than secondary or higher education levels, according to Rademakers et al. (2020). Participants who are older have less health literacy than patients who are younger [15]. Men's health literacy is also substantially lower than women's, and single people's health literacy is significantly lower than that of married individuals. In the study by Do et al. (2020), it was discovered that individuals with high health literacy adhered to infection prevention and control methods better, adopted healthier lifestyles, and were more adept at identifying COVID-19 symptoms [16].

CONCLUSION

It is clear from comparing the two figures that the epidemic has a positive effect on health literacy. Accessible health information, clear written health-related materials, and the use of simple language for communicating health information are all useful in boosting health literacy. A surge in health literacy has been attributed to both the increasing emphasis on public health research during the COVID-19 epidemic and the availability of this information.

ACKNOWLEDGEMENT

CONFLICT OF INTEREST

REFERENCES

1. Abacıgil F, Okyay P (2016) Turkish adaptation of the European Health Literacy Scale. Turkish Health Literacy Scales in the reliability and validity study. Ministry of Health. 1025: 21-41.

2. Berkman ND, Davis TC, McCormack L (2010) Health literacy: What is it? J Health Commun. 15(2): 9-19.

3. Kickbusch I, Pelikan RM, Apfel F, Tsouros AD (2013) Health literacy the solid facts, Denmark: WHO regional office for Europe.

4. Sezgin D (2013) Understanding health literacy. Galatasaray Uni J Commun. 3: 73-92.

5. Freedman DA, Bess KD, Tucker HA, Boyd DL, Tuchman AM, et al. (2009) Public health literacy defined. Am J Prev Med. 36(5): 446-451.

6. Hepburn M (2012) Health literacy, conceptual analysis for disease prevention. Inter J Collab Res Internal Med Public Health. 4(3): 227-238.

7. Xu C, Zhang X, ve Wang Y (2020) Mapping of health literacy and social panic via web search data during the COVID-19 public health emergency: Infodemiological study. J Med Internet Res. 22(7): e18831.

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

9. Rademakers J, Waverijn G, Rijken M, Osborne R, Ve Heijmans M (2020) Towards a comprehensive, person-centred assessment of health literacy: Translation, cultural adaptation and psychometric test of the Dutch Health Literacy Questionnaire. BMC Public Health. 20(1): 1-12.

10. Weiss BD (2003) Health literacy, the Arizona university elder care a resource for ınterprofessional providers.

11. Hersh L, Salzman B, Snyderman D (2015) Health literacy in primary care practice. Am Fam Physician. 92(2): 118-124.

12. Raynor DKT (2012) Health literacy. BMJ. 344(2): 1-2.

13. Akbulut O, Capık C (2022) Sample size for multivariate statistical analysis. J Nursology. 25(2): 111-116.

14. Yakar B, Gömleksiz M, ve Prinççi E (2019) Health literacy levels of patients applying to a university hospital outpatient clinic and affecting factors. Euras J Fam Med. 8(1): 27-35.

15. Rademakers J, Waverijn G, Rijken M, Osborne R, ve Heijmans M. (2020) Towards a comprehensive, person-centred assessment of health literacy: Translation, cultural adaptation and psychometric test of the dutch health literacy

questionnaire. BMC Public Health. 20(1): 1-12.

16. Do B, Tran T, Phan D, Nguyen H, Nguyen T, et al. (2020) Health literacy, eHealth literacy, adherence to infection prevention and control procedures, lifestyle changes, and suspected COVID-19 symptoms among health care workers during lockdown: Online survey. J Med Internet Res. 22(11): e22894.