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Coronavirus-19 phobia and health literacy in adults: A descriptive-correlational study

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Abstract

Aim: The aim of this study was to determine the levels of health literacy (HL) and COVID-19 Phobia (C19P-S) in adult individuals and was to evaluate the relationship between health literacy and coronavirus-19 phobia among adults.

Materials and methods: The sample of this descriptive and correlational study consisted of 545 people living in Kahramanmaras city center and meeting the study criteria. Study data were collected through google forms using personal information form, Health Literacy Scale and Coronavirus-19 Phobia Scale (C19P-S).

Results: The mean C19P-S score of the participants was 30±16.33. A statistically significant difference was determined between the mean C19P-S scores of women and men ($p<0.05$). It was determined that those with a middle income level, those who reported that they took adequate precautions to protect against coronavirus and those who did not receive health education had higher C19P-S score averages. According to the correlation analysis, there is no relationship between the health literacy total score and C19P-S [$r(545)=-0.054$; $p>0.05$]. There was a weak negative statistically significant correlation between the somatic sub-dimension of C19P-S and health literacy total score, access, understanding, and appraisal sub-dimensions ($p<0.05$).

Conclusion: HL adult population was generally high and the coronavirus phobia was moderate. Addressing HL as a variable may be beneficial in the management of coronavirus phobia.

Key words: adult, covid-19 phobia, health literacy

Introduction

The World Health Organization classified the COVID-19 outbreak as an "international public health emergency" on January 30th. The COVID-19 pandemic was described as a pandemic on March 11 due to the occurrence of COVID-19 cases in 113 countries other than China, where the first outbreak began, and the spread and severity of the virus. Studies on COVID-19 in Turkey started on January 10, 2019 and the first COVID-19 case was seen on the 11th of March. As of February 09, 2022, the total number of cases and deaths in Turkey was 11,343,693 and 86,871, respectively [1].

Appropriate guidance of human behavior in an epidemic environment is the key factor that should be accompanied by medical measures. The fact that health institutions consider the principles of health literacy provide easily understandable and applicable information, and create accessible information resources may be among the factors that determine the course of the epidemic [2]. Health literacy, which is significantly affected by the factors that determine health and plays an important determinant role in shaping health behaviors and health outcomes, is an important condition that should be taken into account in disaster periods and in ordinary periods [3].

Health literacy enables a person to understand what factors affect the health of his family and society and to know how to deal with them [4]. Health literacy is a term that was first defined in 1974 and is gaining in importance in public health and health services [5]. The World Health Organization defines health literacy as "the ability of the individual to access, understand and use health knowledge for the protection and maintenance of health" [6]. Despite different definitions, health literacy has been evaluated as the knowledge, skills, attitudes, and motivation of individuals in accessing, understanding, evaluating, and applying the health information necessary for individuals to take the necessary decisions and evaluate them to improve their quality of life, prevent diseases and improve their health throughout their lives [7]. The COVID-19 pandemic has shown that health literacy is critical not only for preventing non-communicable diseases but also for preventing communicable diseases [8].

In a national study conducted in the United States of America based on the health literacy situation in the world, it was stated that 53% of the adult population had a moderate level of health literacy, 36% were inadequate, and 22% had a basic level [9].According to the health literacy research conducted in Turkey in 2014, it has been reported that the total of those with insufficient health literacy and those with problematic-limited health literacy is 68.9%. When these two categories are evaluated as limited, it is seen that limited health literacy stands out as an important public health problem affecting seven out of every ten people in the country [10].

Coronaphobia refers to the extreme fear and anxiety of being infected by a coronavirus [11]. Moreover, Lee et al. (2020) highlight the need for healthcare professionals to be aware of coprophobia that coprophobia refers to pandemic-related stress, and pandemic-related stress is increasingly valid as a major indicator of psychological distress [12]. In a study by Hermans et al. (2021) in Belgium to evaluate the relationship of health literacy with mental health, compliance with COVID-19 preventive measures, and health expectations, it was reported that anxiety disorders, depression, and sleep disorders are less common in people with adequate health literacy. In the same study, it was emphasized that health literacy is a critical factor in the management of the COVID-19 epidemic [13]. COVID-19 may cause phobia in patients with anxiety disorders who have psychological, psycho-somatic, economic, and social fears [14].

There are many sources of information and misinformation regarding COVID-19. This situation causes fear and panic among the people to spread much faster than the virus itself. The disease has become one of the biggest challenges for healthcare systems and healthcare professionals worldwide. As a public health problem, health literacy should not be ignored in the fight against the epidemic. There is a need to create individual and social awareness to combat the epidemic and disease.

Identifying the impact of health literacy has become crucial to preparing individuals and societies for emergencies such as the COVID-19 outbreak that require immediate action and rapid control. The serious adverse physiological, social, and economic effects of the COVID-19 pandemic have been observed in many countries. These negative effects cause conditions such as stress, depression, psycho-somatic and psycho-social disorders. It is important to detect the early signs of COVID-19 phobia, identify the influencing factors and provide timely psychological support to individuals with higher levels of phobia.

When the literature is examined, no study has been found in the country or abroad examining the relationship between health literacy and coronaphobia. It is considered that this study will contribute to the literature on the measures to be taken in epidemic management.

Materials and methods

Aim

The aim of this study was to determine the levels of health literacy (HL) and COVID-19 Phobia (C19P-S) in adult individuals and was to evaluate the relationship between health literacy and coronavirus-19 phobia among adults.

Research questions

1. What is the health literacy level of the participants?
2. What is the coronavirus phobia level of the participants?
3. Is there a relationship between health literacy level and coronavirus phobia?

Type of research

This research was a descriptive and correlational type.

Sample group

The population of this research consisted of 5594 individuals over the age of 18 who were registered in a family health center in Kahramanmaraş. The purpose of the study was explained to the adult individuals who applied to the family health center at the time of the research using the random sampling method, and individuals with an android phone were invited to the study. 545 individuals who agreed to participate in the study were included in the sample. The research data were sent to the participants online via WhatsApp via a google form. Participants were asked to participate in the research by answering the questions within a week. A reminder message was sent a second time to those who did not fill out the questionnaires. Research data were collected between March 2021 and June 2021.

Inclusion and exclusion criteria

Being 18 years of age or older, being literate, using social media, and not having a mental illness. Not wanting to participate in the research, being illiterate, not using a smartphone.

Data collection tools

Research data were collected using a personal information form, Health Literacy Scale, and the Coronavirus-19 Phobia Scale (C19P-S).

Personal information form

In the personal information form, there were questions about the socio-demographic characteristics of the individuals (age, gender, place of residence, marital status) and health problems (either being positive for Covid-19, dealing with coronavirus news, taking precautions for protection from coronavirus, getting health education).

Health literacy scale

The scale developed by Toçi et al. (2013) was adapted to Turkish by Bayık and Aras (2017). The scale, which consisted of 25 items and four sub-dimensions, was in the 5-point Likert type. The scale was scored as "I have no difficulty: 5," "I have little difficulty: 4," "I have some difficulty: 3," I have several difficulties: 2," I am unable to do/I have no ability/impossible: 1." The sub-dimensions of the scale were as follows: "Access to information subscale: Items 1 to 5," "Comprehension of information subscale: Items 6 to 12," "Appraisal/Evaluation subscale: Items 13 to 20," "Application/Using subscale: Items 21 to 25." The score to be obtained from the whole scale is minimum 25 and maximum 125. Low scores indicate insufficient, problematic, and weak health literacy, while high scores indicate adequate and excellent [15, 16]. The Cronbach's alpha value of the scale was .92, and the alpha values of the sub-dimensions were between .62 and .79.

Coronavirus-19 phobia scale (C19P-S)

The scale developed by Arpacı, Karataş, and Baloğlu (2020) is a 5-point likert-type self-assessment scale. Scale items are evaluated between 1 "Absolutely Disagree" and 5 "I Strongly Agree." The scale consists of four sub-dimensions: Psychological Sub-Dimension; (Items 1, 5, 9, 13,17, and 20.), Somatic Sub-Dimension; It measures (Items 2,6,10,14, and 18), Social Sub-Dimension (Items 3, 7, 11, 15, and 19), and Economic Sub-Dimension (Items 4, 8, 12, and 16). While the sub-dimension scores are obtained from the sum of the answers

given to the items belonging to that sub-dimension, the total C19P-S score is obtained from the sum of the sub-dimension scores. The score obtained from the scale varies between 20 and 100. High scores indicate high coronavirus phobia [17].

Data Collection

The online form, which each participant can fill in approximately 15–20 minutes, consists of 61 questions and was arranged in such a way that the participants could see all the questions at the same time after logging in. To prevent the same participants from filling out surveys again within the scope of the Study, the Google Forms settings limited answers to one answer feature enabled, allowing each participant to answer once. To prevent data loss, form settings were adjusted to prevent any questions from left blank, and all questions must be answered.

Ethical aspect of research

An approval from the Social and Human Sciences of Kahramanmaraş Sütçü İmam University Ethics Committee numbered 27/01/2021/E 6742/05 was obtained for the implementation of the research. Additionally, approval was obtained from the Turkish Ministry of Health. An informed consent form explaining the purpose of the study was sent to the participants before completing the questionnaires. The participants were informed that they could participate in the study voluntarily. Additionally, the question the "Do you agree to participate in the study?" was added to the online form, and their consent was obtained with the answers given by the participants. The study was carried out in accordance with international declaration, guideline, etc.

Data analysis

The data were analysis in the SPSS 24 package program. In the study, the number of units (n), percentage (%), mean (standard deviation) were used as statistics. The normality distribution of the data was evaluated with the Kolmogorov–Smirnov test and the Q-Q graph. Cronbach's alpha was used to determine the reliability of the scales used. Since the data were normally distributed, an Independent t-test was used to compare binary variables in the statistical analysis of the study, and the One-Way ANOVA test was used for comparison with three or more variables. Tukey HSD multiple comparison tests were used to determine the differences between the groups. It was decided whether there was a significant relationship between the scales by using correlation analysis. Pearson correlation test was applied in the correlation relationship since the data had a normal distribution. In the evaluations, $p<0.05$ was accepted as the level of significance.

Results

The mean age of the individuals participating in the study was 39.61± 10.72. The lowest age was 18, and the highest was 68. 62.8% of the participants were women, 38.7% were at undergraduate and higher education levels, 74.1% were living in the city center. 60.0% were married. 72.8% of the participants described their economic situation as moderate. 85.7% of the participants reported that they did not have coronavirus, 64.2% did not take adequate precautions to be protected, and 55.6% did not receive any health education (Table 1).

We observed that the health literacy levels of the participants were high (108.97±13.09) and they scored above the average

Table 1 Demographic characteristics of the participants

Characteristics	N	(%)
Gender		
Female	342	62.8
Male	203	37.2
Educational status		
Primary school	81	14.8
Middle School	143	26.2
High school	110	20.3
Bachelor and above	211	38.7
Longest Living Place		
Centre	404	74.1
District	88	16.1
Rural	53	9.8
Marital status		
Married	327	60.0
Single	218	40.0
Economic condition		
Low	114	20.9
Middle	397	72.8
High	34	6.3
The state of being coronavirus positive or knowing a person who has it		
Yes	78	14.3
No	467	85.7
The state of being interested in news about the coronavirus		
Yes	96	17.6
No	449	82.4
The state of taking measures to protect		
Sufficient	195	35.8
Insufficient	350	64.2
Receiving Health Training		
Yes	242	44.4
No	303	55.6

in all sub-dimensions. Participants received 22.22±3.14 points from the access to information sub-dimension. They scored 30.83±3.98 in the sub-dimension of understanding information. They got 34.72±5.05 points from the appraisal sub-dimension. They got 21.18±3.41 points from the sub-dimension of using the application It was determined that the coronavirus phobia scores of the participants were at a moderate level (50.30±16.33). The somatic sub-dimension and economic sub-dimension were the lowest, with 9.67± 4.09 and 8.20± 3.30 mean scores, respectively. The Cronbach's alpha values of the scales were determined as 0.925 for health literacy and 0.945 for coronavirus phobia (Table 2).

Table 2 Total and Sub-Dimensional Means of Health Literacy and Coronavirus Phobia (N=545)

Scale and Scale Sub-Dimensions	x±ss	Cronbach's Alpha	Min - Max
Health Literacy Overall score	**108.97±13.09**	0.925	25.00- 125.00
Access	22.22±3.14	0.836	5.00- 25.00
Understanding	30.83±3.98	0.792	7.00- 35.00
Appraisal	34.72±5.05	0.885	8.00- 40.00
Application	21.18±3.41	0.778	5.00- 25.00
COVID-19 Phobia Scale (C19P-S) total score	**50.30±16.33**	0.945	20.00–100.00
Psychological	18.77± 6.00	0.836	6.00–30.00
Psyho-somatic	9.67± 4.09	0.863	5.00–25.00
Social	13.64± 5.02	0.861	5.00–25.00
Economic	8.20± 3.30	0.793	4.00–20.00

The table shows the health literacy scores of the participants according to some variables. According to the results obtained, women's health literacy scores (110.05±12.14) were higher than men's (107.16±14.39). According to the statistical analysis, it was determined that there was a significant difference between health literacy and gender (t= 2.509; p<0.012), and this difference favored women.

It was seen that the health literacy scores of the participants with secondary school education were high (114.92±11.71), and the scores of the participants with primary school (108.36±14.01) and undergraduate and graduate education (108.57±13.36) were low. No significant difference was determined between education status and health literacy (p>0.05).

Participants living in the city center for a long time had higher health literacy (109.29±13.13), while those living in rural areas for a long time had the lowest scores (106.88±13.54).

Those with a high-income level (111.82±15.81) had high health literacy scores and it was determined that there was a significant difference between economic status and health literacy (F=13.821; p<0.000).

The health literacy scores of the participants who stated that they were not positive for the coronavirus (109.04±13.37),

Table 3 Analysis of the Socio-demographic Characteristics of the Participants and their Health Literacy Total Scores

Characteristics	Health Literacy		
	Health Literacy Total x±ss	**Test**	**P**
Gender			
Female	110.05±12.14	t= 2.509	p<0.012
Male	107.16±14.39		
Educational status			
Primary school	108.36±14.01	F=1.359	p>0.254
Middle School	114.92±11.71		
High school	110.23±11.44		
Bachelor and above	108.57±13.36		
Longest Living Place			
Centre	109.29±13.13	F=0.802	p>0.449
District	108.79±12.62		
Rural	106.88±13.54		
Economic condition			
Low	103.42±16.08	F=13.821	***p<0.000***
Middle	110.33±11.37		
High	111.82±15.81		
The state of being coronavirus positive or knowing a person who has it			
Yes	108.56±11.27	t=-0.303	p>0.762
No	109.04±13.37		
The state of being interested in news about the coronavirus			
Yes	108.83±11.20	t=-0.121	p>0.904
No	109.01±13.47		
The state of taking measures to protect			
Sufficient	108.42±12.55	t=-0,737	p>0.461
Insufficient	109.28±13.39		
Receiving Health Training			
Yes	110.35±12.52	t=2.200	***p<0.028***
No	107.88±13.44		

Table 4 Analysis of Coronavirus Phobia Total Scores According to Some Characteristics of the Participants

Characteristics	Coronavirus Phobia		
	Coronavirus Phobia total x±ss	Test	P
Gender			
Female	50.85±15.79	t= 1.022	*p>0.307*
Male	49.37±17.20		
Educational status			
Primary school	47.00±13.68	F=2.349	p>0.072
Middle School	59.14±14.45		
High school	47.53±15.30		
Bachelor and above	50.60±16.54		
Longest Living Place			
Centre	50.30±16.46	F=0.510	p>0.601
District	49.20±17.06		
Rural	52.07±14.06		
Economic condition			
Low	47.71±16.95	F=2.360	*p>0.095*
Middle	51.22±15.84		
High	48.17±19.03		
The state of being coronavirus positive or knowing a person who has it			
Yes	47.69±14.51	t=-1.526	p>0.127
No	50.73±16.59		
The state of being interested in news about the coronavirus			
Yes	48.00±14.68	t=-1.524	p>0.128
No	50.79±16.63		
The state of taking measures to protect			
Sufficient			p>0.419
Insufficient	51.06±16.27	t=-0.809	
	49.88±16.37		
Receiving Health Training			
Yes	48.82±16.40	t=-1.895	*p>0.059*
No	51.48±16.21		

those who stated that they were not interested in the news about the coronavirus (109.01±13.47) and received health education (110.35±12.52) were high. It was determined that there was a significant difference between the status of receiving health education and health literacy (t=2.200; p<0.028), and this difference favored the participants who received health education (Table 3).

Table 4 shows the coronavirus phobia scores of the participants according to some variables. According to the results obtained, the coronavirus phobia scores of women (50.85±15.79) were higher than men (49.37±17.20).

According to the education level, participants with primary school education got 47.00±13.68 points, participants with secondary school education got 59.14±14.45 points, those who were at high school level got 47.53±15.30 points, and participants with undergraduate and graduate education got 50.60±16.54 points.

According to the place of residence, the participants who reported living in the countryside had the highest coronavirus phobia scores (52.07±14.06), the scores of the participants living in the city center (50.30±16.46) were moderate, and the scores of the participants living in the district were the lowest (49.20±17.06) (Table 4).

People with a medium-income level (51.22±15.84), those who stated that they were not positive for coronavirus (50.73±16.59), those who reported that they were not interested in news about coronavirus (50.79±16.63), and those who reported that they took adequate precautions to protect themselves from coronavirus (51.06±16.27) had high coronavirus phobia scores. The coronavirus phobia scores of the participants (51.48±16.21) who stated that they did not receive health education were high. No significant difference was found between the independent variables and the statistical analysis of coronavirus phobia (Table 4).

No association was found between total health literacy and total coronavirus phobia [r(545)=-0.054; p>0.05]. It was found that there was a weak negative correlation between the somatic sub-dimension of coronavirus phobia and the total health literacy, access to information, Understanding Information, and Appraisal sub-dimensions (p<0.05). It was determined that there was a statistically significant weak relationship between the economic sub-dimension of coronavirus phobia and the total health literacy and access to information sub-dimension. (p<0.05) (Table 5).

Table 5 Correlation of Health Literacy and Coronavirus Phobia Scale

Variables	**C19P-S total score**	Psychological	Psyho-somatic	Social	Economic
Health Literacy Overall score	-,054	-,006	**-,094***	-,034	-,086*
Access	-,083	-,045	**-,085***	-,078	-,103*
Understanding	-,062	-,006	**-,114****	-,048	-,083
Appraisal	-,019	-,026	**-,063****	,006	-,071
Application	-,028	-,013	-,056	-,012	-,031

**. The correlation was significant at the 0.01 level (2-tailed). *.Correlation is significant at the 0.05 level (2-tailed).

Discussion

It was determined that the participants' health literacy levels were high and they scored above the average in all sub-dimensions of the Health Literacy scale in this study, which was conducted to evaluate the relationship between health literacy level and Coronavirus-19 Phobia.

In the study by Berberoğlu et al. (2018) with individuals in the 18–65 age group, the health literacy level of more than half of the participants was categorized as insufficient. In the same study, it was stated that only 17.2% of the participants have sufficient and excellent health literacy levels [18]. In a population-based study conducted by the Bakan and Yıldız to determine the level of health literacy and related factors between the ages of 21–65 in a province located in the east of Turkey, it was reported that 55.4% of the participants had insufficient health literacy, 22.4% were problematic and limited, and only 22.2% had sufficient or excellent health literacy [19]. İkiışık et al. (2020) conducted a study in a tertiary healthcare institution located in a socioeconomically high-ranking district of Istanbul, 18.9% of the participants had insufficient health literacy, 44.8% of them had problematic and limited health literacy, 36.8% of the participants. was found to be adequate or excellent in health literacy [20]. Similarly, in other studies conducted in Turkey, the health literacy level of a large number of participants was evaluated as insufficient [21-23]. However, in a study by Özdemir in a family health center in Turkey, 51.8% of the participants reported to have a sufficient or excellent level of health literacy [24]. Our research findings are in parallel with the results of previous studies in the region. However, in general, it is seen that the level of health literacy in Turkey varies according to region and is very low in some regions. It is thought that the health literacy levels of individuals should be increased with pieces of training.

In this study, gender, economic level, and health education status was found to affect the health literacy score average of the participants ($p<0.05$). Women's health literacy scores were higher and more significant than men's. Various factors affecting the health literacy levels of individuals have been reported in the literature. In addition to studies that found that the gender variable did not affect health literacy, there are studies showing that gender affects health literacy. [19-21, 23, 24]. Our study findings are compatible with the literature. It can be interpreted that women's ability to read, understand and evaluate basic health information is higher.

In our study, the status of receiving health education was determined as a factor affecting health literacy. Similarly, there are studies in the literature showing that the health education received affects the level of health literacy [19, 22].

In our study, the total mean score of the participants for COVID-19 phobia was determined as 50.30±16.33. It was determined that there was no statistically significant difference between the C19P-S and sub-dimension mean scores of the participants according to gender, education level, economic status, being positive for coronavirus or knowing a person with coronavirus, and being interested in news about coronavirus, taking precautions to protect against the coronavirus and status of receiving health education ($p>0.05$). In the study by Arslan et al. (2021) to determine the COVID-19 phobia levels of healthcare personnel working in the pandemic hospital, it was stated that the variables of age, gender, having a child, presence of chronic disease, marital status, smoking status did not affect the C19P-S scores [25]. In a study conducted in Egypt to investigate the factors associated with coronaphobia in physicians, the level of coronaphobia was reported to be higher in physicians who were female, who were non-smokers, who were with death wish and/or thoughts of self-harm, who were inadequately trained, who were dissatisfied with personal protective equipment, and who were more likely to have co-workers infected with the COVID-19 virus [26]. In a community-based study conducted in South Korea, it was found that the variable of education level affects the mean C19P-S score, and individuals with higher education levels have lower coronaphobia levels. In the same study, it was reported that the mean scores of the psychological, somatic, and social subscales of individuals infected with COVID-19 were statistically significantly higher than individuals uninfected with COVID-19 [24]. In the validity and reliability study of the coronavirus phobia scale in the Arab population by Alnaddaf and Baloğlu (2021), it was stated that the C19P-S scores of women were significantly higher than men in all sub-dimensions. In the same study, it was reported that the psychological and economic sub-dimensions of singles scored significantly higher than those married people [28]. Another validity and reliability study of the C19P-S was conducted in the United States. In this study, there was a statistically significant difference between the coronavirus phobia levels of men and women, but phobia was not associated with factors such as marital status, presence of chronic disease, covid-19-infected friends and relatives. In the same study, it was reported that there is a relationship between anxiety and COVID-19 phobia, and individuals with high anxiety have high levels of coronavirus phobia [29]. Similarly, in the study by Ardestani et al. with patients with anxiety disorders, it was reported that patients with generalized anxiety and panic disorder showed higher phobic reactions related to COVID-19 than those with social anxiety disorder and specific phobia [14]. Our research findings are compatible with the studies in the literature.

According to the correlation analysis performed in this study, it was determined that there was a statistically significant, negative, and weak relationship between SOY total and C19P-S somatic and economic sub-dimensions ($p<0.05$). A weak negative correlation was determined between Access and Information, Understanding Information, and Appraisal Sub-Dimensions and C19P-S somatic sub-dimension. In the literature, there is no study published in Turkish or English that evaluates the relationship between Health Literacy and Coronavirus Phobia. However, a study was conducted to evaluate the relationship between the COVID-19 fear scale and health literacy. In this study, it was found that there was a significant relationship between the level of fear of COVID-19 and health literacy, and a high level of health literacy was associated with a low level of fear of COVID-19 [30]. In a study by Rohwer et al. (2021) with caregivers during the COVID-19 process in Germany, it was reported that the perceived stress during the COVID-19 process and the anxiety associated with COVID-19 was associated with the level of health literacy [31]. This research shows that individuals' access to information, their level of understanding, and evaluation of information are effective on coronavirus phobia.

Conclusion

This research has shown that the health literacy level of adult individuals is generally high, coronavirus phobia is moderate, and gender, education, and income level are effective on health literacy. It has been determined that there is no sociodemographic variable affecting coronavirus phobia in adults. It has been understood that there is a weak negative relationship between health literacy and coprophobia With these research results, it can be predicted that increasing the level

of health literacy in the development of effective individual strategies for protection from coronavirus infection during the pandemic process will also affect coronavirus phobia and reduce it. For this reason, it is recommended to develop targets and policies to increase the health literacy level of society during the epidemic and to conduct studies examining the relationship between health literacy and coronavirus phobia in different societies.

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References

1. Republic of Turkey Ministry of Health COVID-19 Information Platform, Turkey. 2022. https://covid19.saglik.gov.tr/ 09.02.2022
2. Orkan Okan, Kristine Sørensen, Melanie Messer. Coronavirus Needs: How to Become a Health Literate Society. 2020. https://nationalinterest.org/blog/buzz/corona- virus-needs-how-become-health-literate-society-135382. Accessed 19.12.2021
3. Özkan S, Tüzün H, Uğraş Dikmen A, Ilhan Mn. Salgınlarda Toplum Davranışı ve Sağlık Okuryazarlığı. *J Biotechnol and Strategic Health Res.* 2020;1(Özel Sayı):105-110. https://doi.org/10.34084/bshr.719139
4. Kickbusch I, Maag D. Health Literacy. In: editors International. *Encycl Public Heal Vol* 3. 2008;3:204–11. https://doi.org/10.1016/B978-012373960-5.00584-0
5. Simonds SK. Health education as social policy. *Health Educ Monogr* [Internet]. 1974;2(1_suppl):1–10. http://doi.org/10.1177/10901981740020s102
6. WHO. Track 2: Health literacy and health behaviour. 7th Global Conference on Health Promotion: trackthemes. *Health Promotion (serialonline)* 2016 Apr-May, http://www.who.int/healthpromotion/conferences/7gchp/track2/en/ 15.12.2021
7. Health literacy: report of the council on scientific affairs. Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, American Medical Association. *JAMA* 1999;281(6):552-7. https://doi.org/10.1001/jama.281.6.552
8. Kutner M, Greenberg E, Jin Y, Paulsen C. The health literacy of America's adults: results from the 2003 National Assessment of Adult Literacy. Education. 2006;6:1–59.
9. Castro-Sánchez E, Chang PWS, Vila-Candel R, Escobedo AA, Holmes AH. Health literacy and infectious diseases: why does it matter? *Int J Infect Dis.* 2016;43:103–10. http://doi.org/10.1016/j.ijid.2015.12.019
10. Tanrıöver Durusu M, Yıldırım HH, Ready Demiray FN, Çakır B, Akalın E. Türkiye Sağlık Okuryazarlığı Araştırması. Sağlık ve Sos Hizmet Çalışanları Sendikası Sağlık-Sen Yayınları-25, Ankara. 2014;14–26.
11. Zarghami M. Psychiatric aspects of coronavirus (2019-nCoV) infection. *Iran J Psychiatry Behav Sci*. 2020;14(1):19–21. http://doi.org/10.5812/ijpbs.102957
12. Lee SA, Jobe MC, Mathis AA, Gibbons JA. Incremental validity of coronaphobia: Coronavirus anxiety explains depression, generalized anxiety, and death anxiety. *J Anxiety Disord*. 2020;74 (102268):102268. http://doi.org/10.1016/j.janxdis.2020.102268
13. Hermans L, Van den Broucke S, Gisle L, Demarest S, Charafeddine R. Mental health, compliance with measures and health prospects during the COVID-19 epidemic: the role of health literacy. *BMC Public Health.* 2021;21(1):1365. http://doi.org/10.1186/s12889-021-11437-w
14. Samimi Ardestani SM, Khosravani V, Sharifi Bastan F, Baloğlu M. The Persian version of the COVID-19 Phobia Scale (Persian-C19P-S) and the differences in COVID-19-related phobic reactions in patients with anxiety disorders. *Int J Ment Health Addict.* 2021;1–17. https://doi.org/10.1007/s11469-021-00523-0
15. Toçi E. Health literacy and socioeconomic characteristics among older people in transitional Kosovo. *Br J Med Med Res*. 2013;3(4):1646–58. http://doi.org/10.9734/bjmmr/2013/3972
16. Aras Z, Bayık Temel A. Sağlık Okuryazarlığı Ölçeğinin Türkçe Formunun Geçerlilik Ve Güvenirliğinin Değerlendirilmesi (Evaluation of the Validity and Reliability of the Turkish Form of the Health Literacy Scale). *Florence Nightingale Hemşirelik* Derg. 2017;25(2):85. https://doi.org/10.17672/fnhd.94626
17. Arpaci I, Karataş K, Baloğlu M. The development and initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S). *Pers Individ Dif* 2020;164(110108):110108. http://dx.doi.org/10.1016/j.paid.2020.110108
18. Berberoğlu U, Öztürk O, İnci MB, Ekerbiçer HÇ, Üniversitesi U, Fakültesi T, et al. Bir Aile Sağlığı Merkezine Kayıtlı 18-65 Yaş Grubu Bireylerdeki Sağlık Okuryazarlığı Durumunun Değerlendirilmesi Evaluation of the Health Literacy Status Among Individuals Aged 18-65 Registered in a Family Health Center. *Sak Tıp Derg.* 2018;8(3):575–81. https://doi.org/10.31832/smj.453846
19. Bakan AB, Yıldız M. 21-64 Yaş Grubundaki Bireylerin Sağlık Okuryazarlık Düzeylerinin Belirlenmesine Ilişkin Bir Çalışma. *Sağlık ve Toplum*. 2019;3(6):33–40.
20. İkiışık H, Turan G, Kutay F, Sever F, Keskin SN, Güdek H, et al. Investigation of health literacy level of patients who admitted to A tertiary training and research hospital. *Journal of Ankara University Faculty of Medicine*. 2020; 73(3), 247-252. https://doi.org/10.4274/atfm.galenos.2020.83007
21. Deniz S, Bentli R, Kalkanlı MT, Fırıncı B, Yalınız F, Demir E, et al. Malatya İlinde Çalışan Öğretmenlerin Sağlık Okuryazarlığı Düzeylerinin ve İlişkili Faktörlerin Belirlenmesi. *Sak Med J*. 2020;10(1):28-36 https://doi.org/10.31832/smj.636313
22. Yiğitalp G, Bayram Değer V, Çifçi S. Health literacy, health perception and related factors among different ethnic groups: a cross-sectional study in southeastern Turkey. *BMC Public Health*. 2021;21(1):1–10. http://doi.org/10.1186/s12889-021-11119-7
23. Yakar B, Gömleksiz M, Pirinççi E. Health Literacy Levels and Affecting Factors of Patients Who Applied to A University Hospital Polyclinic. *Eurasian J Fam Med.* 2019;8(1):27–35. http://doi.org/10.33880/ejfm.2019080104

24. Özdemir, Yakup. Determination of Health Literacy Level of Patients' who apply to Family Health Centers: Kahramanmaraş Province Example, Master's Thesis, Hacettepe University Institute of Social Sciences, Ankara, 2018.
25. Oktay Arslan B, Batum Ö, Varol Y, Şenel E, Uçar ZZ. COVID-19 phobia in healthcare workers; A cross-sectional study from a pandemic hospital. *Tuberk Toraks*. 2021;69(2):207–16. http://doi.org/10.5578/tt.20219810
26. Abdelghani M, Hassan MS, Elgohary HM, Fouad E. Exploring the factors associated with coronaphobia among physicians during the COVID-19 outbreak in Egypt. *Egypt J Neurol Psychiatry Neurosurg*. 2021;57(1). http://doi.org/10.1186/s41983-021-00357-6
27. Bilgiç Ş, Baloğlu M, Tokalilar S. Adapting and validating the coronavirus-19 phobia scale (C19P-S) in Korea. *Death Stud*. 2022;46(3):590–4. http://doi.org/10.1080/07481187.2021.1924897
28. Alnaddaf A, Baloğlu M. The validation of the Arabic version of the Coronavirus-2019 Phobia Scale (C19P-SA) and individual differences in coronaphobia experiences among an Arabic population. *J Community Psychol*. 2021;(jcop.22642). http://doi.org/10.1002/jcop.22642
29. Arpaci I, Karatas K, Baloglu M, Haktanir A. COVID-19 phobia in the United States: Validation of the COVID-19 Phobia Scale (C19P-SE). *Death Stud*. 2022;46(3):553–9. http://doi.org/10.1080/07481187.2020.1848945
30. Nguyen HT, Do BN, Pham KM, Kim GB, Dam HTB, Nguyen TT, et al. Fear of COVID-19 scale—associations of its scores with health literacy and health-related behaviors among medical students. *Int J Environ Res Public Health*. 2020;17(11):1–14. http://doi:10.3390/ijerph17114164
31. Rohwer E, Mojtahedzadeh N, Neumann FA, Nienhaus A, Augustin M, Harth V, et al. The Role of Health Literacy among Outpatient Caregivers during the COVID-19 *Pandemic*. 2021;2019:1–25 https://doi.org/10.3390/ijerph182211743