IMPACT OF E-HEALTH LITERACY AND CYBERCHONDRIA SEVERITY ON FEAR OF COVID-19 IN TURKISH SOCIETY

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ABSTRACT

The fear of COVID-19 may lead to many negative consequences. Therefore, it is important to address the antecedents of COVID-19 fear for better preventing fear of COVID-19. Cyberchondria can pose a great threat to individuals during the pandemic period, when health-related information is widely spread and followed closely and with great interest by the society. On the other hand, e-Health literacy has become more important during the pandemic period. In this study, it was aimed to reveal the impact of e-Health literacy and cyberchondria severity on fear of COVID-19. In Türkiye, the research population was made up of people between the ages of 18 and 74. A total of 960 people were reached through online questionnaire. The questionnaire consisted four parts. The sociodemographic information about the participants was given in the first part. In the second part, "The e-Health Literacy Scale"; in the third part, "Cyberchondria Severity Scale" and in the fourth part "The Fear of COVID-19 Scale" were used. According to the study findings; the level of e-Health literacy and cyberchondria had a significant impact on fear of COVID-19, both separately and together. The increase in the e-Health literacy level of the participants statistically reduced the fear of COVID-19, while the increase in the level of cyberchondria increased the fear of COVID-19. The findings could be useful for healthcare professionals, healthcare administrators and policymakers to take further steps towards raising individuals' e-Health literacy, which could facilitate dealing with devastating epidemics such as COVID-19 in societies. Also, it may help to prioritizing raising awareness about cyberchondria and online health information seeking behaviors.

Keywords: Cyberchondria; e-Health literacy; fear of COVID-19; Türkiye

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TÜRK TOPLUMUNUN E-SAĞLIK OKURYAZARLIK VE SİBERKONDRİ DÜZEYİNİN COVID-19 KORKUSU ÜZERİNDEKİ ETKİSİ

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ÖZ

COVID-19 korkusu pek çok olumsuz sonuca yol açabilir. COVID-19 korkusunu önleyebilmek için COVID-19 korkusunun belirleyicilerini ele almak önemlidir. Siberkondri, sağlıkla ilgili bilgilerin geniş kitlelere yayıldığı ve toplum tarafından yakından ve ilgiyle takip edildiği pandemi döneminde bireyler için büyük bir tehdit oluşturabilir. Öte yandan pandemi döneminde önem kazanan diğer bir kavram da e-Sağlık okuryazarlığıdır. Bu çalışmada e-Sağlık okuryazarlığı ve siberkondri düzeyinin COVID-19 korkusu üzerindeki etkisini ortaya koymak amaçlanmıştır. Araştırma evrenini Türkiye'deki 18-74 yaş aralığındaki bireyler oluşturmuş ve online anket aracılığıyla toplam 960 kişiye ulaşılmıştır. Anket dört bölümden oluşmaktadır. Katılımcıların sosyo-demografik özellikleri, birinci bölümü oluşturmaktadır. İkinci bölümde "e-Sağlık Okuryazarlığı Ölçeği"; üçüncü bölümde "Siberkondri Ölçeği" ve dördüncü bölümde "COVID-19 Korkusu Ölçeği" kullanılmıştır. Araştırma bulgularına göre; e-Sağlık okuryazarlığı ve siberkondri düzeyi hem ayrı ayrı hem de birlikte COVID-19 korkusu üzerinde önemli bir etkiye sahiptir. Katılımcıların e-Sağlık okuryazarlık düzeyindeki artış istatistiksel olarak COVID-19 korkusunu azaltırken, siberkondri düzeyindeki artış COVID-19 korkusunu artırmaktadır. Araştırmanın bulguları, toplumlarda COVID-19 gibi yıkıcı salgınlarla başa çıkmayı kolaylaştırabilecek, bireylerin e-Sağlık okuryazarlığını artırmaya yönelik daha fazla adım atmak için sağlık uzmanları, sağlık yöneticileri ve politika yapıcılar için yararlı olabilir. Ayrıca, siberkondri ve çevrimiçi sağlık bilgisi arama davranışları hakkında farkındalık yaratmaya öncelik verilmesi yardımcı olabilir.

Anahtar kelimeler: *Siberkondri, e-Sağlık okuryazarlığı, COVID-19 korkusu, Türkiye*

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I. INTRODUCTION

The COVID-19 outbreak first emerged in December 2019, when life-threatening pneumonia cases were reported in Wuhan, China (WHO, 2020a; WHO2020b). On March 11, 2020, a global pandemic declaration was made. As of 28 October 2022, there were 626,337,158 confirmed COVID-19 cases globally and the total number of deaths from COVID-19 reached 6,566,610 (WHO, 2021). As of 2 October 2022, the total number of cases in Türkiye is 16,919,638 and the number of deaths is 101,203 (T.R. Ministry of Health, 2021).

Data from opinion surveys show that COVID-19 has a significant psychological impact (Angus Reid Institute, 2020). It is stated that anxiety about one's health can be beneficial as long as it is to some degree in terms of encouraging preventive behaviors such as mask, hygiene and compliance with social distance rules, and can greatly affect the clinical outcome of the disease. However, it is also stated that for some individuals, this state of fear may turn into extreme anxiety that occurs in response to the threat of the pandemic. Quarantine measures implemented within the scope of COVID-19 measures can cause serious troubles such as fear, anxiety, suffering and confusion among the public. While reducing the contagion rate of the epidemic, considering the fear of the individual is a vital element for mental health (Asmundson & Taylor, 2020; Doshi et al., 2020).

As a result of these negative effects, the term of "fear of COVID-19" has emerged. Nguyen and colleagues (2020a) define this fear as negative mental health in anticipation of the COVID-19 outbreak. This fear may lead (Shaukat et al., 2021) delays in accessing health care services (Lazzerini et al., 2020), stress disorders, negative health behaviors (Nguyen et al., 2020b), mental disorders, low perceived health level (Shigemura et al., 2020) and suicide (Goyal et al., 2020). As a result of all these effects, the fear of COVID-19 can negatively affect the daily, social and working lives of individuals. Taking into account the traumatic consequences, it is necessary to address fear of COVID-19 for better preventing it (Stănculescu, 2022).

On the other hand, anxiety, stress and health concerns of individuals, which increase with the effect of increasing threats to health and long-term quarantine during pandemic periods, also affect individuals' health-related information seeking behaviors (Jungmann & Witthöft, 2020). Today, the internet, which provides a large amount of medical information, allows for a detailed investigation of perceived health symptoms and complaints. As a result, an increasing number of people consider the internet to be the best source of medical knowledge and use it for their health-related problems (Starcevic & Berle, 2013; Mathes et al., 2018). However, studies have also shown that online health information access can increase concern, anxiety, and the growth of anxiety disorders (Norr et al., 2014; Singh & Brown, 2016). The situation in which individuals who are extremely distressed or worried about their health are increasingly worried and repeated health searches on the internet has been defined as "cyberchondria" in the literature (Aiken et al., 2012). Cyberchondria can pose a great threat to individuals during the pandemic period, when health-related information is widely spread and followed closely and with great interest by the society. Previous studies of past outbreaks and pandemics show that anxiety, health concerns, and online search behaviors are common during these times (Jalloh et al., 2018; Lau et al., 2010). Cyberchondria may lead individuals to search the internet about COVID-19 with their anxiety and this may have caused them to experience fear of COVID-19, due to the abundance of vague, complex and false information about COVID-19 on the internet. Therefore, fear of COVID-19 levels of individuals may increase because they face a lot of unconfirmed information about the COVID-19 (Laato et al., 2020; Starcevic et al., 2021; Yam et al., 2021).

On the other hand, COVID-19 has necessitated the use of e-Health applications by individuals. During the pandemic, in addition to the necessity of carrying out many health-related transactions over the internet, in terms of being able to understand and correctly apply the concepts and information about testing, vaccination, medicines, treatment, restrictions and precautions, e-Health literacy has gained even more importance. Individuals with high e-Health literacy can have a sense of self-confidence by having more and accurate information and by performing the right practices (Aydan,

2021). This, in turn, may make COVID-19 fear levels lower. Hence, paying attention to the e-Health literacy level of patients is the key to improve health outcomes and also to decrease the impact of COVID-19 on both individual and societal levels (Brørs et al., 2020; Chong et al., 2020; Dastani, 2020; Robbins et al., 2020). In this direction, it is thought that both cyberchondria and individuals' levels of e-Health literacy may have an impact on their anxiety of COVID-19. With this study, it was aimed to reveal the impact of e-Health literacy level and cyberchondria severity of individuals living in Türkiye on the fear of COVID-19.

II. MATERIALS AND METHODS

2.1. Aim and Population

The aim of this cross-sectional study was to explain the impact of e-Health literacy and cyberchondria severity on fear of COVID-19. In addition, within the scope of the study, it was also examined whether the e-health literacy, cyberchondria and COVID-19 fear levels of the participants differed according to the sociodemographic characteristics and descriptive information characteristics. For this purpose, answers to the following questions will be sought:

- Do the participants have high levels of e-health literacy, cyberchondria and COVID-19 fear?
- Is there a statistically significant relationship between e-Health literacy, cyberchondria and fear of COVID-19?
- Does the e-health literacy, cyberchondria and COVID-19 fear levels of the participants show a statistically significant difference according to the sociodemographic and descriptive variables?
- Does e-health literacy and cyberchondria severity impact on fear of COVID-19?

Individuals in Türkiye between the ages of 18 and 74 made up the research population. According to data published on European Commission website in 2018, there are 55,281,023 people aged 18-74 years in Türkiye (https://ec.europa.eu/). The required sample size was determined to be 385 individuals, with a 95% confidence range, and a 5% margin of sampling error. 960 individuals in total were reached.

2.2. Data Collection

The data were obtained through online survey due to the pandemic and Google Forms was used to collect the data. The data were collected between May-July, 2021. All participants provided informed consent. The Hacettepe University Ethics Committee provided the necessary ethical permission with the number E-35853172-050.06-00001546508 (Date: 13 April 2021).

2.3. Instruments

There are four sections to the questionnaire. The sociodemographic information about the participants is presented in the first section. The "e-Health Literacy Scale," "Cyberchondria Severity Scale," and "The Fear of COVID-19 Scale" were included in the second, third, and fourth parts of the study, respectively.

"The e-Health Literacy Scale" which was developed by Norman and Skinner (2006) is a 5-point Likert scale and consists of 8 items. The Turkish validity and reliability study of the scale was conducted by Gencer (2017). Cronbach Alpha coefficient of the scale in Gencer (2017)'s study was calculated as 0.915; in this study was found to be 0.925.

"Cyberchondria Severity Scale" which was developed by McElroy and Shevlin (2014) is 5-point Likert type and consists of 33 items and 5 subscales. The lowest score that can be obtained from the scale is 33, while the highest score is 165. The Turkish validity and reliability study of the scale was conducted by Uzun and Zencir (2018). Cronbach Alpha coefficient of the scale in Uzun and Zencir (2018)'s study was calculated as 0.94; in this study was found to be 0.919.

"The Fear of COVID-19 Scale" which was developed by Ahorsu et al. (2020) 5-point Likert type and consists of 7 items. The Turkish validity and reliability study of the scale was conducted by Haktanır et al. (2020). Cronbach Alpha coefficient of the scale in Haktanır et al. (2020)'s study was calculated as 0.86; in this study was found to be 0.875.

2.4. Data Analysis

Descriptive and inferential statistical methods were used in the analysis of the data. The mean, standard deviation and frequency of descriptive statistics was used to determine the e-health literacy, cyberchondria and COVID-19 fear levels of the participants. The relationship between e-health literacy, cyberchondria and fear of COVID-19 levels by Pearson correlation analysis; Whether these levels differ according to the socio-demographic characteristics and descriptive information of the participants was analyzed by independent samples t-test and One-way ANOVA. The skewness and kurtosis measurements were used to determine whether the data were compatible with a normal distribution and these values are in the range of ± 1. For multivariable explanation of participants' fear of COVID-19 based on independent variables multiple linear regressions was used. The accepted significance level was 0.05. Software called SPSS (Version 21.0) was used for data analysis.

2.5. Limitations

In our study, which was conducted online, we do not have a mechanism to control and limit repeated responses. This means that a person may have filled out the questionnaire more than once. Another limitation is that convenience sampling was used in the research which may have resulted in sampling biases. Individuals with biases about the subject may have been more likely to participate in the survey.

III. RESULTS

When the demographic characteristics of the participants within the scope of the study were examined, it was seen that more than half of the participants were women (57.0%), married (59.9%) and had children (55.2%). The educational status of the participants was evaluated and it was determined that half of them had a bachelor's degree. Within the scope of the study, generations were used for age groups. Generation Y, born between 1981 and 1994, constituted the majority (34.4%). Generation X, born between 1965 and 1980, was 31.9% of the participants. Generation Z, born between 1995 and 2012, was 15.8 % of the participants. Baby boomers, born between 1946 and 1964, was 17.9 % of participants. The ages of the participants ranged from 18 to 74, with a mean age of 41.03. It was evaluated whether the participants were diagnosed with COVID-19. It was determined that 84.9% of them were not diagnosed. In addition, the majority of the participants did not have a chronic disease (79.8%). Descriptive information and correlation analysis results regarding the variables in the study are presented in Table 1.

The average score of "fear of COVID-19" scale was 18.20±6.58; "e-Health literacy" scale was 30.52±6.89 and "cyberchondria" was 84.86±21.08. In line with the findings of the correlation analysis, there is a weak and negative correlation between e-Health literacy and COVID-19 fear (r=-0.072; p <0.05), whereas a positive and low level of relationship (r=0.378; p<0.01) was found between the fear of COVID-19 and cyberchondria. In addition, there is no statistically significant relationship between e-Health literacy and cyberchondria (Table 1).

Table 1. Descriptive Statistics and Correlation Analysis

	Mean±Sd	Min-Max	1	2	3
1. Fear of COVID-19	18.20±6.58	7-35	1	-0.072*	0.378**
2. e-Health Literacy	30.52±6.89	8-40		1	0.057
3. Cyberchondria	84.86±21.08	33-154			1
Compulsion	14.51±7.16	8-40			
Distress	20.91±7.19	8-40			
Excessiveness	26.60±6.73	8-40			
Reassurance	17.00±5.58	6-30			
Mistrust of Medical Professional	5.83±2.70	3-15			

Sd, Standard Deviation; *Correlation is significant 0.05; **Correlation is significant 0.01

Table 2 presents test results and compares participant scores on the fear of COVID-19, e-Health literacy and cyberchondria scales based on some variables. A statistically significant difference was found between fear of COVID-19 and gender, marital status, generations, education level and presence of chronic disease. Women, married and those with chronic diseases were more afraid of COVID-19. In addition, baby boomers had more fear of COVID 19 compared to individuals in the Y generation, and secondary school graduates compared to individuals at other educational levels (Table 2).

Table 2. Comparison of Scales According to Participants' Sociodemographic Characteristics and Descriptive Information

	Fear of COVID-19	e-Health Literacy	Cyberchondria
	Mean±Sd	Mean±Sd	Mean±Sd
Gender			
Female	19.49±6.49	31.07±6.59	85.28±20.93
Male	16.49±6.31	29.79±7.21	84.30±21.28
	t=7.162; **p<0.001**	t=2.816; **p=0.005**	t=0.708; p=0.479
Marital Status			
Married	18.57±6.67	30.58±6.94	84.74±21.04
Single	17.65±6.41	30.42±6.83	85.03±21.16
	t=2.126; **p=0.034**	t=0.372; p=0.710	t=-0.212; p=0.832
Generations			
Baby Boomer1	19.69±6.69	29.49±7.39	85.95±20.34
X Generation2	18.13±6.90	31.05±6.95	82.94±20.99
Y Generation3	17.72±6.36	30.89±6.76	83.94±21.32
Z Generation4	17.68±6.06	29.80±6.35	89.47±20.99
	F=3.881; p=**0.009** 1-3	F=2.777; p=**0.040** 1-2; 1-3	F=3.669; p=**0.012** 2-4
Level of Education			
Secondary School1	22.85±6.53	25.04±8.35	94.79±21.48
High School2	18.59±6.91	29.99±6.57	91.13±21.60
Graduate3	17.71±6.34	30.14±6.60	83.04±20.26
Postgraduate4	17.93±6.47	32.66±6.53	82.18±20.87
	F=10.17; **p<0.001** 1-2; 1-3; 1-4	F=21.412; **p<0.001** 1-2;1-3;1-4;2-4;3-4	F=11.79; **p<0.001** 1-3;1-4;2-3;2-4
Chronic Diseases			
Yes	20.14±6.55	30.18±7.62	85.73±20.33
No	17.71±6.50	30.60±6.70	84.64±21.27
	t=4.645; **p<0.001**	t=-0.715; p=0.475	t=0.643; p=0.520

There was a statistically significant difference between e-Health literacy and gender, generations and education level. Compared to men, women had a higher level of e-Health literacy. Baby Boomers had a lower level of e-Health literacy compared to individuals in the X and Y generation. In addition, postgraduate graduates had the highest e-Health literacy level, while secondary school graduates had the lowest e-Health literacy level (Table 2).

A statistically significant difference was found between the level of cyberchondria and the variables of generation and education status. The level of cyberchondria was found to be higher for the individuals in the Z generation compared to the X generation, and the secondary and high school graduates compared to the undergraduate and graduate graduates (Table 2). There was no statistically significant difference between the variables of the region where the participants lived, having a child, being diagnosed with COVID-19, and the variables of fear of COVID-19, e-Health literacy and cyberchondria.

The results of the regression analysis regarding the variables are given in Table 3. E-Health literacy had a significant effect on fear of COVID-19 (F=5.033; p<0.05). However, it alone explained only 0.05% of the COVID-19 fear variable. Cyberchondria level had also a significant effect on fear of COVID-19 (F=160.116; p<0.05), and it alone explained fear of COVID-19 by 14.3%. When the combined effect of e-Health literacy and cyberchondria level on fear of COVID-19 was examined, the explanatory rate increased. Together, these two variables explained 15.2% of the total variance in fear of COVID-19. Statistical estimates of the regression model created to reveal the combined effect of e-Health literacy and cyberchondria level on fear of COVID-19 showed that the model was significant and usable (F=85.791; p<0.05). The regression equation for the model is as follows:

Fear of COVID-19 = 10.776 + - 0.090 X1 (e-Health Literacy) + 0.120 X2 (Cyberchondria)

It was observed that the increase in the e-Health literacy level of the participants statistically reduced the fear of COVID-19, and the increase in the level of cyberchondria increased the fear of COVID-19 (Table 3).

Table 3. Results of Regression Analysis

Dependent Variables	Independent Variables	B	Std. Error	β	t	p
Fear of COVID-19	Constant	20.306	0.962		21.104	**<0.001**
	e-Health Literacy	-0.069	0.031	-0.072	-2.243	**0.025**
	R = 0.072; R2 = 0.005; F = 5.033; p < 0.05; Durbin Watson = 1.882					
Fear of COVID-19	Constant	8.177	0.816		10.018	**<0.001**
	Cyberchondria	0.118	0.009	0.378	12.654	**<0.001**
	R = 0.378; R2 = 0.143; F = 160.116; p < 0.05; Durbin Watson = 1.834					
Fear of COVID-19	Constant	10.776	1.157		9.316	**<0.001**
	e-Health Literacy	-0.090	0.028	-0.094	-3.157	**0.002**
	Cyberchondria	0.120	0.009	0.384	12.872	**<0.001**
	R = 0.390; R2 = 0.152; F = 85.791; p < 0.05; Durbin Watson = 1.829					

IV. DISCUSSION

This research investigated how Turkish people' levels of cyberchondria and e-Health literacy affected their fear of COVID-19. It is thought that examining the current levels of these dimensions, which remain current in today's conditions and whose importance has increased with the COVID-19 pandemic, and their effects on the fear of COVID-19, which causes extremely important changes, restrictions and negative consequences in the lives of individuals, will contribute significantly.

According to the study finding, the participants' fear of COVID-19 level is moderate. In various studies the level of fear of COVID-19 was mostly found to be moderate (Arıkan et al., 2021; Gencer,

2020; Özmen et al., 2021). In the study, it was concluded that there is a significant difference between the fear of COVID-19 and gender, marital status, generation, education level and presence of chronic disease. Fear of COVID-19 is more common in women, married people, and those with chronic diseases. Accordingly, baby boomers are more afraid of COVID-19 than individuals in the Y generation, and secondary school graduates are more afraid of COVID-19 than individuals at other educational levels.

The finding that female have a greater fear of COVID-19 is consistent with the finding that the pandemic has a greater psychological impact on female (Wang et al., 2020). Majority of studies (Arpacıoğlu et al., 2021; Bitan et al., 2020; Doshi et al., 2020; Fitzpatrick et al., 2020; Gencer, 2020; Haktanır et al., 2020; Özdemir & Arpacıoğlu, 2021; Özmen et al., 2021) were found similar findings. However, Doğan and Düzel (2020) found that the COVID-19 fear levels of men were higher, while some studies (Arıkan et al., 2021; Türkmen, 2021) found no significant difference according to gender.

The higher fear of COVID-19 among married individuals can be attributed to an increased sense of responsibility and additional concern for loved ones. In the related literature, there are studies (Doshi et al., 2020) in which the fear of COVID-19 is higher in married individuals, as well as the results of studies (Gencer, 2020; Fitzpatrick et al., 2020) showing that the fear levels of single individuals are higher. However, there are also studies (Arpacıoğlu et al., 2021; Özdemir & Arpacıoğlu, 2021; Türkmen, 2021) where there is no significant difference with the fear of COVID-19.

It can be thought that the significant difference between the fear of COVID-19 and generation may be due to the fact that the risk of catching various diseases increases as the age progresses, and that people over the age of 65 and people with concomitant chronic diseases are at the highest risk in terms of coronavirus (Li et al., 2020). In the literature, there are studies (Gencer, 2020; Özmen et al., 2021) supporting this difference, as well as studies in which the level of fear and anxiety due to COVID-19 is higher at younger ages and studies (Haktanır et al., 2020; Özdemir and Arpacıoğlu, 2021; Özmen et al., 2021) that do not show a significant difference between age and fear level.

The reason why the fear of COVID-19 decreases as the level of education increases, can be thought that better educated people are more competent in accessing health-related information resources, using them by researching and using social media more accurately. There are studies supporting this situation in the relevant literature (Doshi et al., 2020; Haktanır et al. 2020; Özmen et al., 2021). On the other hand, Doğan and Düzel (2020) stated that as the level of education increases, the fear of COVID-19 increases. There are also studies (Gencer, 2020; Özdemir & Arpacıoğlu, 2021; Türkmen, 2021) showing significant difference between fear of COVID-19 and education level.

It can be considered as an expected finding that the fear of COVID-19 is higher in individuals with chronic diseases. The reason for this was emphasized by all information sources during the pandemic process that the virus affects people who already have chronic health problems more, and the death rate is higher in these people. Findings of Bitan et al., (2020) and Özmen et al. (2021) also support this finding. However, there are also studies (Gencer, 2020; Haktanır et al., 2020) stating that there is no significant difference.

In the study, e-Health literacy level was found to be above the medium level (30.52±6.89). In different studies conducted in Türkiye which have used the same scale, the e-Health literacy level of the participants was found to be similar (Deniz, 2020; Uslu & Şeremet, 2020; Yüksel & Deniz, 2019). As in the whole world, also in Türkiye, e-Health literacy has become an inevitable feature and necessity with the increase in computer and internet usage and the spread of e-Health applications. It can be said that the relevant score is at a good level when compared with the scores in other countries (Del Giudive et al., 2018; Shiferaw et al., 2021; Shiferaw & Mehari, 2019). However, the fact that the scale was applied over the internet may also be a reason for this high value.

According to the findings, e-Health literacy level differs according to gender, generations and education level. The e-Health literacy level of females is higher than males. Similarly, in some other studies conducted in Türkiye (Deniz, 2020; Ertaş et al., 2019; Uslu & Şeremet, 2020), e-Health literacy level of females was found to be higher. It is possible to come across different findings in different countries. For example, in a study conducted in Iran, e-health literacy of males was found to be higher than females (Dashti et al., 2017). In various studies (Corrarino, 2013; Shieh & Halstead, 2009) examining the relationship between health literacy and women health, it was stated that health literacy of females can significantly affect their health knowledge, ability to comply with clinical care plans, preventive behaviors, use of health system and also caring for their children. Since females' health knowledge affects not only their own lives but also the health of their children and families, they may feel more responsible for increasing their literacy levels. With the increase in internet and computer use, this situation may also apply to e-Health literacy.

In our study, postgraduates have the highest e-Health literacy level, while secondary school graduates have the lowest e-Health literacy level. Similarly, according to the study of Ertas et al. (2019), graduates, undergraduates have a higher level of e-Health literacy than those who are high school and primary school graduates. It is stated that there is a relationship between literacy level and health literacy level that should not be ignored. It can not be expected that individuals who are illiterate or have insufficient literacy level will have a high level of health literacy (Üçpunar, 2014). This may also apply to e-Health literacy.

Baby Boomers have a lower e-Health literacy level compared to individuals in the X and Y generations. On the other hand, Ertas et al. (2019) found that e-Health literacy level decreases as age increases. In various studies (Hsu, 2019; Witten & Humphry, 2018), it was also found that the level of e-Health literacy decreases with age.

Our research indicates that the fear of COVID-19 reduces as e-Health literacy levels increase. While the fear of COVID-19 increases in individuals with a high level of cyberchondria, individuals with high e-Health literacy may experience less fear by distinguishing misleading and false information and by performing the right practices related to health. Various studies have been conducted emphasizing the importance of e-Health literacy in the COVID-19 process (Brørs et al., 2020; Chong et al., 2020; Dastani, 2020). However, there are limited studies examining the impact of e-Health literacy on fear of COVID-19. Similar to our finding, Nguyen et al. (2021) found that patients with higher fear of COVID-19 scores had lower e-Health literacy scores.

Within the scope of the research, the average score of the cyberchondria severity scale was found to be moderate. Other studies (Abdelsattar et al., 2021; Bala et al., 2021; Laato et al., 2020) also found the level of cyberchondria as moderate during the pandemic. However, in some studies the level of cyberchondria was found as high level (Al Dameery et al., 2020) and below the medium level (Jungmann & Witthöft, 2020; Maftei & Holman, 2020). It is thought that the COVID-19 pandemic may cause anxiety in the society about the disease, the excess volume of information search about the disease and confronting this great information may increase the anxiety and distress and cause an increase in the level of cyberchondria.

In the study, it was also examined that there are significant differences in cyberchondria severity level according to generation and education level. The level of cyberchondria was found to be higher in secondary and high school graduates than in undergraduate and graduates. Tarhan et al. (2021) and Deniz (2020) also found similar findings. In addition, the cyberchondria severity level of the Z generation was higher than that of the X generation in our study. Similarly, Tarhan et al. (2021) found generation Z as having the highest level of cyberchondria. Individuals with higher education levels should be more proficient in internet use and have access to the right information source; can reduce the level of cyberchondria. On the other hand, it is thought that higher internet access and internet use at younger ages, the possibility of accessing more health resources, may cause an increase in the level of cyberchondria. There is no consensus among studies examining the difference of cyberchondria level according to sociodemographic variables. In the studies of Bala et al. (2021) and Al Dameery et

al. (2020), the level of cyberchondria did not differ significantly according to sociodemographic variables.

The research findings also showed that the increase in the level of cyberchondria also increases the fear of COVID-19. Similar to this finding, Karakaş et al. (2022)'s study results show that increasing levels of cyberchondria trigger COVID-19 phobias during the pandemic. Similarly, Seyed Hashemi et al. (2020) found that fear of COVID-19 was predicted by cyberchondria. Yam et al. (2021) found that during the COVID-19 pandemic, cyberchondria severity has negative effects on fear of COVID-19. Also, Starcevic et al. (2021) theorized that the COVID-19 pandemic increases the perception of threat and uncertainty, and that more online health searches increase cyberchondria, resulting in increased fear of COVID-19 and proposed a model of cyberchondria. The results of the research by Jungmann and Witthöft (2020) showed that the cyberchondria significantly mediated the anxiety and fear of the disease. Wu et al. (2021) stated that higher level of cyberchondria directly affects the higher level of fear and anxiety caused by COVID-19. Lin et al. (2020) emphasized the relationship between COVID-related problematic internet use and fear of COVID-19. It is thought that during the COVID-19 pandemic period, people's high sensitivity to anxiety, searching for information and medical news about the disease may increase their fears. The fact that individuals are worried about their health and search the internet for information about COVID-19 in order to reduce their health concerns can cause the thoughts and fears about COVID-19 to be uncontrollable.

V. CONCLUSION

COVID-19 can harm individuals' mental health beyond their physical health. Fear of COVID-19 is one of these mental disorders and it is important to prevent it. In this study, e-health literacy and cyberchondria levels were considered as factors that could affect fear of COVID-19 and significant results were obtained.

It should also be taken into account that fear of COVID-19 may lead individuals to positive behaviors such as compliance with mask, distance and hygiene rules, compliance with restrictions and the intention to be vaccinated. However, it should not be forgotten that if this fear is at a level that affects the work and social life of people, it would be dangerous.

In this context, health professionals, health managers and policymakers should take steps to increase the e-Health literacy of individuals such as developing educational tools for the society and ensuring open and effective communication. Also, it is important to prioritize raising awareness about cyberchondria and online health information searching behaviors, in order to mitigate the medical crises. Policymakers should provide reliable sources of news for the public to receive accurate information and promote strategies to help reduce misunderstanding of COVID-19.

Ethical Approval: The Hacettepe University Ethics Committee provided the necessary ethical permission with the number E-35853172-050.06-00001546508 (Date: 13 April 2021).

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