

Original Research Article

Cyberchondria levels and relationship with health literacy in patients who visited to the family medicine outpatient clinic

Isa Emre Gultekin¹, Yusuf H. Ertekin¹, Eric Wang², Ananya Reddy Dadem³, Dilinuer Wubuli⁴, Rithika Narravula⁵, Ishant Buddhavarapu⁶, Parinda Parikh^{7*}

¹Department of Family Medicine, Çanakkale Onsekiz Mart University Faculty of Medicine, Çanakkale, Turkey

²Edgemont Jr. Sr. High School, Westchester, New York, United States of America

³SVIMS- Sri Padmavathi Medical College for Women, Andhra Pradesh, India

⁴Department of Neurology, Toronto Western Hospital, Ontario, Canada

⁵University of Pittsburgh, Pennsylvania, United States of America

⁶Iona Preparatory High School, New Rochelle, New York, United States of America

⁷Department of Psychiatry, Weill Cornell Medical School, White Plains, United States of America

Received: 15 July 2025

Accepted: 13 November 2025

***Correspondence:**

Dr. Parinda Parikh,

E-mail: drparikh@2ndarc.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: With the widespread use of the internet, individuals increasingly seek health-related information online. While this can enhance health knowledge and decision-making, it may also lead to excessive and anxiety-driven searches, known as cyberchondria. It is still a new and unknown concept that reduces functionality and quality of life, harms the patient-physician relationship, and has become a great burden on the economy. Improving health literacy may play a key role in mitigating its effects.

Methods: This cross-sectional descriptive study included 341 participants who visited a family medicine outpatient clinic between March 28 and June 30, 2022. Data were collected using a sociodemographic form, the cyberchondria severity scale, and the Turkey health literacy scale.

Results: Of the participants, 41.3% were male and 58.7% female, with a mean age of 39.3±13.2 years. The mean cyberchondria score was 69.8±15.7, and the mean health literacy (TSOY-32) score was 31.4±8.1, indicating a problematic-limited level. Cyberchondria was negatively correlated with health literacy, number of chronic diseases, and presence of hypertension, and positively correlated with the number of online health information sources used. Higher scores were observed among those using the internet, friends/neighbors, Google, social media, and forums for health information.

Conclusions: Our findings highlighted that cyberchondria was negatively associated with health literacy and chronic disease. Targeted strategies to enhance health literacy, along with promoting the responsible use of online health information, may contribute to the prevention and management of cyberchondria.

Keywords: Cyberchondria, Family medicine, Health anxiety, Health literacy

INTRODUCTION

In the modern day, internet access has become integral to our society. According to the International Telecommunication Union (ITU), as of 2022, 66% of the world's population (5.3 billion people) are internet users.¹

In Turkey, the internet usage rate reached 82.6% in 2021 according to the Turkish Statistical Institute (TÜİK).² With the advent of the internet, traditional sources of information such as books, newspapers, and magazines have been set aside for the more preferable and accessible alternative. This widespread usage of the internet has

transformed access to health information and medical communication.

A study conducted in Europe in 2021 indicated that nearly 55% of individuals aged 16-74 searched for health-related information online. Finland led with 80%, followed by the Netherlands (77%), Denmark (75%), and Cyprus (74%).³ Given that physical well-being is essential for survival, it is not surprising that many individuals experience health-related concerns and engage in frequent health information seeking.

Access to health information may help individuals communicate better with healthcare providers, make more informed medical decisions, and improve their quality of life.⁴ However, this behavior may also manifest as health anxiety, a state of excessive, unrealistic, and persistent worry about having a serious illness.⁵ This behavior, which may involve unfounded concerns about common symptoms and is exacerbated by online searches, was given the term cyberchondria.⁶

Cyberchondria, which reflects the negative consequences of internet use, has been associated with anxiety sensitivity, intolerance of uncertainty, low metacognitive beliefs, and neuroticism.⁷⁻⁹ It negatively affects professional, social, and familial functionality and quality of life.¹⁰ People may search online for issues they don't consider serious enough to consult a doctor about, but later feel the need to see a professional due to confusion caused by the information they found, leading to higher healthcare costs. For instance, medically unexplained symptoms were estimated to cost the UK economy around £3 billion in 2008.¹¹

Moreover, individuals with cyberchondria may pressure physicians regarding diagnoses and treatments, undermining trust and negatively impacting the doctor-patient relationship.¹² In a survey of 844 primary care physicians, two-thirds reported that at least 15% of their patients regularly referenced online search results, and nearly 18% said excessive online research had led to a breakdown in the care relationship.¹³

Given these impacts, cyberchondria has emerged as a public health issue that should be better understood, managed, and prevented. One approach may be improving health literacy, which refers to the degree to which individuals can find, understand, and use information and services to inform health-related decisions and actions for themselves and others.¹⁴ In our study, we aimed to investigate the relationship between cyberchondria and health literacy as well as related factors.

METHODS

This descriptive, cross-sectional study was conducted at Çanakkale Onsekiz Mart University (COMU) Hospital, department of family medicine.

Population and sample

The study population included patients over the age of 18 who visited the family medicine outpatient clinic. Using the formula for estimating sample size based on population mean, the required sample was calculated as 340 individuals. Of 1,420 patients who visited between March 28th, 2022, and June 30th, 2022, 396 agreed to participate. However, 45 were excluded for completing the forms improperly, resulting in 341 participants.

Data collection tools

The survey had three parts.

Sociodemographic data form

Collected data on gender, age, education, marital status, presence of children, income, employment, family health professionals, chronic illnesses, regular medication use, tobacco and alcohol use, psychiatric illness, health information sources, internet usage, and annual healthcare visits.

Cyberchondria severity scale (CSS-33)

Developed by McElroy and Shevlin in 2014 and validated in Turkish by Uzun and Zencir in 2016.^{15,16} It consists of 33 items across five factors: compulsion, distress, excessiveness, reassurance seeking, and mistrust of medical professionals. Higher scores indicate greater severity (range 33-165).

Turkey health literacy scale (TSOY-32)

Based on the HLS-EU study, a new Likert-type scale was developed in 2016 by the General Directorate of Health Promotion of the Ministry of Health of the Republic of Turkey, in collaboration with Okyay and Abacıgil, incorporating experiences from the Health Literacy Scale Development Workshop and ASOYTR. While the original scale had 3 main dimensions, in this version, adapted to the national context, the dimensions of "disease prevention" and "health promotion" were combined into a single dimension, resulting in a 32-item Likert scale. This new scale consists of 2 dimensions (treatment and services, and disease prevention/health promotion) and includes 4 processes (accessing health-related information, understanding health-related information, appraising health-related information, and using/applying health-related information), totaling 8 components.¹⁷ The index is standardized between 0-50. Scores are categorized as: 0-25: inadequate, 25-33: problematic-limited, 33-42: sufficient, 42-50: excellent.

Procedure

Eligible patients and their companions were invited by the researcher to participate. A private room was used for administering surveys. Each interview lasted

approximately 20 minutes and was conducted by the researcher who read the questions and recorded responses.

Statistical Analysis

Data was analyzed using SPSS 26.0. Descriptive statistics were presented as frequencies and percentages (categorical variables) or means and standard deviations (continuous variables). The normality assumption was relaxed due to the sample size being >30 . Appropriate tests (e.g., t-tests, ANOVA, Pearson/Spearman correlations, linear regression) were used, with $p<0.05$ considered significant.

RESULTS

141 (41.3%) of the participants were male, and 200 (58.7%) were female. The mean age of all the participants was 39.3 ± 13.2 (range: 18-88). The mean age was

38.4 ± 13.1 for females and 40.6 ± 13.2 for males. The participants' education level was mostly undergraduate (149 participants, 43.7%), a majority were married (203 participants, 59.5%), most were employed (278 participants, 81.8%), a majority had a moderate level of income (204 participants, 73.4%), 195 (57.2%) had children, 149 (43.7%) had a healthcare professional in the family, 91 (26.7%) had a chronic disease, 97 (28.6%) smoked, and 81 (23.9%) consumed alcohol.

The participants' mean CSS total score was 69.8 ± 15.7 (range: 34-134). The mean TSOY-32 score was 31.4 ± 8.1 (range: 7.9-50).

There was a negative correlation between CSS total score and TSOY-32 ($r=-0.110$, $p=0.044$), number of chronic diseases ($r=-0.130$, $p=0.017$), and presence of hypertension ($t=2.386$, $p=0.018$); and a positive correlation between CSS score and the number of online sources used for health information ($r=0.249$, $p<0.001$).

Table 1: Sociodemographic characteristics of the participants.

Variables	Category	n	%
Gender	Male	141	41.3
	Female	200	58.7
Education level	Primary school	40	11.7
	Middle school	12	3.5
	High school	44	12.9
	Associate degree	31	9.1
	Bachelor's degree	149	43.7
	Master's degree	52	15.2
	Doctorate	13	3.8
Marital status	Married	203	59.5
	Single	113	33.1
	Divorced	21	6.1
	Widowed	4	1.2
Employment status	Employed	278	81.8
	Unemployed	62	18.2
Perceived financial status	Low	47	16.9
	Moderate	204	73.4
	High	27	7.9
Children	Yes	195	57.2
	No	146	42.8
Family member in healthcare	Yes	149	43.7
	No	192	56.3
Chronic illness	Yes	91	26.7
	No	250	73.3
Regular medication use	Yes	85	24.8
	No	255	75.2
Smoking	Yes	97	28.6
	No	242	71.4
Alcohol use	Yes	81	23.9
	No	258	76.1

Table 2: Descriptive statistics for CSS, CSS factors, and scores obtained from TSOY-32.

Scale	Mean Score	Standard Deviation	Min	Max
CSS Total	69.8	15.7	34	134
Compulsion	11.1	4.2	8	33
Distress	16.2	5.4	8	38
Excessiveness	22.2	6.3	8	38
Reassurance	14.7	4.9	6	30
Mistrust of medical professional	5.5	2.4	3	14
TSOY-32	31.4	8.1	7.9	50

Table 3: Correlation of CSS with TSOY-32, number of chronic diseases, and number of online sources used for health information.

Variable	r	p
TSOY-32 score	-0.110	0.044
Number of chronic diseases	-0.130	0.017
Number of online sources used for health information	0.249	<0.001

Participants who used the internet ($t=-2.508$, $p=0.013$), friends or neighbors ($t=-2.315$, $p=0.021$), Google ($t=-5.194$, $p<0.001$), YouTube ($t=-3.911$, $p<0.001$), Instagram ($t=-2.819$, $p=0.005$), social media in general ($t=-4.121$, $p<0.001$), and forums ($t=-2.745$, $p=0.006$) to access health information had significantly higher CSS scores.

In addition, participants who did not have hypertension had significantly higher CSS total scores than those who did ($t=2.386$, $p=0.018$). Participants who preferred the internet and friends or neighbors as sources of health information also had significantly higher scores compared to those who did not ($t=-2.508$, $p=0.013$; $t=-2.315$,

$p=0.021$, respectively). Similarly, those who used Google, YouTube, Instagram, and forum sites to access health information online had significantly higher CSS total scores compared to those who did not ($t=-5.194$, $p<0.001$; $t=-3.911$, $p<0.001$; $t=-2.819$, $p=0.005$; $t=-2.745$, $p=0.006$, respectively).

In our study, a linear regression analysis was conducted using the CSS total score as the dependent variable and the backward method. The initial independent variables included: gender, age, marital status, education level, presence of children, having a healthcare professional in the family, presence of chronic illness, regular medication use, smoking, alcohol use, use of social media, number of visits to any healthcare institution in the past year, TSOY-32 score, employment status, number of offline sources used to access health information, number of online sources used to access health information, and total number of chronic diseases.

As a result, it was found that the TSOY-32 score, employment status, number of online sources used to access health information, and total number of chronic diseases were significant predictors of the CSS total score ($F=13.304$, $p<0.001$).

Table 4: Variables showing a statistically significant difference in CSS score.

Variables	Group	n	CSS Mean $\pm$ SD	t	P value
Hypertension	Yes	25	62.64 $\pm$ 16.05	2.386	0.018
	No	311	70.38 $\pm$ 15.58		
Internet use for health info	Yes	301	70.43 $\pm$ 15.58	-2.508	0.013
	No	34	63.38 $\pm$ 15.09		
Friends/neighbors as info source	Yes	81	73.22 $\pm$ 15.68	-2.315	0.021
	No	253	68.61 $\pm$ 15.55		
Google	Yes	283	71.55 $\pm$ 14.62	-5.194	<0.001
	No	52	59.73 $\pm$ 17.40		
YouTube	Yes	115	74.25 $\pm$ 15.16	-3.911	<0.001
	No	220	67.35 $\pm$ 15.42		
Instagram	Yes	50	75.42 $\pm$ 12.48	-2.819	0.005
	No	285	68.71 $\pm$ 15.96		
Social media (general)	Yes	144	73.68 $\pm$ 15.15	-4.121	<0.001
	No	191	66.72 $\pm$ 15.41		
Forum site	Yes	33	76.75 $\pm$ 14.37	-2.745	0.006
	No	302	68.95 $\pm$ 15.62		

Table 5: Linear regression model.

Variables	95% confidence interval for B						
	Unstandardized coefficients		Standardized coefficients	t	P value	Lower bound	Upper bound
	B	Standard Error	Beta				
(Constant) (constant)	78.126	3.859	—	20.247	<0.001	70.536	85.717
TSOY-32 score	-0.313	0.101	-0.163	-3.096	0.002	-0.513	-0.114
Employment status	-4.842	2.122	-0.119	-2.281	0.023	-9.017	-0.667
Number of online sources for health info	2.519	0.490	0.272	5.144	<0.001	1.556	3.483
Total number of chronic diseases	-2.597	1.196	-0.113	-2.172	0.031	-4.949	-0.244

Dependent variable: total CSS Score $R^2=0.111$ adjusted $R^2=0.101$.

DISCUSSION

This study aimed to investigate the levels of cyberchondria, the associated factors, and the role of health literacy among patients admitted to the Family Medicine outpatient clinic of Canakkale Onsekiz Mart University Hospital. The mean cyberchondria severity scale (CSS) total score was 69.8 ± 15.7 , suggesting that participants had a moderate level of cyberchondria.

Cyberchondria was found to be negatively correlated with health literacy, the total number of chronic diseases, and the presence of hypertension, whereas it was positively correlated with the number of internet sources used to access health information. CSS scores were also significantly higher among individuals who consulted friends or neighbors, used the internet, Google, social media platforms (YouTube, Instagram), and forums as sources of health information. Regression analysis further supported these findings: health literacy, employment status, and total number of chronic diseases were negative predictors of cyberchondria, while the number of online sources used was a positive predictor.

In similar studies conducted in Turkey, Uzun's 2016 study, which adapted the CSS into Turkish and was conducted with employees of Pamukkale University, reported a mean score of 71.6 ± 17.6 .¹⁶ Additional literature by Gökçe and Erbay, carried out with individuals registered at two primary care clinics in Manisa, the mean score was found to be 74.0 ± 18 .¹⁸ A survey conducted online with 749 participants from Switzerland and Australia reported a mean score of 73.1 ± 23.1 .¹⁹ In Poland, a study with 499 participants using an online survey found a mean score of 63.11 ± 20.76 , while another investigation conducted in the United States with 578 participants reported a mean score of 63.09 ± 20.38 .^{20,21} These results are broadly consistent with the findings of our study. The negative correlation that was observed between cyberchondria and health literacy was also confirmed by regression analysis. This

suggests that individuals with higher health literacy are more capable of finding, understanding, and evaluating reliable health information, thus reducing frequent or repetitive health information-seeking behavior. Similar negative associations between cyberchondria and health literacy have been reported in the literature in populations consisting of Turkish and Chinese patients.^{22,23}

In terms of chronic illness, although the overall presence of chronic disease did not show a significant difference in CSS scores, individuals with hypertension had significantly lower cyberchondria levels compared to those without. Additionally, a negative correlation was found between the total number of chronic illnesses and CSS score, which was also confirmed as a negative predictor in regression analysis. This may be explained by the fact that individuals with one or more chronic diseases tend to be older and may be less engaged with the internet and social media. On the other hand, individuals without a diagnosed illness might be more inclined to search for health information due to concerns about the possibility of developing a disease. In the literature, a study by Toraman et al conducted with 250 teachers in İzmir and a study by Ciułkiewicz et al in Poland found no significant difference in cyberchondria levels based on the presence of chronic illness, consistent with our findings.^{24,25} Additionally, there is literature supporting the negative relationship, showing that individuals without any diagnosed illness scored significantly higher in cyberchondria compared to those with a diagnosis.^{22,26}

Regarding employment status, our findings showed that being employed was a negative predictor of cyberchondria. Within a study conducted by Parra et al ($n=285$), unemployment was shown to contribute to psychological maladjustment and somatization.²⁷ Similarly, Van Wegen et al conducted a study in the Netherlands with patients diagnosed with multiple sclerosis, unemployment was associated with increased levels of depression and anxiety.²⁸ These studies may help explain the negative relationship observed in our findings. However, available literature relating to this

variable's relationship to cyberchondria is quite limited. While some studies have reported no significant association between employment status and cyberchondria levels, others have found that employed individuals exhibit higher levels of cyberchondria.^{22,29-31}

In terms of sources used to seek health information, participants who relied on the internet and social contacts (friends or neighbors) had significantly higher CSS scores. Specifically, those who used Google, YouTube, Instagram, forum sites, or social media in general exhibited higher levels of cyberchondria. Additionally, cyberchondria was positively correlated with the number of online sources used to access health information, which was also a positive predictor in regression analysis. This may be explained by the unfiltered, sometimes sensationalized nature of online health content. Previous studies also support these findings. In the investigation by Tarhan et al, cyberchondria levels were found to be higher among social media users, with Facebook users exhibiting the highest levels.²²

In another study by Sezer et al. conducted with women aged 18-49 at 47 primary care clinics, it was observed that as the duration of both social media use and general internet use increased, cyberchondria levels also increased.³² Similarly, in a study conducted by Karakaş et al (n=1000 teachers), individuals who used social media and those who spent more than three hours per day on the internet were found to have significantly higher levels of cyberchondria.³³

All of these studies support the findings of our research. To prevent such outcomes, psychoeducation and cognitive behavioral therapy (CBT) for health anxiety may play a crucial role. These interventions can promote the productive use of the internet without reinforcing distressing patterns of use. Individuals can be taught that the internet is merely a source of information and is not sufficient for making medical diagnoses. Moreover, they can be guided to identify reliable online sources (such as Consumer Health Web Watch and the Health Information Institute), and critical thinking skills can be fostered.³⁴

This was a single-center study conducted over a relatively short period of three months at the family medicine outpatient clinic of Canakkale Onsekiz Mart University Hospital, involving individuals aged 18 years and older. Therefore, the findings cannot be generalized to the broader population. Community-based, large-scale studies are needed to enhance generalizability. The data in our study were limited to self-reported responses to questionnaires, and it was assumed that participants correctly understood the questions. Additionally, the cyberchondria severity scale (CSS) is a continuous measure without a defined cut-off value. As such, categorical grouping and comparison are not possible in its current form. Further large-scale studies are required to establish a valid cut-off point for clinical or categorical interpretation.

CONCLUSION

In our study, conducted with patients aged 18 years and older who applied to the Family Medicine outpatient clinic of Canakkale Onsekiz Mart University Hospital between 28th of March, 2022 and 30th of June, 2022, the mean cyberchondria score measured by the cyberchondria severity scale (CSS) was 69.8 ± 15.7 . The mean subscale scores were as follows: compulsion 11.1 ± 4.2 , distress 16.2 ± 5.4 , excessiveness 22.2 ± 6.3 , reassurance 14.7 ± 4.9 , and mistrust of medical professionals 5.5 ± 2.4 . These values suggest a moderate level of cyberchondria, consistent with the majority of national and international studies. The mean health literacy score measured by the Turkey health literacy scale (TSOY-32) was 31.4 ± 8.1 , corresponding to the "problematic-limited health literacy" level, also in line with findings from other studies conducted in Turkey.

In our study, the level of cyberchondria was found to be negatively correlated with the total number of chronic diseases, health literacy level, and the presence of hypertension, and positively correlated with the number of online sources used to access health information. Moreover, cyberchondria levels were significantly higher among individuals who used the internet and friends/neighbors as sources of health information, as well as those who used social media platforms such as Google, YouTube, Instagram, and forums to access health-related content.

Psychoeducation and cognitive behavioral therapy (CBT) for health anxiety are important intervention tools for the prevention of cyberchondria. These approaches can help promote productive internet use without reinforcing problematic usage patterns. Individuals can be taught that the internet is merely a source of information and not sufficient for medical diagnosis, guided toward reliable online sources, and supported in developing critical thinking skills.

Considering the negative correlation between cyberchondria and health literacy, improving health literacy may play a key role in preventing cyberchondria. Individuals with limited health literacy should be a prioritized target population, and interventions should be specifically designed to include them. This is not solely the responsibility of individuals, policymakers, or healthcare professionals. Rather, comprehensive programs should be implemented with the active involvement of all stakeholders, including public authorities, healthcare institutions, media organizations, at-risk populations, civil society organizations, healthcare professionals, educators, communication experts, universities, aid organizations, and local governments. Expanding the body of research on this topic would contribute to raising awareness and enhance understanding within the academic and public health communities.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the COMU Clinical Research Ethics Committee on 03.28.22

Permission to use the CSS-33 and TSOY-32 was granted via email from the original developers

REFERENCES

1. International Telecommunication Union Statistics. Statistics. Available at: <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>. Accessed on 26 January 2022.
2. TÜİK. Household Information Technology (IT) Usage Survey, 2021. Available at: [https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-\(BT\)-Kullanim-Arastirmasi-2021-37437](https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-(BT)-Kullanim-Arastirmasi-2021-37437). Accessed 18 July 2022.
3. Eurostat. EU citizens: over half seek health information online. Available at: <https://ec.europa.eu/eurostat/en/web/products-eurostat-news/-/edn-20220406-1>. Accessed on 09 April 2023.
4. Hughes RB, Beers L, Robinson-Whelen S. Health information seeking by women with physical disabilities: a qualitative analysis. *Disabil Health J*. 2022;15(2):101268.
5. Robles-Mariños R, Angeles AI, Alvarado GF. Factors associated with health anxiety in medical students at a private university in Lima, Peru. *Rev Colomb Psiquiatr*. 2022;51(2):89-98.
6. White R, Horvitz E. Cyberchondria: studies of the escalation of medical concerns in Web search. *ACM Transact Inform Syst*. 2009;27(4):1-37.
7. Fergus TA. Anxiety sensitivity and intolerance of uncertainty as potential risk factors for cyberchondria: a replication and extension examining dimensions of each construct. *J Affect Disord*. 2015;184:305-9.
8. Fergus TA, Spada MM. Moving toward a metacognitive conceptualization of cyberchondria: Examining the contribution of metacognitive beliefs, beliefs about rituals, and stop signals. *J Anxiety Disord*. 2018;60:11-9.
9. Bajcar B, Babiak J. Neuroticism and cyberchondria: The mediating role of intolerance of uncertainty and defensive pessimism. *Personal Indi Diff*. 2020;162:110006.
10. Mathes BM, Norr AM, Allan NP, Albanese BJ, Schmidt NB. Cyberchondria: overlap with health anxiety and unique relations with impairment, quality of life, and service utilization. *Psychiatr Res*. 2018;261:204-11.
11. Bermingham SL, Cohen A, Hague J, Parsonage M. The cost of somatisation among the working age population in England for the year 2008-2009. *Ment Health Fam Med*. 2010;7(2):71-84.
12. Khan AW, Pandey J. Dark side consequences of cyberchondria: an empirical investigation. *Aslib J Inform Manage*. 2022;74(5):801-17.
13. Wangler J, Jansky M. Internet-associated health anxieties in primary care - results of a survey among general practitioners and primary care internists in hesse. *Dtsch Med Wochenschr*. 2019;144(16):e102-8.
14. US Department of Health and Human Services. History of Health Literacy Definitions. Available at: <https://odphp.health.gov/healthypeople/priorityareas/socialdeterminanthealth/literaturesummaries/health-liter>. Accessed on 18 July 2022.
15. McElroy E, Shevlin M. The development and initial validation of the cyberchondria severity scale (CSS). *J Anxiety Disord*. 2014;28(2):259-65.
16. Uzun SU, Zencir M. Reliability and validity study of Turkish version of cyberchondria severity scale: *Curr Psychol*. 2018;40(1):65-71.
17. T. C. Ministry of Health General Directorate of Health Promotion, Türkiye Health Literacy Scales reliability and validity study Ministry of Health. Publication No: 1025, Ankara 2016 .
18. Gökçe E, Erbay P. Cyberchondria level and related variables in adults in selected family health units at Manisa Şehzadeler Education Research Community Health Center (EATSM), 19th National Public Health Congress; 15-19 March 2017, Antalya, Türkiye; 2017:536.
19. Arsenakis S, Chatton A, Penzenstadler L, Billieux J, Berle D, Starcevic V, et al. Unveiling the relationships between cyberchondria and psychopathological symptoms. *J Psychiatr Res*. 2021;143:254-61.
20. Oniszczenko W. Anxious temperament and cyberchondria as mediated by fear of COVID-19 infection: A cross-sectional study. *PLoS One*. 2021;16(8):e0255750.
21. Fergus TA. Anxiety sensitivity and intolerance of uncertainty as potential risk factors for cyberchondria: a replication and extension examining dimensions of each construct. *J Affect Disord*. 2015;184:305-9.
22. Tarhan, N, Tutgun-Ünal, A, Ekinci Y. New generation disease cyberchondria: the relationship between cyberchondria levels of generations and health literacy in the new media age. *OPUS Int J Soc Res*. 2021;17(37):4253-97.
23. Zheng H, Jiang S. Linking the pathway from exposure to online vaccine information to cyberchondria during the COVID-19 pandemic: a moderated mediation model. *Cyberpsychol Behav Soc Netw*. 2022;25(10):625-33.
24. Uysal Toraman A, Kalkim A, Korkmaz EK. Coronavirus anxiety and cyberchondria among teachers during the COVID-19 pandemic: an online survey: coronavirus anxiety and cyberchondria. *Curr Psychol*. 2022:1-7.
25. Ciułkowicz M, Misiak B, Szcześniak D, Grzebieluch J, Maciaszek J, Rymaszewska J. The portrait of cyberchondria-a cross-sectional online study on factors related to health anxiety and cyberchondria in polish population during SARS-

- CoV-2 pandemic. *Int J Environ Res Public Health*. 2022;19(7):4347.
26. Altındış S, İnci MB, Aslan FG, Altındış M. Investigation of Cyberchondria Levels and Related Factors in University Employees. *Sakarya Medical Journal*. 2018;8(2): 359-70.
 27. Parra LA, Spahr CM, Goldbach JT, Bray BC, Kipke MD, Slavich GM. Greater lifetime stressor exposure is associated with poorer mental health among sexual minority people of color. *J Clin Psychol*. 2022.
 28. van Wegen J, van Egmond EEA, Benedict RHB, Beenakker EAC, van Eijk JJJ, Frequin STFM, et al. Subjective cognitive impairment is related to work status in people with multiple sclerosis. *IBRO Neurosci Rep*. 2022;13:513-22.
 29. Deniz S. Examination of individuals' e-health literacy and cyberchondria levels. *Hum Hum Mag*. 2020;7(24):84-96
 30. Turhan Cakir A. Cyberchondria levels in women with human papilloma virus. *J Obstet Gynaecol Res*. 2022;48(10):2610-4.
 31. Güleşen A, Beydağ K. Cyberchondria level in women with heart disease and affecting factors. *Arc Health Sci Res* 2020;7(1):1-7.
 32. Sezer Ö, Başoğlu MA, Dağdeviren HN. An examination of cyberchondria's relationship with trait anxiety and psychological wellbeing in women of reproductive age: a cross-sectional study. *Medicine*. 2022;101(46):e31503.
 33. Karakaş N, Tekin Ç, Bentli R, Demir E. Cyberchondria, COVID-19 phobia, and well-being: a relational study on teachers. *Med Lav*. 2022;113(3):e2022027.
 34. Menon V, Kar SK, Tripathi A, Nebhinani N, Varadharajan N. Cyberchondria: conceptual relation with health anxiety, assessment, management and prevention. *Asian J Psychiatr*. 2020;53:102225.

Cite this article as: Gultekin IE, Ertekin YH, Wang E, Dadem AR, Wubuli D, Narravula R, et al. Cyberchondria levels and relationship with health literacy in patients who visited to the family medicine outpatient clinic. *Int J Community Med Public Health* 2025;12:5389-96.