DOI: 10.4274/jarem.galenos.2023.91885
J Acad Res Med 2023;13(2):63-9

Cyberchondria's Possible Relationship with Problematic Internet Use and eHealth Literacy

Ayşe Hilal Başhan Aslantaş, Murat Altuntaş

University of Health Sciences Turkey, İstanbul Bağcılar Training and Research Hospital, Clinic of Family Medicine, İstanbul, Turkey

Cite this article as: Başhan Aslantaş AH, Altuntaş M. Cyberchondria's Possible Relationship with Problematic Internet Use and eHealth Literacy. J Acad Res Med 2023;13(2):63-9

ABSTRACT

Objective: This study aims to reveal the possible relationship between cyberchondria, a new phenomenon occuring with the frequent use of the Internet for health-related information, and problematic internet use (PIU) and electronic health (eHealth) literacy. Our results are important for raising physicians' awareness, preventing false referrals and reducing health expenses.

Methods: Two hundred seventy one subjects who applied to the Esenler Education Family Health Centre-University of Health Sciences Turkey, İstanbul Bağcılar Training and Research Hospital Family Medicine Clinic on the dates between 01.06 and 30.06.2022 and who met the inclusion criteria were included in the study. Cyberchondria Severity scale-Short Form, Problematic Internet Usage questionnaire-Short Form (PIUQ-SF-6), eHealth Literacy scale, and sociodemographic form were applied. The results were evaluated at a significance level of $p<0.05$.

Results: A statistically significant relationship was found between the Cyberchondria Severity scale and its subcales, the PIUQ-SF-6 and its subscales, and the eHealth literacy scale ($p<0.05$). The severity of cyberchondria increased as PIU and eHealth literacy scores increased. A statistically significant relationship was found between PIUQ-SF-6 and eHealth literacy ($p<0.05$). Those with high PIU scores also had high eHealth literacy scores. PIU, cyberchondria severity, and eHealth literacy scores were higher in the 18-30 age group, and cyberchondria severity and eHealth literacy scores were higher among those who had a college degree.

Conclusion: The increase in cyberchondria as PIU increases shows that conscious use of the Internet will have positive effects on cyberchondria. Filtering and disseminating correct information in eHealth resources and increasing eHealth literacy will ultimately have a positive impact.

Keywords: Cyberchondria, problematic internet use, eHealth literacy, internet, health anxiety, health literacy

INTRODUCTION

Nowadays, as technology is developing rapidly, the use of internet is increasing day by day. According to the data from the beginning of 2023, the total number of internet users reached 5.16 billion, which corresponds to 64.6% of the world population (1). Due to this frequent use of the internet; it has become an important source for obtaining information from all fields. Health-related searches also have an important place in information seeking. In 2015, according to the data from Google, one of the most popular search engines in the world, one in twenty Google searches was health-related (2).

The advantages of obtaining health-related information via the internet include fast, inexpensive, and easy access. It also offers many options in a variety of formats, such as informative written texts, e-mail, and chat rooms (3). There are also some disadvantages of acquiring health information over the internet. An important one of these disadvantages is cyberchondria, which

ORCID IDs of the authors: A.H.B.A. 0000-0001-7569-7832; M.A. 0000-0003-0282-2721.

Corresponding Author: Ayşe Hilal Başhan Aslantaş,
E-mail: hilalbashan@gmail.com

Received Date: 08.02.2023 **Accepted Date:** 25.04.2023

J Acad Res Med 2023;13(2):63-9

can be defined as the health anxiety triggered by seeking health information over the internet (4).

Cyberchondria refers to the phenomenon wherein individuals attempt to self-diagnose or self-treat by conducting online searches for information, documents, and treatment modalities pertaining to the illnesses they perceive themselves to have (5). This concept, which has a history of approximately 20 years, finds its place in the literature because of the increase in internet use, internet addiction and the widespread problematic internet use.

Problematic internet use can be defined as the use of the internet that leads to psychological, social, educational, and/or occupational difficulties in a person's life (6). Easy access to the internet via smartphones and having an internet connection almost anywhere in the world has led to more studies on problematic internet use.

Another important concept that comes to mind in the context of accessing health information via the internet and cyberchondria is electronic health (eHealth) literacy. eHealth literacy is defined as the ability to search, find, understand, and evaluate health information from electronic sources and the ability to use this information to solve a health problem (7).

Because cyberchondria is a new concept in the literature and restrictions such as the fact that the diagnostic criteria are still in the developmental stage and the use of scales to identify cyberchondriac patients is required, new studies are needed.

It is essential to reduce the problematic use of the internet in the age of technology and to increase the level of eHealth literacy in society. Studies have shown that societies can be protected from disinformation with conscious internet use (5).

The aim of this study was to evaluate cyberchondria's possible relationship with problematic internet use and eHealth literacy, to find solutions to the problem and to contribute to the literature.

METHODS

Our research is a single-centre, observational, descriptive, cross-sectional study. Two hundred seventy one people who applied to the Esenler Education Family Health Centre affiliated to University of Health Sciences Turkey, İstanbul Bağcılar Training and Research Hospital Family Medicine Clinic on the dates between 01.06-30.06.2022 and who met the inclusion criteria were included in the study. Three scales were used; Cyberchondria Severity scale-Short Form, Problematic Internet Usage questionnaire-Short Form (PIUQ-SF-6) and eHealth Literacy scale. Also, a sociodemographic form prepared by us was applied to the participants (8-10). Ethical approval was obtained from the Clinical Research Ethics Committee of University of Health Sciences Turkey, İstanbul Training and Research Hospital, and the study was planned in accordance with the Declaration of Helsinki (decision no: 124, date: 22.04.2022). Informed consent was obtained from all participants in the study.

Turkish citizens over 18 years of age who voluntarily participated were included in the study. Three hundred and eighty three patients who met the criteria during the specified period were reported, 271 of whom voluntarily participated in the study and completed the questionnaires.

Individuals who participated in our study were asked to answer 8 sociodemographic questions, PIUQ-SF-6 consisting of 6 questions, Cyberchondria Severity scale-Short Form consisting of 12 questions, and eHealth Literacy scale consisting of 10 questions making the questionnaire 36 questions in total.

PIUQ-SF-6; It is a Likert-type scale consisting of 6 questions. The scale has 3 subscales: obsession (obsessive thinking about the internet and psychological disturbance when not using the internet), neglect (neglecting even basic needs and daily activities due to internet use), and control disorder (inability to control internet use). The score obtained from the scale varies from 6 to 30 and as the score increases, the problematic internet use increases.

Cyberchondria Severity scale-Short Form consists of 12 questions. It is evaluated that a very low score is between 12 and 24 points; a low score is between 24 and 36 points; a medium score is between 36 and 48 points; and a high score cyberchondria severity is between 48 and 60 points. There are 4 different subscales. These subscales are; excessiveness, reassurance-seeking, compulsion, and distress.

The eHealth Literacy scale has 8 Likert-type questions and 2 open-ended questions. The minimum score that can be obtained from the scale is 8, and the maximum score is 40. It is assumed that the higher the score, the higher the eHealth literacy.

Statistical Analysis

In this study, statistical analyses were performed using the programme IBM SPSS 21. In the analysis of the data, in addition to descriptive statistical methods (mean, standard deviation, median, quartiles, frequency and percentage distributions), the distribution of variables was examined with the Shapiro-Wilk normality test. The Mann-Whitney U test was used for the two-group comparisons of the non-normally distributed variables, and the Kruskal-Wallis test was used for the multiple-group comparisons. The linear relationship between the scale scores was examined using the Spearman rho correlation coefficient. The reliability of the answers given to the scale was evaluated with Cronbach's alpha coefficient. The results were evaluated at a significance level of $p<0.05$.

RESULTS

Descriptive statistics obtained using sociodemographic questions are shown in Table 1.

The Cronbach alpha values for each of the three scales used and the average scores of the scales and subscales are shown in Table 2. Accordingly, an average of 11.07 points was obtained from the PIUQ-SF-6, where 6-30 points can be obtained. Also, an average of 25.89 points from the eHealth Literacy scale, which has a scoring from 8 to 40 points. Problematic internet use and eHealth literacy levels tend to increase as the highest score that can be obtained from these scales is approached. Furthermore, an average of

J Acad Res Med 2023;13(2):63-9

25.52 points was obtained from the Cyberchondria Severity scale, which can be scored between 12 and 60, indicating a low level of cyberchondria severity among participants.

Table 3 presents statistics on the scales and their subscales according to age groups and education levels. Our findings reveal a significant difference in the PIUQ-SF-6 scores among the age groups ($p<0.05$). Specifically, this difference is between the 18-30 age group and all other groups and between 30-45 and 45-60 age groups. Upon further examination of the subscales, a significant difference was found between the 18-30 and 45-60 age groups in obsession scores ($p<0.05$). Additionally, a significant difference was found between 18-30 age group and all other groups in neglect scores ($p<0.05$). The control disorder scores showed a significant difference between the 18-30 and 45-60, 30-45 and 45-60, 18-30 and 60+ age groups ($p<0.05$).

In the results of the Cyberchondria Severity scale for age groups; a significant difference was found in cyberchondria severity scores ($p<0.05$). Accordingly, this difference was observed between 18-30 and 45-60, 18-30 and 60+, 30-45 and 60+ age groups. When the subscales were examined, a significant difference was also found between 18-30 and 45-60, 18-30 and 60+, 30-45 and 60+ age groups in excessiveness scores ($p<0.05$). Moreover, distress and reassurance-seeking scores showed a statistically significant difference ($p<0.05$). This difference was observed between the age groups of 18-30 and 60+.

A significant difference was found between 18-30 and 60+ age groups in the results of the eHealth Literacy scale according to age groups ($p<0.05$).

When the findings were examined, a statistically significant distinction emerged among different educational levels in relation to scores on the PIUQ-SF-6 ($p<0.05$). Spesifically; a significant difference was observed between individuals with primary education and those with a bachelor's degree, as well as between individuals with secondary education/high school and those with a bachelor's degree. When the subscales were examined, there was a significant difference in obsession scores between individuals with basic literacy skills and those with a bachelor's degree, as well as between individuals with secondary education/high school and those with a bachelor's degree ($p<0.05$). Also, a significant difference was identified between individuals with primary education and those with a bachelor's degree in neglect and control disorder scores ($p<0.05$).

In the results of the Cyberchondria Severity scale; significant differences were found between different education levels. A significant difference was found between individuals with basic literacy skills and those with a bachelor's degree, individuals with primary education and those with a bachelor's degree in cyberchondria severity scores, and subscales of excessiveness and reassurance-seeking ($p<0.05$). In addition, a significant difference was observed in distress scores between individuals with primary education and those with a bachelor's degree groups ($p<0.05$).

Table 1. Descriptive statistics

		n	%			n	%
Age	18-30	77	28.4	Marital status	Single	71	26.2
	30-45	95	35.1		Married	185	68.3
	45-60	53	19.6		Divorced/widow	15	5.5
	60+	46	17	Income level	Below minimum wage	28	10.3
Gender	Female	151	55.7		Minimum wage	59	21.8
	Male	120	44.3		Up to twice the minimum wage	89	32.8
Educational status	Literate	3	1.1		Up to 2-3 times the minimum wage	45	16.6
	Primary education	24	8.9		3 times the minimum wage or more	50	18.5
	Secondary Education/ Highschool	60	22.1				
	Bachelor's degree	151	55.7				
	Master's degree and above	33	12.2				

Table 2. Cronbach's alpha values and mean scores of scales

Scale	Mean ± SD	Cronbach's alpha	Scale	Mean ± SD	Cronbach's alpha
PIUQ-SF-6	11.07±4.19	0.814	Cyberchondria severity	25.52±9.68	0.897
- Neglect	4.25±1.8	0.628	- Distress	6.69±3.28	0.811
- Control disorder	3.57±1.59	0.537	- Reassurance-seeking	6.06±2.92	0.75
- Obsession	3.25±1.52	0.627	- Compulsion	4.4±2.08	0.727
eHealth literacy	25.89±8.31	0.953	- Excessiveness	8.37±3.47	0.85

SD: standard deviation, eHealth: electronic health, PIUQ-SF-6: Problematic Internet Usage questionnaire-Short Form

J Acad Res Med 2023;13(2):63-9

Table 3. Statistics of scales according to age groups and education levels

	Age					Educational status					
	18-30	30-45	45-60	60+		Literate	Primary education	Secondary education/ Highschool	Bachelor's degree	Master's degree and above	
Scale	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**	**p-value**	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**	**p-value**
PIUQ-SF-6	12.83±4.23	10.99±3.84	9.36±3.44	10.26±4.6	**<0.001**	6.33±0.58	8.88±2.98	10.1±4.06	11.91±4.22	11±4.12	**<0.001**
- Neglect	4.97±1.74	4.25±1.71	3.58±1.57	3.78±1.91	**<0.001**	2.33±0.58	3.29±1.43	3.87±1.55	4.63±1.87	4.06±1.71	**<0.001**
- Control disorder	4.13±1.63	3.62±1.56	2.85±1.1	3.37±1.74	**<0.001**	2±0	2.71±1.3	3.23±1.59	3.83±1.58	3.76±1.54	**<0.001**
- Obsession	3.73±1.76	3.12±1.38	2.92±1.4	3.11±1.35	**0.014**	2±0	2.88±1.19	3±1.69	3.45±1.53	3.18±1.33	**0.016**
Cyberchondria severity	27.56±8.7	26.76±9.75	23.53±9.53	21.87±10.09	**<0.001**	13±1.73	20.33±9.59	24.18±8.5	27.36±9.33	24.48±11.28	**<0.001**
- Distress	7,29±3,52	6.99±3.18	6.09±3.22	5.76±2.87	**0.018**	3.67±1.15	5.25±2.86	6.4±3.23	7.17±3.25	6.36±3.47	**0.004**
- Reassurance-seeking	6.49±2.74	6.33±3.08	5.62±2.84	5.3±2.86	**0.026**	3±0	5.13±2.85	5.8±2.81	6.45±2.88	5.73±3.21	**0.011**
- Compulsion	4.53±2.14	4.53±2.13	4.13±1.74	4.24±2.23	**0.47**	3±0	4.04±1.78	3.95±1.72	4.58±2.13	4.79±2.55	**0.113**
- Excessiveness	9.25±3.09	8.92±3.59	7.68±3.29	6.57±3.3	**<0.001**	3.33±0.58	5.92±3.01	8.03±3	9.16±3.37	7,.61±3.82	**<0.001**
eHealth literacy	28.13±7.47	26.54±7.53	24.98±8.57	21.87±9.46	**0.006**	14.33±10.97	20±9.37	24.55±8.56	27.46±7.29	26.48±8.54	**0.001**

SD: standard deviation, eHealth: electronic health, PIUQ-SF-6: Problematic Internet Usage questionnaire-Short Form, p: Mann-Whitney U test

A significant difference was found on eHealth Literacy scores according to education levels ($p<0.05$). This difference was between the primary education and bachelor's degree groups.

There was no significant difference between the genders in terms of scales and subscales ($p>0.05$).

Table 4 presents the statistics between the scales and subscales used in our study. We observed a positive and moderate linear relationship between cyberchondria severity and PIUQ-SF-6. Furthermore, a positive, weak/moderate linear relationship was found between all subscales of the cyberchondria severity scale and all subscales of PIUQ-SF-6. Additionally, a positive and weak linear relationship was identified between cyberchondria severity and eHealth literacy. Moreover, a positive, very weak/weak linear relationship was found between all subscales of the cyberchondria severity scale, except for compulsion and eHealth literacy.

Table 5 shows the statistical analysis between PIUQ-SF-6 and eHealth literacy. A positive, very weak linear relationship was found between PIUQ-SF-6 and eHealth literacy. Spesifically, we found that eHealth literacy was weakly correlated with neglect, one of the PIUQ-SF-6 subscales, and very weakly linearly correlated with control disorder.

DISCUSSION

In our results, Cyberchondria Severity scale and PIUQ-SF-6 and all their subscales showed a statistically significant relationship. Accordingly, as problematic internet use increases, the severity of cyberchondria also increases. In a study on cyberchondria and problematic internet use in 2017, a significant relationship was found between them, similar to our study (11). In a research conducted by Starcevic et al. (12), who developed the Cyberchondria Severity scale, a positive statistically significant relationship was found between problematic internet use and cyberchondria. This article attributes the strong relationship between these two concepts highlighting the challenge of reducing engagement in online activities. Our findings, consistent with existing literature, demonstrate a significant relationship between cyberchondria and problematic internet use. As mentioned earlier, repetitive online searches form the basis of cyberchondria which aligns with the basis of problematic internet use. Individuals with high severity of cyberchondria tend to spend more time on the internet, thus further substantiating the link between these phenomena.

A positive statistically significant relationship was found between eHealth literacy and the Cyberchondria Severity scale and its subscales excessiveness, distress, andreassurance-seeking. A study conducted on healthcare workers showed that the level of eHealth literacy increased as the level of excessiveness increased (13). Contrary to our study, a decrease in cyberchondria-related responses was observed in individuals with high eHealth literacy in another

J Acad Res Med 2023;13(2):63-9

Table 4. The relationship of cyberchondria severity with PIUQ-SF-6 and eHealth literacy

		Excessiveness	Distress	Reassurance-seeking	Compulsion	Cyberchondria severity
Obsession	r	0.272	0.314	0.308	0.333	0.36
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Neglect	r	0.374	0.341	0.296	0.301	0.401
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Control disorder	r	0.284	0.306	0.229	0.258	0.327
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
PIUQ-SF-6	r	0.377	0.386	0.325	0.348	0.433
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
eHealth literacy	r	0.28	0.182	0.187	0.117	0.248
	p	**<0.001**	**0.003**	**0.002**	0.054	**<0.001**

eHealth: electronic health, PIUQ-SF-6: Problematic Internet Usage questionnaire-Short Form, p: Spearman rho correlation

Table 5. The relationship between PIUQ-SF-6 and eHealth literacy

		eHealth literacy
Obsession	r	0.090
	p	0.138
Neglect	r	0.250
	p	**<0.001**
Control disorder	r	0.128
	p	**0.035**
PIUQ-SF-6	r	0.198
	p	**0.001**

eHealth: electronic health, PIUQ-SF-6: Problematic Internet Usage questionnaire-Short Form, p: Spearman rho correlation

study conducted on this subject (14). Later in this article, it is noted that people with high levels of eHealth literacy can use online health resources to make accurate decisions and are less likely to develop anxiety during their internet searches even if they have health concerns. In another study, a statistically significant positive correlation was found between cyberchondria and eHealth literacy levels, similar to our study (15). According to the author's comment, since studies in the literature indicate that people with high eHealth literacy levels spend more time on the internet, it is possible that this situation may increase the level of cyberchondria, albeit at a low level.

A positive statistically significant relationship was found between PIUQ-SF-6 and its subscales: neglect, control disorder, and eHealth literacy. In a study examining the relationship between participants' time spent on the internet and their eHealth literacy levels, eHealth literacy was found to be higher in individuals who used internet daily (16). As the results of our study overlap with the literature, it appears that the increase in time spent on the Internet has a positive effect on eHealth literacy. However, this time spent on the internet leads to problematic internet use; is an undesirable outcome.

Our results shows that as the age of the group gets younger, the scores of PIUQ-SF-6 and the cyberchondria severity scale increase, in other words; the problematic internet use and the severity of cyberchondria increase. According to our study, the group with the most frequent problematic internet use is the 18-30 age group. In a study using different scales to assess problematic internet use in Japan in 2018, the age of problematic internet users was found to be significantly lower than that of regular internet users, which is similar to the results of our study (17). This result could be due to the fact that they came into contact with the internet earlier than other groups and have a higher level of technological knowledge. Another research found that cyberchondria decreases as age increases, which is consistent with the results of our study (18). A 2021 publication; using the same scale as in our study found that the severity of cyberchondria was higher in the 20-30 age group compared to other groups (19). It can be assumed that this situation is due to the fact that young people have easier access to the internet and technological devices.

The results of our study show that as the level of education increases, so does problematic internet use. In a study conducted in Slovenia in 2016, it was found that problematic internet use increased as the education level increased, which is consistent with our study (20). In another research conducted in Bangladesh with 13,525 participants during the coronavirus-2019 pandemic in 2020, it was also found that problematic internet use is more common among young people and people with higher levels of education (21).

The bachelor's degree education level has the highest cyberchondria severity. When the literature is examined, it was stated in a study conducted with 1196 participants in Turkey in 2021 that the level of cyberchondria severity decreased as the level of education increased (5). Again, a study in Turkey found that as educational level and age increased, the level of cyberchondria decreased and the level of health literacy increased (22). This difference between studies can be attributed to the difference in the number of participants and the single-center nature of our study.

J Acad Res Med 2023;13(2):63-9

It was found that the highest level of eHealth literacy was found among participants with a bachelor's degree.

When the literature is examined, there are studies that did not find a significant relationship between education level and eHealth literacy, whereas there are also publications that found a significant relationship similar to our study (15,23). Since eHealth literacy is defined as the ability to understand, interpret, and analyze readings based on the fundamentals, it can be considered as an area where those with a high level of education may be more successful than those with a low level of education.

Study Limitations

The most important limitation of our study is that it is single-centered. Our results may not be valid for the entire population. Therefore, further studies with larger populations are needed to confirm our results.

CONCLUSION

The use and spread of the internet are increasing day by day. This situation has led to the introduction of new concepts into our lives. The term 'problematic internet use' is more common than in the past due to frequent and uncontrolled internet use, 'eHealth literacy' is a more popular concept nowadays because of the increase in health-related internet searches and anxiety triggered by health-related searches over the internet, resulting in the term 'cyberchondria' within the last 20 years. According to our results, the risk of cyberchondria and problematic internet use is higher among individuals in the younger age group and in those with a high level of education. It is possible that this result is because the participants in this group use more technological devices or the internet than the other groups. Based on the same point; more intensive internet use may have indirectly increased the level of eHealth literacy in these groups.

The average level of cyberchondria of all participants as 'low level' with a score of 25.52±9.68 is a positive result, but it shows that cyberchondria is a subject that needs to be carefully examined, especially by physicians. As physicians, it will be beneficial to colloborate with the patient, to provide safe and accurate information by reminding them that they can access false and incomplete information on the internet and to direct them to the right information sources if necessary. Thus, negative situations such as treatment discontinuation can be prevented, and unnecessary healthcare expenditures can be reduced by preventing patients from repeatedly turning to healthcare facilities. The fact that cyberchondria is positively correlated with problematic internet use reminds us that we need to focus on correct and appropriate internet use again. Pathological internet use can exacerbate conditions such as cyberchondria, which encompass anxiety and obsession.

The mean eHealth literacy score of all participants was determined as 25.89±8.31 out of a maximum of 40 points. The importance of eHealth literacy is increasing as the internet becomes more widespread and powerful. With a high level of eHealth literacy, it is possible for patients to take responsibility for their own diseases and participate effectively and competently in treatment processes. The increase in eHealth literacy among individuals with a high level of education shows that we should attach importance to policies that raise people's education levels. High eHealth literacy will reduce healthcare expenditures in different aspects and reduce the burden on the healthcare system. For this reason, attempts should be made to ensure proper filtering in online health information resources and arrangements should be made to ensure that the public has access to accurate health information.

It is valuable for physicians to know the pathologies and similar situations that we have just learned about in our globalized and technology-dependent world, which is the subject of this study. Keeping cyberchondria, problematic internet use, and eHealth literacy in mind in daily practice will benefit both our healthcare system and our patients.

Ethics Committee Approval: Ethical approval was obtained from the Clinical Research Ethics Committee of University of Health Sciences Turkey, İstanbul Training and Research Hospital, and the study was planned in accordance with the Declaration of Helsinki (decision no: 124, date: 22.04.2022).

Informed Consent: Informed consent was obtained from all participants in the study.

Peer-review: Externally and internally peer-reviewed.

Author Contributions: Surgical and Medical Practices - A.H.B.A.; Concept - A.H.B.A., M.A.; Design - A.H.B.A., M.A.; Data Collection and/or Processing - A.H.B.A.; Analysis and/or Interpretation - A.H.B.A., M.A.; Literature Search - A.H.B.A., M.A.; Writing - A.H.B.A.

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

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Datareportal. Digital Around the World. Available from: URL: https://datareportal.com/global-digital-overview
2. Ramaswami P. A remedy for your health-related questions: health info in the Knowledge Graph. Available from: URL: https://blog.google/products/search/health-info-knowledge-graph/
3. Escoffery C, Miner KR, Adame DD, Butler S, McCormick L, Mendell E. Internet use for health information among college students. J Am Coll Health 2005; 53: 183-8.
4. Muse K, McManus F, Leung C, Meghreblian B, Williams JM. Cyberchondriasis: fact or fiction? A preliminary examination of the relationship between health anxiety and searching for health information on the Internet. J Anxiety Disord 2012; 26: 189-96.
5. Tarhan N, Tutgun-ünal A, Ekinci, Y. Yeni Kuşak Hastalığı Siberkondri: Yeni Medya Çağında Kuşakların Siberkondri Düzeyleri İle Sağlık Okuryazarlığı İlişkisi. OPUS International Journal of Society Researches 2021; 17: 4253-97.
6. Beard KW, Wolf EM. Modification in the proposed diagnostic criteria for Internet addiction. Cyberpsychol Behav 2001; 4: 377-83.
7. Norman CD, Skinner HA. eHealth Literacy: Essential Skills for Consumer Health in a Networked World. J Med Internet Res 2006; 8: e9.
8. Söyler S, Biçer I, Çavmak D. Siberkondri Ciddiyeti Ölçegi Kısa Formu (CYBERCHONDRİA SEVERİTY SCALE -12 Türkçe) Geçerlik ve Güvenirlik Çalışması. 2021.
9. Göktaş S, Aygar H, Zencirci SA, Önsüz MF, Alaiye M, Metintaş S. Problematic Internet use questionairre-short form-6 (PIUQ-SF 6): a

J Acad Res Med 2023;13(2):63-9

validity and reliability study in Turkey. International Journal of Research in Medical Sciences 2018; 6: 2354-60.

10. Gencer ZT. Norman ve Skinner'ın E-Sağlık Okuryazarlığı Ölçeğinin Kültürel Uyarlaması İçin Geçerlilik ve Güvenilirlik Çalışması. İstanbul Üniversitesi İletişim Fakültesi Dergisi| Istanbul University Faculty of Communication Journal 2017; 131-45.
11. Fergus TA, Spada MM. Cyberchondria: Examining relations with problematic Internet use and metacognitive beliefs. Clin Psychol Psychother 2017; 24: 1322-30.
12. Starcevic V, Baggio S, Berle D, Khazaal Y, Viswasam K. Cyberchondria and its Relationships with Related Constructs: a Network Analysis. Psychiatr Q 2019; 90: 491-505.
13. Özer Ö, Özmen S, Özkan O. Investigation of the effect of cyberchondria behavior on e-health literacy in healthcare workers. Hosp Top 2023; 101: 94-102.
14. Zheng H, Chen X, Fu, S. An exploration of determinants of cyberchondria: A moderated mediation analysis. Proceedings of the Association for Information Science and Technology 2020: 57: e214.
15. Deniz S. Bireylerin E-Sağlık Okuryazarlığı ve Siberkondri Düzeylerinin İncelenmesi. İnsan ve İnsan 2020; 7: 84-96.
16. Shiferaw KB, Tilahun BC, Endehabtu BF, Gullslett MK, Mengiste SA. E-health literacy and associated factors among chronic patients in a low-income country: a cross-sectional survey. BMC Med Inform Decis Mak 2020; 20: 181.
17. de Vries HT, Nakamae T, Fukui K, Denys D, Narumoto J. Problematic internet use and psychiatric co-morbidity in a population of Japanese adult psychiatric patients. BMC Psychiatry 2018; 18: 9.
18. Doherty-Torstrick ER, Walton KE, Fallon BA. Cyberchondria: Parsing Health Anxiety From Online Behavior. Psychosomatics 2016; 57: 390-400.
19. Peng XQ, Chen Y, Zhang YC, Liu F, He HY, Luo T, et al. The Status and Influencing Factors of Cyberchondria During the COVID-19 Epidemic. A Cross-Sectional Study in Nanyang City of China. Front Psychol 2021; 12: 712703.
20. Macur M, Király O, Maraz A, Nagygyörgy K, Demetrovics Z. Prevalence of problematic internet use in Slovenia. Zdr Varst 2016; 55: 202-11.
21. Islam MS, Sujan MSH, Tasnim R, Ferdous MZ, Masud JHB, Kundu S, Mosaddek ASM, Choudhuri MSK, Kircaburun K, Griffiths MD. Problematic internet use among young and adult population in Bangladesh: Correlates with lifestyle and online activities during the COVID-19 pandemic. Addict Behav Rep 2020; 12: 100311.
22. Ekinci Y, Tutgun-Ünal A, Bayse R, Ekinci A, Tarhan N. Siberkondri, Sağlık Okuryazarlığı ve Sosyo-ekonomik Statü İlişkisi Bağlamında X ve Y Kuşağına Yönelik Bir Araştırma. İstanbul Arel Üniversitesi İletişim Çalışmaları Dergisi 2021; 9: 117-48.
23. Mansur F, Ciğerci K. Siberkondri ve E-Sağlık Okuryazarlığı Arasındaki İlişki. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi 2022; 11: 11-21.