

Original Article

Investigation of Nursing Students' Cyberchondria Perceptions and Health Anxiety

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Abstract

Background: The study investigated the factors affecting nursing students' perceptions of cyberchondria and health anxiety.

Methods: This descriptive study was conducted in the spring term of 2020-2021. The sample consisted of 178 nursing students from a Health School in Turkey. Data were collected using a sociodemographic characteristics questionnaire, the Cyberchondria Severity Scale, and the Health Anxiety Inventory.

Results: The majority of the participants accessed the Internet through their mobile phones (77.6%). Female participants had a higher mean CSS "reassurance" subscale score than male participants. First-year students had a higher mean CSS "distress" subscale score than fourth-year students. Participants who were online for 3-4 hours a day had a higher mean CSS "mistrust of medical professional" subscale score than those who were online for 5-6 hours a day. Participants' actions about their health problems affected Cyberchondria Severity Scale scores.

Conclusion: Authorities should determine healthcare students' perceptions of cyberchondria and health anxiety. It is recommended to add health literacy courses to the curriculum of universities in order to reduce the level of cyberchondria of students. It is recommended that authorities create and open websites in order to control the content of health information on the Internet and to prevent misleading or false information sharing.

Keywords: Nursing student, Cyberchondria, Health anxiety

Introduction

Widespread Internet use and easy access to information have become important for online searches on healthcare information (McElroy & Shevlin, 2014). According to the Turkish Statistical Institute, eight in ten Turkish people aged 16-74 years are Internet users (87.7% in men and 77.5% in women). Moreover, nine in ten households in Turkey have Internet access. More than half the online searches (69.6%) in the first three months of 2021 in Turkey have been personal health-related (injury, illness, diet, health improvement, etc.). This rate has been 67.7% and 71.7% among men and women, respectively (Turkish Statistical Institute Information Technologies Household Use

Survey, 2021). There are many media online that provide health-related information online and are widely used by all people. These online environments are also used by university students with health concerns.

Although seeking health-related information is an essential coping strategy, we have difficulty evaluating the reliability of information obtained from online sources. The Internet may somewhat meet the information needs of people seeking medical information. They generally adopt healthy lifestyle behaviors, consult specialists for their ailments, and cope with chronic problems based on online information. Online information from official and other reliable sources can help people better understand their symptoms and

make health-related decisions, such as seeking help from physicians to find the right treatment for their health problems. However, incomplete and inaccurate information from unofficial and unreliable sources may cause further health anxiety (Doherty-Torstrick, Walton & Fallon, 2016; Gençer et al., 2018). Health anxiety is a physical and mental condition seen in healthy and unhealthy individuals and high health anxiety can cause different problems (Ozdelikara, Agacdiken Alkan & Mumcu 2018; Ozgul & Saatci, 2021).

Healthcare students, especially nursing students gain very different and useful information during their education. Also nursing students diagnose themselves whenever they learn about each illness in classes or on the Internet (Ozdelikara, Agacdiken Alkan & Mumcu 2018). Students who exhibit online health information-seeking behavior think they have a severe illness or constantly fear developing one. People with high health anxiety are more likely to search for illnesses on the Internet, resulting in higher anxiety (Ozdelikara, Agacdiken Alkan & Mumcu 2018). Indeed research shows that students with this type of tendency develop more health anxiety, resulting in cyberchondria, which is defined as a severe form of anxiety associated with increased distress and anxiety (Doherty-Torstrick, Walton & Fallon, 2016; Dogan, Fusun & Dogan, 2021).

Cyberchondria is a form of anxiety characterized by excessive online health research (McElroy & Shevlin, 2014). Those people are more likely to use online information than traditional information sources to diagnose themselves (Elciyar & Tascı, 2017). The more online information people with cyberchondria access, the more anxiety they experience (Dogan, Fusun & Dogan, 2021). Also people with high health anxiety rarely feel comfortable after seeking health information compared to people with low health anxiety (Gencer et al., 2018).

Individuals can do various research on the Internet to obtain information about their health status, to relieve their worries or to relax. However, the information obtained from the internet as a result of these researches may cause the anxiety and worries of individuals to increase further and accordingly, they may conduct more and longer researches on their health status on the internet. Cyberchondria; the increase in the density and workload of the hospitals can cause

negative results such as waste of resources, wasting the person's time and turning to the wrong treatments. We should identify health anxiety and the symptoms of cyberchondria in nursing students because they are the healthcare professionals of tomorrow. Emotions and behaviors of nurses can affect the quality of service and care. The online health information seeking behavior among nursing students can develop individuals' thinking that they have a serious illness and the belief that they may have a disease. This belief can affect both their own health and the right care for their patients' health. Studies have shown that this situation increases health anxiety and may cause cyberchondria (Doherty-Torstrick, Walton & Fallon, 2016; Bati et al., 2018). Although the number of related studies is limited, it is thought that cyberchondria is quite common in our country (Dogan, Fusun & Dogan, 2021; Bati et al, 2018). Therefore, this study investigated the factors affecting nursing students' perceptions of cyberchondria and health anxiety.

Material And Method

Research Design: This descriptive study aims to evaluate the factors affecting the perceptions of cyberchondria and health anxiety in nursing students.

Population and Sample: This descriptive study was conducted in the spring term 2020-2021 between April 19 and May 19. The study population consisted of 301 first-year (n=84), second-year (n=89), third-year (n=70), and fourth-year (n=58) nursing students from a Health School in Turkey. No sampling was performed as we tried to reach all students who agreed to participate in the study. Students under the age of 18 were not included in the study. The response rate was 59%.

Data Collection Tools

Sociodemographic Information Form: The data were collected using a sociodemographic characteristics questionnaire, the Cyberchondria Severity Scale, and the Health Anxiety Inventory. The 17-item questions include students' sociodemographic characteristics, internet usage characteristics, and information about cyberchondria and health and this questionnaire was based on a literature review conducted by the researcher (Elciyar & Tascı, 2017; Bati et al., 2018).

Cyberchondria Severity Scale (CSS): The Cyberchondria Severity Scale (CSS) is a psychometric tool developed by McElroy and

Shevlin (2014) (McElroy & Shevlin, 2014). The instrument consists of 33 items scored on a five-point Likert-type scale (“1 = Never,” “2 = Rarely,” “3 = Sometimes,” “4 = Often,” and “5 = Always”). The instrument has five subscales: compulsion, distress, excessiveness, reassurance, and mistrust of medical professional. The items of the “mistrust of medical professional” subscale are reverse scored. The total score ranges from 33 to 165, with higher scores indicating higher levels of cyberchondria. The scale was adapted to Turkish by Uzun and Zencir (Uzun & Zencir, 2021). The total scale has a Cronbach’s alpha of 0.89. In the present study, the scale had a Cronbach’s alpha of 0.85.

Health Anxiety Inventory: The Health Anxiety Inventory (HAI) was developed by Salkovskis et al. (2002) (Salkovskis et al., 2002). The instrument consists of 18 items that assess health anxiety independent of physical health status. The first 14 items with four statements are related to excessive dimension sensitivity to somatic symptoms and distress. The remaining four items address what the respondent would do if he/she had a serious illness (heart disease, cancer, multiple sclerosis, etc.). The items are scored on a scale of 0 to 3. The total score ranges from 0 to 54, with higher scores indicating higher health anxiety. The instrument has two subscales: psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). The instrument was adapted to Turkish by Aydemir et al. (2013) (Aydemir et al., 2013). It had a Cronbach’s of 0.88 in the present study.

Procedure: The survey was prepared online within the framework of pandemic rules. The data were collected online (Google Docs). Participants were sent a link to the survey in the school WhatsApp groups, and their informed consent was obtained by informing them online. In the study, data collection and data analysis were done by the same researcher.

Data Analysis: The data were analyzed using the Statistical Package for Social Sciences (SPSS, v. 24.0) at a significance level of 0.05. Mean and percentage were used for descriptive statistics. Whether the data were suitable for normal distribution or not was determined by Shapiro Wilks tests. The data were analyzed using the independent-sample T, Kruskal Wallis H, Man Whitney U, and One-way ANOVA tests.

Ethical Aspect of Research: The institutional ethics committee approved the study (07.04.2021-E.57024), and online informed

consents were obtained from the students who agreed to participate in the study. In addition, permission was obtained from the scale owners. The study was approved by the Scientific Research and Publication Ethics Committee of XXX University (xxxxx). Permission was obtained from the administration of the health school (xxxxx). Authorization was obtained from the developers of the scales. Students were informed about the research purpose, procedure, and confidentiality. Informed consent was obtained from those who agreed to participate. The study was conducted according to the ethical principles outlined by the World Medical Association’s Declaration of Helsinki.

Results

Table 1 shows the participants’ descriptive characteristics. The majority of the participants accessed the Internet through their mobile phones (77.6%). Less than half the participants were online for 5-6 hours a day (39.9%). More than half the participants believed that doctors knew more than the Internet (60.7%). Most participants searched online for medical information before visiting doctors (87.6%). Most participants searched online for medical information after visiting doctors as well (81.5%). More than a quarter of the participants noted that they searched the Internet for treatment (38.2%). More than half the participants thought that there was nothing wrong with them (58.4%). More than half the participants stated that they visited doctors, although there was nothing wrong with them (58.4%). Less than half the participants remarked that they did a health scan online less than once a month. The majority of the participants were unsure about the reliability of medical information online.

Participants had a mean CSS score of 83.30 ± 12.31 (min:46 and max:118), indicating moderate levels of cyberchondria. Participants had a median HAI score of 14 (min:0 and max:37) (Table 2), indicating low levels of health anxiety. Female participants had a higher mean CSS “reassurance” subscale score than male participants ($p < 0.05$). First-year students had a higher mean CSS “distress” subscale score than fourth-year students. Participants who were online for 3-4 hours a day had a higher mean CSS “mistrust of medical professional” subscale score than those who were online for 5-6 hours a day.

Gender, place of residence, health problems, the frequency of online scans, and safety of online scans for health information did not affect CSS scores ($p>0.05$). Participants with a neutral income (income = expense) had a higher total CSS score than those with a negative income (income < expense) ($p<0.05$). Participants without chronic diseases had higher CSS scores than those with chronic diseases. Participants' actions about their health problems affected CSS scores ($p<0.05$) (Table 4).

Table 1. Data on students' sociodemographic characteristics (N=178)

Sociodemographic characteristics	n^a	%	
Gender	Female	156	87.6
	Male	22	12.4
Class	1. year	63	35.4
	2. year	48	27.0
	3. year	45	25.3
	4. year	22	12.4
Income rate	Income less than expenses	68	38.2
	Income equals expense	98	55.1
	Income more than expenses	12	6.7
Place of Residence	Province	78	43.8
	District	70	39.3
	Town/Village	30	16.9
Chronic disease status	Yes	12	6.7
	No	166	93.3
Internet access point	Mobil phone	138	77.6
	Tablet	2	1.1
	Computer	38	21.3
Daily Internet Usage	1-2 hours	7	3.9
	3-4 hours	43	24.2
	5-6 hours	71	39.9
	7 hours and more	57	32
Believing that the Internet is as good as doctors for health information	Yes	70	39.3
	No	108	60.7
Doing research on the internet about health without consulting a doctor	Yes	156	87.6
	No	22	12.4
Doing internet research after consulting a doctor about health	Yes	145	81.5
	No	33	18.5
The health problem you are looking for online	Disease	62	34.8
	Treatment	68	38.2
	Diet	38	21.3
	Alcohol/Cigarette Addiction	10	5.7
Do you think you have a problem with your health?	Yes	74	41.6
	No	104	58.4
What do you do when you feel a problem in your health?	I wait for recovery	22	12.4
	I apply my knowledge	22	12.4
	I look for the source of the health problem on the Internet	22	12.4
	I consult a friend	8	4.4
	I visit a doctor	104	58.4
	less than once a month	84	47.2
How often do you do health scans online?	Once in a month	66	37.1
	Once a week	21	11.8
	2-4 times a week	7	3.9
	How reliable is the health information you scan online?		
How reliable is the health information you scan online?	Incorrect	6	3.4
	I'm not sure	126	70.8
	True	46	25.8

a Total number of students answering the questions.

Table 2. Scores of nursing students' Cyberchondria Severity Scale and Health Anxiety Inventory

Cyberchondria Severity Scale	Min-Max	M.±SD
Cyberchondria Severity Scale Total scores (33-165)	46-118	83.30±12.31
Compulsion	8-26	14.44±4.74
Distress	8-30	18.76±4.64
Excessiveness	9-36	22.66±4.81
Reassurance	6-22	15.11±3.46
Mistrust of medical professional	9-15	12.30±1.65
Health Anxiety Inventory (Short Version)	Min-Max	IQR
Health Anxiety Inventory (Short Version) Total Points (0-54)	0-37	8-19
Excessive sensitivity to somatic symptoms and anxiety	0-32	6-15
Negative consequences of disease	0-9	1-4

IQR (Q₁= 25% Percentage, Q₃= 75% Percentage)

Table 3. Comparison of students' Cyberchondria Severity Scale and its sub-dimensions and other variables

* Independent Sample T Test, $p < 0,05$ ** Oneway Anova Test, $p < 0,05$

	Cyberchondria Severity Scale and subscales					
	Cyberchondria Severity Scale Total scores	Compulsion	Distress	Excessiveness	Reassurance	Mistrust of medical professional
	M± SD	M± SD	M± SD	M± SD	M± SD	M± SD
Gender						
Female	83.85±12.73	14.50±4.82	18.80±4.51	22.84±4.87	15.38±3.49	12.31±1.68
Male	79.45±8.00	14.00±4.18	18.54±5.57	21.40±4.30	13.22±2.63	12.27±1.48
Statistical Value	$p=0.11^*$	$p=0.641^*$	$p=0.810^*$	$p=0.191^*$	$p=0.006^*$	$p=0.913^*$
Class						
1. year	84.34±13.40	14.28±5.13	19.98±5.07	22.30±5.18	15.57±3.66	12.20±1.70
2. year	82.60±10.61	15.45±4.06	18.27±3.55	21.45±4.11	15.43±2.93	11.97±1.65
3. year	85.40±11.47	14.44±4.64	18.84±4.80	24.44±4.35	15.08±3.25	12.57±1.60
4. year	77.59±13.13	12.68±4.90	16.22±4.15	22.72±5.31	13.18±3.93	12.77±1.54
Statistical Value	$p=0.083^{**}$	$p=0.151^{**}$	$p=0.009^{**}$	$p=0.022^{**}$	$p=0.038^{**}$	$p=0.168^{**}$
Internet access point						
Mobile phone	83.83±11.95	14.71±4.48	19.04±4.63	22.67±4.73	15.20±3.43	12.19±1.62
Tablet	78.00±2.82	15.50±3.53	17.50±0.70	19.50±3.53	14.00±2.82	11.50±0.70
Computer	81.68±13.82	13.39±5.61	17.84±4.72	22.81±5.21	14.86±3.68	12.76±1.74
Statistical Value	$p=0.529^{**}$	$p=0.301^{**}$	$p=0.344^{**}$	$p=0.640^{**}$	$p=0.786^{**}$	$p=0.137^{**}$
Daily Internet Usage						
1-2 hours	79.14±16.01	14.14±5.66	17.28±5.28	20.28±5.37	14.57±4.19	12.85±1.34
3-4 hours	83.13±13.90	13.02±3.92	19.32±4.79	22.93±5.86	14.81±3.84	13.04±1.29
5-6 hours	84.84±11.53	15.47±4.66	19.52±4.12	22.63±4.45	15.46±2.83	11.74±1.60
7 hours and more	82.03±11.56	14.26±5.10	17.59±4.90	22.80±4.33	14.98±3.83	12.38±1.78
Statistical Value	$p=0.474^{**}$	$p=0.060^{**}$	$p=0.076^{**}$	$p=0.599^{**}$	$p=0.732^{**}$	$P < 0,001^{**}$

Table 4. Comparison of students' Health Anxiety Inventory (short version) and other variables

	Health Anxiety Inventory (Short Version) Total Scores IQR	Excessive sensitivity to somatic symptoms and anxiety IQR	Negative consequences of disease IQR
Gender			
Female	15 (7-19)	11 (5-16)	3 (1-4)
Male	13 (9-19)	11 (8-14)	1 (0-3)
<i>Statistical Value</i>	$p=0.676^{**}$	$p=0.797^{**}$	$p=0.278^{**}$
Income rate			
Income less than expenses	12 (5-16)	9 (4-14)	2 (0-4)
Income equals expense	16 (10-20)	13 (8-16)	3 (1-4)
Income more than expenses	7 (5-16)	5 (5-14)	2 (1-3)
<i>Statistical Value</i>	$p<0.001^*$	$P=0.001^*$	$P=0.034^*$
Place of Residence			
Province	16 (9-20)	13 (6-16)	3 (1-4)
District	13 (7-17)	10 (6-14)	2 (1-4)
Town/Village	12 (4-18)	10 (4-14)	2 (0-4)
<i>Statistical Value</i>	$p=0.356^*$	$p=0.351^*$	$p=0.859^*$
Chronic disease status			
Yes	7 (5-15)	5 (4-11)	2 (0-2)
No	14 (9-19)	12 (6-16)	3 (1-4)
<i>Statistical Value</i>	$p=0.029^{**}$	$p=0.037^{**}$	$p=0.085^{**}$
Do you think you have a problem with your health?			
Yes	13 (8-17)	10 (6-14)	2 (1-4)
No	15 (7-19)	12 (5-16)	2 (1-4)
<i>Statistical Value</i>	$p=0.544^{**}$	$p=0.675^{**}$	$p=0.483^{**}$
What do you do when you feel a problem in your health?			
I wait for recovery	5 (2-15)	4 (2-11)	0 (0-2)
I apply my knowledge	13 (6-19)	11 (4-16)	1 (0-4)
I look for the source of the health problem on the Internet	14 (12-16)	12 (8-14)	2 (1-4)
I consult a friend	9 (6-12)	7 (5-9)	2 (0-3)
I visit a doctor	16 (10-20)	13 (8-16)	3 (2-4)
<i>Statistical Value</i>	$p=0.544^*$	$p=0.001^*$	$p=0.001^*$
How often do you do health scans online?			
less than once a month	13 (7-18)	10 (5-14)	2 (1-4)
Once in a month	15 (9-20)	13 (5-16)	3 (2-5)
Once a week	17 (11-19)	14 (9-17)	3 (1-5)
2-4 times a week	14 (5-19)	12 (5-16)	2 (0-3)
<i>Statistical Value</i>	$p=0.198^*$	$p=0.214^*$	$p=0.111^*$
How reliable is the health information you scan online?			
Incorrect	13 (10-15)	9 (5-11)	4 (0-4)
I'm not sure	15 (8-19)	12 (6-16)	3 (1-4)
True	12 (5-16)	9 (4-13)	2 (1-4)
<i>Statistical Value</i>	$p=0.114^*$	$p=0.123^*$	$p=0.334^*$

*Kruskal Wallis H Test, $p<0,05$ ** Mann Whitney U Test, $p<0,05$ $Q_1=25\%$ Percentage, $Q_2=50\%$ Percentage (Median), $Q_3=75\%$ Percentage

Discussion

The majority of the participants used their mobile phones to connect to the Internet (77.6%). Less than half the participants stated that they underwent online health screening less than once a month (47.2%). In a study, it was determined that when students have a health problem, 14.2% try to understand the problem by searching for health information on the internet, and 25% search online for health information once a week or more (Bati et al., 2018). More than half the online searches (69.6%) in the first three months of 2021 in Turkey have been personal health-related (injury, illness, diet, health improvement, etc.) (Turkish Statistical Institute Information Technologies Household Use Survey, 2021). There are not enough studies on cyberchondria and health anxiety of nursing students in Turkey. In the study, 47.2% of the students do research with online health information, which ensures that nearly half of the students have the potential to trust online health information. Moreover, with the increase in internet use, the increase in the rate of health-related research in internet is also thought-provoking.

Participants had moderate cyberchondria levels. This could be due to the fact that nursing students had easier access to health information resources and services than other students did. Research shows that young people do more online searches about health (Fergus & Spada, 2017; Gorkemli, 2017), and have higher cyberchondria levels than older people (Erdogan & Hocaoglu, 2020). Therefore, our results may be because the sample consisted of young people with high Internet use.

Female participants had a higher mean CSS “reassurance” subscale score than male participants ($p < 0.05$). Research also shows that women have higher levels of cyberchondria than men (Uzun, 2016; Barke et al., 2016; Ertas, Kirac & Unal, 2020). The results of the research are similar to the literature. This result suggests that women seek health information from the internet more. It may be effective that women's online health search rates are higher than men; those women search for health information not only for themselves but also for their family. First-year students had a higher mean CSS “distress” subscale score than fourth-year students. No similar study was found in the literature. However, in a study, shows that the higher the grade level, the lower the level of cyberchondria (Tarhan, Tutgun-Unal & Ekinici, 2021). This may

be due to the fact that fourth-year students have easier access to health information resources and services, considering both the hospital practices and the courses they take.

Participants who were online for 3-4 hours a day had a higher mean CSS “mistrust of medical professional” subscale score than those who were online for 5-6 hours a day. Participants who were online for a more extended period of time trusted the medical profession more. Tarhan et al. (2021) also found that the level of cyberchondria decreased as the daily Internet usage time increased (Tarhan, Tutgun-Unal & Ekinici, 2021). Results show that how one spends time on the Internet is more important than how much time one spends on the Internet (McMullan et al., 2019; Tarhan & Nurmedov, 2019). These results indicate that as the time spent by individuals on the Internet increases, they tend to seek more health information and reduce their anxiety.

Gender, place of residence, self-perceived health problems, frequency of online health screening, and the safety of online scans for health information did not affect HAI scores ($p > 0.05$). Participants with a neutral income had a higher total HAI score than those with a negative income ($p < 0.05$). There is no research on the effect of income on health anxiety. However, our results suggest that income affects health anxiety.

Participants without chronic diseases had higher HAI scores than those with chronic diseases. This is probably because students with chronic diseases know more about their diseases and have fewer health concerns. In addition, it can be interpreted that individuals who think that they have an undiagnosed disease feel more anxious during this period and increase their health anxiety by exhibiting cyberchondria behaviors too much. According to Doherty-Torstrick et al. (2016), people with high illness anxiety feel worse, while those with low illness anxiety feel relieved after online symptom checks (Doherty & Torstrick, 2016). What students did when they had a health problem affected their HAI scores ($p < 0.05$). Bati et al. (2018) also determined that students were more concerned about health anxiety and cyberchondria distress when they had health problems. The results are similar to the literature (Bati et al., 2018).

Limitations of the Study: The results are sample-specific and cannot be generalized to the whole population.

Conclusion: Students have moderate cyberchondria and low health anxiety, suggesting that they use the Internet to search for health-related information. In nursing, it is necessary to organize education programs about how to search for health information on the Internet, reach the right information, and solve students' health problems and concerns.

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