

# Research Paper: Cyberchondria in Nursing Students During the COVID-19 Pandemic



Marjan Rasouli<sup>1</sup> , Nafiseh Atai Mirabadi<sup>1</sup>, Motahareh Sarvi Hampa<sup>1</sup> , Leili Borimnejad<sup>2\*</sup>

1. Department of Nursing, Faculty of Medicine, Qom Branch, Islamic Azad University, Qom, Iran.

2. Nursing Care Research Center, Iran University of Medical Sciences, Tehran, Iran.



**Citation** Rasouli, M., et al. 2022. Cyberchondria in Nursing Students During the COVID-19 Pandemic. *Journal of Client-Centered Nursing Care*, 8(1), pp. 9-14. <https://doi.org/10.32598/JCCNC.8.1.169.8>

<https://doi.org/10.32598/JCCNC.8.1.169.8>



## Article info:

Received: 01 Nov 2021

Accepted: 17 Nov 2021

Published: 01 Feb 2022

## Keywords:

COVID-19, Cyberchondria,  
Nursing students,  
Cyberchondria severity scale,  
Health anxiety

## ABSTRACT

**Background:** The COVID-19 pandemic showed that this viral infection, in addition to acute physical complications, causes psychological problems, anxiety, stress, and exacerbation of cyberchondria. This study aimed to assess the severity of cyberchondria in nursing students in Lorestan Province identified as the center of the COVID-19 outbreak in Iran.

**Methods:** This descriptive cross-sectional study was performed on 200 nursing students of Islamic Azad University in the involved province using an online questionnaire. The subjects were recruited by convenience sampling method. The research instrument was the 15-item Cyberchondria Severity Scale (CSS-15), whose link was sent to all nursing students. Data analysis was performed by descriptive statistics and independent t-test in SPSS software v. 18. The significance level was set at less than 0.05.

**Results:** The majority of the respondents (51.5%) were male, and 17.5% of them had a history of chronic diseases and did not refer to any physician due to self-medication and fear of the coronavirus. The Mean±SD score of cyberchondria severity was 33.52±5.59. There was a significant difference between the male and female students in the subscales of compulsion (P=0.0001), excessiveness (P=0.007), reassurance (P=0.004), and distress (P=0.0001). But the total cyberchondria severity was not associated with the age and gender of the students.

**Conclusion:** During the COVID-19 outbreak, the nursing students were affected by some constructs of cyberchondria that could be a sign of anxiety risk and might affect their health-seeking behaviors and mental health. Therefore, psychological counseling is needed to provide this group of healthcare professionals.

## \* Corresponding Author:

Leili Borimnejad, PhD.

Address: Nursing Care Research Center, Iran University of Medical Sciences, Tehran, Iran.

Tel: +98 (912) 5029548

E-mail: borimnejad.l@iums.ac.ir

## Highlights

- Fear of COVID-19 could lead to obsessive research of information on the Internet.
- The severity of cyberchondria was relatively high in the nursing students living in the involved province.
- The nursing students in this study were at risk for health anxiety because of cyberchondria during the COVID-19 pandemic.
- There were significant differences in most subscales of cyberchondria between female and male students.

## Plain Language Summary

Social isolation due to the COVID-19 pandemic and the ease of access to the Internet has led people to search this media more to obtain information about their health. The findings showed that nursing students in this study were at risk for health anxiety because of cyberchondria during the COVID-19 pandemic. Moreover, compared with male students, the female students were less likely to cope appropriately with the annoying health information they had found on the Internet. It is suggested to provide psychological counseling to this group of healthcare professionals.

### 1. Introduction

The recent reforms in the information and communications technology and health-care sector across the world have created numerous opportunities for online and easy access to health-related information (Bati et al., 2018). In addition, the availability of extensive medical information online has led people to spend countless hours searching for the possible diagnoses of their symptoms. In a survey of 12000 people in 12 countries in 2010, 12%-40% of the subjects frequently searched the Internet for medical information, and 1%-2% searched for diagnosis (Vismara et al., 2020). Another survey in the United Kingdom reported an increase in internet activity from 2007 to 2016 when 82% of adults (41.8 million) used the Internet every day or almost every day. While reading online news, newspapers, and journals accounts for the most significant increase in the current pandemic, using the Internet to search for health information has been reported to increase by 33% to 51% (Wadman et al., 2019).

Disseminating medical information online poses the risk of obtaining misinformation (de la Cuesta et al., 2019). Previous studies have indicated that self-diagnosis behaviors lead to unnecessary psychological stress, causing fear and concerns regarding one's health condition (Aiken et al., 2012; Jokic-Begic, Lauri Korajlija, & Mikac, 2020).

With the outbreak of the emerging coronavirus in Wuhan, China, on December 29, 2019, and its rapid

spread, fear of infection overtook every community. The World Health Organization (WHO) confirmed the variability of the signs and symptoms of the disease, driving people to use cyberspace to gain more information about the disease for better self-care (Zhao et al., 2020). The coronavirus infects humans and often invades the lungs, causing many signs and symptoms (Saleh Ali et al., 2021). Obtaining information about the coronavirus has become the most important concern for everybody, especially medical staff. Meanwhile, the phenomenon of cyberchondria has been intensified (Goyal et al., 2021).

The information obtained from the Internet is more interesting than the information in newspapers. Consequently, people have become addicted to online information due to the frequent use of the Internet (Koo, Nyunt, & Wang, 2021). Cyberchondria is a strong tendency for excessive searching on the Internet for new information, which could cause anxiety (Starcevic, Berle, & Arnáez, 2020). Indeed cyberchondria refers to excessive online search for health information, which is associated with increased emotional distress (Zheng et al., 2021). The percentage of adults who used an information source other than the Internet and reported accessing health information online without frustration increased from 31.3% in 2008 to 42.7% in 2017 (Zheng and Tandoc Jr, 2020).

The Internet is the largest medical library in the world through which people can access information on disease symptoms, the risks, and benefits of medications, treatments, and professional comments (Starcevic, 2017). Obtaining the necessary information from the Internet is helpful in multiple cases, while most scientific stud-

ies emphasize the adverse effects of excessive internet use, and some of the consequences of this issue are anxiety, worries, and even certain diseases (McMullan et al., 2019; Bajcar, & Babiak, 2021). Cyberchondria is closely associated with the phenomenon of hypochondria, which is the misunderstanding of physical symptoms causing individuals to misjudge the severity or nature of their diseases (Khazaal et al., 2021).

The nursing profession is crucial to maintaining national healthcare systems, and educational institutions play a key role in training future nurses. In terms of nursing knowledge, nurses must be able to search for disease-related content on the Internet (Aulia et al., 2020).

A study regarding cyberchondria was conducted on the nursing students who had been trained on promoting their profession, and the results showed that COVID-19 caused more anxiety in the female students compared to the male students. In the mentioned study, the gravest fears of the participants were a feeling of helplessness and fear of disease spreading (Meng et al., 2019). These complications may affect the performance and quality of care and even the decision of nurses to keep or leave their job. Therefore, timely recognition and early interventions seem essential in this regard.

No studies have been focused on the severity of cyberchondria among nursing students in Iran. The present study aimed to determine the extent of cyberchondria in nursing students in one of the first provinces involved with COVID-19 in Iran.

## 2. Materials and Methods

This research was a descriptive, cross-sectional study. The samples were then nursing students of the Islamic Azad University of the Lorestan Province. We chose this province for selecting the sample because it was one of the first areas in Iran where the Coronavirus was detected. All nursing students at different levels of education could participate in the study. Questionnaire links were sent to the nursing students, and 204 students completed the survey. Notably, the questionnaire was available to the students from October 2020 to April 2021.

The research instrument was the Cyberchondria Severity Scale (CSS). In 2014, McLurry and Shulin used the CSS to assess cyberchondria severity and determine the extent of the problems caused by mental, emotional, anxiety, and stress disorders in subjects with cyberchondria. The scale consists of 33 items and five subscales (McElroy, & Shevlin, 2014). The distribution of CSS

items varies in different countries (e.g. items 28, 33, 35, and 36), and the short version of the scale has 15 items (CSS-15) (Barke et al., 2016; Bajcar, Babiak, & Olchowska-Kotala, 2019; Selvi et al., 2018).

Several studies have investigated cyberchondria using the CSS in different countries, including South Korea, Taiwan, Japan, Singapore, Turkey, and Germany, confirming the validity and reliability of the scale. The latest version of the CSS is a 15-item scale, which was used in the present study. The questionnaire has five subscales of compulsion, distress, excessiveness, reassurance, and mistrust of medical professionals. Each question has five options (no way, rarely, sometimes, frequently, and always), scoring from 0 to 4 except for mistrust of medical professional, which is scored from 4 to 0. The range of scores for each subscale differs from 0 to 12. For the first four subscales, the scores are interpreted as follows: score 0=not affected, score 1–6= moderately affected, and score 7–12=severely affected. This order is reversed for the mistrust of the medical professional subscale (Dagar, Kakodkar, & Shetiya, 2019). According to the tool developer's instructions, cyberchondria exists when the obtained score is two standard deviations or more different from the average. In Iran, Nasiri et al. confirmed the validity and reliability of the Persian version of the CSS. The whole scale showed good internal consistency ( $\alpha=0.91$ ) (Nasiri, 2015). In the present study, the Cronbach  $\alpha$  coefficient for the whole scale was 0.83.

It is worthy of mention that the study objectives were explained on the first page of the questionnaire. On the second page, the informed consent form was provided, and if approved, the students would be directed to the questions page. Data analysis was performed in SPSS version 18 using descriptive statistics and an independent t-test to compare the scores of the male and female students. The confidence interval is 95%, and the significance level 0.05.

## 3. Results

Most of the students were male ( $n=105$ ; 51.5%), and aged less than 30 years ( $n=191$ ; 93.6%). The majority of the subjects ( $n=179$ ; 87.7%) were undergraduates, and 17.5% ( $n=35$ ) had a history of chronic diseases and did not visit a physician regularly due to the fear of COVID-19 exposure (31.4%), and 25.7% chose self-medication (Table 1).

According to the obtained results, the Mean $\pm$ SD score of cyberchondria severity was 33.52 $\pm$ 5.92. The results indicate the severity of the disorder in the group under

**Table 1.** Demographic characteristics of the students

Characteristics		No. (%)
Sex	Female	99(48.5)
	Male	105(51.5)
Age (y)	Under 30	191(93.6)
	30-40	13(6.4)
History of chronic disease	Yes	35(17.5)
	No	169(82.5)
The reason for not seeing a doctor regularly	Fear of COVID-19	11(31.4)
	Wellbeing feeling	15(42.9)
	Self-medication	9(25.7)

Client-Centered Nursing Care

study. In addition, the t-test results indicated that the severity of cyberchondria did not differ significantly between the male and female students  $P>0.05$ , while a significant difference was observed in three subscales, except for the distrust of health professionals subscale (Table 2).

#### 4. Discussion

Our research was the first study in Iran investigating the severity of cyberchondria in nursing students during the COVID-19 pandemic. The most important finding of the current research was the high mean score of cyberchondria in the subjects, which indicated its severity in the nursing students during the current pandemic.

In this study, the mean score of cyberchondria severity was higher than the score reported in a German study, in which the same 15-item shortened tool (CSS-15) was used

(Barke et al., 2016). Therefore, it could be inferred that the nursing students in the present study were at a higher risk of cyberchondria compared to the mentioned research.

Although no significant difference was observed between the male and female students regarding the total mean score of cyberchondria in the current research, a significant difference was denoted in the scores of all the subscales of CSS (compulsion, excessiveness, reassurance, and distress), except for the distrust of health care professional subscale. In other words, compared with male students, the female students were less likely to cope appropriately with the annoying health information they had found on the Internet. According to a recent study on junior medical students, CSS scores were not significantly different between genders. Still, there were slight but significant differences in online behavior between male and female students (Aulia et al., 2020). Our findings in this

**Table 2.** Results of the independent t-test comparing mean cyberchondria severity scale between male and female students

CCS Scores, Total and Sub-scales	t-test for Equality of Means			
	t	df	Sig. (2-Tailed)	Mean Difference
Total	-0.374	202	0.709	-0.31140
Compulsion	-3.903	202	0.000	-0.90592
Excessiveness	-2.717	202	0.007	-0.67388
Distrust of health professionals	-1.815	202	0.071	-0.54401
Reassurance	2.931	202	0.004	0.76710
Distress	3.995	202	0.000	1.04531

Client-Centered Nursing Care

regard are also inconsistent with the study by Bati et al. (2018). These differences could be related to the socio-cultural differences in Iran and the studied countries. To the best of our knowledge, this research was the first study regarding cyberchondria in Iranian nursing students; thus, a complete comparison cannot be made with other studies. The findings suggest that nursing students may be prone to high anxiety levels and develop some symptoms following cyberchondria behaviors, thereby resorting to self-medication instead of seeking medical help if they become ill.

## 5. Conclusion

The nursing students in our study suffered from a relatively high level of cyberchondria, and female students were less likely to cope properly with the annoying health information they had found on the Internet. Therefore, psychological counseling is highly recommended for this high-risk group of healthcare providers.

One of the limitations of our study was using a self-report questionnaire, and the accuracy of the findings largely depended on the participants' responses. Our results could lay the groundwork for similar investigations in other academic centers.

## Ethical Considerations

### Compliance with ethical guidelines

The Ethics Committee of Iran University of Medical Sciences approved this study (Code: IR.IUMS.1399.668). An informed consent form was provided online. The questionnaires were completed voluntarily and anonymously.

### Funding

This study was financially supported by the Nursing Research Center of Iran University of Medical Sciences.

### Authors' contributions

Conceptualization and design and writing - original draft: Marjan Rasouli and Leili Borimnejad; Data collection and data analysis: Nafiseh Atai Mirabadi and Motahareh Sarvi Hampa; Critical revision and funding acquisition and resources: Leili Borimnejad.

### Conflict of interest

The authors declared no conflict of interest.

## References

- Aiken, M., et al. 2012. The age of cyberchondria. *RCSIsmjreview*, 5(1), pp. 71-4. [https://repository.rcsi.com/articles/jour\\_of\\_Cyberchondria/10780793/files/19294079.pdf](https://repository.rcsi.com/articles/jour_of_Cyberchondria/10780793/files/19294079.pdf)
- Saleh Ali, G., Ozdemir, B. & Selamoglu, Z., 2021. A review of severe acute respiratory syndrome coronavirus 2 and pathological disorders in patients. *Journal of Pharmaceutical Care*, 9(3), pp. 141-7. [DOI:10.18502/jpc.v9i3.7373]
- Aulia, A., et al. 2020. Cyberchondria in first year medical students of Yogyakarta. *Journal of Consumer Health on the Internet*, 24(1), pp. 1-9. [DOI:10.1080/15398285.2019.1710096]
- Bajcar, B. & Babiak, J., 2021. Self-esteem and cyberchondria: The mediation effects of health anxiety and obsessive-compulsive symptoms in a community sample. *Current Psychology*, 40(6), pp. 2820-31. [DOI:10.1007/s12144-019-00216-x]
- Bajcar, B., Babiak, J. & Olchowska-Kotala, A., 2019. Cyberchondria and its measurement. The Polish adaptation and psychometric properties of the Cyberchondria Severity Scale CSS-PL. *Polish Psychiatry*, 53(1), pp. 49-60. [DOI:10.12740/PP/81799] [PMID]
- Barke, A., et al. 2016. The Cyberchondria Severity Scale (CSS): German validation and development of a short form. *International Journal of Behavioral Medicine*, 23(5), pp. 595-605. [DOI:10.1007/s12529-016-9549-8] [PMID]
- Bati, A. H., et al. 2018. Health anxiety and cyberchondria among Ege University health science students. *Nurse Education Today*, 71, pp. 169-73. [DOI:10.1016/j.nedt.2018.09.029] [PMID]
- Dagar, D., Kakodkar, P. & Shetiya, S. H., 2019. Evaluating the cyberchondria construct among computer engineering students in Pune (India) using Cyberchondria Severity Scale (CSS-15). *Indian Journal of Occupational and Environmental Medicine*, 23(3), pp. 117-20. [DOI:10.4103/ijoem.IJOEM\_217\_19] [PMID] [PMCID]
- De La Cuesta, J., et al. 2019. *Personality traits of future nurses and cyberchondria: Findings from an emerging economy*. pp. 274-9. [https://www.researchgate.net/profile/Ryan-Ebardo/publication/337673643\\_Personality\\_of\\_Future\\_Nurs.pdf](https://www.researchgate.net/profile/Ryan-Ebardo/publication/337673643_Personality_of_Future_Nurs.pdf)
- Goyal, M., et al. 2021. The effect of the COVID-19 pandemic on maternal health due to delay in seeking health care: Experience from a tertiary center. *International Journal of Gynecology & Obstetrics*, 152(2), pp. 231-5. [DOI:10.1002/ijgo.13457] [PMID]
- Jokic-Begic, N., Lauri Korajlija, A. & Mikac, U., 2020. Cyberchondria in the age of COVID-19. *Plos One*, 15(12), p. e0243704. [DOI:10.1371/journal.pone.0243704] [PMID] [PMCID]
- Khazaal, Y., et al. 2021. Compulsive health-related internet use and cyberchondria. *European Addiction Research*, 27(1), pp. 58-66. [DOI:10.1159/000510922] [PMID] [PMCID]
- Koo, K., Nyunt, G. & Wang, B. 2021. Who spends too much time online?: Associated factors of Internet addiction among international college students in the United States. *Journal of International Students*, 11(1), pp. 122-43. [DOI:10.32674/jis.v11i1.2063]
- Mcelroy, E. & Shevlin, M., 2014. The development and initial validation of the cyberchondria severity scale (CSS). *Journal of Anxiety Disorders*, 28(2), pp. 259-65. [DOI:10.1016/j.janxdis.2013.12.007] [PMID]
- Mcmullan, R. D., et al. 2019. The relationships between health anxiety, online health information seeking, and cyberchondria: Systematic review and meta-analysis. *Journal of Affective Disorders*, 245, pp. 270-8. [DOI:10.1016/j.jad.2018.11.037] [PMID]

- Meng, J., et al. 2019. Prevalence of hypochondriac symptoms among health science students in China: A systematic review and meta-analysis. *PLoS One*, 14(9), p. e0222663. [DOI:10.1371/journal.pone.0222663] [PMID] [PMCID]
- Nasiri, M et al., 2015. Evaluation of the internal structure of the Cyberchondria Severity Scale (CSS): A Factor analytic study. *Journal of Torbat Heydariyeh University of Medical Sciences*, 3(3), pp. 47-38. <http://jms.thums.ac.ir/article-1-246-en.html>
- Selvi, Y., et al. 2018. The Cyberchondria Severity Scale (CSS): Validity and reliability study of the Turkish version. *Sleep and Hypnosis*, 20(4), pp. 241-6. [DOI:10.5350/Sleep.Hypn.2018.20.0157]
- Starcevic, V. 2017. Cyberchondria: Challenges of problematic online searches for health-related information. *Psychotherapy and Psychosomatics*, 86(3), pp. 129-33. [DOI:10.1159/000465525] [PMID]
- Starcevic, V., Berle, D. & Arnáez, S., 2020. Recent insights into cyberchondria. *Current Psychiatry Reports*, 22(1), p. 56. [DOI:10.1007/s11920-020-01179-8] [PMID] [PMCID]
- Vismara, M., et al. 2020. Is cyberchondria a new transdiagnostic digital compulsive syndrome? A systematic review of the evidence. *Comprehensive Psychiatry*, 99, p. 152167. [DOI:10.1016/j.comppsy.2020.152167] [PMID]
- Wadman, R., et al. 2019. Adult attachment, psychological distress and help-seeking in university students: Findings from a cross-sectional online survey in England. *Mental Health & Prevention*, 13, pp. 7-13. [DOI:10.1016/j.mhp.2018.11.003]
- Zhao, X., et al. 2020. Online health information seeking using “# COVID-19 patient seeking help” on Weibo in Wuhan, China: Descriptive study. *Journal of Medical Internet Research*, 22(10), p. e22910. [DOI:10.2196/22910] [PMID] [PMCID]
- Zheng, H., et al. 2021. A theoretical model of cyberchondria development: Antecedents and intermediate processes. *Telematics and Informatics*, 63, p. 101659. [DOI:10.1016/j.tele.2021.101659]
- Zheng, H. & Tandoc Jr, E. C. 2020. Calling Dr. Internet: analyzing news coverage of cyberchondria. *Journalism Practice*, pp. 1-17. [DOI:10.1080/17512786.2020.1824586]