



PREVALENCE OF CYBERCHONDRIA AND ASSOCIATED FACTORS IN UNDERGRADUATES HEALTH SCIENCES STUDENTS

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ABSTRACT

Objective: To determine the prevalence of cyberchondria and associated factors among undergraduate health sciences students in Lalitpur, Nepal. **Methodology:** A cross-sectional study was conducted among 215 students studying in bachelor in public health, nursing and pharmacy courses at Asian College for Advance Studies, Lalitpur, Nepal. Study area was selected purposively and enumerative sampling technique was used to select participants. Semi-structured questionnaires were developed for socio-demographic information and Cyberchondria Severity Scale-15 was used to determine prevalence of cyberchondria. Data were collected through self-administered questionnaires. Data were analyzed using Statistical Package for Social Science version 25 with descriptive and inferential statistics. **Results:** Majority 101(47%) of students were affected by cyberchondria with at least one domain. Of the five domains, excessiveness affected to all the participants, followed by distress 210 (97.6%), reassurance 209 (97.2%), compulsion 208 (96.7%) and mistrust 141 (65.5%). Excessiveness was severely affected among 157 (73.0%) students. There was association between the prevalence of cyberchondria with the respondents' socio-demographic variables; gender ($\chi^2=7.72$; OR= 1.64; CI=1.23-2.19; p=0.008) and the course of education ($\chi^2=27.23$; OR= 2.39; CI=1.64-3.49; p=<0.001). **Conclusions:** Nearly half of the participants had cyberchondria. All of the respondents who had cyberchondria utilized smartphones to access the internet and used it daily for more than 6 hours during the day and more than an hour at night. It needs to be addressed to lessen its consequence on individuals by simply raising awareness and assisting them in identifying the issue.

KEYWORDS: Prevalence, Cyberchondria, factors, undergraduates, students.

INTRODUCTION

Cyberchondria refers to health anxiety caused by excessive internet-based health information research. The severity of cyberchondria can have an impact on a person's quality of life.^[1] It is frequently believed that medical students are predisposed to health anxiety. Stress is another factor that medical students must deal with while pursuing their education.^[2] Worldwide, there were five billion internet users, which is 63% of the world's population. Social media users made up 4.65 billion of this total. In Nepal, there were 11.51 million internet users in 2022. About 38.4% of the populations in Nepal have access to the internet. Between 2021 and 2022, the number of internet users in Nepal rose by 822 thousand.^[3]

At least 75% of internet users have at some point in their lives, searched for health-related results that included the likelihood of a specific disease, which can result in terrifying conclusions concerning improbable possibilities.^[4] A search engine query for a benign symptom is frequently likely to produce a disproportionately high incidence of improbable answers, such as a life-threatening sickness. This is because material on the web is frequently of limited accuracy. Users have a propensity to look for more serious problems; for instance, one can start looking up headache-like symptoms and wind up reading about brain tumors.^[5] Similar to other students, medical students suffer ongoing stress because too demanding coursework, hefty workloads, a competitive environment, and novel clinical encounters. Somatic sensations are amplified by autonomic activations

brought on by this stress, which makes them appear as symptoms. It is believed that medical students construct some symptoms in light of fresh knowledge they acquire and interpret it as supporting data. As a result, clinical instructors indicate that they frequently encounter anxiety and illness-related symptoms among medical students. Medical students who think they have a certain illness are better able to distinguish between instances because they are more interested in them and stick in their minds.^[6]

Those who are concerned about their health are even less inclined to check the reliability of the source and are more wary of what they read online. Also, it makes health anxiety worse. This is a worrying topic considering how many individuals look for health-related information online. For instruction, practice, research, and patient care, medical websites are frequently used by undergraduate medical students. They are more likely to acquire cyberchondria than students in any other discipline since the ongoing COVID pandemic has forced them to research old and new clinical symptoms online. The prevalence of cyberchondria and the factors driving it have received little research. There isn't any research on this subject, though, in Nepal. This study aims to address this by investigating the prevalence of cyberchondria and its contributing factors among undergraduate health sciences students. In order to develop measures to lessen its impact on individuals by simply raising awareness and helping them recognize this problem, as well as being involved in the design, dissemination, and evaluation of web-based health and medical information, health care professionals may find this study to be useful in understanding how many people use the internet to self-diagnose their symptoms.

MATERIALS AND METHODS

A cross-sectional study was conducted among 215 undergraduate health sciences students at the Asian College for Advanced Studies in Lalitpur, Nepal, to determine the prevalence of cyberchondria and its associated factors. The study area was chosen purposively. Students enrolled in bachelor's degree programs in public health (BPH), pharmacy, Bachelor of Science in nursing, and post-basic nursing were selected for the study through enumerative sampling. All students enrolled in diploma courses and first-year bachelor courses were excluded from the study. Semi-structured questionnaires were constructed in three sections. The socio-demographic data of the respondents made up section one and the Cyberchondria Severity Scale (CSS-15) made up section two. Questions related to factors influencing cyberchondria were in section three. The CSS-15 was originally developed by McElroy and Shevlin in 2014. Compulsion, distress, excessiveness, reassurance, and mistrust of medical professionals were the five domains covered by this questionnaire. There were three questions in each of the five domains, for a total of 15 questions. There were five answers available for each question: no way, rarely, sometimes, frequently,

and always.

Pre-testing of the study instrument was done on 10% of the total sample size for validity and reliability. Cronbach alpha was used to measure the internal consistency of the instrument, most of the questions was >0.7 , indicating high levels of reliability. Data were collected from August 2022 to September 2022 through self-administered questionnaire. Statistical Package for Social Sciences (SPSS Version 25) was used to analyze the data. Descriptive statistical techniques, such as frequencies and means were used to analyze the demographic data and the factors influencing cyberchondria. The prevalence of cyberchondria was evaluated using a distinct mean score for all the domains on students. If the mean score was higher than the obtained value, the prevalence of cyberchondria was taken into account. The chi-square (χ^2) test, odds ratio (OR) calculation with a confidence level (CI) of 95%, and P-value were used in bivariate analysis to consider the association between the prevalence of cyberchondria on respondents and independent variables (demographic factors). The significance level was set at the ≤ 0.05 level. Ethical approval letter was obtained from the Asian College for Advance Studies Institutional Review Committee, Nepal (Reference number: ACAS/IRC/53/2022, date: July 10, 2022).

RESULTS

Demographic characteristics of the respondents

Half of the respondents 108 (50.2%) were between the ages of 21 to 23; 88 (40.9%) were above the age of 23; and just 19 (8.8%) were between the ages of 18 to 20. There were 187 (87.0%) female respondents and 28 (13.0%) male. Most of the respondents' mothers 151 (70.2%) had completed secondary education, while 64 (29.8%) had attained higher secondary and above. Similarly, respondents' fathers had secondary level education 109 (50.7%) and higher secondary and above 106 (49.3%), respectively. Most of respondents 190 (88.4%) family's monthly income was between 21,000 to 30,000 rupees and higher. As opposed to 25 (11.6%) who had between 10,000 to 20,000 rupees. In terms course of education, 64 (29.8%) respondents were enrolled in the BPH, 62 (28.8%) in the Bachelor of Pharmacy, 49 (22.8%) in the Post-Basic Bachelor of Nursing and 40 (18.6%) in the Bachelor of Science in Nursing programs.

Analysis Cyberchondria Severity Scale (CCS)

The study of the CCS is represented in table 1. With the exception of the last domain (mistrust), other four domains' options were numbered from 0 to 4. Each domain's overall score varied from 0 to 12. Following were the interpretations of the results for the first four questionnaire domains: 0 means not affected, 1-6 means moderately affected, and 7-12 means severely affected. The last domain had a different interpretation.

Table 1: Distribution of Cyberchondria Severity Scale (n=215).

Cyberchondria Severity Scale	No way		Rarely		Sometimes		Frequently		Always	
	N	%	N	%	N	%	N	%	N	%
Compulsion-1: The internet search for information about symptoms or suspected disease disturbs the search for other online information(e.g., mywork,studies,orschool)	10	4.7	25	11.1	69	32.0	99	46.0	12	5.6
Compulsion-2: Theinternetsearchforinformationaboutsytptomsorsuspecteddiseases disruptsmyonlineleisureactivities(e.g., streamingmovies)	19	8.8	41	19.0	59	27.4	94	43.7	2	1.0
Compulsion-3: Theinternetsearchforinformationaboutsytptomsor suspected disease disrupts my work on thecomputer (e.g., writing mails, working ondocuments,or calculations.	15	7.0	48	22.3	117	54.4	34	15.8	1	0.5
Distress-1: I get panicked when I read online that a symptomthatIhave is rare orseriouscondition.	8	3.7	47	21.9	45	20.9	64	29.8	51	23.7
Distress-2: After looking for information about symptoms orsuspected disease, I feel more anxious and stressedthan before.	10	4.7	33	15.3	57	26.5	80	37.2	35	16.3
Distress-3: After looking for information about symptoms orsuspecteddisease, Ihave difficultyfallingasleep.	31	14.4	59	27.4	40	18.6	69	32.1	16	7.5
Excessiveness-1: IfInoticeanunexplainedbodilysymptom,Iwillsearchforiton theinternet.	3	1.4	20	9.3	32	14.9	72	33.5	88	40.9
Excessiveness-2: Iamlookingfor the samesymptoms on theinternet.	6	2.8	46	21.4	46	21.4	88	40.9	29	13.5
Excessiveness-3: When I search for symptoms or disease online, I visit both trust worthy sites and or lay forums.	13	6.1	22	10.2	48	22.3	104	48.4	28	13.0
Reassurance-1: I discuss the results of my online research with my family doctor or pharmacist.	13	6.1	83	38.6	79	36.7	29	13.5	11	5.1
Reassurance-2: Theinternetsearchinformationabout sytptomsorsuspecteddiseaseleadsmeto a specialist.	28	13.0	83	38.6	76	35.3	18	8.4	10	4.7
Reassurance-3: It soothes me to discuss the online information about suspected disease with my family doctor.	11	5.1	54	25.2	117	54.4	25	11.6	8	3.7
Mistrust-1: Iattachmoreimportancetomydoctor'sassessmentthan myonlineresearch.	8	3.7	15	7.0	66	30.7	18	8.4	108	50.2
Mistrust-2: Itrustthediagnosisofmyhomedoctorthanmyownonline self-diagnosis.	7	3.3	11	5.1	62	28.8	29	13.5	106	49.3
Mistrust-3: If my house doctor considers the results of my ownonline research to be wrong, I stop worrying aboutit.	5	2.3	46	21.4	39	18.2	31	14.4	94	43.7

Prevalence of Cyberchondria

As shown in Table 2, compulsion, the first domain, assesses the variables involved in binge online searching where 128 (59.5%) and 80 (37.2%) of the participants were severely and moderately affected by this domain. Distress determines the factors related to anxiety, depression, and deranged sleep pattern. This domain affected 123 (57.2%) of participants severely and 87 (40.5%) moderately. Excessiveness, the third domain evaluates the factors related to repeated internet searches. This domain had a severe impact on 157 (73%) of

participants and moderate impact on 58 (27.0%). Reassurance determines the parameters linked with the need for a clinician’s consultation and assurance. This domain affected 169 (78.6%) of participants moderately and 40 (18.6%) severely. The fifth domain, mistrust measures the belief in the clinician’s diagnosis and following their treatment protocol. This domain affected 91 (42.3%) of participants moderately and 74 (34.4%) severely. The obtained mean value score was 29.57. Based on it, it was determined that 101 (47.0%) of the participants had cyberchondria.

Table 2: Distribution of the participants according to the constructs and subgroup scores.

Constructs	Frequency (N)	Percentage (%)	Affected percentage	Prevalence of Cyberchondria
Compulsion	not affected	7	3.3	The obtained mean value score: 29.57
	moderately affected	80	37.2	
	severely affected	128	59.5	
Distress	not affected	5	2.3	97.7
	moderately affected	87	40.5	
	severely affected	123	57.2	
Excessiveness	not affected	0	0.0	100
	moderately affected	58	27	
	severely affected	157	73	
Reassurance	not affected	6	2.8	97.2
	moderately affected	169	78.6	
	severely affected	40	18.6	
Mistrust	severely affected	74	34.4	65.6
	moderately affected	91	42.3	
	not affected	50	23.3	
				Not affected: 114 (53.0%)

Factors associated with cyberchondria

Table 3 reveals all of the respondents who had been affected with cyberchondria had access to the internet. The majority of the 199 (92.6%) respondents who had

cyberchondria utilized smartphones to access the internet, while only 69 (32.1%) used laptops. Most of respondents 134 (62.3%) used the internet daily, with 115 (54.0%) using it for fewer than six hours a day and

99 (46.0%) using it for longer than six. Also, 164 (76.3%) respondents used the internet for more than an hour at night. Most 205 (95.3%) respondents had looked for symptoms when looking for health information online, followed by disease 174 (80.9%), treatment/procedure 173 (80.5%), and health insurance 35 (16.3%). Regarding the reasons for seeking out health information, the majority of respondents 168 (78.1%) did

so out of interest or knowledge, followed by 148 (68.8%) who did so after hearing or seeing something in the news, 143 (66.5%) who did so while managing an ongoing medical condition, and 131 (60.9%) who did so after receiving a new medical diagnosis. The majority of respondents, 163 (75.6%), used health portals, whereas only 26 (12.1%) used blogs.

Table 3: Distribution of factors associated with cyberchondria.

Variables		Frequency	Percentage
Internet access	Yes	215	100.0
	no	0	0.0
Gadgets use to access internet (<i>Multiple response allowed</i>)	Desktop computer	13	6.0
	Tablet	21	9.8
	Laptop	121	56.3
	Smartphone	199	92.6
How often used internet	once a month or less	0	0.0
	once a week	1	0.5
	several times a week	1	0.5
	several times a day	79	36.7
	everyday	134	62.3
Duration of use of internet per day	less than 6 hours	116	54.0
	more than 6 hours	99	46.0
Duration of use of internet during night	less than 1 hour	51	23.7
	more than 1 hour	164	76.3
Kind of health information searched in internet (<i>Multiple response allowed</i>)	Symptom	205	95.3
	Disease	174	80.9
	Service info	90	41.9
	Medication	150	69.8
	Test/Investigation	123	57.2
	Treatment/Procedure	173	80.5
	Alternative medicine	98	45.6
	Vitamins and Supplements	98	45.6
	Health Insurance	35	16.3
	Healthy Behavior	140	65.1
Reason for search for health related information (<i>Multiple response allowed</i>)	Noticing new symptoms	153	71.2
	Finding/selecting a doctor or health care facility	68	31.6
	Preparing for a doctor's consultation	108	50.2
	Being diagnosed with a new medical condition	131	60.9
	Being prescribed with a new medication, test or treatment	116	54.0
	Dealing with an ongoing medical condition	143	66.5
	Hearing or seeing something in news	148	68.8
	For knowledge or curiosity	168	78.1
On which online source/s do you find the health information (<i>Multiple response allowed</i>)	University	86	40.0
	Online encyclopedia	129	60.0
	Social media	135	62.8
	Health Portal (medical encyclopaedias, such as MIMS, PubMed, Medline Plus, and WebMD)	163	75.8
Previous or existing illness	Hospital/Clinic	137	63.7
	News site	75	34.9
	Blog	26	12.1
	Themselves	191	88.8
	Family Members	189	87.9

Respondent's socio-demographic factors associated with the prevalence of cyberchondria

Bivariate analysis was used to evaluate the relationship

between the prevalence of cyberchondria (dependent variables) and socio-demographic variables (independent variables). Among all the sociodemographic factors

studied, gender and course of education showed statistically significant association with the prevalence of cyberchondria. A total of 81 (43.3%) of female students were 1.64 times more likely to have cyberchondria as compared to those male and it was statistically significant ($\chi^2=7.72$; OR= 1.64; CI=1.23-2.19; $p=0.008$).

Those students who were studying in bachelor in public health and bachelor in pharmacy courses were 2.39 times more likely as compared to those in bachelor in nursing courses to have cyberchondria and it was significant ($\chi^2=27.23$; OR= 2.39; CI=1.64-3.49; $p<0.001$).

Table 4: Socio-demographic factors associated with prevalence of cyberchondria (n=215).

Demographic variables	Category	Had cyberchondria N (%)	Had cyberchondria N (%)	Total	χ^2	P-Value	OR (95% CI)
Age (in years)	≤18 to 20	9 (4.2)	10 (4.7)	19	0.00	1.000	1.00 (0.61-1.65)
	21 to 23 and above	92 (42.8)	104 (48.4)	196			
Gender	Male	20 (71.4)	8 (28.6)	28	7.72	0.008*	1.64(1.23-2.19)
	Female	81 (43.3)	106 (56.7)	187			
Educational level of mother	Cannot read & write to up to secondary	70 (46.4)	81 (53.6)	151	0.78	0.881	0.97 (0.70-1.29)
	Higher secondary & above	31 (48.4)	33 (51.6)	64			
Educational level of father	Cannot read & write to up to secondary	44 (40.4)	65 (59.6)	109	3.87	0.056	1.29 (0.99-1.66)
	Higher secondary & above	57 (53.8)	49 (46.2)	106			
Monthly income (in rupees)	≤ 10,000 to 20,000	10 (40.0)	15 (60.0)	25	0.55	0.526	0.83 (0.50-1.38)
	21,000 to 30,000 & above	91 (47.9)	99 (52.1)	190			
Course of education	BPH and B. Pharmacy	78 (61.9)	48 (38.1)	126	27.23	0.001*	2.39 (1.64-3.49)
	Bachelor in Nursing	23 (25.8)	66 (74.2)	89			

DISCUSSION

In this study, the researcher examined the prevalence of cyberchondria, its associating factors and the relationship between the prevalence of cyberchondria and respondents' sociodemographic characteristics. The prevalence of cyberchondria among the undergraduates' health sciences students was 47.0%. Cyberchondria afflicted all of the individuals with at least one of the five domains. The majority of participants were impacted by excessiveness, which was followed by distress (976%), reassurance (97.2%), compulsion (96.7%), and mistrust (65.5%). Several studies suggested that the outcomes of numerous investigations with the domains in the Cyberchondria Severity Scale justified the cyberchondria in health science students.^[7,8,9,10] The prevalence of cyberchondria among undergraduate health sciences students was found to be significantly associated with their sociodemographic characteristics, including gender and course of education. Compared to male students, female students had a higher rate (1.64 times more) of cyberchondria. The outcome also shows that students enrolled in bachelor's programs in public health and pharmacy were 2.39 times more likely to develop cyberchondria. The findings of this study are similar with those of previous studies in that sociodemographic variables like age and education have an impact on the prevalence of cyberchondria.^[11,12]

When accessing the factors associated with cyberchondria, the majority of respondents (92.6%) utilized smartphones, laptops, and 62.3% used the internet daily, with 46.0% using it for more than six hours a day. The majority of respondents sought information through using health portals and looking up disease symptoms. Similar to previous studies that indicated excessive online health information searching, using smartphones and other gadgets for extended periods of time online has the potential to spread dangers among students and may even cause cyberchondria. The total CSS score and previously known illnesses also had a very strong positive association.^[13,14] The study's main limitation is that only one of the colleges was included, and the sample was purposively chosen. Respondents who were studying in bachelor of health sciences courses only included in the study and the sample size was relatively small. It shows that there could not be much generalizability to other research fields that are similar.

CONCLUSION

This study concluded that the prevalence of cyberchondria was 47.0%. Cyberchondria was highly correlated with respondents' socio-demographic variables including age and course of education. The factors affecting cyberchondria included using smartphones and laptops to access the internet, as well as daily internet

usage of more than six hours and more than an hour at night. Other factors included looking for health information after hearing or seeing something in the news, while managing an ongoing medical condition, and after receiving a new medical diagnosis. Health professionals should be involved in the development, dissemination and evaluation of web-based health, and medical information. But by just raising awareness and assisting people in recognizing this issue, we can lessen the impact it has on them. It is necessary to address the literature on the prevalence of cyberchondria; additional investigation would empirically evaluate the scope and make a determination of cyberchondria.

REFERENCES

1. Rowe S and Lawrenze L. Cyberchondria-similar to hypochondria-is when searching the internet for medical information leads to extreme health anxiety, 2021. (Online) Available at: <https://psychcentral.com/anxiety/cyberchondria>
2. Aulia, A., Marchira, C.R., Supriyanto, I., & Pratiti, B. Cyberchondria in First Year Medical Students of Yogyakarta. *Journal of Consumer Health on the Internet*, 2020; 24: 1 - 9.
3. Kemp S. Digital, 2022. July Global Statshot report. (Online). Available at: <https://datareportal.com/reports/digital-2022-july-global-statshot>
4. Turkistan et al. The prevalence of cyberchondria and the impact of social media among the students in Taif University International Journal of Medicine in Developing Countries, 2020; 4(11): 1759–65.
5. Kanganolli SR, Kumar NP. A cross sectional study on prevalence of cyberchondria and factors influencing it among undergraduate students. *Int J Med Sci Public Health*, 2020; 9(4): 263-266.
6. Bati AH, Mandiracioglu A, Govsa F, Çam O. Health anxiety and cyberchondria among Ege University health science students. *Nurse Education Today*, 2018; 71: 169-173.
7. Shailaja B, Shetty V, Chaudhury S and Thyloth M. Exploring cyberchondria and its associations in dental students amid COVID-19 infodemic. *Indian Psychiatric Journal*, 2020; 257-267.
8. Mrayyan MT, Al-Atiyyat N, Abu Khait A, Al-Rawashdeh S, Algunmeeyn A, Abunab HY. Does cyberchondria predict Internet addiction among students during the COVID-19 pandemic? A web-based survey study. *Nurs Forum*, 2022; 57(3): 337-343.
9. Dagar D, Kakodkar P, Shetiya SH. Evaluating the Cyberchondria Construct Among Computer Engineering Students in Pune (India) Using Cyberchondria Severity Scale (CSS-15). *Indian J Occup Environ Med*. 2019; 23(3): 117-120.
10. Kurcer MA, Erdogan Z, Cakir Kardes V. The effect of the COVID-19 pandemic on health anxiety and cyberchondria levels of university students. *Perspect Psychiatr Care*. 2022; 58(1): 132-140.
11. Köse S, Murat M. Examination of the relationship between smartphone addiction and cyberchondria in adolescents. *Arch Psychiatr Nurs*, 2021; 35(6): 563-570.
12. Santi NS, Sahoo JP. Cyberchondria in medical students: An observational study. *Natl J Physiol Pharm Pharmacol* 2023; 13(01): 82-84.
13. Makarla S, Gopichandran V, Tondare D. Prevalence and correlates of cyberchondria among professionals working in the information technology sector in Chennai, India: A cross-sectional study. *J Postgrad Med*, 2019; 65(2): 87-92.
14. Gandla SD, Dayala PP, Kadiyala PK. Cyberchondria: An emerging form of health anxiety. *Arch Ment Health*, 2021; 22: 148-52.