Online Medical Information Seeking in the context of THE CYBERCHONDRIA: A Validated Questionnaire Study with Health Sciences Students

Health Science

Pınar Pektekin	Bahçeşehir University Health Sciences Faculty Management of Health Department
Hasan Kerem Alptekin	Bahçeşehir University Health Sciences Faculty Physiotherapy and Rehabilitation Department, Corresponding author
Orhan Babuccu	Memorial Şişli Hospital Plastic and Reconstructive Surgery Department

ABSTRACT

Cyberchondria can be defined as a disease in which individuals make research and diagnose themselves by using information technology in relation to their level of anxiety and concern about their health status. They even convert these symptoms to diagnosis, even without consulting a doctor, and they are able to search for therapeutic methods of these diseases and apply therapeutic methods. In this study, cyberchondria research was conducted on health sciences students. Students participating in the study are nursing, physiotherapy and rehabilitation, nutrition and dietetics, child development, health management departments of health sciences faculty and vocational college students in health services. The scale for the research was developed by researchers. A total of 439 students completed the questionnaire with validity / reliability analysis and pilot study. The collected questionnaires were subjected to factor analysis and other analyzes in the SPSS program and the results were presented. It was added to the discussion in terms of publications to shed light on future work.

KEYWORDS:

Cyberchondria , PychometricProperties, HealthInformatics, Healthanxiety, Onlinemedicalsearch

1. INTRODUCTION

Online medical information seeking has become an increasingly common behavior1,5. When the literature is examined, the spread of internet usage and the saving of time and space, it is seen that individuals have done many works through internet. With the increase of internet access by individuals, searching for information about diseases on the internet has become a common behavior. Individuals are making their own diagnosis by searching the search engines for what they think they are. Individuals diagnose these symptoms that they find themselves without even seeing a doctor, investigate treatment methods for these diseases, and apply therapeutic methods without special supervision. The term "cyberchondria" is derived from the terms cyber and hypochondria. Cyberchondria is a disease search disease on the internet. Cyberchondri are refers to an increase in anxiety about one's own health status, as a result of excessive reviews of online health information2. With the virtual self-confidence on the internet, people are able to make recommendations on medicines and treatments for people who think they have similar illnesses and symptoms but not just diagnose themselves. Given its associated distress and potential economic costs, it is important to beter understand cyberchondria. To achieve this goal, it is of course necessary to develop valid assessment tools. Today cyberchondria has primarily been assessed using single-items, such as whether individuals experience greater health anxiety as a result of internet searches for medical information3. In this study, the health status of students of health sciences and their cyberchondria levels were investigated and the results were discussed under the light of the studies in the literature.

2. RESEARCH

In this section, the purpose, scope, population of the research, preparation of the data collection tools, analyzes and results used to evaluate the results are given.

2.1. Purpose and Scope of the Study

The research is a quantitative study to examine the different components of the cyberchondrian made with health sciences students. Within the framework of this basic objective, the health evaluation in the research, using the internet for diagnosis and treatment, proposing the disease and treatment experiences to the environment, importance given to health and health care factors are examined separately and in relation to each other.

2.2. Population and Sample of the Study

The general population of the study is university students and the study sample is health sciences (associate degree / undergraduate / graduate / doctorate) students. In order to reach the target aimed in the research, the study was applied simultaneously so that the students in the same department are not affected by each other.

The permission was obtained from the relevant authorities for the research and the questionnaire application process was completed within 1 month. The total of the questionnaire survey reached 439 participants. Questionnaires were individually checked for responses to clarifications, and unanswered or incorrectly filled surveys were excluded from the evaluation. A total of 439 questionnaires were answered and evaluated appropriately and thoroughly for the research analysis. In the first stage of the study, it is aimed to examine the mutual relations between the variables and the factor analysis, to present the variables in a more meaningful and concise manner. A reliability analysis was then conducted to calculate the reliability of each factor derived from the factor analysis.

2.3. Preparation of Data Collection Tools

Studies conducted in the field during the questionnaire development process were examined and the related literature was searched. Survey form developed by researchers was used in data collection tool. As a result of the pilot study, a total of 72 questionnaires were prepared in demographic and likert form.

2.3.1. Pilot Study

Reliability analysis was applied to the first 40 questionnaires in the study and the questionnaire application process was continued with the high reliability of the questionnaire (Cronbach's Alpha = 0.860). The validity and reliability analysis results are shown in the following tables.

- **Reliability Analysis**

Reliability, which indicates the consistency of a measure, is often treated as external and internal reliability. External reliability refers to the degree of consistency of a measure of time. Internal reliability (consistency) is particularly important for multi-item scales. Internal consistency deals with whether each scale question measures the same idea and whether there is an internal consistency of the items in the measure.

Reliability analysis measures the internal consistency between items on a scale and provides information about the relationships between these items. The confidence factor is between 0 and 1. The most commonly used internal reliability index for question groups is Cronbach Alpha. This index measures the internal consistency of the variables in a measure based on the average correlation between the variables. If the Cronbach Alpha value is between 0,60 and 0,80, the scale is highly reliable, and if it is between 0,80 and 1,00, the scale is highly reliable4. The questionnaire used in this study was found to be highly reliable.

2.3.2. Analysis and Interpretation of Data

Data from the data collection tool filled by the participants was transferred to the SPSS (Statistical Packages for SocialSciences) package program. In the first stage of the study with the help of the program, it is aimed to examine the mutual relations between the variables by carrying out factor analysis and to present the variables in a more meaningful and concise manner. Reliability analysis was then used to calculate the reliability of each factor derived from factor analysis.

3. Research Findings
The analysis and findings of the questionnaire data will be explained in detail in this section.

3.1. Identified Findings
In this section, the demographic information obtained from the questionnaire applied in the study will be presented. In the presentation, pie and column graphs were used to show the distribution of the answers given to the questions in the demographic information section of the questionnaire.

There was no significant relationship between the frequency of using the Internet and the cyberchondria. The findings of this research are in contradiction with the findings that especially the use of internet is a risk in the literature. However, cyberchondria interpreted as the expected finding that it is related to the frequency of internet use since it is defined as a discomfort associated with illness and anxiety. In addition, although there was no significant relationship between cyberchondria and the use of social media accounts (facebook, twitter, instagram etc.), there was a significant relationship with utilization of the forums included in the questionnaire.

3.2. Analysis Findings
• **Factor Analysis**
In this study, it is aimed to apply the factor analysis to present the variables discussed for each section in the questionnaire in a more meaningful and concise manner, to make the variables that are the same or to measure the quality of the variables gathered together with a few factors. Reliability analysis also aims to measure the internal consistency between the items in each factor. After these analyzes, for the analyzes to be applied in testing the research hypotheses mentioned in the previous section, the factors or factors that represent those variables will be used instead of the variables in each section in the questionnaire.
1- Questions 12, 13, 14, 16, 17, 18, 19, 20 are given under the health assessment (SD) factor.
2- Questions 3, 4, 5, 6, 9 are given under the using the internet for diagnostic treatment (IT) factor.
3- Questions 8, 10, 11 are given under the point of presenting the disease and treatment experiences to the environment (HT) factor.
4- Question 1 and Question 2 are given under the importance (SO) factor of health.
5- Question 7 and question 15 are given under the health care (SK) factor.

Internal consistency analysis of factors
When the internal consistency results of the factors are considered, it can be said that there is a relation between health evaluation, internet usage for diagnosis and treatment, and factors for proposing environment and treatment experience to both factors, when considering health and anxiety factors separately. When the factors of health assessment and the factors of giving disease and treatment experiences to the environment were examined separately, it was found that factors were related to all other factors.

Those who use the Internet for diagnosis and treatment can be said to be prone to sharing and suggesting their disease and treatment experiences with the surrounding individuals. There is also a relationship between the importance of these individuals to their health and the use of the internet in assessing health.

Relational values between cyberchondria and the complaints that individuals think existed were found as follows. In this context, there is a relation between individuals' cyberchondria levels and individuals who are looking for pressure, image, dizziness sub-materials.

In another relational analysis made, between aesthetic concern and cyberchondria. This finding can be interpreted that individuals with aesthetic concerns are tend to cyberchondria. It is possible to talk positively about the relationship between the two variables since the total score of the cyberchondria increases when the aesthetic concern increases.

When we look at the relationship between aesthetics and dizziness, nasal obstruction, oral and dental health, tonsils and voice problems, it has been shown that cyberchondrian can be triggered not only from health but also from internet searches for aesthetic purposes.

RESULTS
The aims of the study were revealed by research. Participants differed according to demographic findings in order to benefit from information technology. Among the participants, 50% of the respondents who thought that there was no inconvenience in diagnosing themselves via the internet was found. Among the participants, 50% of those who did not inconvenience to find and use drugs over the internet were found.

The percentage of participants who thought that they could evaluate the laboratory / test results on the internet without the help of an expert was found to be 51%. The proportion of participants who thought that they could apply the treatments on the Internet on their own was found to be 49.4%.

As the attitude scores for the use of Information Technologies increased, there was no correlation between the increase in participants' cyberchondrial values. Today, accessibility to information technology has increased. In this context, the increase in the use of the internet also affects the lives of the individuals. Individuals who care about protecting their health also use internet technologies to investigate their own complaints. All information shared on the Internet is not correctness and validated. However, it appears that individuals tend to rely on the experiences of individuals who share the same complaints with themselves. The proportion of individuals who do not mind trying medicines and health practices on themselves that they have already used and benefited from the people they meet on the internet should not be underestimated. It should be considered that the results of diagnostic and treatment methods applied without of a health care provider or physician may lead to greater problems.

DISCUSSION
Although the results of the study can be generalized, the findings of the studies in the international literature are overlapping. In terms of being able to put the situation into practice, 439 people have sufficient number of participants. The study population was selected as a student of the faculty of health sciences.

The consequences of students who will be health professionals in the future to declare their ideas about the subject may result in different outcomes when studies are conducted on the students of other faculties.

When the study was planned, the answers given to the established hypotheses were clearly revealed. There was no significant relationship between the frequency of social media use and the rate of cyberchondria. However, it has been shown that there is a significant relationship between the complaints that individuals claiming to have similar complaints exist at the same time. As one of the sub-outcomes of the study, it was seen that there were aesthetic concerns in addition to health complaints in the researches about the individuals' health. It may be possible to clarify the ratio of cyberchondria status and aesthetic concerns when the study is carried out by keeping the study population wider. Studies should be made to increase the level of awareness of health issues in the community. It should not be forgotten that one of the stones that form the basis of the information society is a conscious individual. The scale established in the study is a valid and reliable measure. It will be shed light literature to be used in future studies.

ReliabilityStatistics	
Cronbach's Alpha	N of Items
,860	20

Table 1: Survey for Pilot 40 participants Reliability Analysis Results

Correlations

		CYBERCHONDRİA	INTERNET INPUT FREQUENCY	RESEARCHERS ON THE İNTERNET	INTERNET RESEARCHER'S INTERESTS
CYBERCHONDRIA	PearsonCorrelation	1	,047	,053	,013
	Sig. (2-tailed)		,327	,272	,791
	N	439	439	439	439
INTERNET INPUT FREQUENCY	PearsonCorrelation	,047	1	,088	,043
	Sig. (2-tailed)	,327		,066	,369
	N	439	439	439	439
RESEARCHERS ON THE İNTERNET	PearsonCorrelation	,053	,088	1	,036
	Sig. (2-tailed)	,272	,066		,453
	N	439	439	439	439
INTERNET RESEARCHER'S INTERESTS	PearsonCorrelation	,013	,043	,036	1
	Sig. (2-tailed)	,791	,369	,453	
	N	439	439	439	439

Table 2: Distribution of the answers for the demographic information section of the questionnaire

Correlations			
		cyber	SOCIAL EDIA COMMUNITIES
Cyber	PearsonCorrelation	1	-,048
	Sig. (2-tailed)		,319
	N	439	439
SOCIAL MEDIA COMMUNITIES	PearsonCorrelation	-,048	1
	Sig. (2-tailed)	,319	
	N	439	439

Table 3: Correlations between cyberchondria&social media communities

Correlations						
		SK	SÖ	SD	IT	HT
SK	PearsonCorrelation	1	,093	,296**	,296**	,310**
	Sig. (2-tailed)		,051	,000	,000	,000
	N	439	439	439	439	439
SÖ	PearsonCorrelation	,093	1	-,183**	,091	-,142*
	Sig. (2-tailed)	,051		,000	,056	,003
	N	439	439	439	439	439
SD	PearsonCorrelation	,296**	-,183**	1	,392**	,583**
	Sig. (2-tailed)	,000	,000		,000	,000
	N	439	439	439	439	439
IT	PearsonCorrelation	,296**	,091	,392**	1	,389**
	Sig. (2-tailed)	,000	,056	,000		,000
	N	439	439	439	439	439
HT	PearsonCorrelation	,310**	-,142**	,583**	,389**	1
	Sig. (2-tailed)	,000	,003	,000	,000	
	N	439	439	439	439	439
**. Correlation is significant at the 0.01 level (2-tailed).						

Table 4: Correlations of internal consistency analysis of factors

Correlations					
		PRESSURE OF THE HEAD	IMEGINE	DIZZINESS	AESTHETIC
cyber	PearsonCorrelation	,119***	,122**	,142***	,116**
	Sig. (2-tailed)	,013	,011	,003	,015
	N	439	439	439	439

Table 5: Correlations of cyberchondria levels and individuals who are looking for pressure, image, dizziness sub-materials.

Correlations							
		cyber	DIZZINESS	NASAL OBS	ORAL	TONSİLS	VOİCE
AESTHETIC	PearsonCorrelation	,116**	,101**	,117**	,137**	,138**	,094**
	Sig. (2-tailed)	,015	,035	,015	,004	,004	,049
	N	439	439	439	439	439	439
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							

Table 6: Correlations of between aesthetics and dizziness, nasal obstruction, oral and dental health, tonsils and voice problems

REFERENCES

1. Aaron M. Norr , Brian J. Albanese , Mary E. Oglesby , Nicholas P. Allan , Norman B. Schmidt"Anxietysensitivityandintolerance of uncertainty as potential risk factorsforcyberchondria",Journal of AffectiveDisorders, Volume 174, 15 March 2015, Pages 64–69
2. EoinMcElroy, Mark Shevlin, "Thedevelopmentandinitialvalidation of thecyberchondriaseverityscale (CSS)",Journal of AnxietyDisorders,Volume 28, Issue 2, March 2014, Pages 259–265
3. Thomas A. Fergus,"TheCyberchondriaSeverityScale (CSS): An examination of structureandrelationswithhealthanxiety in a communitysample",Journal of AnxietyDisorders, Volume 28, Issue 6, August 2014, Pages 504–510
4. Bayram, N.(2006). Sosyal Bilimlerde SPSS ile Veri Analizi, 2.baskı. İstanbul: Ezgi Kitapevi
5. White Ryen W. &EricHorvitz. Cyberchondria: Studies of theEscalation of MedicalConcerns in Web Search, ACM Transactions on InformatiionSystems, November 2009, Vol 27, No 4, pp: 1-37.
6. LewisTania. (2006). SeekingHealth Information on the Internet: LifestyleChoiceorBad Attack of Cyberchondria?, Media, Culture&Society, 2006, Vol 28, No 4, pp: 521-539.