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PSYCHOSOCIAL DETERMINANTS OF CYBERCHONDIA IN ADULTS

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ABSTRACT

Background: *Cyberchondria, defined as excessive and anxiety-provoking online health information seeking, is a growing concern among young adults. With widespread internet access, understanding its demographic and psychosocial determinants is essential.*

Objectives: *The present study aimed (a) to examine the prevalence of cyberchondria among young adults, (b) to explore its association with psychosocial factors such as gender, age, and education, and (c) to identify the most prevalent subscales of cyberchondria, including excessiveness, distress, reassurance, and compulsion.*

Method: *A cross-sectional design was employed with young adult participants (N = 300). Cyberchondria was assessed using a standardized self-report measure, and demographic data were collected.*

Results: *Findings indicated a moderate prevalence of cyberchondria among young adults. However, demographic variables (gender, age, education, family system, income, relationship status, and residential area) were not significant predictors of cyberchondria. Education showed a small but non-significant positive trend, while individuals with physical health conditions reported slightly higher tendencies toward cyberchondria. Subscale analysis revealed that excessiveness and reassurance were the most prominent features, highlighting patterns of repeated online searching and reliance on reassurance.*

Conclusion: *The results suggest that cyberchondria is not strongly determined by demographic factors but may be more closely linked to psychological vulnerabilities such as anxiety and health-related cognitive patterns. These findings underscore the need for interventions targeting maladaptive information-seeking behaviors rather than demographic subgroups.*

Keywords: *Cyberchondria, young adults, demographics, psychosocial determinants, online health information seeking*

INTRODUCTION

Psychosocial Determinants of Cyberchondria in Young Adults of Pakistan

The digital era has brought widespread availability of health information, transforming how people perceive and manage their physical and mental health. The online resources can raise awareness of physical and mental issues, but they can also foster maladaptive behaviors, especially when people frequently access internet platforms for health information in response to nonspecific symptoms. This behavior, commonly referred to as cyberchondria, refers to frequently engaging with

online resources in seeking health-related information, which paradoxically increases health anxiety rather than resolves it (Starcevic & Berle, 2013). This inclination might turn into an alarming behavior that is characterized by excessive worry, misconceptions of symptoms, and emotional dysregulation among young individuals, who are more addicted to digital platforms and psychologically more reactive (Jungmann & Witthoft, 2020). The psychological literature suggests that several psychosocial determinants, such as elevated anxiety, uneasiness with ambiguity, personality traits, low self-esteem, maladaptive thinking patterns, existing physical ailment or psychological issues, cultural beliefs, excessive use of the internet, health literacy, gender, age, and a propensity for reassurance-seeking are all promote to the maintenance of cyberchondria (Torstrick et al., 2016; McMullan et al.,2019; Muse et al., 2012; Sansakorn et al.,2024).

In Pakistan, young individuals account for a sizeable portion of the population, and they are navigating a changing health environment where access to healthcare information is frequently limited and electronic resources, i.e., health information websites, mobile health apps, and video-based health information like YouTube, etc, covering that gap. Young individuals are exposed to an array of unfiltered health-related information due to the escalating smartphone and fewer barriers to accessing information online (Malik et al.,2023). South Asian studies indicated that when perceived hazards to health and information overload combine with underlying stress, worry, and uneasiness during times of crisis, like the COVID-19 pandemic, young adults are more vulnerable to cyberchondria (Mazumder & RB, 2023). Sabir and Naqvi (2023) found that a significant proportion of university students in Pakistan suffer from moderate to severe cyberchondria, with more than half experiencing moderate severity and 23.8% experiencing severe severity. Women exhibited higher cyberchondria scores than males, particularly those with diagnosed medical issues or who self-diagnosed online.

Literature Review

The review of previous literature provides an understanding of empirical findings pertinent to the current study. Onisczenko (2021) concluded that anxious temperament predicted cyberchondria, indicating a significant relationship where individuals exhibiting elevated anxious temperament are at greater risk of experiencing cyberchondria. Another study revealed that neuroticism is positively associated with health anxiety, indicating that those with higher neuroticism are more susceptible to health-related fears. While health anxiety is negatively related to extraversion, agreeableness, and conscientiousness, suggesting that these factors serve as protective factors (Nikcevic et al., 2021). El-Zayat et al. (2023); Aslantas and Altuntas (2023) revealed a significant positive interrelation between e-health literacy and cyberchondria. Greater e-health literacy was linked to greater cyberchondria, suggesting that those who are better at obtaining and interpreting online health information are more susceptible to experiencing health-related worry and repeatedly searching online health-related information. Another study revealed a weak correlation between e-health literacy and cyberchondria, indicating a complicated interrelation in which enhanced e-health literacy may aid in mitigating anxiety caused by excessive online health searches (Kalantari et al., 2025).

Dogan and Oksas (2025) concluded that men are more susceptible to suffering cyberchondria, possibly due to their anxiety in processing online health information as compared to women. Khan and Pandey (2022) concluded the negative impact of cyberchondria on people's overall well-being, indicating that cyberchondria decreases trust in physicians while increasing the inclination to self-medicate. Khazaal et al. (2021) concluded that excessive online searching for health information predicted cyberchondria, suggesting that those who carry out compulsive searching for health information are at higher risk of experiencing cyberchondria. Another study shed light that old age is strongly linked with increased inclination to perceive health-related disinformation as factual, and endorsing inaccurate health information, thus predicting cyberchondria (Xiang et al., 2023). Abu Khait et al. (2023) found that anxiety sensitivity, hypochondria, and internet addiction were all positive predictors of cyberchondria. Those with increased sensitivity to anxiety, severe health-related fears, and excessive internet use are at higher risk of seeking excessive online information pertaining to health. These interconnected factors promote cyberchondria. Santoro et al. (2022) revealed that individuals with somatic symptoms are more susceptible to experiencing cyberchondria.

Objectives of the Study

- To find out the prevalence of cyberchondria among young adults.
- To find out the association between cyberchondria and psychosocial factors like gender, age, and educational background.
- To find out which subscales, e.g., excessiveness, distress, reassurance, and compulsion are most prevalent among young adults.

Hypotheses of the Study

H1: The degree of intensity of cyberchondria varies significantly by gender (male vs female).

H2: Frequent browsing for health-oriented information is likely to be positively associated with cyberchondria severity.

H3: Psychosocial determinants (e.g., personality traits, health literacy, and gender, etc.) are likely to predict cyberchondria in young adults.

Rationale

The rapid growth of internet access globally, the way people seek and interpret information concerning health has been shifted tremendously. In Pakistan, 111 million users were stated in January 2024, and a 27.1% rise in users since January 2023. This indicates a 45.7% penetration rate. This digital escalation has led to a higher dependence on online health information, frequently due to the lack of accessible or credible healthcare. Because of this, young adults are more susceptible to experiencing cyberchondria. International studies revealed that a significant proportion of internet users, possibly between 40% to 60% experience cyberchondria to varying extents (McMullan et al.,2019), yet statistics from low or middle-income nations such as Pakistan remain significantly underrepresented. Pakistan may be more susceptible to cyberchondria because of low mental health literacy, cultural stigma, and poor healthcare infrastructure. The psychosocial predictors like health anxiety, intolerance for uncertainty, and metacognitive beliefs have been extensively studied in Western Countries (Fergus, 2013; Airoldi et al., 2022), but they are unexplored in Asian Countries like Pakistan. The present study covers a critical gap in cyberpsychology by exploring the psychosocial determinants of cyberchondria in Pakistan, contributing practical implications for culturally sensitive digital health information and public health interventions.

Methodology

Research Design

In the present study, a correlational with cross-sectional research design was employed.

Sample and Sampling Strategy

In this study, a sample size of N=120 young adults with age range 18-30 years, including men and women. The online Google form was used for data collection. The non-probability, particularly purposive sampling, was employed.

Inclusion Criteria

- Young adults with the age range of 18-30.
- Young adults who regularly used internet to obtain information related to health.
- Young adults with a minimum 12 years of formal education to ensure adequate literacy for comprehending the survey.

Exclusion Criteria

- Young adults who refused to participate in the research.
- Young adults with disabilities, including deafness, blindness, and intellectual disability.
- Young adults with any clinically diagnosed physiological illness, like diabetes, hypertension, etc.

Assessment Tool

Demographic Information Sheet

The demographic information sheet was self-made and utilized to gather information from young adults. This will include age, gender, education, and department.

Cyberchondria (McElroy et al., 2019)

A self-report questionnaire was utilized to measure the extent of cyberchondria, which includes behaviors and emotional responses associated with health-related online searches, developed by McElroy et al. It has 4 sub-dimensions, such as excessiveness, distress, reassurance, and compulsion. It consists of 12 items and three items per scale. This is a 5-point Likert scale, i.e., (1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always). The severity of cyberchondria is assessed by adding the responses of all 12 items in the CSS-12, and higher scores indicate greater severity of cyberchondria. The reliability of the cyberchondria scale is 0.9.

Results

The results present descriptive and inferential analyses examining demographic differences and predictors of cyberchondria. Findings are reported according to the study's objectives and hypotheses.

Descriptive Analysis

Table 1

Sample Demographic (N = 300)

Variable	*f*	%	*M*	*SD*
Demographics				
Gender				
Male	120	40.0		
Female	180	60.0		
Age (in years)			24.85	4.62
Education (years)			15.20	2.10
Family Monthly Income (PKR)			85,000	30,500
Family System				
Joint	140	46.7		
Nuclear	160	53.3		
Relationship Status				
Single	190	63.3		
Married	110	36.7		
Residential Area				
Urban	210	70.0		
Rural	90	30.0		
Physical Health Issues				
Yes	95	31.7		
No	205	68.3		
Cyberchondria			48.62	12.54

The sample included 300 participants, where 60% were female and 40% were male. The mean age of the respondents was 24.85 years (SD = 4.62), which means the sample was mainly composed of young adults. On average, participants were educated for 15.20 years (SD = 2.10), thus they can be considered as a relatively well-educated group. The mean family monthly income stood at PKR 85,000 (SD = 30,500), indicating that the participants represented a middle socioeconomic bracket.

With respect to the family system, 46.7% of the participants were from joint families, whereas 53.3% were from nuclear families. As to the relationship status, 63.3% of participants were single, and 36.7% were married. Most participants lived in urban areas (70%), and a smaller number came from rural areas (30%). Moreover, 31.7% of participants declared that they have a physical health issue of some sort, while 68.3% reported zero.

Consequently, the mean score on cyberchondria was 48.62 (SD = 12.54), which indicates a moderate level of the sample's tendency to excessively search for health information online.

Correlation Analysis

Table 2

Person Product Moment correlation Analysis (N = 300)

Variable	1	2	3	4	5	6	7	8	9
1. Cyberchondria	-								

2. Gender	.06	-						
3. Age (years)	-.04	-.02	-					
4. Education (years)	.12*	.09	-.03	-				
5. Family Income	.08	-.05	.02	.15**	-			
6. Family System	-.03	-.01	.10	-.06	.04	-		
7. Relationship Status	-.07	.02	.32**	-.09	.05	.14*	-	
8. Residential Area	.05	.04	.01	.11*	.18**	-.03	.06	-
9. Physical Health Issues	.20**	.03	.05	.07	.02	.01	-.02	-.04

Note. *p < .05, **p < .01.

The correlation analysis showed that cyberchondria was positively correlated with education (r = .12, p < .05) and physical health issues (r = .20, p < .01), indicating that individuals with higher education levels and those with physical health complaints reported greater tendencies toward cyberchondria. No significant associations were observed between cyberchondria and other demographic factors, suggesting that demographic influences on cyberchondria may be limited.

Step-wise Regression Analysis

Table 3

Step-wise Regression Analysis for predictors of cyberchondria (N = 300)

Predictor Variables	*B*	*SE*	*β*	*p*	R^2	ΔR^2
Step 1						
Gender	–0.047	0.241	0.196	.845	.000	
Age (years)	0.007	0.051	0.136	.892		
Step 2						
Education (years)	0.080	0.064	1.257	.209	.001	.001
Family Monthly Income (PKR)	0.000	0.000	0.289	.773		
Step 3						
Family System	–0.045	0.253	–0.177	.860	.002	.001
Relationship Status	–0.047	0.447	–0.105	.917		
Residential Area	–0.047	0.459	–0.103	.918		
Step 4						
Physical Health Issues	–0.216	0.273	–0.790	.430	.004	.002

The data was analyzed using regression techniques to find out how well demographic variables can be used to estimate cyberchondria. The findings revealed that among demographic factors, no single factor was identified to have a significant effect on the occurrence of cyberchondria. The result of the regression shows that gender, age, family system, family monthly income, relationship status, residential area, physical health issues, and education level, none of these were significant predictors of the phenomenon of cyberchondria. Nevertheless, the education level had the highest positive effect among all the variables with a coefficient of determination (B = .080, p = .209), but it was not significant statistically. Correspondingly, physical health issues had a reverse, though nonsignificant, relationship with cyberchondria (B = -.216, p = .430). The results, to a large extent, indicate that demographic factors alone may not be adequate in explaining the phenomenon of cyberchondria, thus suggesting that psychological, cognitive, and behavioral determinants may have a greater impact on individuals' susceptibility to excessive online health searching.

Table 4

Model fit (N = 300)

Model	NPAR	CMIN	AIC	BCC	Minimization	Miscellaneous	Bootstrap
Default model	54	10571.907	10679.907	10683.011	.005	.272	5000

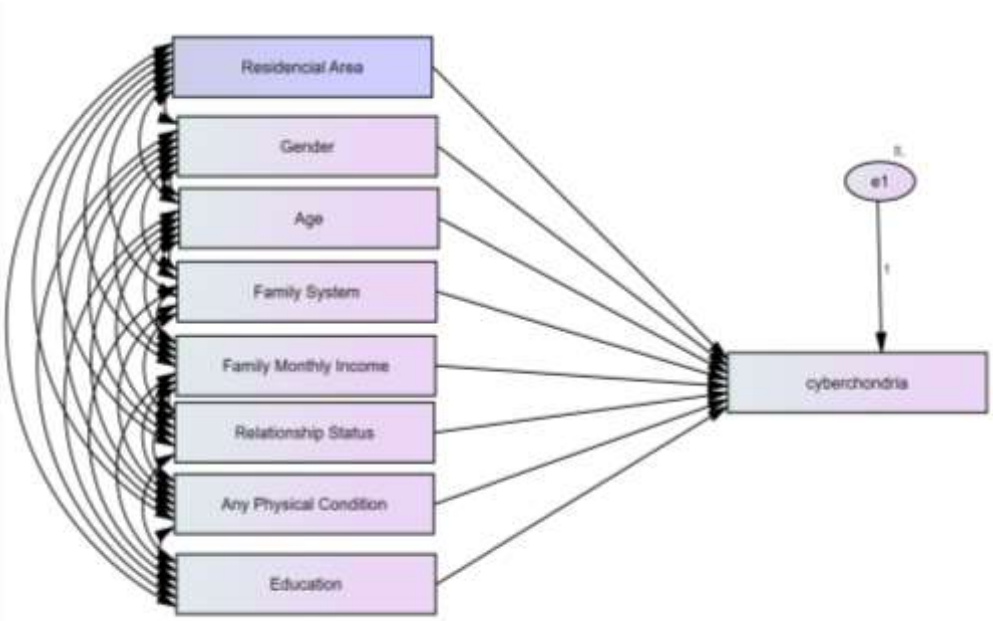
The model converged successfully; however, the high CMIN (10571.907). While minimization (.005) and miscellaneous (.272) were acceptable, the bootstrap (5000) suggests instability. Overall, the model indicated good fit.

Table 5
Covariance based regression (N = 300)

			Estimate	*S.E.*	*C.R.*	*P*
Cyberchondria	<---	Residential Area	-.047	.459	-.103	.918
Cyberchondria	<---	Gender	-.047	.241	-.196	.845
Cyberchondria	<---	Age	.007	.051	.136	.892
Cyberchondria	<---	Family System	-.045	.253	-.177	.860
Cyberchondria	<---	Family Monthly Income	.000	.000	.289	.773
Cyberchondria	<---	Relationship Status	-.047	.447	-.105	.917
Cyberchondria	<---	Physical condition	-.216	.273	-.790	.430
Cyberchondria	<---	Education	.080	.064	1.257	.209

The regression analysis delved into demographic characteristics as potential predictors of cyberchondria. The findings indicated that none of the demographic factors (residential area, gender, age, family system, family income, relationship status, physical condition, and education) were statistically significant to predict cyberchondria, as all p-values were greater than .05 threshold. Out of these, education (β = .080, p = .209) and physical condition (β = –.216, p = .430) were found to have somewhat stronger influences than other predictors, but they lacked statistical significance. Hence, it appears that the degree of cyberchondria is mostly unaffected by demographic variables in the current sample.

Emerged



Discussion

The present research was about the factors of the demographic background which affect different aspects of human life, which also include the gender, age, family system, income, relationship status, physical health, residential area and education and one such aspect is the case of 'cyberchondria'. Unexpectedly, none of these demographical characteristics turned out to be significant factors for the occurrence of cyberchondria. The data seem to suggest that a person's habit of excessively searching for symptom explanations on the internet is not so much a function of their basic demographic profile as it is a reflection of their psychological and behavioral characteristics.

One can draw parallels between previous and the current study results, as the latter also reflect findings by Starcevic and Berle (2013) and Mathes et al. (2018) authors, who advocated that the main source of cyberchondria is not demographic variables but the individual differences in the anxiety, the health-related cognitive biases, and intolerance of uncertainty. Furthermore, the educational variable was positively correlated with cyberchondria on a very mild level although not strong enough to be statistically significant. This may point to the fact that more exposure to education can equip the person with better on-line literacy skills and greater access to medical information, thus becoming more inclined to symptom searching but still, it is not a key factor that affects the direction of the association. On the other hand, people suffering from a physical condition have shown a tendency of being more involved in cyberchondria, albeit this connection also did not meet the criteria of significance which is in line with findings demonstrating that the technology use anxiety disorder may appear among those who are healthy (Baumgartner & Hartmann, 2011).

The absence of significant demographic effects may be explained by the universal accessibility of online health information. Regardless of gender, income, or relationship status, most individuals can engage in health-related searches due to the widespread use of smartphones and internet resources. Furthermore, cultural contexts, particularly in South Asia, may normalize online health information-seeking behaviors across groups, thereby minimizing demographic differences.

Conclusion

Overall, the findings highlight that cyberchondria is not strongly determined by demographic variables. Instead, psychological constructs such as health anxiety, obsessive-compulsive tendencies, and information-processing styles may serve as more critical predictors.

Limitations

The present study relied on a cross-sectional design and self-report measures, which may limit causal inferences. Additionally, the lack of significant findings could be attributed to sample homogeneity in demographics.

Future Directions

Future research should incorporate psychological predictors (e.g., anxiety, intolerance of uncertainty, neuroticism) along with demographic factors to create more comprehensive models of cyberchondria. Longitudinal and experimental designs are also recommended to establish causal links and to evaluate whether interventions targeting cognitive-behavioral processes can mitigate excessive online health searching.

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