

The Moderating Role of Gender in the Relationship between E-health Literacy and Cyberchondria

ABSTRACT

Background and Objectives: This study explores whether gender moderates the link between cyberchondria and e-health literacy, the digital forms of hypochondriasis and health literacy. Observed gender-based differences in health literacy and health information-seeking behaviors, which suggest that gender may influence this relationship, are what spurred the study. Although it has been demonstrated that e-health literacy improves access to health-related information, its effects on cyberchondria remain unclear, especially when gender differences are taken into consideration. This study fills a gap in the literature by examining the under-researched moderating role of gender in this relationship, offering a novel perspective on digital health behaviors.

Materials and Methods: Between March and May 2023, a cross-sectional online survey was conducted in Türkiye using convenience sampling. The study included 316 adults (44.9% men, 55.1% women). Data were collected using the Socio-Demographic Characteristics Form, e-Health Literacy Scale, and Cyberchondria Severity Scale, and analyzed using t-tests, ANOVA, correlation, and moderation analysis.

Results: The study found moderate e-health literacy (mean = 28.59 ± 5.81) and cyberchondria (mean = 32.77 ± 8.53) levels. Gender and marital status significantly affected cyberchondria, with males and married individuals reporting higher severity. A weak positive correlation existed between e-health literacy and cyberchondria ($r = 0.208$, $p < 0.001$). Gender moderated this relationship: higher e-health literacy predicted increased cyberchondria in males ($\beta = 0.600$, $p < 0.001$) but not in females.

Conclusion: This study shows that e-health literacy may increase the risk of cyberchondria, especially among men, who process online health information more anxiously than women, who use more adaptive strategies. Marital status also influences cyberchondria levels, with married individuals having higher levels. These results highlight the need for gender-sensitive digital health initiatives and customized coping approaches. Future research should examine additional factors, such as personality and coping mechanisms.

Paper Type: Research Article

Keywords: Health Literacy, Hypochondriasis, Internet Use, Regression Analysis, Demographics.

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Introduction

In the 20th century, the emergence of the Internet led to rapid advancements in information and communication technologies. This transformation turned our globalized world into a global village, as Marshall McLuhan described (1). During this process, both people and systems underwent significant changes, and traditional media like newspapers, radio, magazines, and television evolved into social media platforms such as YouTube, Facebook, Instagram, and Twitter. The use of technological tools, especially computers and mobile phones, has become essential. As a result, lives have become increasingly digitalized. This shift has not only altered perceptions, behaviors, and expectations but has also prompted the redefinition of many concepts.

The innovations of the digital age have also revolutionized how people access health services and obtain health information. The widespread use of the Internet and the rapid development of digital technologies have made it easier and faster for individuals to find health-related information. For example, research shows a significant increase in online searches for health-related topics. According to Turk Stat's 2019 survey on "Personal purposes of internet users," 65.9% of men and 73.2% of women search for health-related information online. Overall, 69.3% of internet users seek health-related information, highlighting the Internet's role as a valuable source of medical knowledge. This is because it provides equal opportunities for modern individuals to access the information they need quickly and easily (2).

The digital revolution has transformed how individuals access health information, offering unprecedented convenience through online platforms. However, this ease of access has introduced challenges, such as cyberchondria, a condition marked by heightened health anxiety due to excessive online health searches (3-5). While digital tools empower users, they also create vulnerabilities, particularly when individuals struggle to navigate the overwhelming volume of health-related content. E-health literacy, defined as the ability to find, evaluate, and apply electronic health information effectively (6, 7), serves as a key factor in mitigating risks like cyberchondria. Higher e-health literacy enables individuals to discern credible sources, reducing the likelihood of misinterpretation and anxiety (8-10). Yet, the relationship between e-health literacy and cyberchondria is not straightforward and may vary depending on individual characteristics such as gender, which can shape how people use and react to online health information.

Research has regularly shown gender differences in health practices. Women seek health information more actively (11-15) and are more health-literate (14, 16-18). Women are socialized to emphasize health management (19-21), which may explain these discrepancies. The impact of these activities on digital health anxiety is unclear. Women's frequent health information use shows awareness, but new data disagree. Research by Şahan and Kaçmaz found that males had greater levels of health anxiety and cyberchondria, possibly due to increased health risk awareness or less adaptive coping techniques (22). This suggests that gender

may play a critical role in the development of cyberchondria, as men and women use digital health information differently and adopt distinct coping strategies. Understanding these differences is vital for designing effective digital health interventions.

Women who use adaptive strategies like critically analyzing health information and looking for social support control health uncertainty (23, 24). These techniques might guard against cyberchondria. Studies show that women use community health management, which corresponds with gender-oriented coping strategies stressing connection and teamwork. Men, on the other hand, value autonomy when it comes to health concerns, which may influence outcomes (25, 26). When men encounter contradicting health information, they may experience anxiety that results in either maladaptive behavior or too much searching (22). These gendered coping strategies could influence how e-health literacy influences cyberchondria across sexes.

Understanding how gender dynamics and demographic characteristics shape responses to digital health content is crucial in today's technology-driven healthcare landscape. The findings of this study can guide policymakers, educators, and healthcare providers in developing gender-sensitive digital health literacy programs and in reducing online health-related anxiety.

Based on these findings, this study examines how gender moderates e-health literacy and cyberchondria. Our hypothesis is that e-health literacy may be more positively associated with cyberchondria severity in men. Their dependence on independent coping skills may make it less helpful in

handling anxiety caused by ambiguous health information. Critically assessing internet health material and seeking social support may safeguard women.

As part of this study, one of our key objectives is to determine the levels of e-health literacy and cyberchondria, while also examining whether these levels are influenced by demographic variables such as age, marital status, and educational background. By understanding these dynamics, our research seeks to influence targeted health literacy initiatives, digital policy reforms, and health misinformation anxiety reduction strategies, particularly in the context of gendered interactions.

Understanding these trends, including the role of demographic variables and gender-specific reactions, helps prevent cyberchondria and improve digital health outcomes for everyone. Academic research and practical applications depend on a nuanced understanding of how different groups interact with digital health information. Our work advances health behavior theories and informs public health interventions by addressing these complexities. Ultimately, we aim to bridge the gap between digital health innovations and equal, anxiety-free access to health resources for all individuals.

Materials and Methods

Study design

This study was designed as cross-sectional research conducted online via Google Forms. The study targeted adults aged 18–64 living in Türkiye who had access to online platforms. Convenience sampling was used for participant recruitment. Invitations were distributed through social media platforms

(Facebook, Twitter, Instagram), online forums, and mailing lists. The study announcement included a brief description of the research objectives, eligibility criteria, and a direct link to the survey.

Participants

An a-priori power analysis was performed using G*Power version 3.1.9.7 to calculate the necessary sample size for the moderation analysis. The required sample size was 316 ($f^2 = 0.025$, $\alpha = 0.05$, power = 0.80), following (27, 28). Participants were eligible if they volunteered, resided in Türkiye, and were aged between 18 and 64 years. Before accessing the survey, participants read an informed consent statement detailing the study's purpose, procedures, and confidentiality measures. Participation was voluntary, and consent was indicated by proceeding with the survey. Data collection occurred between March and May 2023, resulting in 316 completed responses.

Data Collection Tools

Data were collected using the Socio-Demographic Characteristics Form, the e-Health Literacy Scale, and the Cyberchondria Severity Scale.

Socio-Demographic Characteristics Form

This form included four items designed by the researchers. It gathered information on participants' gender, age, marital status, and educational background.

E-Health Literacy Scale

The "e-Health Literacy Scale," originally developed by Norman and Skinner in 2006 (7), was adapted into Turkish and validated as a reliable tool (29-31). In this study, the scale used was confirmed to have a one-dimensional structure through Confirmatory Factor Analysis (CFA) with acceptable fit

indices (KMO = 0.860, Bartlett's Test $p < 0.05$). The scale demonstrated high internal consistency (Cronbach's Alpha = 0.915) and strong test-retest reliability ($r = 0.886$) (30).

The scale comprises eight items rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), with scores ranging from 8 to 40. A higher score indicates greater e-health literacy. In this study, Cronbach's Alpha was 0.90. Additionally, two independent items on internet use were included but not scored.

Cyberchondria Severity Scale

McElroy et al.'s (2019) (32) CSS-12 scale has been validated for reliability across cultures. The Turkish version, adapted by Söyler et al. (2021) (33), underwent rigorous validation, including construct, content, and criterion validity. Confirmatory Factor Analysis (CFA) supported its four-factor structure ($\chi^2/df = 2.266$, GFI = 0.864, AGFI = 0.875, CFI = 0.905, NFI = 0.852, RMSEA = 0.078). The scale demonstrated high internal consistency (Cronbach's Alpha = 0.862) and strong temporal stability (test-retest $r = 0.865$, $p < 0.05$), confirming its reliability for assessing cyberchondria in Turkish-speaking individuals.

The CSS-12 consists of 12 statements across four sub-dimensions—excessiveness, distress, reassurance, and compulsion—rated on a 5-point Likert scale (1 = never, 5 = always). Total scores range from 12 to 60, with higher scores indicating greater cyberchondria severity. In this study, the scale demonstrated strong internal consistency (Cronbach's Alpha = 0.86). The CSS-12 was selected for its robust psychometric properties, validated Turkish version, and comprehensive assessment of cyberchondria.

No predefined and standardized cut-off points exist for categorizing e-health literacy and cyberchondria levels. Instead, scores are interpreted using distribution-based statistical methods, such as percentile-based categorization and referencing the sample mean and standard deviations, as employed in previous similar studies where standardized thresholds were unavailable (9, 34-38).

Statistical Analysis

Data analysis was conducted using SPSS version 21.0. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize the data. The independent t-test was employed to compare e-health literacy and cyberchondria scores by gender and marital status. A one-way ANOVA was conducted to compare e-health literacy and cyberchondria scores across different age groups and educational levels. Pearson correlation analysis was used to assess the relationship between e-health literacy and cyberchondria. Moderation analysis was performed using Hayes' PROCESS macro.

Before conducting statistical tests, assumption checks were performed. Normality was evaluated using skewness and kurtosis values, which were found to be within the acceptable range of -1 to +1, indicating a normal distribution. To examine whether there is multicollinearity among the independent variables in the regression analysis, Tolerance and Variance Inflation Factor (VIF) values were calculated. Since there could be a high correlation between the interaction term and the independent variable (39) the independent variable was mean-centered, and then the interaction

term was created. VIF was calculated using these mean-centered variables in the regression analysis, and it was concluded that there was no issue of multicollinearity.

Results

As shown in Table 1, 50.9% of participants were aged 18-29, 55.1% were female, 61.1% were single, with education levels ranging from primary school graduates (10.1%) to doctoral degree holders (10.1%), including secondary (17.1%), associate (12%), bachelor's (38.3%), and master's degree graduates (12.3%).

Table 1. Participants' socio-demographic characteristics

Variables		N	%
Gender	Female	174	55.1
	Male	142	44.9
Marital status	Single	193	61.1
	Married	123	38.9
Age	18-29	161	50.9
	30-39	99	31.3
	40-49	43	13.6
	50 +	13	4.1
Education	Primary education	32	10.1
	Secondary education	54	17.1
	Associate degree	38	12
	Bachelor's degree	121	38.3
	Master's degree	39	12.3
	Doctoral degree	32	10.1

As demonstrated in Table 2, the mean score for e-health literacy was 28.6 ± 5.8 , the mean score for cyberchondria was 32.8 ± 8.5 , while excessiveness, a sub-dimension of cyberchondria, exhibited the highest mean score of 10.1 ± 2.7 . Furthermore, 44.9% of the participants found the internet useful for

health-related decisions and 7.9% rated it as very useful, totaling 52.8%, while 51.3% considered access to health resources important and 16.1% rated it as very important, totaling 67.4%, as seen in Table 3.

Table 2. Means of scales and subscales

Scales/Subscales	Min	Max	Median	Mean	SD
e-Health Literacy	8	40	30	28.59	5.81
Cyberchondria Severity	12	60	33	32.77	8.53
Excessiveness	3	15	10	10.07	2.67
Distress	3	15	9	8.50	2.74
Reassurance	3	15	8	7.97	2.71
Compulsion	3	15	6	6.23	3.03

Table 3. Internet's usefulness and importance in health decisions

Items measured independently	N	%
How helpful do you find the internet to help you make decisions about your health?	Very helpful	7.9
	Helpful	44.9
	Not helpful	15.2
	Not very helpful	5.7
	Undecided	26.3
How important is it for you to have access to health resources on the internet?	Very important	16.1
	Important	51.3
	Not important	13.6
	Not very important	2.5
	Undecided	16.5

As shown in Table 4, when demographic variables were assessed, a statistically significant difference was identified between both marital status and cyberchondria severity ($t=2.301$, $p<0.05$), and gender and cyberchondria severity ($t=2.886$, $p<0.01$). Accordingly, cyberchondria severity levels of married (34.2 ± 9.0 vs 31.9 ± 8.1) and male (34.3 ± 9.7 vs 31.5 ± 7.3) participants were found to be higher. Conversely, no significant difference was noted in e-health literacy ($p>0.05$). Additionally, no significant differences were found between age, education, and both cyberchondria severity and e-health literacy ($p>0.05$).

As presented in Table 5, the correlation analysis demonstrated a significant positive relationship between e-health literacy and cyberchondria severity ($r=0.208$, $p<0.001$), indicating that higher e-health literacy levels correspond with greater cyberchondria severity. The regression model examining the moderating role of gender in the relationship between individuals' e-health literacy and cyberchondria severity was found to be statistically significant ($R = .3135$, $R^2 = .0983$, $F = 11.3387$, $p < .001$).

The independent variables in the model explained approximately 10% of the variance in cyberchondria severity ($R^2 = .0983$).

Table 4. E-health literacy and cyberchondria severity across socio-demographic factors

Variables		e-Health Literacy		Cyberchondria Severity	
		Mean	SD	Mean	SD
Gender	Female	28.06	5.92	31.50	7.26
	Male	29.24	5.63	34.33	9.68
	t	-1.80		-2.89	
	p	0.074		0.004*	
Marital status	Single	28.22	5.86	31.90	8.10
	Married	29.18	5.71	34.15	9.04
	t	-1.44		-2.30	
	p	0.152		0.022*	
Age	18-29	28.52	5.83	31.60	7.87
	30-39	28.75	5.74	34.17	9.19
	40-49	28.37	6.20	33.53	9.64
	50 +	29.00	5.46	34.15	5.76
	F	0.073		2.158	
	p	0.975		0.093	
Education	Primary education	28.41	5.72	36.16	9.20
	Secondary education	27.17	5.40	32.37	9.14
	Associate degree	27.84	6.65	31.82	10.49
	Bachelor's degree	28.69	6.06	32.74	8.59
	Master's degree	29.15	5.23	31.82	6.25
	Doctoral degree	31.03	4.65	32.50	5.79
	F	2.021		1.234	
	p	0.076		0.293	

Table 5. Pearson correlation analysis between e-health literacy and cyberchondria severity

Scales/Subscales	e-Health Literacy	Cyberchondria	Excessiveness	Distress	Reassurance	Compulsion
e-Health Literacy	r=1	r= 0.208 p= 0.000	r= 0.391 p= 0.000	r= 0.062 p=0.270	r= 0.207 p= 0.000	r= 0.000 p= 0.999
Cyberchondria		r=1	r= 0.696 p= 0.000	r= 0.806 p= 0.000	r= 0.810 p= 0.000	r= 0.747 p= 0.000
Excessiveness			r=1	r= 0.485 p= 0.000	r= 0.462 p= 0.000	r= 0.226 p= 0.000
Distress				r=1	r= 0.506 p= 0.000	r= 0.484 p= 0.000
Reassurance					r=1	r= 0.520 p= 0.000
Compulsion						r=1

According to the regression results presented in Table 6, e-health literacy had a significant negative effect on cyberchondria severity ($\beta = -0.4978$, $p < .05$), while the main effect of gender was positive and significant ($\beta = 2.4142$, $p < .01$). Furthermore, the

interaction (moderation) effect between e-health literacy and gender was also significant ($\beta = 0.5490$, $p < .001$), indicating that the effect of e-health literacy on cyberchondria severity varies based on gender.

The moderation analysis directly supports the study's main hypothesis: Among males, higher e-health literacy was significantly associated with increased cyberchondria severity ($\beta = 0.6003$, $p < .001$), whereas this

relationship was not statistically significant among females ($\beta = 0.0512$, $p > .05$). As illustrated in Figure 1, this effect is represented by an upward-sloping line for males, indicating a positive relationship, while for females, a flat line suggests no significant association. Additionally, gender's moderating effect increased the explanatory power of the model, as shown in Table 6.

Table 6. Gender's moderating effect on e-health literacy and cyberchondria severity

Model	R	R2	MSE	F	p
	0.3135	0.0983	66.3021	11.3387	0.0000
		β	s.e	t	p
Constant		29.1128	1.4176	20.5372	0.0000
e-Health Literacy		-0.4978	0.2420	-2.0569	0.0405
Gender		2.4142	0.9259	2.6074	0.0096
e-Health Literacy X Gender		0.5490	0.1605	3.4212	0.0007
Moderating Effect of Gender		β	s.e	t	p
Female		0.0512	0.1046	0.4898	0.6246
Male		0.6003	0.1217	4.9320	0.0000
R ² Change		R2		F	p
		0.0338		11.7049	0.0007

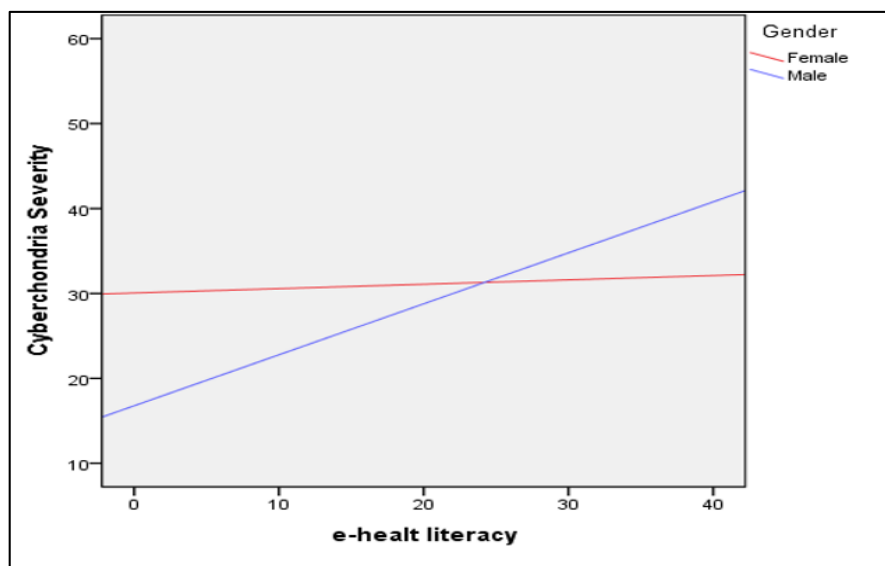


Figure 1. Moderation analysis of e-health literacy on cyberchondria severity: the role of gender

Discussion

This study explored how demographic factors—particularly gender—influence the relationship between e-health literacy and cyberchondria. Overall, participants displayed moderate levels of both e-health literacy and cyberchondria, aligning with most previous findings (40-43). While age, marital status, and gender did not significantly affect e-health literacy, gender emerged as a key factor in explaining variations in cyberchondria.

The mean e-health literacy observed here is consistent with the findings of Şengül et al. (2017) (41), Gürkan et al. (2023) (37) and El Zayat et al. (2023) (44), who also reported moderate levels among adults. However, the slightly lower levels of cyberchondria compared to El Zayat et al. (2023) (44) may reflect cultural or demographic differences.

Men exhibited higher cyberchondria levels than women. This finding contrasts with Sansakorn et al. (2024), who found that men had significantly lower levels of cyberchondria (45), but aligns with Şahan and Kaçmaz (2024), who reported elevated health anxiety and cyberchondria among men (22). These conflicting results emphasize the importance of more nuanced, gender-focused public health strategies.

In addition, married individuals were found to experience higher levels of cyberchondria compared to singles. This is consistent with Abdulrahman et al. (2024), who reported higher scores among married and divorced participants (46), and with Tekin and Ankara (2024), who observed higher levels particularly among mothers (47). Marriage and parenthood may increase health-related anxiety and prompt more

frequent online health information searches. Eşkisü et al. (2023) noted that in collectivist cultures, concerns regarding the health of family members could lead individuals to exhibit more intensive health-related behaviors, highlighting marriage as a factor that may increase health anxiety (48). Scott et al. (2010) also emphasized that marital distress is a risk factor for anxiety, particularly among women, potentially triggering health concerns (49). Consequently, the responsibilities and familial burdens associated with marriage may heighten health anxieties and cyberchondriac behaviors. Therefore, it is important to develop awareness and support programs specifically tailored to married individuals.

Health anxiety is a strong predictor of cyberchondria, often driving excessive searches regardless of individuals' literacy levels (50, 51). Moreover, high e-health literacy does not guarantee accurate interpretation of online medical content. Individuals may still face challenges in assessing source credibility and managing contradictory information. Unrealistic expectations from online health searches can further aggravate health anxiety (52). While higher e-health literacy may reduce distress in some contexts (53), it may also encourage compulsive online searching in others (53, 54), thereby weakening the correlation between literacy and cyberchondria. As such, both literacy enhancement and anxiety management interventions are needed.

Correlation analysis revealed a weak but significant positive association between e-health literacy and cyberchondria, consistent with much of the earlier research (44, 55-65). One possible explanation is that individuals

with higher e-health literacy may engage in more frequent health-related searches, which can increase anxiety. However, other studies have found a negative or weak inverse relationship (66-68), suggesting that critical evaluation skills fostered by high e-health literacy may reduce unnecessary worry (69, 70). These mixed findings imply the involvement of moderating variables—such as health anxiety, coping strategies, and social context—in shaping the relationship between literacy and cyberchondria.

A central finding of this study is the moderating role of gender. Among men, higher e-health literacy significantly predicted more severe cyberchondria. This aligns with Şahan and Kaçmaz (2024), who reported elevated levels of cyberchondria among men (22), and with Loeb et al. (2024) who found that men—especially when seeking information on prostate cancer—often struggle to filter high-quality content and may experience heightened anxiety or insomnia during this process (71). These results align with broader literature on gender differences in health-seeking behaviors (11, 15, 23, 72), which explores possible cognitive, psychological, or behavioral factors that may contribute to this phenomenon.

Men's heightened vulnerability could stem from several factors. First, those with high health anxiety may engage in repeated online searches, seeking reassurance that inadvertently amplifies worries (73, 74).

Second, intolerance of uncertainty and anxiety sensitivity (4, 75) can magnify distress when confronted with ambiguous online health information. Third, men may rely more on self-reliance or avoidance of professional

consultations (76-78), reinforcing the cycle of compulsive health searches. Finally, online platforms' convenience and anonymity (79) further encourage repeated searching, potentially fueling cyberchondria.

Females, however, appear to mitigate the negative effects of e-health literacy through adaptive strategies like critical appraisal and social support (23, 24), which help manage uncertainty and reduce anxiety escalation. This aligns with broader gendered coping patterns: men often prioritize autonomy (25, 80), whereas women lean toward communal health management (25, 81, 82).

Research also indicates that women are more likely to consult a broader range of sources and engage in collaborative decision-making by discussing online health information with peers or healthcare professionals (83).

These habits can reduce uncertainty and anxiety. Such behaviors, supported by social connections, have been linked to more effective use of digital health tools and better health outcomes (84). These patterns may buffer women against cyberchondria, even when they frequently search for health-related information online.

These gender-based differences highlight the need for cyberchondria interventions to align with distinct coping mechanisms and information-processing patterns. Gender-sensitive strategies are critical to fostering healthier digital health behaviors and reducing anxiety-driven online searches. For men, programs should prioritize enhancing critical thinking skills, emphasizing credible sources, and challenging societal norms that stigmatize professional help-seeking.

Encouraging balanced—rather than repetitive—search habits can disrupt cycles of reassurance-seeking. For women, building on existing communal coping tendencies—such as strengthening social support networks and collaborative problem-solving—can help ensure that higher e-health literacy does not escalate into compulsive health-related searches. Reinforcing these adaptive strategies may further mitigate anxiety and improve engagement with online health information.

Healthcare providers play a pivotal role by offering evidence-based guidance and actively encouraging men to seek professional consultations before relying on self-diagnosis. Policymakers, meanwhile, should address gender disparities through campaigns that promote collaborative health management and proactive information-seeking behaviors, particularly among men. Such efforts could enhance e-health literacy while curbing excessive or anxiety-fueled online health inquiries.

Study Limitations and Strengths: The cross-sectional design limits causal inferences. Self-reported data may introduce biases (e.g., social desirability, recall inaccuracies), and online data collection may exclude those without internet access or digital comfort. Convenience sampling via social media risks overrepresenting tech-savvy groups. Results are sample-specific, so studies in diverse cultural and clinical groups are needed. Other moderators (e.g., personality, stress, coping mechanisms) were not examined, limiting generalizability. Future longitudinal or experimental studies could clarify causality and dynamics between e-health literacy and cyberchondria.

Conclusion

This study provides critical insights into the moderating role of gender in the relationship between e-health literacy and cyberchondria. The findings reveal that gender significantly moderates this relationship, with higher e-health literacy predicting increased cyberchondria severity among men, but not among women. This aligns with theoretical frameworks suggesting that men, often relying on autonomous health management strategies, may experience heightened anxiety when navigating ambiguous online health information. In contrast, women's adaptive coping mechanisms, such as critical appraisal of information and seeking social support, may buffer the adverse effects of e-health literacy on cyberchondria. Additionally, married individuals exhibited higher cyberchondria levels compared to singles, likely due to increased health-related responsibilities or familial anxiety in collectivist contexts.

These findings underscore the importance of gender-sensitive approaches in digital health interventions. For men, initiatives should focus on enhancing critical evaluation skills, promoting reliable health sources, and reducing stigma around seeking professional help. For women, reinforcing collaborative health management and social support networks could further leverage their adaptive strategies. Healthcare providers and policymakers must prioritize these gendered dynamics to design tailored programs that mitigate health anxiety and promote effective use of online health resources. Specifically, incorporating digital health literacy education into public health curricula could significantly improve individual

capabilities in navigating online health information effectively.

The study's cross-sectional design and reliance on self-reported data limit causal inferences. Future longitudinal or experimental studies could explore temporal relationships and contextual factors such as personality traits, coping styles, or cultural influences. Additionally, expanding the sample to diverse populations, including clinical groups and varied cultural settings, would enhance generalizability.

In conclusion, this research contributes to the growing discourse on digital health behaviors by emphasizing the nuanced role of gender. While marital status provides supplementary insights, the study's primary focus remains on how gender moderates the interplay between e-health literacy and cyberchondria. Addressing these gender-sensitive dynamics through targeted interventions will foster equitable access to health information, reduce the burden of cyberchondria, and ultimately advance public health outcomes in an increasingly digitalized world.

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