JOURNAL FOR SOCIAL SCIENCE STUDIES
An International Peer-Reviewed Open Access Journal

ISSN (Online): 3006-2071 | ISSN (Print): 3006-2063
Volume 4 • Issue 6 • October 2026

INTOLERANCE OF UNCERTAINTY AND CYBERCHONDRIA: THE MEDIATING ROLE OF PROBLEMATIC SOCIAL MEDIA USE AMONG YOUNG ADULTS

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DOI: https://doi.org/10.5281/zenodo.23803519

Keywords
Intolerance of Uncertainty, Problematic Social Media Use, Digital Health Literacy, Cyberchondria, Young Adults.

Article History
Received: *25 June 2026*
Accepted: *16 September 2026*
Published: *29 October 2026*

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Abstract

Prior research has been conducted to assess the mediating effect of problematic social media use in the connection between intolerance of uncertainty and cyberchondria. Further, research was carried out to study the moderating effect of digital health literacy on the association between intolerance of uncertainty and cyberchondria. Data was obtained from undergraduate and postgraduate students. Purposive sampling technique was used for data collection. The data were analyzed using SPSS. All variables of the study showed good psychometric properties. The Intolerance of Uncertainty Scale (α =.93), Bergain Social Media Addiction Scale (α =.71), Digital Health Literacy Scale (α =.83), and Cyberchondria Severity Scale (α =.84) demonstrated satisfactory reliability. The results indicated that intolerance of uncertainty was significantly related to cyberchondria and this relation was partially mediated by problematic social media use. The moderating role of digital health literacy in this association was not significant. The results stress the mediatory role of problematic social media use between intolerance of uncertainty and cyberchondria.

INTRODUCTION

Internet use for health related activities has revolutionized the way people now access health information. Gone are the days when it was hard to search online for information on symptoms and health issues. Today people have many more tools at their fingertips to decipher a health issue or symptom online. This ease of information access has also, however, created maladaptive patterns of seeking information online, especially in engaging in excessive and repetitive online health search behaviors. This is known as "cyberchondria" and described as a process of increasing anxiety from the internet searching of health information, instead of actually being reassured by it (Cyberchondria). Evidence shows that cyberchondria is becoming commonplace among emerging adults because of their strong

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involvement with digital technologies (Starcevic & Berle, 2013).

Intolerance of uncertainty is another psychological condition acknowledged to drive cyberchondria, meaning someone's incapacity to endure uncertainty and ambiguity in their feeling (Dugas et al., 1998). People with high IU always see health information that involves uncertainty as threatening and are prone to finding excessive reassurance from online searches. This repetitive searching does more harm than good as it can lead to increased anxiety and thus an increased likelihood of a cycle of cyberchondria (Carleton, 2016). The study concluded that intolerance of uncertainty has been shown to be an excellent predictor of anxiety-related disorders in the past, such as health anxiety and cyberchondria.

An issue problematic social media can pose, in the digital age, is psychological well-being, and it is an important behavior that must be taken into consideration. Social media is often how health information is accessed and disseminated and sometimes the quality and credibility of information is suspect. People with high UCT have been known to use social media for a lot to get confirmation but being exposed to exaggerated or incorrect health information can further add to confusion and anxiety. Research has pointed to possible relationships between excessive use of social media and psychological stress (Keles et al., 2020) and between them and strategies of coping, which can all foster cyberchondria, as psychological stressors are a potential mechanism explaining the relationship between cognitive vulnerability and cyberchondria.

Although a number of studies have investigated the cyberchondria phenomenon, few have tested the combined effect of cognitive, and behavioral factors on cyberchondria in a single conceptual model. In particular, a combined analysis of intolerance of uncertainty, and problematic social media use is not sufficiently explored particularly in the case of young adults. Hence, the present study is designed to explore how people's intolerance of uncertainty is related with cyberchondria, while problematic social media use is mediated, to gain a more complete understanding on the factors related to cyberchondria, to better understand the factors related to cyberchondria, to better understand the underlying conditions, the present study is designed to explore how intolerance of uncertainty is related with cyberchondria with mediation of problematic social media use.

Rationale of the Study

While earlier studies demonstrated the association of intolerance of uncertainty with cyberchondria, the processes linking the two variables are less clear. In particular, there is a paucity of empirical evidence regarding how behavioral processes including problematic social media use may link intolerance of uncertainty with cyberchondria. Considering the increased prevalence of social media use as a resource for health-related information, it is worthwhile to examine whether problematic social media use mediates the relationship between intolerance of uncertainty and cyberchondria.

Thus, the present study aims to fill these research gaps by testing mediating mechanisms in one model.

Hypotheses of the Study

Hypotheses of the current research includes

H1: Intolerance of uncertainty would positively problematic social media use and cyberchondria and problematic social media use also would positively predict cyberchondria.

H2: Problematic social media use would mediate the relationship between intolerance of uncertainty and cyberchondria.

Research Methodology

Research Design

This study will employ a quantitative, cross-sectional correlational research design to examine the mediation and moderation.

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Sample

The total sample in this study included a total of 300 young adults between the ages of 18 and 35 years. These ages were further narrowed to 3 groups of development: early young adult (18-23 years), middle young adult (24-29 years) and late young adult (30-35 years).

Inclusion criteria and Exclusion criteria

The present investigation included students in the age group of 18-35 years. Students who were enrolled in BS, MS and PhD courses and who used social media regularly were included. Students who could understand English language and were willing to participate in the research were included. Students below the age of 18, above the age of 35, enrolled in BS, MS and PhD courses and not actively using social media regularly were excluded from the study. Students with un understanding of English language, incomplete responses, invalid responses, having any medical or psychological illness or condition that may interfere with the present investigation or influence responses for uncertainty, anxiety and health seeking behavior were also excluded from the study.

Instruments

Demographic Information Sheet

The information sheet has the following information: Demographic information sheet includes information about age, gender, type of academic studies (BS/MS/PhD), fields of study, duration spending on social media (h/day), and the type of platform/s that are used.

Intolerance of Uncertainty Scale (Freeston et al., 1994)

The scale measures negative thoughts, reactions, and behaviors in individuals that are showed in response to ambiguity and unknown results. Participants were asked to respond to the items based on a 5-point Likert scale that ranged from 1 (not at all typical of me) to 5 (completely typical of me). Higher scores are indicative of a greater difficulty with uncertainty, greater propensity to worry, and more cognitive discomfort with uncertainty. The IUS-27 has excellent internal consistency and predictive validity in a number of young adult populations and has been frequently employed in anxiety-related constructs.

Bergen Social Media Addiction Scale (Andreassen et al., 2012)

What this tool: The BSMAS includes 6 items to measure main symptoms of behavior addiction; mood modification, salience, tolerance, withdrawal, conflict and relapse, with a 5-point scoring format: 1 (very rarely) to 5 (very often). The total score will indicate extreme dependence on social media, the inability to manage social media use and the disruption of daily life; higher scores will indicate higher dependence. The BSMAS has good psychometric properties among university students and young adults, and it is commonly used in research examining online dependence.

Cyberchondria Severity Scale (McElroy & Shevlin, 2014)

A 5-point rating scale with 1 (never) to 5 (always). This scale measures the tendency to indulge in compulsive health related information searches which heighten rather than reduce health anxiety. Participants rates on a 5-point scale from 1 (never) to 5 (every time). The higher the scores indicate constant searching for symptoms, anxiety after search, reassurance seeking and lack of confidence in the doctor. CSS 12 is well established for its high reliability, good factor structure, and utility across 49 digital health studies, specifically in young adults.

Procedure

Participants were taken through the GCUF. An informed consent was obtained from each participant after further permission was also taken from each one. Each participant completed the demographic sheet along with the other measures. Each of the subjects was given a clear set of instructions on how to complete the

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questionnaires. After the questionnaires were completed they were double checked by the researcher to verify that they had been completed. The participants of the study were thanked for their participation.

Ethical Considerations

Major committee of ethics issued an ethical clearance for research. Consent form was collected from all the participants and it was clearly written that they took part voluntarily. Confidentiality was maintained and the respondents were made aware of their right to withdraw from the study at any point. The research was conducted according to guidelines of ethical research on human subjects. The data was analyzed using Statistical Package for the Social Sciences-20 (SPSS 20). Descriptive statistics, reliability, regression analysis for mediation and moderation (with process macro by Hayes and Andrew) was used.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics (Version 20). Descriptive statistics and reliability analyses were conducted to assess the psychometric properties of the measures. Pearson correlation analyses were conducted to determine the relationships among variables. Multiple regression analyses were used to assess the effects of technoference and perceived partner responsiveness on relationship satisfaction. Hayes' PROCESS Macro (Model 4, 5,000 bootstrap samples) was used to assess the mediating effect of perceived partner responsiveness on the relationship between technoference and relationship satisfaction.

Results

Table 1 Frequency and Percentage of Demographic Variables (N=300)

Demographic variables	Category	Percentage	Frequency
Age groups			
	18-25	232	77.3
	26-30	38	12.7
	31-35	30	10.0
Gender			
	Male	150	50.0
	Female	150	50.0
Field of study			
	Social sciences	80	26.7
	Natural sciences	63	21.0
	Computer and information sciences	38	12.7
	Medical and health sciences	34	11.3

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	Business and finances	49	16.3
	Humanities	36	12.0
Education Level			
	BS	184	61.3
/	MPHIL MS/MPHIL	58	19.3
	PHD	58	19.3
Residence			
	Urban	205	68.3
	Rural	94	31.3
Time spent on social media			
	3-4 hours	104	34.7
	More than 4	110	36.7
Search for health concerns			
	Very unlikely	20	6.7
	Unlikely	32	10.7
	Neutral	99	33.0
	Likely	149	49.7
Diagnosed Physical or Psychological Ilness			
	Yes	79	16.7
	No	221	83.3

Note. f = frequency; % = percentages

The majority of the sample is within the age category of 18-25 (77.3%). The gender of the participants was split equally, with 150 males (50.0%) and 150 females (50.0%). In relation to the field of study of the participants, the majority studied a social science (80.26.7%). The majority of participants lived in urban locations (f = 205, 68.3%). With regards to the amount of time spent on social media, the participants reported that more than a third of the participants spent four or more hours a day (f = 110, 36.7%). Lastly, the majority of the participants reported having no physical and/or diagnosed. Mental health disorder (f = 221, 83.3%), While fewer revealed

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having a diagnosed condition (f = 79, 16.7%).

Table 2 Reliability for All Study Variables

Variables	*No. Of items*	*Alpha α*
Intolerance of uncertainty	27	.93
Bergain social media addiction scale	6	.71
Digital health literacy scale	21	.83
Cyberchondria	12	.84

The alpha reliability for Intolerance of uncertainty is. 93. Bergain social media addiction. 71. Digital health literacy .83 and Cyberchondria .84. This indicates good internal consistency of measurement scales.

Table 3 Correlation among study variables.

Variable	1	2	3
1. Intolerance of uncertainty	—		
2. Problematic Social media use	.40**	—	
3. Cyberchondria	.46**	.45**	—

The correlation analysis revealed that intolerance of uncertainty was positively correlated with problematic social media use and cyberchondria. Furthermore, problematic social media use was positively correlated with cyberchondria. These findings indicate that higher levels of intolerance of uncertainty were associated with greater problematic social media use and cyberchondria. Similarly, greater problematic social media use was associated with higher levels of cyberchondria. Overall, the findings suggest significant positive associations among all three variables.

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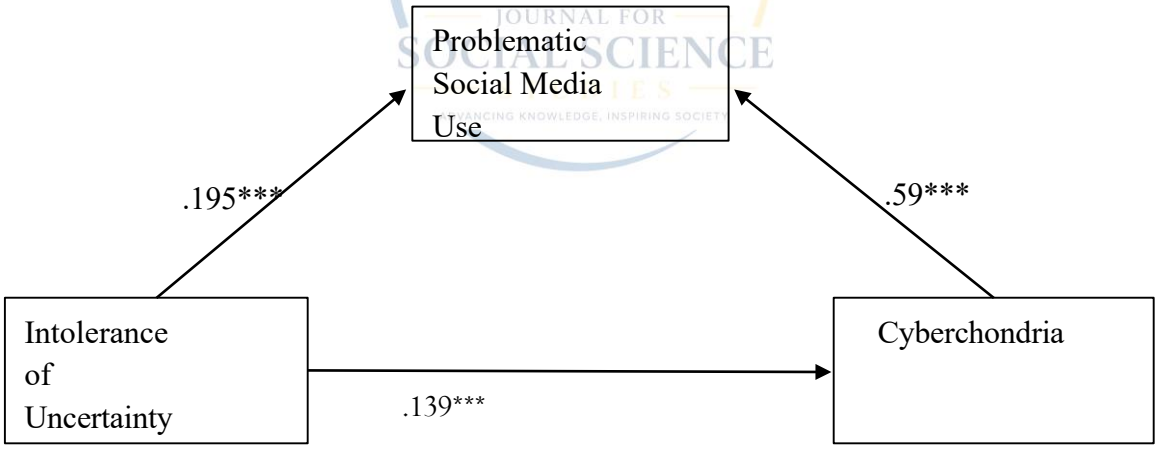
Table 3 Multiple Regression Analysis to See the Effect of Intolerance of Uncertainty, and Problematic Social Media Use on cyberchondria (N=300)

Variables	*B*	95%CI		*SE*	B	*T*	*P*
		LL	UL				
Constant	15.03	12.06	18.01	1.51		9.95	.000
IOU	.13	.09	.18	.02	.32	6.19	.000
PSMU	.59	.40	.79	.09	.32	6.13	.000
R^2	.30						
F	63.39						.000

Note. CI=confidence interval, IOU= Intolerance of uncertainty, PSMU= Problematic social media use *p<.001.

Table shows 30% of the variance in the outcome variable was accounted for by the model, R^2 =.30, Intolerance of uncertainty was a significant positive predictor of the outcome variable, B =.13, SE = .02, β =.32, t = 6.19, p <.001. Problematic social media use was identified as a positive predictor of the outcome variable, B =.59, SE =.09, β =.32, t = 6.13, p <.001.

Model 1: Mediation of Problematic Social Media Use



From the above model, it is also shown that intolerance of uncertainty positively predicted cyberchondria (β=.461, p<.001). Problematic social media use positively predicted cyberchondria (β=.32, p<.001). Meanwhile, intolerances of uncertainty was positively related to problematic social media use (β=.195, p<.001). It indicates that after control for problematic social media use, the effect of intolerances of uncertainty on cyberchondria decreases (β=.461→.32), that is, current model supports the partial mediation. It also supports that the direct effect of intolerances of uncertainty on cyberchondria is dropped after mediators have

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included, that is, that individuals with high traditional media use are more likely to also show problematic social media use, and use of social media uses in turn lead to cyberchondria.

Table 4 Regression analysis for Mediation of Problematic Social Media Use between Intolerance of Uncertainty and Cyberchondria. (N =300)

Variables	*B*	95%*CI*	*SE*	B	R^2	ΔR^2
Step 1					.21	.21***
Constant	17.75***	[14.74,20.76]	1.53			
IOU	.195***	[. 15, .23]	.022	461***		
Step 2					.30	.08***
Constant	15.04***	[12.06,18.01]	1.51			
IOU	.139***	[. 09, .18]	.023	.32***		
PSMU	.59***	[. 40, .79]	.098	.32***		

Note. ***p<.001

The table above indicates that intolerance of uncertainty in Step 1 (B=.461, p <.001) can significantly positively predict cyberchondria and the variance of 21% (R2=.21). Introducing problematic use of social media in Step 2, demonstrates that intolerance of uncertainty still can significantly positively predict cyberchondria (B=.32, p <.001). Furthermore, problematic use of social media can significantly positively predict cyberchondria (B=.32, p <.001). It can be seen that the model, inclusive of problematic use of social media in Step 2, can account for 30% of the variance (R2=.30). When this additional variable is introduced in the second step, the change in the extent of the model, marginally but significantly, increases to 0.08 (ΔR2=.08, p <.001). By analyzing the table, it can be identified that the coefficient of the predictor, intolerance of uncertainty, in relationship with the outcome variable, cyberchondria, has decreased from β=.461 to β=. .32) with problematic social media use as a mediator, thus reaffirming partial mediation. This suggests a weakened direct relationship between intolerance of uncertainty and cyberchondria and highlights the dual influence of intolerance of uncertainty on cyberchondria, both directly and indirectly via problematic social media use.

Discussion

For the current study, the mediation effect of problematic social media use are investigated in the relationship between intolerance of uncertainty and cyberchondria in Pakistan's Adolescents. The results confirmed the proposed mediation model and confirmed the mediation hypothesis. Specifically, intolerance of uncertainty was a crucial positive predictor of cyberchondria, suggesting that people with higher levels of discomfort with uncertainty are more apt to have increased health anxiety and excessive amount of online health searches. The results confirm other studies stating intolerance of uncertainty is one of the most important cognitive vulnerability factors associated with cyberchondria. The first hypothesis was supported, showing significant positive associations between intolerance of uncertainty, problematic social media use and cyberchondria. Intolerance of uncertainty was positively related to problematic social media use and cyberchondria, and problematic social media

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use was positively related to cyberchondria. The results suggest that people who experience higher levels of uncertainty may be more likely to engage in problematic social media use and cyberchondria.

The second hypothesis was supported since the relationship between intolerance of uncertainty and cyberchondria was partially mediated by problematic social media use. After the introduction of the problematic social media use pathway into the model, the direct effect of intolerance of uncertainty on cyberchondria dropped, suggesting that the pathway from problematic social media use to cyberchondria would be stronger among individuals with higher intolerance of uncertainty. This is in line with other research that found that overusing social media serves as a maladaptive coping mechanism to deal with uncertainty and contributes to increased exposure to health information that elicits anxiety.

Further analysis found that the information searching aspect of digital health literacy significantly mediated the link between intolerance of uncertainty and cyberchondria. This negative interaction effect implies that positive association between intolerance of uncertainty and cyberchondria was reduced with higher levels of self-reported information searching skills. People with stronger information searching skills might be more able to find reliable. Find information about health matters efficiently while averting repetitive searching and anxiety caused by the lack of clarity of health information. In general, the results indicate that problematic social media use is a significant behavioral pathway between intolerance of uncertainty and cyberchondria.

Conclusion

In this study, researchers could successfully shed light on the psychological processes that influence cyberchondria in young adults of Pakistan. It clearly showed intolerance of uncertainty to be a major contributor to health anxiety in the digital era and also through the mechanism of problematic social media usage. The results capture the life of a generation living in a stressed digital environment. Social media can turn into anxiety land for anyone already suffering from an anxiety disorder. The study highlights a critical need for training young adults with digital competencies but also equipping them with the cognitive and emotional skills needed to combat the uncertainty that is integral to life and the internet. The detailed analysis of personality and platform-specific competencies with screen time can help create more effective strategies for fostering resilience and well-being in the digital environment.

Implications

The present study adds to relevant literature by empirically supporting a cognitive behavioral model in which problematic social media use is used as a behaviour mechanism linking intolerance of uncertainty to cyberchondria. The findings have contributed to the existing evidence in the context of Pakistan and further enhanced the understanding about the psychological mechanism of cyberchondria. The findings also have implications for practice for mental health, education and policy makers. Treatment for people with cyberchondria should emphasize decreasing the intolerance of uncertainty and problematic social media use with CB strategies. Public education programs and university-led health awareness campaigns can help encourage healthy social media usage and informational-seeking on health topics online, thus minimizing the potential for cyberchondria in young adults.

Conflict of Interest

The authors showed no conflict of interest.

Funding

The authors did not mention any funding for this research.

ISSN (Online): 3006-2071 | ISSN (Print): 3006-2063
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