



SOCIAL AND BEHAVIORAL SCIENCES. Rehabilitation

ORIGINAL RESEARCH



**“Looking for Fun or Escaping the Fear?”
How Can COVID-19 Cyberchondriacs Enjoy
the Online Shopping During the Pandemic**



Author's Contribution:

- A – Study design;
- B – Data collection;
- C – Statistical analysis;
- D – Data interpretation;
- E – Manuscript preparation;
- F – Literature search;
- G – Funds collection

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**Background and
Aim of Study:**

Abstract

As the pandemic escalated into a global health crisis with abundant reports, updates and personal stories invading the World Wide Web and the social media, the context of COVID-19 offered for researchers an opportunity exploring the cyberchondria concept. Surprisingly, despite its prominence, the consequences of this shift in health behavior are still not fully appreciated. For many cyberchondriacs, the online shopping experience is considered as a coping strategy.

The aim of the study: to investigate how excessive health-related anxiety leads to online shopping enjoyment, and to examine the mediating roles of COVID-19 fear and hedonic shopping motivation.

Material and Methods:

A survey methodology is used to collect responses from a sample of 355 consumers in Tunisia and analyzed via AMOS 23. Structural equation modeling was used to assess the causal relationship between measured variables.

Results:

Our results indicate that during the current pandemic, the cyberchondria was associated with an increased online shopping enjoyment guided both by a developed fear from this virus and some of the hedonic motivations.

Conclusions:

This study is one of the first studies that investigate the impact of cyberchondria on shopping experiences. Our findings may indicate starting points for some public health marketers and managers to make interventions to reduce cyberchondria during the pandemic. Particularly, online shopping may be considered as a safe space, where anxious people may escape. However, public health organizations should carefully consider these outcomes of cyberchondria and should elucidate clear pathways of action so that consumers feel empowered to tackle the pandemic effectively.

Keywords:

cyberchondria, COVID-19 pandemic, health anxiety, consumer well-being, fear, hedonic shopping motivations, online shopping enjoyment

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Introduction

The outbreak of coronavirus disease 2019 has been considered as a major public health crisis, which has infected more than 10 million people worldwide (Wang et al., 2020). Considering its drawbacks, many researchers start scientific debates universally (Laato et al., 2020; Wang et al., 2020). Since it could influence human mental well-being and lead to fears, worries, and anxiety among individuals, psychological and behavioral drawbacks are considered as key research focus (Jungmann & Witthoft, 2020; Wang et al., 2020). In this context, previous studies on pandemics have demonstrated that anxiety, health worries, and safety behavior are widespread in these times and have reported that up to over 50% of respondents show worries or anxiety during virus-induced pandemics (Garfin et al., 2020; Jungmann & Witthoft, 2020). Embedding our study in the field of mental health, we heed the call for research into solutions to promote mental wellbeing. In this field, so much work can be done and public health specialists can propose an effective way out to challenge societal problems, particularly those related to mental health problems (Jungmann & Witthoft, 2020; Huang & Zhao, 2020; Xiao et al., 2020). However, there is still a limited exploration of the impact of COVID-19 on consumers' mental well-being and consumers' behavior (Jungmann & Witthoft, 2020; Zhang & Ma, 2020).

Several studies have revealed an association between infectious diseases such as COVID-19 and anxiety disorders (Bajcar & Babiak, 2021; E. Lee & Lee, 2019; Hashemi et al., 2020). In this paper, we are focusing on one specific side of health anxiety called "cyberchondria". This latter is consistent with cognitive behavioral models of health anxiety which consider repetitively checking sources of medical information as a form of reassurance seeking (Doherty-Torstrick et al., 2016; Loos, 2013). It refers to searching the web excessively for health care information and escalation of anxiety regarding the state of one's health (Doherty-Torstrick et al., 2016; McManus et al., 2014; Mohammed et al., 2019).

In fact, many individuals are going online to search for useful information that may help them to reduce stress, anxiety and bad feeling about what would happen in the future. Past researchers suggest the term "Dr. Google" to describe how patients make Google searches for some self-help and self-management (Lee et al., 2014). Web search engines can intensify requests about content on serious, life-threatening, or rare diseases (Mohammed et al., 2019; White & Horvitz, 2009). Cyberchondria is evolving not only among clinically diagnosed people, but also among those who have no medical training. Even if this phenomenon is not new, the context of COVID-19 offered researchers worldwide an opportunity for exploring this concept, as the pandemic escalated into a global health crisis with abundant reports and personal stories invading the World Wide Web and the social media (Laato et al., 2020). In fact, since 2019, several researchers proved that cyberchondria can be damaging and harmful for

individuals and their well-being (Laato et al., 2020). Particularly, it was generally related to distress and health anxiety (Doherty-Torstrick et al., 2016; Mohammed et al., 2019; Starcevic & Berle, 2013). In addition, people are seeking health-related data in order to reclaim a sense of safety and control. Thus, a health online search may constitute a coping strategy for health anxious individuals (Jungmann & Witthoft, 2020). In recent years, many researchers were interested in the role of coping processes and emotional regulation in health anxiety (Gioia & Boursier, 2020).

Surprisingly, despite its spread and its prominence, the consequences of this shift in health behavior are still not fully appreciated (Jungmann & Witthoft, 2020; Laato et al., 2020; Mohammed et al., 2019). Research into "cyberchondria" is in its infancy (McManus et al., 2014). Particularly, there has been little research on the effects associated with health anxiety and cyberchondria in the context of consumer behavior (Wang et al., 2020). The investigation of possible effects can help to better understand the consumers' reactions to the increasing health anxiety and to develop possible transdisciplinary measures. In this current research, we are trying to investigate the effect of cyberchondria on online shopping, which is considered as a coping strategy. In fact, during this pandemic, the online shopping experience is considered as inevitable solution to social distancing and an evolving risk of contamination. In other words, avoidance-motivated people seek such experiences not for the presence of positive stimuli, but rather for the relative absence of negative stimuli. Physical shopping is becoming too risky and the online context provides a safer shopping environment, particularly for those who showed health-related anxiety.

It was demonstrated that being involved in a public health emergency, like the COVID-19 pandemic, can spark consumers' preferences for utilitarian products, for making unusual protection purchases and for hoarding and stockpiling (Latoo et al., 2020; Wang et al., 2020). However, even if hedonic purchases are often viewed as the tools to regulate consumers' emotions (e.g. stress, negative mood) (Wang et al., 2020), no prior research investigated the effect of such health anxiety on the enjoyable side of shopping as coping strategy.

The aim of the study. To investigate how excessive health-related anxiety leads to online shopping enjoyment, and to examine the mediating roles of COVID-19 fear and hedonic shopping motivation.

Five main hypotheses will be tested in the following parts (Figure 1):

H1: Cyberchondria is positively related to hedonic shopping motivations.

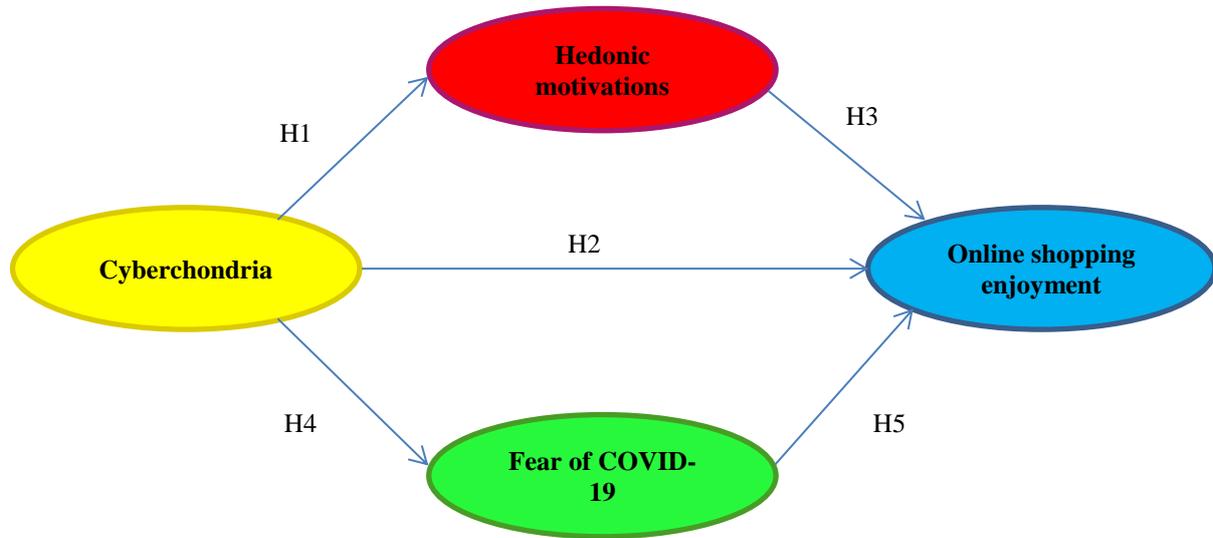
H2: Cyberchondria affect positively the online shopping enjoyment.

H3: The hedonic shopping motivations affect positively the online shopping enjoyment.

H4: Cyberchondria increases the level of COVID-19 fear.

H5: The higher level of COVID-19 fear, the more likely consumers will enjoy the online shopping experience.

Figure 1
 Conceptual Model of Cyberchondria



Materials and Methods

In 2020, in Tunisia, the COVID-19 pandemic appeared as a central health concern with extended media coverage about it. Increased health anxiety is evolving among Tunisian consumers. The study’s primary objective was to test the conceptual model (see Figure 1) that captures relationships between cyberchondria, fear of COVID-19 and hedonic shopping motivations. We created a survey online, starting with a brief overview introducing the purpose of the study and reminding the confidentiality of all responses. For this study, we used convenience sampling to target anxious consumers due to the difficulty of using probability sampling. To recruit respondents, we joined some non-governmental Facebook groups created to fight against COVID-19 in which the community members showed their anxiety toward the health situation.

We collected data at the beginning of the year 2021. To be eligible for participation, individuals had to be living in Tunisia and 18 years of age or older.

The scales we used were first translated from English to French and Arabic, then back-translated into English by a third party. The back-translated English version was then compared with the original version for modification and to improve the accuracy of the translation. To test the comprehensibility of the measures, a pretest with 20 consumers was conducted. We finalized the questionnaire based on the results of the pretest. Table 1 shows the specific details of the final sample. Participants included 355 individuals. The sample was predominantly female (58.6%) and the average age in this sample was between 36 and 45.

All measurement scales were adopted from established literature, with question items being adjusted to fit the context of the study. Individuals were asked to read some statements and indicate the degree to which each statement typically applies to them on a five-point Likert-type scale ranging from “strongly disagree” to “strongly agree”.

Table 1
 Characteristics of the Final Sample

Characteristics	Participants	
	number (n)	percentage (%)
Gender		
Male	147	41.4
Female	208	58.6
Total	355	100.0
Age		
From 18 to 25	83	23.4
From 26 to 35	85	23.9
From 36 to 45	99	27.9
From 46 to 60	50	14.1
Over 61 years	38	10.7
Total	355	100.0

McElroy et al. (2019) developed a multidimensional measure of cyberchondria called the Cyberchondria Severity Scale (CSS). This scale consists of 33 items corresponding to five dimensions: (1) excessiveness (repeated nature of online searches), (2) compulsion (web searches interrupting other aspects of on/offline activities), (3) distress (negative emotional response), (4) reassurance (seek out professional medical advice), and (5) mistrust (conflict arising when medical professional and online self-diagnosis do not align). The scale has been translated and validated in several languages and many studies have validated its structure. In addition, using confirmatory bifactor modeling, Norr et al. (2015) have demonstrated that the scale measures a general factor, as well as lower-order dimensions. Some replications built on previous suggestions to reduce the length of the scale and to eliminate the last dimension (Barke et al., 2016; McElroy et al., 2019). For the current study, we adopted the short version proposed by Barke et al. (2016) consists of 15 items (3 items for each dimension). However, we followed some of the previous suggestions by eliminating the last trust



dimension (McElroy et al., 2019; Norr et al, 2015). The final list contains 12 items only.

The present study uses the new scale of the Fear of COVID-19 (FC-19S) developed recently by Ahorsu et al. (2020). This scale has a stable unidimensional structure with good psychometric properties. Initial results indicated that the FCV-19S had good properties from different types of testing (i.e., Rasch analysis). The internal consistency was good as well ($\alpha=0.82$; composite reliability=0.88).

We measured six hedonic shopping motivations: gratification seeking (GRA), idea shopping (IDE), adventure seeking (ADV), social shopping (SOC), role play (ROL), and value shopping (VAL), based on Arnold and Reynolds (2003; 2012). This measurement was validated in several contexts (Ali et al., 2020; Horváth & Adıgüzel, 2018). It contains 18 items; three to each dimension.

The online shopping enjoyment was measured by a scale developed by Babin et al. (1994). This unidimensional scale was used in several contexts and had demonstrated its validity and its good reliability ($\alpha=0.872$).

We conducted confirmatory factor analysis (CFAs) and a structural equation model (SEM) was examined. In this model, cyberchondria factors were considered as predictors of six hedonic motivations, the fear of COVID-19 and the online shopping enjoyment. The CFAs and SEM were conducted in AMOS 23 with Maximum of Likelihood (ML) as an estimation method. We verified first the conditions of the applicability of those methods by verifying the outliers, the multinormality and the multicollinearity. Bootstrapping was envisaged as a procedure for dealing with non-normal data (Byrne, 2001), generated confidence intervals that were used instead of t-values to evaluate the significance of path estimates because the data did not exhibit multivariate normality. Model fit was then assessed using the χ^2 statistic, for which a non-significant value indicates good model fit. In addition, other fit indices were interpreted to provide an approximate estimate of the model fit. Specifically, we checked the comparative fit index (CFI), the Tucker-Lewis Index (TLI), and the root mean square error of approximation (RMSEA).

Results

First, our results indicate that more than 70% of the sample reported experiencing high or moderate levels of cyberchondria. Mean item analysis showed that going online to search for symptoms often disrupts their time spent not only on leisure activities but also on their work. Participants showed difficulty in controlling their ruminations regarding symptoms that they have researched online.

The data indicated that the measurement model exhibited an acceptable fit ($\chi^2=2857.269$; $df=699$; $p=0.000$; $CFI=0.863$; $NFI=0.828$; $TLI=0.840$; $RMSEA=0.093$). Tests of convergent validity were acceptable as the composite reliability and the average variance extracted (AVE) both exceeded the recommended minimum cutoff of 0.7 and 0.5,

respectively, for each construct (Table 2). Finally tests of discriminant validity were also acceptable as the squared correlation between every two constructs in the model was less than the AVE of these two constructs (Fornell & Larcker, 1981).

Table 2

Reliability and Convergent Validity Test

Variable	Composite reliability	Convergent validity (AVE)
Excessiveness	0.87	0.761
Compulsiveness	0.93	0.866
Distress	0.89	0.804
Reassurance	0.91	0.821
Adventure	0.84	0.717
Gratitude	0.84	0.751
Role	0.90	0.766
Value	0.92	0.813
Social	0.93	0.878
Idea	0.88	0.831
Fear	0.94	0.689
Shopping enjoyment	0.95	0.816

We also tested whether CMB was a potential problem following a procedure suggested by Podsakoff et al. (2003). A latent construct capturing the common method variance was added to the measurement model and allowed to load on all of the indicators. Results indicate that CMB is not a potential threat to the validity of the findings.

We used AMOS 23 to test our research hypotheses. We tested four alternative models to assess the superiority of our model as we followed prior procedures in well-established works (Bajaj et al., 2016; Diallo & Seck, 2018): the hypothesized structural model, a direct model, and two full mediation models. The hypothesized structural model (Model 1) fit the data well overall ($\chi^2=2929.480$; $df=706$; $p=0.000$; $NFI=0.824$; $IFI=0.860$; $TLI=0.836$; and $CFI=0.859$; $RMSEA=0.094$).

For the direct effect of cyberchondria on online shopping enjoyment (Model 2), results show that three of the four cyberchondria dimensions were positively affecting online shopping enjoyment. The health-related anxiety that cyberchondriac express influence positively their online shopping experiences. This could reinforce the hypothesis supposing that during this pandemic, online shopping is considered as one of the main solutions for anxious people. Results of testing the second hypothesis (H2a-d) are presented in Model 2 (Figure 2).

For mediating effect of hedonic shopping motivations (Model 3), we followed current trends in mediation analysis (Preacher et al., 2007; Zhao et al., 2010) and examined the direct and indirect effects of cyberchondria through conditional process analysis. More precisely, in a third model, we tested a full

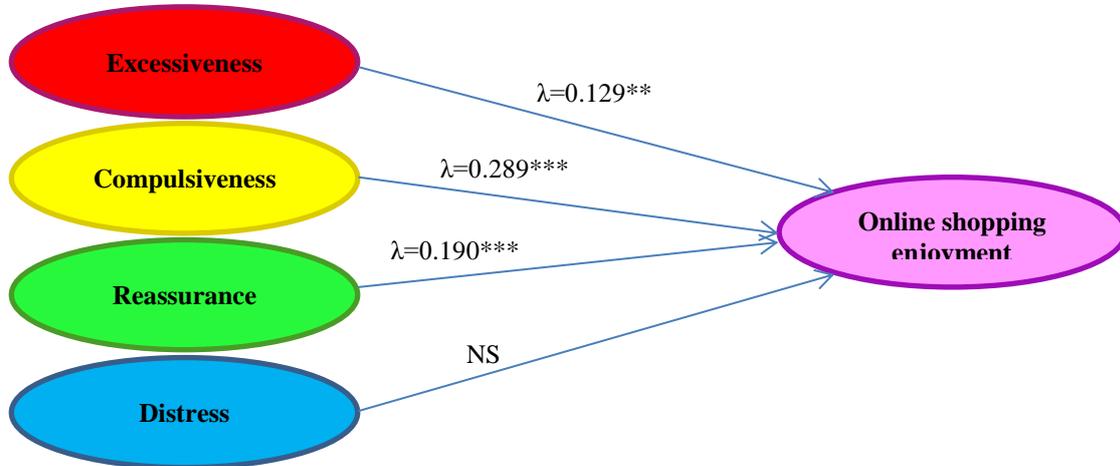


mediation model (no direct effect on online shopping enjoyment and everything is mediated by hedonic shopping motivations). These analyses also established

the effect of cyberchondria on hedonic shopping motivations (Table 3).

Figure 2

Testing the Direct Effect of Cyberchondria on Online Shopping Enjoyment (Model 2)



Note. ***sig=0.000; **sig<0.010.

Table 3

Testing the Mediating Effect of Hedonic Shopping Motivations (Model 3)

The tested hypothesis		Hypothesis	Estimate	Standardized RW	P
ADV	<--- EXC	H1aa-H1af	0.057	0.074	0.286
GRA	<--- EXC		0.446	0.415	***
ROL	<--- EXC		0.008	0.008	0.905
VAL	<--- EXC		-0.058	-0.069	0.271
SOC	<--- EXC		0.075	0.066	0.282
IDE	<--- EXC		0.081	0.081	0.202
ADV	<--- COM	H1ba-H1bf	-0.089	-0.137	0.032
GRA	<--- COM		0.098	0.110	0.037
ROL	<--- COM		0.060	0.072	0.252
VAL	<--- COM		-0.267	-0.384	***
SOC	<--- COM		-0.452	-0.472	***
IDE	<--- COM		-0.036	-0.044	0.455
ADV	<--- DIS	H1ca-H1cf	0.122	0.171	0.014
GRA	<--- DIS		0.247	0.251	***
ROL	<--- DIS		-0.007	-0.008	0.912
VAL	<--- DIS		0.126	0.165	0.010
SOC	<--- DIS		0.356	0.338	***
IDE	<--- DIS		0.334	0.365	***
ADV	<--- REA	H1da-H1df	0.048	0.074	0.231
GRA	<--- REA		-0.163	-0.182	***
ROL	<--- REA		-0.190	-0.226	***
VAL	<--- REA		0.175	0.253	***
SOC	<--- REA		-0.008	-0.008	0.882
IDE	<--- REA		-0.097	-0.117	0.039
SHOPENJ	<--- ADV	H5a-d	0.237	0.164	0.010
SHOPENJ	<--- GRA		0.361	0.344	***
SHOPENJ	<--- ROL		-0.146	-0.131	0.008
SHOPENJ	<--- VAL		-0.306	-0.226	***
SHOPENJ	<--- SOC		-0.033	-0.034	0.538
SHOPENJ	<--- IDE		0.043	0.038	0.494

Note. ***sig=0.000.



Results were so varied. First, the distress showed a positive and significant effect on hedonic shopping motivations (exception of the role dimension). In addition, the excessiveness showed only a strong effect on the gratitude dimension of hedonic shopping motivation. Both of these effects confirm the proposed hypothesis supposing a positive effect of cyberchondria on the hedonic shopping motivations. This confirms partially the fact that excessive health-related anxiety and its relative distress may lead to a search for reducing the stress and for releasing the pressure. However, the compulsiveness showed a significant and negative effect on the adventure, social and value motivations in the shopping. This was also the case of reassurance which showed a negative impact on gratitude, role and idea

(exception for a positive and significant impact on value motivation).

When it comes to the impact of hedonic shopping motivations on online shopping enjoyment, results also seem to be mixed. Seeking gratification and adventure leads to online shopping enjoyment. However, as bargaining hunters, these shoppers cannot find pleasure in the online context.

The fourth model (Model 4) was a second full mediation model (no direct effect on online shopping enjoyment and everything is mediated by the COVID-19 fear). This model had demonstrated a significant mediating effect of fear (standardized total effect=0.867; $p=0.000$). The cyberchondria has also a strong direct effect on COVID-19 fear (e.g. λ excessiveness on the fear=0.381; $p=0.000$) (Table 4, Table 5).

Table 4

The Impact of Cyberchondria on the Fear from COVID-19

The tested hypothesis		Hypothesis	Estimates	Standardized RW	P
FEAR	<--- EXC	H4a	0.469	0.381	***
FEAR	<--- COM	H4b	0.227	0.224	***
FEAR	<--- DIS	H4c	0.329	0.294	***
FEAR	<--- REA	H4d	0.064	0.063	0.149
SHOPENJ	<--- FEAR	H5	0.608	0.658	***

Note. ***sig=0.000.

Table 5

Testing the Mediating Effect of Fear of COVID-19 (Model 4)

The Mediating effect		DIS	COM	EXC	REA	FEAR
Standardized direct effects	FEAR	0.182***	0.109***	0.270***	-0.009*	-
	SHOPENJ	-	-	-	-	0.597***
Standardized indirect effects	SHOPENJ	0.121***	0.072***	0.179***	-0.006*	-

Note. ***sig=0.000; *sig<0.050.

The model estimates the interactive effect of cyberchondria and COVID-19 fear on online shopping enjoyment (H4 a, b, c and d) while controlling for the direct effect of each variable. A bootstrapping technique was used to calculate confidence intervals around indirect effect estimates, with confidence intervals that exclude zero providing evidence of a mediation effect (Preacher & Hayes, 2008; Zhao et al., 2010).

The results from each analysis are presented in Table 5. The table is organized such that the direct and interactive effects of cyberchondria and COVID-19 fear on online shopping enjoyment are shown first.

Study results support H4 and H5, as the cyberchondria and COVID-19 fear interaction have a positive and significant effect on online shopping enjoyment (see Table 5). This indicates that during the current COVID-19 pandemic, the relationship between COVID-19 fear and online shopping enjoyment grows significantly stronger as individuals are becoming more anxious about their health. To conclude, we may assume that online shopping enjoyment is mainly guided by fear rather than hedonic shopping motivations (avoidance rather than approaching). Consumers are going online guided by the fear to be contaminated and by searching for a safer shopping context.

Discussion

Our results indicate that during the current pandemic, cyberchondria is becoming a fact as it occurs among non-clinically diagnosed people. Regarding potential effects on consumers' behavior, this study was the first to find that the cyberchondria was associated with an increased online shopping enjoyment guided both by a developed fear from this virus and hedonic motivations. In particular, this study found strong and positive correlations between the cyberchondria and the fear from COVID-19. However, only two dimensions could be considered as antecedents for hedonic shopping motivations namely the distress and the excessiveness. To reduce the general health anxiety and the excessive worry about ones' health, these findings may indicate starting points for some business and marketing interventions in times of a virus outbreak. Commercial websites provide messages regarding the free of risk context that they are offering during the COVID-19 crisis. Cyberchondriacs may use them to acquire effective emotional coping. Furthermore, in order to demonstrate that online shopping may be considered as a safe space, where anxious people may escape, businesses should elucidate clear pathways of action so that consumers feel empowered to tackle the pandemic



effectively. This study may present online shopping as a relief from the psychological distress and the fear associated with COVID-19 threatening both individual psychological wellbeing and public health outcomes.

In addition, cyberchondriacs indeed show their motivations toward hedonic shopping experiences. But, surprisingly, hedonic shopping motivations appear to contribute differently to online shopping enjoyment. Gratification seeking was found to be the key hedonic motivation contributing to enjoying online shopping, whereas in emerging markets such as Tunisia, bargaining hunting had a negative effect on it. Taking into consideration these results, public health communicators and marketers should highlight further the power of shopping in terms of mood repair and stress and health anxiety release. However, should carefully observe this health-related distress that may lead to the adoption of some critical behaviors such as online impulsive shopping behavior.

Our study had several strengths. To the best of our knowledge, it was one of the first studies to investigate the impact of the cyberchondria on shopping experiences during the COVID-19 pandemic. This is particularly important, as this study serves as some of the first data about the mental health impacts of the COVID-19 pandemic. However, our study suffers from some limitations. The first could be associated with the convenience sampling method which may limit the generalization of our findings.

Another limitation should be mentioned. The recruitment procedure may induce some responses' bias. Being limited to online recruitment, particularly from social media communities, may limit the validity of our results to people with a high level of Internet familiarity. As our outcome variables are usually depending on the product category, the generalizability of the result is also questionable if we consider some product category differences. Testing the proposed cyberchondria model in a specific domain will surely offer more reliable results.

In addition to the method, the timing also may create some problems in interpretations and managerial recommendations. This study was conducted during a pic of virus spread and a total panic was recorded during the data collection period. It would be interesting to examine the cyberchondria after the storm to evaluate how far the consequences are persisting. It would be beneficial to conduct further longitudinal research into the psychological and cognitive impact of cyberchondria as it continues to persist, as well as its consequences on the shopping experience. Our cross-sectional study needs to be completed by experimental methods that would be advantageous to test the proposed causality relations. Furthermore, the survey responses were self-reported data. Thus, empirical observations and data from recreational services providers could be used to support these findings.

Another priority for future research should be to clarify the relationships between cyberchondria and other coping strategies adopted to reduce distress or seek reassurance. This will improve our understanding of the

coping repertoire of cyberchondriacs. To the best of our knowledge, there are currently no specific business solutions for cyberchondria. Our findings of relationships between fear of COVID-19, hedonic shopping motivations, online shopping enjoyment and cyberchondria shed light on potential interventions that need to be verified. Recently, it was argued that the cyberchondria, and intention to self-isolate increased intention to make unusual purchases (Laato et al., 2020). However, although retail sales increased during the early stages of the COVID-19 pandemic, an overall decrease in the use of recreational services was observed. This change in consumer activity is forcing recreational services providers to quickly adapt their business to the new circumstances. This study proposes using online shopping as an emotional regulation tool that may reduce health related anxiety and may increase overall mental well-being. This will then provide some important information for businesses and health organisms to tackle these mental health-related issues in response to other similar societal disasters. This will be a call for future research to investigate the alternative ways to increase enjoyment and to reach new consumer enchantment as this traumatic stress could lead to the development of avoidance behaviors or passive lifestyles after the pandemic (Zhang & Ma, 2020).

The cyberchondria led by the COVID-19 pandemic may be temporary and have less impact on consumers' behavior as these later will be familiarized with the health information overload and with the overall situation. In addition, cultural differences and social influence may play a crucial role during this period. An avenue of future research could be testing this model in different cultural contexts and extending the research model by including social influence forces. Accordingly, scholars are encouraged to take opportunities to collect empirical data on purchasing experiences to further expand our knowledge on consumers' behavior during catastrophic situations.

Conclusions

The consequences measured in the current work were some among other effects of mental health on consumers' shopping attitudes. Mental wellbeing still faces considerable challenges, taking into consideration the long-term drawbacks of the current pandemic. It is more than necessary to promote social acceptability and to afford a digital context in which cyberchondriacs may have an anxiety relief context.

Ethical Approval

The study protocol was consistent with the ethical guidelines of the 1975 Declaration of Helsinki as reflected in a prior approval by the Institution's Human Research Committee.

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References

- Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020, March 27). The fear of COVID-19 scale: Development and initial validation. *International Journal of Mental Health and Addiction*. <https://doi.org/10.1007/s11469-020-00270-8>
- Ali, A., Li, C., Hussain, A., & Bakhtawar. (2020, August 28). Hedonic shopping motivations and obsessive-compulsive buying on the Internet. *Global Business Review*. <https://doi.org/10.1177/0972150920937535>
- Arnold, M. J., & Reynolds, K. E. (2003). Hedonic shopping motivations. *Journal of Retailing*, 79(2), 77–95. [https://doi.org/10.1016/S0022-4359\(03\)00007-1](https://doi.org/10.1016/S0022-4359(03)00007-1)
- Arnold, M. J., & Reynolds, K. E. (2012). Approach and avoidance motivation: Investigating hedonic consumption in a retail setting. *Journal of Retailing*, 88(3), 399–411. <https://doi.org/10.1016/j.jretai.2011.12.004>
- Babin, B. J., Darden, W. R., & Griffin, M. (1994). Work and/or fun: Measuring hedonic and utilitarian shopping value. *Journal of Consumer Research*, 20(4), 644–656. <https://doi.org/10.1086/209376>
- Bajaj, B., Robins, R. W., & Pande, N. (2016). Mediating role of self-esteem on the relationship between mindfulness, anxiety, and depression. *Personality and Individual Differences*, 96, 127–131. <https://doi.org/10.1016/j.paid.2016.02.085>
- Bajcar, B., & Babiak, J. (2021). Self-esteem and cyberchondria: The mediation effects of health anxiety and obsessive-compulsive symptoms in a community sample. *Current Psychology*, 40, 2820–2831. <https://doi.org/10.1007/s12144-019-00216-x>
- Barke, A., Bleichhardt, G., Rief, W., & Doering, B. K. (2016). The Cyberchondria Severity Scale (CSS): German validation and development of a short form. *International Journal of Behavioral Medicine*, 23(5), 595–605. <https://doi.org/10.1007/s12529-016-9549-8>
- Byrne, B. M. (2001). Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International Journal of Testing*, 1(1), 55–86. https://doi.org/10.1207/S15327574IJT0101_4
- Diallo, M. F., & Seck, A. M. (2018). How store service quality affects attitude toward store brands in emerging countries: Effects of brand cues and the cultural context. *Journal of Business Research*, 86, 311–320. <https://doi.org/10.1016/j.jbusres.2017.08.017>
- Doherty-Torstrick, E. R., Walton, K. E., & Fallon, B. A. (2016). Cyberchondria: Parsing health anxiety from online behavior. *Psychosomatics*, 57(4), 390–400. <https://doi.org/10.1016/j.psych.2016.02.002>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- Garfin, D. R., Silver, R. C., & Holman, E. A. (2020). The novel coronavirus (COVID-2019) outbreak: Amplification of public health consequences by media exposure. *Health Psychology*, 39(5), 355–357. <https://doi.org/10.1037/hea0000875>
- Gioia, F., & Boursier, V. (2020). What does predict cyberchondria? Evidence from a sample of women. *Journal of Psychology and Psychotherapy Research*, 7, 68–75. <https://doi.org/10.12974/2313-1047.2020.07.6>
- Hashemi, S. G. S., Hosseinnazhad, S., Dini, S., Griffiths, M. D., Lin, C. Y., & Pakpour, A. H. (2020). The mediating effect of the cyberchondria and anxiety sensitivity in the association between problematic internet use, metacognition beliefs, and fear of COVID-19 among Iranian online population. *Heliyon*, 6(10), E05135. <https://doi.org/10.1016/j.heliyon.2020.e05135>
- Horváth, C., & Adigüzel, F. (2018). Shopping enjoyment to the extreme: Hedonic shopping motivations and compulsive buying in developed and emerging markets. *Journal of Business Research*, 86, 300–310. <https://doi.org/10.1016/j.jbusres.2017.07.013>
- Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: A web-based cross-sectional survey. *Psychiatry Research*, 288, Article 112954. <https://doi.org/10.1016/j.psychres.2020.112954>
- Jungmann, S. M., & Witthöft, M. (2020). Health anxiety, cyberchondria, and coping in the current COVID-19 pandemic: Which factors are related to coronavirus anxiety? *Journal of Anxiety Disorders*, 73, Article 102239. <https://doi.org/10.1016/j.janxdis.2020.102239>
- Laato, S., Islam, A. N., Farooq, A., & Dhir, A. (2020). Unusual purchasing behavior during the early stages of the COVID-19 pandemic: The stimulus-organism-response approach. *Journal of Retailing and Consumer Services*, 57, Article 102224. <https://doi.org/10.1016/j.jretconser.2020.102224>
- Lee, K., Hoti, K., Hughes, J. D., & Emmerton, L. (2014). Dr Google and the consumer: A qualitative study exploring the navigational needs and online health information-seeking behaviors of consumers with chronic health conditions. *Journal of Medical Internet Research*, 16(12), e262. <https://doi.org/10.2196/jmir.3706>
- Lee, E., & Lee, H. (2019). Disaster awareness and coping: Impact on stress, anxiety, and depression. *Perspectives in Psychiatric Care*, 55(2), 311–318. <https://doi.org/10.1111/ppc.12351>
- Loos, A. (2013). Cyberchondria: Too much information for the health anxious patient? *Journal of Consumer Health on the Internet*, 17(4), 439–445. <https://doi.org/10.1080/15398285.2013.833452>



- McElroy, E., Kearney, M., Touhey, J., Evans, J., Cooke, Y., & Shevlin, M. (2019). The CSS-12: Development and validation of a short-form version of the cyberchondria severity scale. *Cyberpsychology, Behavior, and Social Networking*, 22(5), 330–335. <https://doi.org/10.1089/cyber.2018.0624>
- McManus, F., Leung, C., Muse, K., & Williams, J. M. G. (2014). Understanding “cyberchondria”: An interpretive phenomenological analysis of the purpose, methods and impact of seeking health information online for those with health anxiety. *The Cognitive Behaviour Therapist*, 7, E21. <https://doi.org/10.1017/S1754470X14000270>
- Mohammed, D., Wilcox, S., Renee, C., Janke, C., Jarrett, N., Evangelopoulos, A., Serrano, C., Tabassum, N., Turner, N., Theodore, M., Dusic, A., & Zeine, R. (2019). Cyberchondria: Implications of online behavior and health anxiety as determinants. *Archives of Medicine and Health Sciences*, 7(2), 154–162. https://doi.org/10.4103/amhs.amhs_108_19
- Norr, A. M., Allan, N. P., Boffa, J. W., Raines, A. M., & Schmidt, N. B. (2015). Validation of the Cyberchondria Severity Scale (CSS): Replication and extension with bifactor modeling. *Journal of Anxiety Disorders*, 31, 58–64. <https://doi.org/10.1016/j.janxdis.2015.02.001>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42(1), 185–227. <https://doi.org/10.1080/00273170701341316>
- Starcevic, V., & Berle, D. (2013). Cyberchondria: Towards a better understanding of excessive health-related Internet use. *Expert Review of Neurotherapeutics*, 13(2), 205–213. <https://doi.org/10.1586/ern.12.162>
- Wang, E., An, N., Gao, Z., Kiprop, E., & Geng, X. (2020). Consumer food stockpiling behavior and willingness to pay for food reserves in COVID-19. *Food Security*, 12(4), 739–747. <https://doi.org/10.1007/s12571-020-01092-1>
- White, R. W., & Horvitz, E. (2009). Cyberchondria: Studies of the escalation of medical concerns in web search. *ACM Transactions on Information Systems*, 27(4), Article 23. <https://doi.org/10.1145/1629096.1629101>
- Xiao, H., Zhang, Y., Kong, D., Li, S., & Yang, N. (2020). Social capital and sleep quality in individuals who self-isolated for 14 days during the coronavirus disease 2019 (COVID-19) Outbreak in January 2020 in China. *Medical Science Monitor*, 26, e923921. <https://doi.org/10.12659/MSM.923921>
- Zhang, Y., & Ma, Z. F. (2020). Impact of the COVID-19 pandemic on mental health and quality of life among local residents in Liaoning Province, China: A cross-sectional study. *International Journal of Environmental Research and Public Health*, 17(7), Article 2381. <https://doi.org/10.3390/ijerph17072381>
- Zhao, X., Lynch, Jr. J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197–206. <https://doi.org/10.1086/651257>

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