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Health Anxiety, Information Anxiety, and Internet Self-Efficacy on Cyberchondria among Filipino Young Professionals during the COVID-19 Pandemic

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Abstract: The mobility restrictions due to COVID-19 lockdown impositions have forced people to stay at home in lieu of face-to-face activities. In effect, it has increased people's exposure to the Internet and its perils, brought by excessive information from different media that may lead to the development of health-related anxiety. This phenomenon is known as cyberchondria, where people may have experienced extreme anxiety about their physical health because of repeated internet searches concerning their medical conditions. This paper investigates the possible relationship between health anxiety, information anxiety, and computer self-efficacy toward cyberchondria. Data from a cross-sectional method using online surveys among fresh graduates aged 21-24 in several Philippine higher education institutions were analyzed. The results of the structural model test reveal that both health anxiety and information anxiety may contribute to cyberchondria. The study discusses the implication of the results and offers fruitful research directions for further studies.

Keywords: Cyberchondria, Internet Self-Efficacy, Health Anxiety, Information Anxiety

1. Introduction

Recent advances on the Internet and other digital technologies have transformed almost all aspects of our lives, spanning our education, work, and social life. The Internet and other digital technologies have been recognized as enabling tools for learning and educational use as it expands access to the wealth of information. With the ongoing onset of the COVID-19 pandemic, these technologies created new pedagogical possibilities and enabled innovative services of Internet platforms that accelerated the spread of online learning for professional development and lifelong learning. However, despite the benefits of the Internet and digital technologies, the changing social environment, the emerging learning circumstances, and the appropriation of the right technology often create challenges that the academic community and industry practitioners cannot ignore. During the pandemic, when various communities hurdle physical restrictions, the Internet remained the only sound information source for many people to answer questions about health when accessing health professionals became more difficult. Indeed, in the early stages of the COVID- 19 outbreak, the Internet became an essential channel for vital public health and safety information. However, by increasing Internet exposure considering its potential uncertainty and risk, the pandemic is likely to have exposed vulnerable individuals to the risk of developing health-related anxiety (Vismara et al., 2021).

Although Internet-based health information can enable underserved individuals to make informed health decisions about their health (Zheng et al., 2021), the excessive information from all types of media has also exacerbated several psychological effects, such as the surge of individuals

dealing with health anxiety, medical concerns, and stresses (Ambrosini et al., 2022). The rise of these health-related psychological stresses during a pandemic encourages individuals to seek self-diagnosis and general knowledge about COVID-19 and other diseases (Shan et al., 2022). Past studies argue that the self-diagnosis behavior of individuals invites unnecessary psychological stress, mainly attributed to the possible exaggeration of fears about their health conditions. The proliferation of medical information online raises the possibility of finding information that is misleading, unreliable, and susceptible to misinterpretation resulting in escalation of anxiety (Gass, 2016). This phenomenon, as coined by White and Horvitz (2002), is known in cyberpsychology as cyberchondria which is the excessive and repetitive utilization of Internet resources for information on the individual's health, leading to heightened paranoia. Cyberchondria is a relatively emerging issue, but with the advancement of high-speed Internet and mobile phones, it has become a public health issue in developing economies (Menon et al., 2020), especially during the COVID-19 pandemic. Susceptibility to cyberchondria varies, and a prior study established a linkage between the increased availability of information on the Internet and the influence of health anxiety (Padagas et al., 2022).

During the onset of the COVID-19 pandemic, higher rates of anxiety and depression and risk of cyberchondria are reported among young professionals compared to their older counterparts (Korkmaz et al., 2022; Jackson et al., 2020). Sources of this anxiety and depression vary from early career employment to health issues. The Internet has become a constant resource in addressing these health issues, which may heighten cyberchondria (Erdogan et al., 2022). In this paper, the authors propose to investigate the relationship between the psychological factors of health anxiety, information anxiety, and internet self-efficacy on cyberchondria in the context of young professionals who recently graduated from higher education in a developing economy. As young professionals contribute primarily to the economic development of a developing country, a more profound understanding of the relationship between psychological factors and escalations of internet anxiety among young professionals will be beneficial to continuing educational institutions, workplaces, and regulatory bodies, to support their development and well-being.

2. Related Literature

The pandemic heightened health anxiety, where massive information from different media about COVID-19 escalated concerns and distress across the general population (Jokic-Begic et al., 2020). Jungmann and Witthöft (2020) argued that based on cognitive-behavioral models, triggering events play a critical role in the emergence and maintenance of health anxiety. With this ongoing coronavirus pandemic, health anxiety can be a severe psychological issue, amplified by social isolation and health-related information uncertainty (Maftei & Holman, 2020). Health anxiety is when a person has unwarranted or excessive concerns about their health circumstances (Korkmaz et al., 2022). Prior studies argue that people with pre-existing health anxiety tendencies are vulnerable to escalated anxiety and other adverse behaviors during a pandemic (Jungmann & Witthöft, 2020; Starcevic et al., 2020; Zheng et al., 2021). While recent literature linking cyberchondria as a pattern of excessive and repetitive internet self-diagnosis behavior is claimed to be related to underlying health anxiety (Dohert-Torstrick et al., 2016); this concept is not yet investigated with young professionals in an emerging economy. As such, we hypothesize that:

H1: Health anxiety positively influences cyberchondria

During the COVID-19 pandemic outbreak, a tremendous amount of information is increasingly available in digital information sources and overwhelms any individual who is typified by their inability to access, understand, organize, or make use of information in any setting at their disposal (Ojo, 2016; Skarpa & Garoufallou, 2021). The proliferation of health-related information and websites is driven by the desire of individuals to have an initial understanding of their health concerns (Akhtar & Fatima, 2020). However, numerous studies suggest excessive exposure and interaction with online medical content may intensify anxiety (White & Horvitz, 2012). Prior studies argue that extreme information uncertainty is a major cause of information anxiety (Girard & Allison, 2015). The stress induced by the health-related searches online may lead to uncontrolled risky behavior leading to cyberchondria (Aiken & Kirwan, 2012), especially among young professionals who are viewed as active seekers and users of

online health information (Rains, 2014). The study of Baumgartner and Hartmann (2011) explored the relationship between health anxiety and online search behavior, revealing that anxious individuals experience negative consequences from using the Internet for searching for health information. As a result, we hypothesize that:

H2: Information Anxiety positively influences cyberchondria

Online health learning has transformed and evolved over the years and has been greatly influenced by advances in the Internet and digital technologies coupled with the increasing knowledge and skills to be learned and acquired by individuals (Markowitz & Reid, 2018). With younger professionals, known to be digital natives who have been born into environments in which Internet technology is used regularly (Chuang, Lin, & Tsai, 2015; Grzeslo, 2020), it is also observed that they are frequent users of electronic health resources and online communities for their health issues (Schneider et al., 2018). Despite coming of age in an increasingly digitized society, these young professionals, with their view of technology as a new social environment, have experienced more anxiety and depression than their older counterparts (Dalessandro, 2018; Korkmaz et al., 2022; Varma et al., 2020). With the outbreak of COVID-19 and the adoption of work-from-home arrangements and online learning, the Internet as an informational channel may exert unique affective pressure on those with health anxiety (Dohert-Torstrick et al., 2016). Thus, we hypothesize that:

H3: Internet Self-Efficacy positively influences cyberchondria

In the context of this study, we hypothesize that Health Anxiety, Information Anxiety, and Internet Self-efficacy are psychological factors towards cyberchondria, as depicted in Figure 1 – Theoretical Framework.

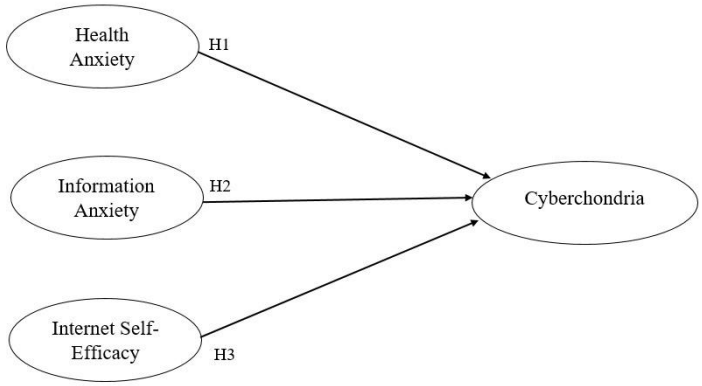

Figure 1. Theoretical Framework

3. Methodology

Using an online survey, the study used a cross-sectional method to investigate the relationship between psychological factors and cyberchondria. Fresh graduates aged 21-24 years old from several Philippine higher education institutions were invited to participate in an online survey. As the new entrants to the labor market during the COVID-19 pandemic, the career perspective of these young people remains uncertain and fragile, which brings worries and tension to their psychological well-being (Petruzziello et al., 2022). The aim of this study, its sections, and privacy protocols were explicitly stated at the start of the survey. One hundred ninety-one responses were recorded and analyzed for construct validation and hypothesis testing. Item questionnaire for each variable of the theoretical framework was adapted from past literature. There are twenty-one (21) questions from the health anxiety study of Lucock and Morley (1996), five (5) questions on information anxiety (Girard & Allison, 2015), and ten (10) items for internet self-efficacy (Suana, Riyanda, & Putri, 2019).

On the other hand, the questions to represent cyberchondria were taken from McElroy and Shevlin (2013). The cyberchondria instrument consists of thirty-three (33) items about an individual's

perceptions of the Internet's health information, their practices with the use of the Internet to search for health-related information, and how the Internet influences their health concerns. Participants answered using a five-point Likert scale ranging from 1 – "Never" to 5 - "Always". The majority of the respondents are fresh female graduates aged 21-24, accounting for 58% or 110 of those who participated in the study. The rest are fresh male graduates, with a total of 81 or 42% of the total recorded responses.

Considering the research locale and adaptation of items from different disciplines, testing for reliability and convergent validity is essential to establish instrument precision. A pilot test was conducted online with fifty (50) participants, and responses were analyzed using SmartPLS. Using a Partial Least Square or PLS algorithm, this study extracted the Cronbach Alpha and Composite Reliability for reliability and Average Variance Extracted or AVE for convergent validity. This process was repeated in several iterations after removing items until values of 0.70 for reliability and 0.50 for convergent validity were above the minimum values (Henseler et al., 2014; Nelson et al., 2016). After the pilot test, 52 items were retained in the final structural model.

4. Results and Discussion

We applied a bootstrapping technique to our dataset to test our hypotheses using the latest version of SmartPLS (Ringle, Wende, & Becker, 2015). As shown in Table 3, the coefficient values for H1, H2, and H3 are 0.411, 0.342, and 0.125, respectively. While these values indicate positive relationships between health anxiety, information anxiety, and Internet self-efficacy to cyberchondria, the t- values of 0.192 for H3 suggest that the relationship is insignificant. On the other hand, the t- values of 3.582 for the relationship between health anxiety to cyberchondria and 3.298 for the relationship between Internet self-efficacy and cyberchondria are significant, given that the values are above the minimum value of 1.96 (Hair, Hult, Ringle, & Sarstedt, 2014).

Table 1. Results

Hypothesis	Coefficient	*t* - value	*p*-value	Decision
H1: Health Anxiety → Cyberchondria	0.411	3.923	0.000	Supported
H2: Information Anxiety → Cyberchondria	0.342	3.340	0.001	Supported
H3: Internet Self-Efficacy → Cyberchondria	0.125	1.296	0.196	Not Supported

The results of the structural model test reveal that both health anxiety (H1) and information anxiety (H2) lead to cyberchondria. The findings are consistent with recent studies that attribute both factors as positive determinants of cyberchondria (Nadeem et al., 2022; Qiao et al., 2021; Yang et al., 2022). The statistical results can be interpreted within the bounds of prevailing conditions in the Philippines and its related socio-cultural context. While society has slowly transitioned toward living with COVID-19, studies argue that its long-term impact on social processes will influence how people live in the coming years (Carter et al., 2021). As a result, the general population, including young professionals, experienced a higher level of health anxiety during the pandemic due to the death or sickness of people in their social networks (Haig-Ferguson et al., 2021). This health anxiety will result in individuals constantly looking for medical information online that will provide comfort and satisfy their curiosity if there is no access to medical expertise. This information overload results in information anxiety, when individuals are overwhelmed with a wealth of information beyond what their cognitive faculties can process.

The pandemic restrictions encouraged workers to perform their job functions at home, and it has been observed that Internet access reached unprecedented levels. While a body of information systems research highlighted the various benefits of working from the comforts of home, studies also suggest problematic Internet use resulting from an online work environment during COVID-19 (Islam et al., 2020). In addition, the inadequate services of the Philippine healthcare system and exposure to misinformation online and on social media encouraged Filipinos to seek medical information online, which may lead to cyberchondria (Oducado et al., 2021; Superio et al., 2021). Therefore, it is common for young professionals working from home to experience anxiety brought about by health (H1) and information consumption of medical information (H2). Due to the availability of technology and access

to the Internet, they look for medical information online as compensatory behavior to address their current psychological state.

Strides in educational reforms to integrate technology into the curricula of universities equipped young Filipino professionals to join the workforce with the necessary skills to search for relevant information to satisfy their cognitive needs. A possible reason why our study contradicts the work of Suana et al. (2019) is that the same Internet technology skills (H3) of our respondents were used to seek medical information from medical experts online (Yoo, Li, & Xu, 2021). Another explanation is that the Department of Health and other health regulatory bodies in the Philippines utilized social media to disseminate quickly developing information in the fight against COVID-19 (Galido et al., 2021). In addition to their skills to seek credible and accurate information, social media networks such as Facebook and Twitter launched fact-checking features to control the spread of misinformation about COVID-19. As digital natives and social media users, young professionals rely on these platforms to get relevant information about the pandemic (Vitelar, 2019).

5. Conclusion, Limitations, and Recommendations

To conclude, cyberchondria is an ongoing concern exacerbated by the lack of health literacy, psychological factors, and the convenience of access to online health information. The results of our empirical study confirmed that health anxiety and information anxiety are antecedents of cyberchondria. On the other hand, statistical results do not support that Internet self-efficacy positively influences cyberchondria. Our findings should be construed within the confines of our methodological constraints. First, while our study sample is small, future research can be undertaken with a bigger population to assess the applicability of our results to different age groups. Second, future scholarly endeavors can further our study by conducting a qualitative inquiry to explain the results of our hypothetical testing. Lastly, we did not account for the moderating effects of other variables, such as gender and medical knowledge. We plan to conduct this statistical inquiry in the next phases of this study as this will provide a fertile ground to extract new knowledge about cyberchondria.

As society navigates toward living and working in the new normal, educational institutions must update curricula and support programs to prepare further young professionals to discern the accuracy of medical information online. While young professionals are already outside the university and starting their careers, our findings provide a basis for reforms in three stakeholders: the university, the industry the government. Although fact-checking apps remain a viable technical solution, media literacy across all generations to evaluate valid information online especially social media will be more effective and inclusive (Dumitru et al., 2022; Loos & Nijenhuis, 2020). Our study highlights the need to prepare interns to balance their health, job readiness, and overall well-being for the academe. Therefore, it is crucial to institutionalize programs that will support interns beyond job preparedness and provide critical life skills to balance their health needs and information online about medical information. For the industry, ensuring that newly hired employees are given adequate institutional support beyond healthcare benefits such as professional development programs or training on overall well-being can be implemented as part of their onboarding process. Lastly, this study highlights the need for government bodies to maximize the potential of online spaces to promote and deploy programs to educate young professionals to validate online information and decrease the harmful effects of cyberchondria.

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