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Between knowledge and anxiety: 'Unveiling the impact of cyberchondria and health literacy on academics' quality of life in foundation universities

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Abstract

This study investigates the impact of cyberchondria and health literacy on the quality of life of academics working at foundation universities in Türkiye. By examining how excessive online health information seeking and the ability to critically evaluate and utilize this information affect psychological well-being and life satisfaction, the research offers a comprehensive understanding of these dynamics. A quantitative approach was employed, utilizing a structured questionnaire completed by 488 academics. Data were analyzed using SPSS for descriptive statistics and reliability assessments, and SmartPLS for structural equation modeling (SEM) to evaluate the relationships between the variables. The findings reveal a significant negative correlation between cyberchondria and quality of life, while health literacy exerts a positive influence. Moreover, health literacy was found to buffer the detrimental effects of cyberchondria through indirect pathways. These results underscore that cyberchondria may impair well-being by increasing health-related anxiety, whereas health literacy enhances individuals' capacity to assess health information critically and make informed health decisions. The study concludes that promoting health literacy among academics can serve as a protective factor against the adverse psychological consequences of uncontrolled health information consumption. Institutions are thus encouraged to provide access to reliable digital health resources and offer targeted training programs to strengthen digital health competencies.

Keywords: Academics, Cyberchondria, Health literacy, Quality of life, Structural equation modelling.

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1. Introduction

Today, the rapid development of technology and the widespread use of the Internet have facilitated individuals' access to health information. While the Internet offers an endless resource for individuals seeking health information, many people can obtain this information quickly and easily. However, this situation has also brought along some negative consequences. In this context, the condition of excessive anxiety, which is called "cyberchondria" and which people experience while searching for health information on the internet, has become an important research topic. Cyberchondria is becoming widespread, especially among academics who have easy access to health information. Since academics are competent in accessing information, they may tend to make decisions based on this information. However, this may occasionally lead to increased concerns based on misinformation. In particular, information obtained from unreliable sources may lead individuals to make wrong health decisions.

In addition to cyberchondria, health literacy is also an effective factor in individuals' ability to understand and use health information. People with high health literacy can successfully access and interpret accurate information. This ability can help individuals make health-related decisions in a healthy manner. Increased health literacy also enhances people's capacity to evaluate health information critically. However, when health literacy is low, people may be more vulnerable to misinformation, which can increase their health concerns.

Research suggests that low health literacy may increase cyberchondria levels. In particular, a study conducted on nursing students found that health literacy partially mediated the relationship between cyberchondria and health anxiety [1]. A study conducted among university students showed that high levels of cyberchondria may negatively affect sleep quality. Increased time spent online per day and phone use before bedtime were found to be associated with sleep disturbances [2]. A study conducted on health sciences students in Iran showed a weak and insignificant correlation between e-health literacy and cyberchondria. This suggests that individuals' e-health literacy levels may not be sufficient to prevent cyberchondria [3]. A study conducted in Pakistan revealed that there was a positive relationship between cyberchondria and health anxiety, and that health literacy negatively affected this relationship. These findings suggest that health literacy can play an important role in reducing the impact of cyberchondria on health anxiety [1]. A study showed that cyberchondria can worsen symptoms of anxiety and depression and reduce quality of life. This highlights the negative effects of cyberchondria on mental health [4]. High levels of digital health literacy were found to be associated with health anxiety and cyberchondria. This demonstrates the complex effects of digital health literacy on health behaviors [5]. One study showed that general health literacy may be a protective factor against cyberchondria, but unexpectedly, higher e-health literacy was associated with more severe cyberchondria [6]. One study found that health anxiety was positively correlated with cyberchondria and death anxiety and negatively correlated with e-health literacy. This highlights the impact of health anxiety on cyberchondria [7]. One study showed that health literacy was associated with health anxiety and cyberchondria, and lower health literacy was linked to higher health anxiety and cyberchondria [8]. Cyberchondria has been found to influence individuals' health care seeking and health care utilization. This is important because of its potential impact on health services [9].

In this study, the effects of cyberchondria and health literacy on quality of life among academics working in foundation universities were analyzed. It emphasizes how academicians' easy access to information and their ability to use this information affect their health perceptions and quality of life. Additionally, the relationship between cyberchondria and health literacy and the reflections of this relationship on quality of life were also investigated. The aim of the study is to determine the cyberchondria and health literacy levels of academics working in foundation universities and to reveal the effects of these two variables on quality of life. The results of the study are expected to provide recommendations to increase academicians' awareness of accessing and using health information. Furthermore, it aims to highlight the importance of training programs for the development of health literacy. In this way, it aims to contribute to improving the overall quality of life of academics by reducing their concerns based on health information. Besides training programs, it is also recommended that academic institutions make health information sources accessible and reliable.

In the study, the survey method was used to examine the effects of cyberchondria and health literacy on quality of life among academics working in foundation universities. Considering the intensive work schedules of the academicians, who are the target group of the research, the survey method was preferred as the most practical and effective way of data collection.

The research question is a critical element that determines the main purpose and scope of a study. The study aims to examine the effects of cyberchondria and health literacy on quality of life among academics working in foundation universities. In line with this general purpose, the research question was determined as follows:

- How do cyberchondria and health literacy affect the quality of life of academics working in foundation universities?
- The main question can be supported by sub-questions related to the subject:
- Cyberchondria Levels: What are the cyberchondria levels of academics working at foundation universities?
- The Relationship between Cyberchondria and Health Literacy: What is the relationship between cyberchondria and health literacy? Do academics with high health literacy have low cyberchondria levels?
- What are the effects of cyberchondria on academics' quality of life?
- What are the effects of health literacy on academics' quality of life?
- How do the effects of cyberchondria and health literacy on academics' quality of life interact?

The findings obtained at the end of the study will reveal the possible effects of cyberchondria and health literacy levels among academics working in foundation universities on their quality of life. These findings will also contribute significantly to the existing literature in this field. Furthermore, the results will assist academics in developing strategies to manage their health concerns and enhance their quality of life. The data obtained can guide the identification of areas where more training and awareness studies are needed to improve health literacy.

The aim of this study is to examine the negative effects of cyberchondria (excessive health information seeking) on quality of life and how these effects change depending on the level of health literacy. The study will test the hypotheses that a high level of health literacy improves quality of life and that increased health literacy plays an important role in reducing the negative effects of cyberchondria on quality of life. In this context, it is aimed that the findings of the study will draw attention to the importance of health literacy and contribute to the healthy guidance of people's behaviors in the search for health information.

2. Literature Review

2.1. Cyberchondria

The word "cyberchondria" was used for the first time in Business Wire in 1996, and in the Sunday Times in 2000, it was emphasized that the excessive use of internet health sites increased health concerns. In the following years, the term was frequently featured in British newspapers such as BBC, Sunday Times, and The Independent. In Turkey, the term first appeared in blogs and news websites such as Radikal and NTV in 2006. The term "cyberchondriac," which does not yet have an official definition, was added to the Oxford English Dictionary as "a person who obsessively researches health information on the Internet" [10].

The term "cyberchondriasis" was derived from the terms "cyber" and "hypochondriasis" to explain the negative effects of increased online health information consumption [11]. The work of White and Horvitz [9] initiated academic research in this field [12]. The term "cyberchondriac" was added to the Oxford English Dictionary in 2012 as "a person who compulsively searches for symptoms of illness on the Internet" [13]. McElroy and Shevlin developed the "Cyberchondria Intensity Scale" in 2014 [12].

Low self-control in individuals with technology and internet addiction accelerates cyberchondria [14]. Factors such as distrust in health institutions, misinterpretation of bodily perceptions, the influence of the media, low education levels, the fact that the internet offers fast and free information, the policies of pharmaceutical companies and private health insurances, and the constant emphasis on a healthy life in the media trigger cyberchondria [12].

Recent findings suggest that individuals with higher health anxiety are more likely to engage in excessive online health-related searches, which paradoxically may increase rather than alleviate their anxiety. This behavior shows significant overlap with obsessive-compulsive symptoms, particularly in domains such as checking, reassurance seeking, and contamination fears, highlighting cyberchondria's potential relationship with obsessive-compulsive disorder (OCD) symptomatology [15].

Moreover, cognitive and affective vulnerabilities such as negative interpretation bias, rumination, and intolerance of uncertainty have been identified as mediators in the relationship between health anxiety and cyberchondria. Specifically, individuals with high intolerance of uncertainty tend to interpret ambiguous health-related information as threatening, thus escalating the compulsive search for information online [16].

The factors that trigger cyberchondria are psychological, sociological, and technological factors, and studies generally examine the effects of internet use, health concerns, and information-seeking behaviors on individual psychology. Cyberchondria is a condition that reflects health anxiety, hypochondria, and obsessive-compulsive behaviors and requires attention in terms of public health [17].

Health Anxiety: Anxiety is defined as a worried thought; health anxiety refers to physical and emotional concerns triggered by the thought that health is under threat [18]. Individuals may be concerned about issues related to their health and this may lead to health anxiety [19]. Freud defined anxiety as a function of the ego and anxiety entered the psychological literature. Anxiety manifests itself with symptoms such as anxiety, uneasiness and physical arousal [20]. Health anxiety is the individual's belief that he or she has a serious illness due to misinterpreting symptoms. Severe health anxiety can lead to problems such as pain, fear of undiagnosed illness, and distrust of doctors [20]. Health anxiety triggers cyberchondria. Individuals seeking health information on the Internet can increase their anxiety with repeated searches [21]. Repeated and excessive online health searches tend to fuel pre-existing anxiety rather than reduce it, contributing to compulsive behavior and psychological distress [22].

Hypochondria According to DSM-4, hypochondria is defined as the belief that an individual has a serious illness by misinterpreting his/her physical symptoms [23]. Cyberchondria shares similarities but is more influenced by internet use. Cyberchondria is especially common among non-medical students who lack the training to critically assess health data, which may result in over-interpretation of symptoms and escalation of anxiety. Furthermore, these individuals may become reliant on smartphones for information-seeking, forming maladaptive patterns of behavior that fuel cyberchondria [24]. Cyberchondria is a form of hypochondria related to internet use and is a reflection of health concerns [25] cited in Türkön and Toraman [26]. While cyberchondriacs are anxious when searching for information on the internet, hypochondriacs believe that they have a specific disease and make frequent doctor visits. Cyberchondria is more common and manageable than hypochondria [27]. It has been emphasized that cyberchondria also disrupts the doctor-patient relationship due to mistrust of professionals and repeated demands for unnecessary diagnostic procedures [22].

Depression decreases the quality of life by impairing functionality, creativity, happiness, and satisfaction, leading to a loss of the labor force [28]. The word "depress" is derived from Latin "depressus" and means "to be low" or "to suppress" [29]. Although cyberchondriacs do not have health problems, they may experience fear of illness. Trusting health information on the internet without questioning it can lead to anxiety and depression. For example, a person with chest pain may fear a heart attack by searching the internet, which may increase anxiety and lead to incorrect treatments. Inaccurate or unfiltered information may cause individuals to misjudge their health status and experience unnecessary stress and depression [30]. Higher cyberchondria severity correlates with lower subjective well-being and is positively linked to smartphone addiction, further impairing mood and emotional regulation [24].

In fact, empirical studies show that individuals who report higher levels of cyberchondria also demonstrate significantly elevated depression scores in self-report inventories, such as the DASS-21 [22].

Obsessive-Compulsive Disorder: Obsessive-compulsive disorder (OCD) is a mental disorder characterized by disturbing, repetitive thoughts (obsessions) and repetitive actions (compulsions) to reduce these thoughts [31].

OCD is characterized by obsessions (intrusive thoughts) and compulsions (repetitive behaviors to reduce anxiety). Cyberchondria shares this compulsive element: individuals feel urged to seek health-related reassurance through excessive internet searches. Cyberchondria significantly correlates with OCD dimensions such as contamination/washing and harm/checking, even after controlling for general health anxiety and negative affect. This suggests that cyberchondria may not just be a symptom of anxiety but also partially rooted in obsessive-compulsive processes [32].

Obsessions are involuntary, disturbing thoughts, while compulsions are mental actions to alleviate these thoughts. In literature, Lady Macbeth's constant hand washing is an example of this disorder [33]. Cyberchondria and OCD are associated with common behaviours such as feelings of obligation and seeking reassurance [34]. In cyberchondria, compulsive behaviours to alleviate anxiety are learned and continued. These situations can be managed with cognitive-behavioural therapy [31].

Cyberchondria is recognized as a condition in which people experience excessive anxiety when searching for health information on the internet, and its level in individuals is assessed with McElroy's Cyberchondria Intensity Scale. Psychoeducation and cognitive-behavioral therapy (CBT) are used in the treatment of the disease. CBT helps to reduce cyberchondria. The aim is correct e-health literacy and orientation towards reliable sources. Searching for health information on the internet is useful if done correctly but can lead to anxiety if misinterpreted. Therefore, cyberchondria effects can be reduced by taking environmental and individual measures [34]. The PROMIS Anxiety framework, which enables standardized assessment of anxiety levels through T-scores, also provides an integrated method to compare various anxiety inventories like the GAD-7 and MASQ. This allows researchers to better understand and monitor anxiety induced by digital health behavior [35].

2.2. Health Literacy

The concept of health literacy (HL) was first introduced by Simond [36] in his article "Health Education as Social Policy" [37]. At the 1986 Ottawa Conference, the concept gained importance by emphasising the role of different sectors in health promotion. The World Health Organization [38] defined health literacy as the ability of individuals to understand and use health information. Sorensen et al. defined health literacy as the ability to access, understand, evaluate, and use health information [39].

Although the definitions of health literacy (HL) are similar, each emphasizes different aspects of the concept. HLB is a process based on the ability to transform health information into behavior and enables individuals to make informed decisions by considering both their own health and the health of those around them. This process includes access to information, interpretation, and effective use [40]. SNA supports access to health services, understanding, and effective use of these services. Individuals' understanding and application of health-related information contribute positively to public health [41]. Researchers address HRI from different perspectives, such as individual and social dimensions, education level and access to information. This diversity encourages the evaluation of SRL in a wide range and the development of community-specific strategies. For example, it is important to develop simple health communication tools for communities with low literacy Eroğlu [40]. Nutbeam [42] analysed SRL in functional, interactive and critical dimensions; Zarcadoolas et al. [43] in basic, scientific, civic and cultural dimensions. Balçık et al. [44] adopted Nutbeam's classification. Yılmazel and Çetinkaya [45] defined SRL as the skills of reading medical concepts, listening, analytical thinking and decision-making. Ishikawa [46] and Hiçyakmazer [11] also evaluated CQM in similar dimensions. These classifications emphasize that CQI has an impact on individual and community health services and improves the capacity to access, understand, and apply information. As a result, the differences between the definitions of HIT enable a comprehensive understanding of the concept [41].

Although inequalities in access to information have decreased with the widespread use of the Internet, access to quality health content still poses challenges. World Health Organization [47] defines e-health as the use of information and communication technologies for health. E-health can reduce health inequalities by improving the efficiency, quality, and access to health services. E-health tools have created positive effects in areas such as facilitating health education, enabling communication, and collecting health data [48]. E-health literacy encompasses the skills and knowledge required to interact with technology-based health tools. This includes the ability to address health problems by searching for, understanding, and using health information. E-health literacy consists of general and specific skills such as traditional literacy, health literacy, information literacy, science literacy, media literacy, and computer literacy. It provides the ability to use these technologies to improve people's health levels, make effective use of services, and aims to empower individuals [49]. eHealth literacy is not static; it evolves with changing technology and social conditions. The ability to engage effectively with digital health tools depends not only on individual skills but also on contextual factors such as the health problem, culture, and technological familiarity [50].

Health literacy is an important public health communication tool that strengthens individuals' health decisions, and different models have been developed in this field [51]. E-health literacy is a multidimensional structure covering knowledge and skills [52].

Lily Model: This model, developed by Norman and Skinner, addresses e-health literacy through six components:

- Traditional Literacy: The ability to understand and communicate written texts.
- Computer Literacy: Skills from basic computer use to social media interaction.
- Information Literacy: The ability to find, evaluate and use information.

- Media Literacy: The ability to evaluate and make sense of visual and auditory content.
- Science Literacy: The ability to understand and apply research findings [48].
- Health Literacy: The knowledge and communication required for health-related decision-making.

The Lily Model emphasizes that these components support e-health literacy and enable individuals to make effective use of digital health information. These components are grouped into two domains: analytic (traditional, media, information) and context-specific (computer, science, health) literacies. Both are essential for meaningful and confident engagement with digital health tools [50]. Emphasize that college students often overestimate their digital health literacy. Although most are proficient in technology, they lack critical skills to evaluate and apply health information effectively [53]. Furthermore, it was found that many students fail to assess the credibility of online health sources and often struggle with effective search techniques, despite their comfort with internet use. This reveals a gap between perceived and actual e-health literacy [54].
Gilstad's Model: Gilstad added the dimensions of bodily experience, procedure, conceptual and cultural literacy to the Lily Model:

- Bodily Experience: Recognising and expressing personal health problems.
- Procedural Literacy: The ability to perform tasks and use technology.
- Conceptual and Cultural Literacy: Information is understandable and culturally appropriate [52].

These models show that e-health literacy is a comprehensive construct tha includes not only technology skills but also health, science and cultural awareness [55].

2.3. Quality of Life

The concept of quality of life emerged in the 1930s, and after the economic depression in the USA, it was shown that production depends on social factors. Mayo's studies at the Western Electricity Factory in 1933 revealed the effect of environmental factors on employee performance. In the 1950s, it started to be used to define factors such as quality of life, job satisfaction, and mental health, and in the 1960s, attention was drawn to the human dimensions of work in order to increase the welfare of workers [56]. Plato's *The State* and Aristotle's *Nicomachean Ethics* show that discussions about the quality of life date back to antiquity. The concept became widespread with Long's article *On the Quantity and Quality of Life*, published in 1960. The quality of life has become an important indicator and a universal goal for human rights and political decisions. Maslow's hierarchy of needs emphasizes that the quality of life depends on physical, safety, social, esteem, and self-actualization needs. It focuses on qualities and the level of satisfaction of the individual rather than quantities such as lifespan or income. The quality of life refers to a perfect consciousness process to be achieved in every field [57].

Quality of life has gained importance with WHO's definition of health as a state of complete well-being. Sociocultural changes, increased participation of individuals in health processes, and the increase in chronic diseases have made quality of life a current issue in health services. Physical endurance and self-care ability are among the factors that determine quality of life. In treatments, it is important to understand the patient's feelings and thoughts, to evaluate his/her daily life, and to determine the expected results. In this process, quality of life scales are used with patient-oriented approaches [58].

However, digital transformation has introduced new challenges. The widespread use of social media as a health information source has enabled the rapid spread of health-related misinformation, which may delay or prevent effective care, reduce vaccination rates, and create mistrust towards health authorities [59].

Cyberchondria and health literacy are important factors affecting quality of life. Cyberchondria leads to stress, deterioration of social relations, and unhealthy behaviors with excessive health concerns. Studies have shown that individuals with high trait health anxiety are more prone to cyberchondria, especially during pandemic conditions like COVID-19, and that excessive online searches amplify fear and virus-related anxiety [60]. Health literacy, on the other hand, supports informed health decision-making, access to health services, and personal health management. High health literacy can buffer the effects of misinformation and anxiety by enhancing emotional regulation and enabling individuals to distinguish between credible and misleading information [60]. Furthermore, during the COVID-19 pandemic, anti-vaccine discourse on platforms like Twitter has been amplified by bots and trolls using fear-based persuasive techniques, which further undermines public health efforts and trust [61]. Improving health literacy and receiving professional support for serious concerns can improve quality of life [62].

3. Method

3.1. Purpose and Importance of the Research

The aim of the study is to investigate the effects of cyberchondria and health literacy on quality of life. The study aims to examine the direct and indirect effects of individuals' tendency to excessively search for health information on the internet and their ability to understand, evaluate, and use this information on quality of life. The research addresses the negative effects of this excessive health information-seeking behavior, defined as cyberchondria, on individuals' psychological well-being, social relationships, and daily functioning, as well as how the level of health literacy can modify these effects. In this context, the contributions of health literacy to individuals' ability to make informed health decisions, use health services effectively, and make healthy lifestyle choices are emphasized. The study created a theoretical model to understand the effects of the interactions between cyberchondria and health literacy on quality of life and to clarify these complex relationships and tested this model with the collected data. The main purpose of the study is to determine the negative effects of cyberchondria on quality of life and to reveal how health literacy can mitigate these negative effects. It is suggested that health literacy increases the level of health-related knowledge of individuals, enables them to make more informed health decisions, and thus improves their quality of life. Moreover, as a result of the interaction between cyberchondria and health literacy, the

potential of health literacy to reduce the negative effects on cyberchondria is an important component of the research. Accordingly, the research aims to comprehensively analyze the effects of cyberchondria and health literacy on quality of life in order to better understand the nature and extent of these effects. This information will provide an important basis for understanding the effects of cyberchondria on people's overall quality of life and developing strategies to manage these effects. The results of the research will contribute to the formulation of interventions and policies to improve health literacy, which will help individuals to better manage their health status and improve their overall quality of life. In conclusion, the aim of the study is to evaluate the direct and indirect effects of cyberchondria and health literacy on quality of life, to determine the extent of these effects, and to provide a comprehensive framework for understanding these relationships.

3.2. Study Population and Sampling Process

The population of the study includes adult individuals who are internet users in general and who search for health information. This large population consists of individuals with different demographic characteristics and includes various factors such as age, gender, education level, occupation, and socioeconomic status. In the study, academicians were selected as the sample to examine the effects of cyberchondria and health literacy on quality of life.

There are several important reasons for the selection of academicians. Firstly, academics tend to use digital health information more frequently because they have fast and continuous access to information. This suggests that cyberchondriac behaviors may be common among academics. Secondly, academics generally have a high level of education and health literacy, which is critical for examining the health literacy dimension of the study. Finally, academics in foundation universities are less exposed to various factors affecting quality of life due to more flexible working conditions and generally good financial opportunities. In this context, it is possible to observe the effects of variables such as cyberchondria and health literacy on quality of life more clearly. In the sample selection process, the convenience sampling method, which is one of the non-probability sampling methods, was used. This method is based on the principle of selecting individuals that the researcher can reach and collect data from. Since the research was conducted online, participants were reached through online survey platforms and social media channels. The questionnaire was sent to people from different age groups, genders, and socioeconomic statuses to ensure the demographic diversity targeted by the research. The participants completed the questionnaire voluntarily, and the principles of anonymity and confidentiality were respected during the data collection process. The large size of the research population and the selection of the sample by the convenience sampling method may limit the generalizability of the data obtained to the general population. However, this method is preferred because it provides the opportunity to reach a large number of participants in a fast and cost-effective manner. To increase the demographic diversity of the sample group, different social media platforms and online communities were used in the distribution process of the questionnaire. This strategy enabled the collection of data from individuals of different ages, genders, and socio-economic statuses, thus providing a broader perspective.

As a result, the research population consists of adult individuals who are internet users and seek health information, and the sample selection was carried out using a convenience sampling method. The selection of academics plays a critical role in observing the effects of cyberchondria and health literacy on quality of life more clearly.

In the thesis study, the effect of two independent variables on one dependent variable is shown. The variables and the relationship between them are interpreted in Figure 1.

Independent Variables:

- *Cyberchondria:* Researching health-related information on the internet and worrying about this information
- *Health Literacy:* The ability of individuals to understand, evaluate and use health-related information

Dependent Variable:

- *Quality of Life:* It is an individual's subjective assessment of general health status, physical and mental health, social relationships and life satisfaction. This variable is directly and indirectly affected by other variables in the model.

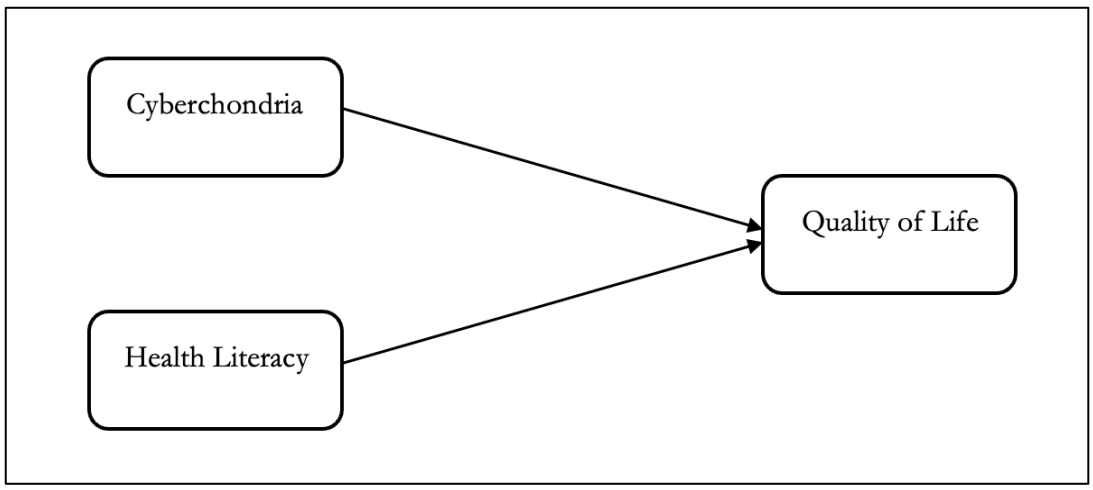

Figure 1.
Search search model / Schematic Drawing.

Figure 1 analyzes the effect of the independent variables of Cyberchondria and Health Literacy on the dependent variable of Quality of Life. Looking at the direction of the arrows, it is seen that both independent variables directly affect the quality of life.

There are hypotheses put forward regarding the relationships between the variables analyzed in the study. The hypotheses of the research were formed by taking examples from the studies conducted in similar fields in the literature.

Hypothesis 1: Relationship between Cyberchondria and Quality of Life

Recent studies show that excessive health information seeking, in other words, cyberchondria, negatively affects individuals' quality of life in various ways. For example, Starcevic and Berle [25] stated that cyberchondria disrupts individuals' psychological well-being by causing them to constantly think about negative health-related scenarios. In addition, Muse and McManus [63] argue that cyberchondria has negative effects on social relationships, causing social isolation and tension in relationships. Fergus and Dolan [64] emphasized that cyberchondria decreases daily functionality and makes it difficult for people to maintain their daily activities. These findings form the basis of the following hypotheses and aim to examine in more detail how cyberchondria affects quality of life.

H_1: Cyberchondria (excessive health information seeking) negatively affects quality of life.

Hypothesis 2: Relationship between Health Literacy and Quality of Life

There is strong evidence in the literature that a high level of health literacy improves the quality of life of individuals. Nutbeam [42] emphasised that health literacy improves individuals' ability to understand and use health information, thus enabling them to make informed health decisions. In addition, Berkman et al. [65] stated that people with high health literacy utilise health services more effectively and thus their general health status improves. Rowlands and Protheroe [66] revealed that health literacy improves people's ability to manage their own health and enhances their quality of life in the long term. These findings form the basis of the hypotheses stated below and aim to examine in more detail how health literacy affects quality of life.

H_2: High level of health literacy improves quality of life.

Hypothesis 3: Interaction between Cyberchondria and Health Literacy

There is growing support in the literature that health literacy reduces the negative effects of cyberchondria on quality of life. For example, Wang et al. [59] showed that individuals with high levels of health literacy can manage their health-related concerns more effectively and thus are less affected by the negative effects of cyberchondria. Similarly, Kirsch et al. [67] found that health literacy reduces the anxiety and stress caused by cyberchondria by increasing individuals' access to and understanding of health-related information. In addition, Levin-Zamir et al. [68] suggested that health literacy enables individuals to use health services more effectively, thus offsetting the negative effects of cyberchondria. These findings form the basis for the hypotheses stated below, aiming to examine the effects of health literacy on the quality of life of cyberchondria in more detail.

H_3: Increasing health literacy level reduces the negative effects of cyberchondria on quality of life.

Hypothesis 4: Direct and Indirect Effects of Cyberchondria and Health Literacy on Quality of Life

The direct negative effects of cyberchondria on quality of life and the positive effects of health literacy have been an important research topic in the literature. For example, Abbott and Carpenter [69] stated that cyberchondria directly affects the quality of life of individuals and this effect is evident in psychological and social areas. Likewise, Lee et al. [70] showed that health literacy improves the quality of life of individuals and this effect is due to improving their ability to access and use health-related information. However, Turner et al. [71] argued that health literacy indirectly reduces the negative effects of cyberchondria on quality of life because individuals are better able to manage their health-related concerns with increased health literacy. These findings form the basis for the hypotheses outlined below, which aim to further examine the effects of cyberchondria and health literacy on quality of life.

H_4: Health literacy indirectly reduces the negative impact of cyberchondria on quality of life.

4. Method

In the research, the Likert scale survey method was used to measure the attitudes and opinions of individuals. The five-point Likert scale usually includes options from "Strongly Disagree" to "Strongly Agree." The questionnaire was created with relevant statements to measure the effects of cyberchondria and health literacy on quality of life. It is important that the questions are clear, understandable, and free from bias. The reliability of the scale was tested with a pilot study and revised according to feedback. Questionnaires can be administered face-to-face or online. Although online surveys provide the advantage of reaching a large sample, demographic characteristics and internet access should be taken into consideration.

Data are evaluated by statistical methods such as reliability, factor, correlation and regression analyses. Likert [72] scale is an effective tool in achieving research objectives by measuring the opinions of individuals systematically and objectively [72].

Table 1.
Sources of the Scales Used in the Study.

Scale	Received Source	Number of Questions
Cyberchondria Intensity Scale	Malik et al. [73]	14
Health Literacy Scale	Yılmaz and Eskici [74]	16
Quality of Life Scale	Haddad et al. [75]	12

5. Finding

The tables and findings of the demographic analyses, based on the responses of 488 valid questionnaires, are examined in this section. The questionnaire included three questions about gender, age, and the device most used in health-related internet research.

Table 2.
Distribution of Participants According to Gender.

Gender	Frequency	Percentage (%)
Woman	301	61.68%
Male	187	38.32%
Total	488	100%

According to the data in Table 2, 61.68 per cent of the respondents are female and 38.32 per cent are male, which shows that women are more likely to participate in the survey.

Table 3.
Distribution of Participants According to Age.

Age Groups	Frequency	Percentage (%)
18-24	20	4.08%
25-34	178	36.48%
35-44	162	33.20%
45-54	91	18.65%
55-64	33	6.77%
65 and over	4	0.82%
Total	488	100%

According to the data in Table 3, the 25-34 age group with 36.48% and the 35-44 age group with 33.20% showed the highest participation in the survey. The lowest participation rates were in the 18-24 age group with 4.08% and in the 65 and over age group with 0.82%.

Table 4.
Distribution of the Participants According to the Device Information They Use While Conducting Internet Research.

Device	Frequency	Percentage (%)
Mobile Phone	284	58.20%
Computer	148	30.33%
Tablet	56	11.47%
Total	488	100%

According to the data in Table 4, 58.20% of the participants answered the survey via mobile phones, 30.33% via computers, and 11.47% via tablets. The survey, in which women were in the majority, received the highest participation from the 25-34 and 35-44 age groups. These data provide important information about the demographic diversity and device preferences of the survey.

5.1. Reliability Analysis

Reliability analysis was conducted to evaluate the consistency of the scales and survey questions used in the research, and the Cronbach's Alpha coefficient was used in this process. The Cronbach's Alpha value measures the internal consistency of the scales, and generally, values above 0.70 are considered reliable. For example, a value of 0.85 for the health literacy scale indicates high reliability.

In addition, the item-total correlations were analyzed to assess the compatibility of the items with the scale, and items with low correlations were removed or adjusted when necessary. This analysis increased the reliability of the scales and strengthened the scientific validity of the research results [76].

Table 5.
Reliability Analysis for Variables.

Variables	Number of Questions	Cronbach Alpha Value
Health Information Research-Application Behaviors	5	0.829
Health Literacy and Information Use	8	0.801
The Impact of Health Research on Everyday Life	4	0.894
Psychological Effects of Symptom Discovery	8	0.838
Quality of Life	12	0.833

Reliability analysis showed that the scales have high internal consistency. The high Cronbach's Alpha coefficient confirms that the survey questions are coherent and measure the concepts consistently. This increases the consistency and validity of the results of the study and supports the usability of the scales in future research.

5.2. Correlation Analysis

Correlation analysis is a method used to measure the strength and direction of the relationship between variables. The result of the analysis is a correlation (r) coefficient ranging from -1 to +1, with +1 indicating a perfect positive relationship and -1 indicating a perfect negative relationship. However, the correlation coefficient does not indicate causality, only the relationship [77].

According to Yükselen [78] correlation coefficients express a weak relationship between 0 and ±0.3, a moderate relationship between ±0.3 and ±0.7, and a strong relationship between ±0.7 and ±1. In this thesis, these ranges were taken as a basis and the significance of the results was also evaluated. Table 6 shows the correlation coefficients and significance levels between pairs of variables. This analysis plays a critical role in testing the hypotheses, interpreting the findings and increasing the overall validity of the research.

Table 6.
Correlation Table Showing the Relationships Between the Dimensions of All Variables in the Research Model.

	Health Information Research-Application Behaviors	**Health Literacy and Information Use**	**The Impact of Health Research on Everyday Life**	**Psychological Effects of Symptom Discovery**	**Quality of Life**
Health Information Research-Application Behaviors	1				
Health Literacy and Information Use	0.483	1			
The Impact of Health Research on Everyday Life	0.255	0.22	1		
Psychological Effects of Symptom Discovery	0.76	0.387	0.311	1	
Quality of Life	0.718	0.343	0.2	0.751	1

Table 6 shows that there is a moderate positive correlation of 0.483 between Health Information Research-Application Behaviors and Health Literacy and Information Use, and a high positive correlation of 0.718 between Health Information Research-Application Behaviors and Quality of Life. There is a moderate positive correlation of 0.76 between Health Information Research-Application Behaviors and Psychological Effects of Symptom Discovery, and a moderate positive correlation of 0.343 between Health Literacy and Information Use and Quality of Life. The high positive correlation of 0.751 between Psychological Effects of Symptom Discovery and Quality of Life reveals a strong relationship between psychological effects and Quality of Life. Low correlations, such as the 0.2 correlation between The Impact of Health Research on Everyday Life and Quality of Life, indicate weak links. These results suggest that different dimensions of health literacy and cyberchondria are linked to Quality of Life.

5.3. Structural Equation Modelling

Structural Equation Modeling (SEM) was used to analyze the complex relationships between variables. In the study, a theoretical model was created to examine the effects of cyberchondria and health literacy on quality of life and tested with the collected data. The fit of the model was assessed with goodness-of-fit indices such as Chi-square, NFI, CFI, RMSEA, and SRMR. Low Chi-square and high NFI, CFI values indicate that the model is consistent with the data. SEM revealed the direction and strength of the relationships between variables by analyzing direct and indirect effects. The results of the analysis led to the model shown in Figure 2.

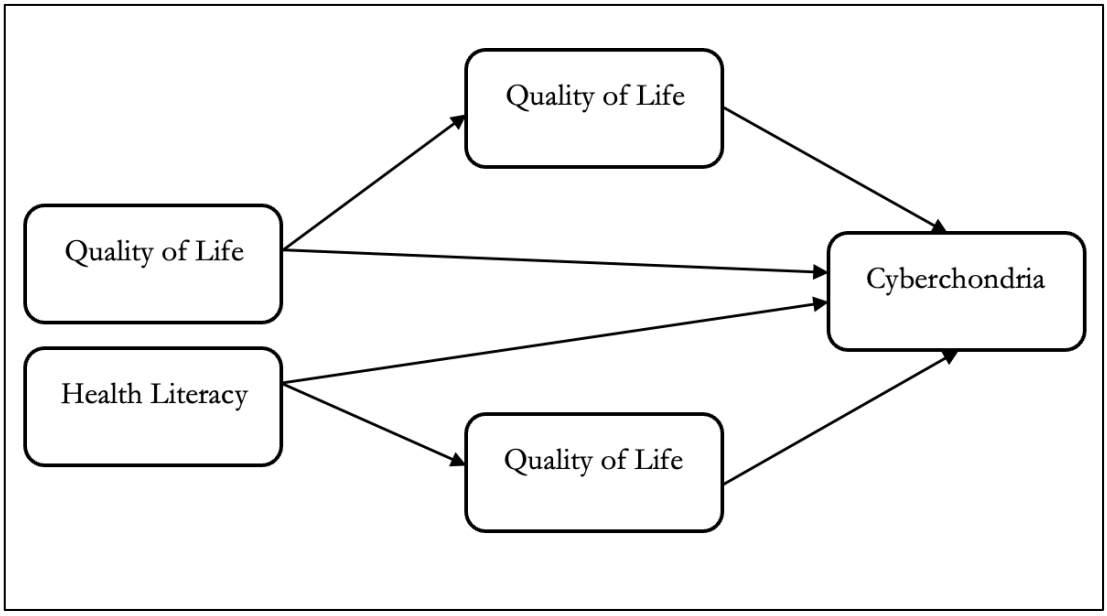

Figure 2.
Structural Equation Model / Schematic Drawing.

The model examines the effects of health literacy and information use on health information-seeking behaviors, psychological effects of symptom discovery, quality of life, and the effects of health research on daily life. The two variables on the left of the model detail the sub-dimensions of cyberchondria, and the effects of these variables on cyberchondria are addressed through various links. High health literacy and effective information use can significantly affect individuals' health information-seeking behaviors and the psychological effects they experience in this process. In this study, it was evaluated that health literacy may reduce the negative effects of cyberchondria on quality of life, and SEM provided the opportunity to examine these complex relationships in detail. The fit indices of the model show that the theoretical model is compatible with the data, and the hypotheses are largely supported. SEM has made valuable contributions to the body of knowledge in this field by providing a powerful tool to analyze the direct and indirect effects of cyberchondria and health literacy on quality of life [79].

Table 7.
Path Model Table.

Relationship Models	**Path Coefficients**
Health Information Research-Application Behaviors -> Quality of Life	0.326
Health Literacy and Information Use -> Quality of Life	0.017
The Impact of Health Research on Everyday Life -> Health Literacy and Information Use	-0.185
The Impact of Health Research on Everyday Life -> Quality of Life	-0.097
Psychological Effects of Symptom Discovery-> Health Information Research-Application Behaviors	0.664
Psychological Effects of Symptom Discovery -> Quality of Life	0.503
Health Information Research-Application Behaviors x Psychological Effects of Symptom Discovery-> Quality of Life	0.266
Health Information Research-Application Behaviors x The Impact of Health Research on Everyday Life -> Quality of Life	-0.194
Health Literacy and Information Use x The Impact of Health Research on Everyday Life -> Quality of Life	-0.042
Health Literacy and Information Use x Psychological Effects of Symptom Discovery -> Quality of Life	0.044

Path analysis is a method used in structural equation modeling (SEM) and is employed to examine causal relationships between variables. It evaluates the direct and indirect effects of more than one independent variable on one or more dependent variables. In path analysis, a theoretical model is created, relationships between variables are assumed, and this model is tested with data. The analysis allows understanding complex relationship structures by visualizing direct and indirect effects [80]. SEM provides the opportunity to evaluate the direct and indirect effects of cyberchondria and health literacy on quality of life, taking into account measurement errors and providing more reliable results. In the study, the question "What are the direct and indirect effects of cyberchondria and health literacy on quality of life?" was analyzed to determine how the negative effects of cyberchondria can be reduced by health literacy [81]. The "Path Model Table" in Table 7 quantitatively evaluates the relationships between health literacy, cyberchondria, and quality of life and shows the direct and indirect effects of these variables on each other. Different aspects of cyberchondria and health literacy may have different effects on quality of life, and this model presents the interactions of the variables in detail. Cyberchondria is the tendency to excessively search for

health information on the internet, which may negatively affect individuals' quality of life in terms of psychological well-being, social relationships, and daily functioning. The constant search for health information may negatively affect social interactions and daily activities by increasing anxiety and stress levels. Health literacy refers to the ability of individuals to understand, evaluate, and use health-related information, and high health literacy enables individuals to make more informed health decisions, use health services effectively, and improve quality of life. These abilities play a critical role in improving the health status of individuals and increasing overall life satisfaction. Improving health literacy is an important strategy for enhancing quality of life.

Table 8.
R Square (Coefficient of Determination) Values.

	R-Square	R-Square (Adjusted)
Health Information Research-Application Behaviors	0.440	0.439
Health Literacy and Information Use	0.034	0.032
Quality of Life	0.607	0.600

Table 8 presents the R Square values of the structural equation model examining the relationships between health literacy (Health Information Research-Application Behaviors and Health Literacy and Information Use) and quality of life. R Square indicates how much of the variance in quality of life is explained by the variables included in the model. The R Square value of Health Information Research-Application Behaviors is 0.440, indicating that this aspect of health literacy explains 44% of quality of life. The lower R Square value of Health Literacy and Information Use indicates that this aspect explains less variance in quality of life. The R Square value for quality of life is 0.607, indicating that the model explains 60.7% of the variance in quality of life. This indicates that the model is highly effective in understanding quality of life. Adjusted R Square values are also presented, which more realistically reflect the explanatory power of the model. By comprehensively assessing the effects of cyberchondria and health literacy on quality of life, this structural equation model provides valuable information in understanding the nature of these relationships.

Table 9.
Index Values.

	Realised Model	Estimated Model
SRMR	0.088	0.115
d_ULS	5.803	9.800
d_G	0.914	0.971
Chi_Square	2487.711	2598.914
NFI	0.729	0.717

Table 9 presents the Goodness-of-Fit Indices of the structural equation model (SEM) examining the impact of cyberchondria and health literacy on quality of life. These indices assess how well the model fits the data and determine the consistency of theoretical constructs with real-world data. Measures such as SRMR, Chi-square, and NFI evaluate the fit of the model from different perspectives. High goodness-of-fit indices indicate that the theoretical constructs of the model fit the data well and provide reliable answers to the research questions. Table 9 is critical for understanding how well the model represents these effects and the reliability of the results. As a result of the path analyses, direct relationships and mediating effects were examined, and hypotheses were tested. Table 10 provides a summary of the status of the hypotheses and the findings contribute to expanding the body of knowledge in this area.

5.4. Status of Hypotheses According to Research Results

Table 10.
Status of Hypotheses.

No	Hypothesis	Accepted/Red
H_1	Cyberchondria (excessive health information seeking) negatively affects quality of life.	Partially Supported
H_2	High level of health literacy improves quality of life.	Partially Supported
H_3	Increasing the level of health literacy reduces the negative effects of cyberchondria on quality of life.	Supported
H_4	Health literacy indirectly reduces the negative impact of cyberchondria on quality of life.	Partially Supported

Table 10 shows the acceptance or rejection of the hypotheses analyzing the effects of cyberchondria and health literacy on quality of life according to the research results. Hypothesis H_1 suggests that cyberchondria negatively affects quality of life and is partially supported. Hypothesis H_2 claims that high health literacy improves quality of life, and this was partially supported. Hypothesis H_3 states that health literacy reduces the negative effects of cyberchondria and was fully supported. Hypothesis H_4 states that health literacy indirectly reduces the negative impact of cyberchondria on quality of life and was partially supported. These results show that health literacy plays an important role in reducing the negative effects of cyberchondria.

6. Conclusion

Cyberchondria can improve the quality of life by contributing to people's health literacy. The impact of Cyberchondria A plays an effective role in individuals' health-related information acquisition processes, enabling them to apply this information in the direction of their own health. Research results show that with an increase in the level of health literacy, individuals are able to manage their health conditions better and utilize health services more effectively. This situation directly contributes to the improvement of quality of life. In addition to the positive effect of Cyberchondria A on health literacy, its direct effect on quality of life has also been observed; this interaction improves individuals' health perceptions and living standards. In this context, it can be said that Cyberchondria contributes positively to the overall quality of life of individuals by increasing health-related knowledge and awareness.

The positive effects of cyberchondria help individuals to make more informed health-related decisions by increasing their level of health knowledge. These informed decisions enable individuals to participate more effectively in the early diagnosis and treatment of diseases, which positively affects the quality of life. A high level of health literacy facilitates individuals' access to health services and enables them to utilize health services more effectively. The role of cyberchondria in this context is to increase the health knowledge and awareness of individuals, enabling them to benefit from health services in a more informed manner. This process contributes to better management of their health status, coping more effectively with illnesses, and thus improving their quality of life. In addition, it has been observed that cyberchondria improves individuals' ability to monitor and manage their own health. As individuals have more access to health information, they become more aware of developing healthy living habits and minimizing health risks. This has positive effects on both physical and psychological health, improving overall quality of life. As a result, the positive effects of cyberchondria on quality of life occur through increased health knowledge and more informed health-related decisions. These interactions enable people to manage their health more effectively and improve their quality of life.

Academics can focus on methods to increase health literacy by examining the positive effects of Cyberchondria on quality of life in detail. In this context, research on individuals in various demographic groups can help to determine the effects of different social and cultural factors on health literacy and thus Cyberchondria. Furthermore, theoretical models can be developed to explain the mechanisms of Cyberchondria on health literacy and the effects of this process on individuals' health behaviors. In addition to health literacy, examining the effects of Cyberchondria on individuals' psychological health may be important, especially in our age of widespread internet use. Understanding the negative aspects of cyberchondria that may contribute to potential increased stress and anxiety is necessary to address this phenomenon more comprehensively. Academics can also use research on cyberchondria and health literacy when developing educational programs and public health policies. Research is critical in determining how to disseminate health information more effectively among people and how to utilize health services more effectively. In this way, highly health-literate societies can be created and overall quality of life can be improved. Finally, interdisciplinary studies on cyberchondria and health literacy can be encouraged. Combining knowledge from different fields, such as medicine, psychology, sociology, and information technology, allows for a deeper understanding of these complex issues and effective solutions. Such an approach is necessary to assess the health impacts of Cyberchondria from a broader perspective and to integrate this knowledge into health policies and educational programs.

Considering the positive effects of Cyberchondria, managers in the sector can develop strategies to increase the health literacy of their employees. In this context, it is important to facilitate access to health information and raise awareness on health issues within the company. Organizing regular health trainings and information seminars for employees can increase their health knowledge and enable them to make more informed decisions. In addition, providing digital platforms and tools to support health literacy can help employees easily access health information and integrate this information into their daily lives. By encouraging employees' access to health information, managers can enable them to utilize health services effectively. This can contribute to employees' better management of their health status and coping more effectively with illnesses. Additionally, by offering in-company health programmes and incentives, employees can be helped to develop healthy living habits. For example, providing information and support on topics such as healthy eating, regular exercise, and stress management improves employees' overall well-being and thus enhances their quality of life. It is also important to consider the potential negative effects of health literacy and Cyberchondria. To manage the risks of stress and anxiety that may arise from excessive internet use by employees, it is necessary to balance the use of digital health applications and raise employee awareness. By being aware of such risks, managers can encourage employees to use digital health information in a correct and balanced way. Finally, strategies to increase health literacy can improve overall productivity and performance in the workplace by increasing employee satisfaction and engagement. Healthy and informed employees will be more motivated and productive in the workplace. In this context, managers can create an environment where both employees and the company will benefit in the long term by making health literacy a part of the company culture.

Creating a theoretical framework in research using Structural Equation Modelling is critical to clarify the objectives and hypotheses of the research. For example, developing theoretical models that examine the effects of health literacy on cyberchondria can guide the research process. These models provide a basis for understanding how the relationships between cyberchondria and health literacy work and the effects of these relationships on quality of life. In research design, it is important to select methods suitable for analyzing complex relationship structures, such as Structural Equation Modeling (SEM). SEM offers the ability to simultaneously assess direct and indirect effects between variables. This modeling technique allows an in-depth examination of the effects of cyberchondria and health literacy on quality of life. It is also important to develop scales appropriate for the purpose of the research and to test the reliability and validity of these scales. Reliable and valid scales will increase the accuracy and reliability of research findings. In the sample selection process, it is necessary to create a large and diverse sample group that represents the population targeted by the research. Online surveys allow reaching a wide range of respondents and speeding up the data collection process. However, the accessibility of online surveys and

participant diversity should be taken into consideration. Care should be taken to ensure that the language of the questionnaires is understandable by the participants and necessary arrangements should be made by piloting the questionnaires. In the data analysis process, the reliability and validity of the data obtained by using statistical methods should be evaluated. Reliability analyses such as Cronbach's Alpha can be used to determine the internal consistency of the scales. In addition, item-total correlations can be analyzed to evaluate the compatibility of the questionnaire items with the scale. To obtain reliable and valid results, care and rigor should be taken in the analysis process. Finally, it is important to contribute to the accumulation of knowledge in the field by publishing research findings in scientific journals and presenting them at academic conferences. By sharing their research results, academics can create greater awareness of cyberchondria and health literacy issues and contribute to the theoretical and practical knowledge in these fields. Furthermore, by adopting multidisciplinary approaches, they can produce more comprehensive and effective solutions by combining knowledge from different fields such as medicine, psychology, sociology, and information technologies. Such interdisciplinary studies are critical to understanding the complex nature of cyberchondria and health literacy and developing effective interventions related to these issues.

It is important to implement the recommended strategies to prevent cyberchondria and improve the quality of life of individuals. These strategies should be aimed at enhancing individuals' ability to evaluate the accuracy of health information, providing psychological support, and increasing the reliability of health information websites. Implementation of these recommendations can both improve individuals' quality of life and reinforce trust in the health system. Therefore, it is of great importance that relevant stakeholders and health professionals work in cooperation to find solutions to the problem of cyberchondria.

The limitations of the study are that the data collection method is based on self-report questionnaires. Since self-report questionnaires are based on participants' own perceptions and honesty, they may contain uncertainties regarding bias and accuracy. Participants may want to portray themselves more positively or negatively or may misunderstand the survey questions. This may negatively affect the validity and reliability of the data. Self-report questionnaires may create problems such as social desirability bias, especially when measuring psychological and behavioral characteristics. For this reason, care should be taken regarding how much the findings reflect the real situation. Although the validity and reliability of the scales used in the study were tested, some limitations are inevitable due to the nature of self-report data. One limitation of the study is that it has a cross-sectional research design. Since cross-sectional studies collect data over a certain period, it may be difficult to determine causal relationships between variables. This design can only show the existence of relationships between variables, but it may be insufficient to reveal the course of these relationships over time or the reasons for the interactions between variables. For example, when examining the effects of cyberchondria and health literacy on quality of life, it is not possible to observe the long-term effects and changes of these variables. Longitudinal research is necessary to better understand the effects of variables over time and causal relationships. This limitation suggests that caution should be exercised in interpreting the findings of the study and that future research should examine these relationships in more detail using longitudinal designs.

References

[1] P. Sansakorn, I. Mushtaque, M. Awais-E-Yazdan, and M. K. B. Dost, "The Relationship between cyberchondria and health anxiety and the moderating role of health literacy among the Pakistani public," *International Journal of Environmental Research and Public Health*, vol. 21, no. 9, p. 1168, 2024. https://doi.org/10.3390/ijerph21010137

[2] Y. Zhang, Q. Wang, and Z. Liu, "Cyberchondria, sleep quality, and smartphone use before bedtime: A mediational model among Chinese college students," *Current Psychology*, vol. 42, pp. 14513–14523, 2023. https://doi.org/10.1007/s12144-022-03344-2

[3] S. Ghahramani, F. Taghizadeh, and M. Mohammadi, "The relationship between e-health literacy and cyberchondria in Iranian health sciences students," *Frontiers in Psychiatry*, vol. 15, p. 1421391, 2024. https://doi.org/10.3389/fpsyt.2024.1421391

[4] E. Fernández-García, A. González-Rodríguez, and M. Á. Pérez-San-Gregorio, "The effect of cyberchondria on anxiety, depression and quality of life," *Heliyon*, vol. 8, no. 6, p. e09725, 2022.

[5] J. Gao, P. Zheng, Y. Jia, and H. Chen, "Relationship between digital health literacy, distrust in the health system, and health anxiety among Chinese university students " *BMC Medical Education* vol. 25, p. 6903, 2025. https://doi.org/10.1186/s12909-025-06903-7

[6] L. E. Smith, H. W. Potts, and C. J. Jones, "Digital health literacy and its relationship with health behaviors and cyberchondria: A cross-sectional study," *Journal of Medical Internet Research*, vol. 25, p. e39214, 2023. https://doi.org/10.2196/39214

[7] S. Taylor and G. J. G. Asmundson, "Health anxiety, cyberchondria, and death anxiety: Associations with health information seeking," *Anxiety, Stress & Coping*, vol. 36, no. 5, pp. 511–526, 2023.

[8] K. Lee, S. Lee, and Y. Kim, "The moderating role of health literacy and health-promoting behaviors in the relationship between emotional regulation and cyberchondria," *Psychology Research and Behavior Management*, vol. 17, pp. 123–134, 2024. https://doi.org/10.2147/PRBM.S446448

[9] R. W. White and E. Horvitz, "Cyberchondria: Studies of the escalation of medical concerns in web search," *ACM Transactions on Information Systems (TOIS)*, vol. 27, no. 4, pp. 1-37, 2009. https://doi.org/10.1145/1629096.1629101

[10] M. Ozdemir, "Comparison of the frequency and severity of cyberchondria in anxiety disorder and depressive disorder with healthy volunteers," Unpublished PhD Thesis. Akdeniz University, Faculty of Medicine, Antalya, 2021.

[11] E. Hiçyakmazer, "The mediating role of cyberchondria severity in the effect of digital literacy on e-health literacy in individuals," Master's Thesis. Istanbul Aydin University, Institute of Graduate Education, Istanbul, 2022.

[12] Ö. Bahadır, "Cyberchondria level in Ondokuz Mayıs university students and its relationship with intolerance of uncertainty," Medical Specialization Thesis. Ondokuz Mayıs University, Faculty of Medicine, Samsun, 2022.

[13] S. Çallı, "An application for determining the cyberchondria levels of patients," Unpublished Master's Thesis. Istanbul Aydın University, Institute of Graduate Education, Istanbul, 2022.

[14] N. Tarhan, A. Tutgun-ünal, and Y. Ekinci, "Cyberchondria, the new generation disease: The relationship between cyberchondria levels of generations and health literacy in the new media age," *OPUS International Journal of Society Researches*, vol. 17, no. 37, pp. 4253-4297, 2021. Https://doi.org/10.26466/opus.855959
[15] P. T. Hertel, C. N. Wahlheim, W. A. Price, E. M. Crusius, and C. L. Patino, "Stuck in the past? Rumination-related memory integration," *Behaviour Research and Therapy*, vol. 163, p. 104287, 2023. https://doi.org/10.1016/j.brat.2023.104287
[16] L. M. Hochstenbach, D. Determann, R. R. Fijten, E. J. Bloemen-van Gurp, and R. Verwey, "Taking shared decision making for prostate cancer to the next level: Requirements for a Dutch treatment decision aid with personalized risks on side effects," *Internet Interventions*, vol. 31, p. 100606, 2023. https://doi.org/10.1016/j.invent.2023.100606
[17] K. H. Özyıldız and A. Alkan, "A study to examine the relationship between academics' health anxiety and cyberchondria levels," *Süleyman Demirel Üniversitesi Vizyoner Dergisi*, vol. 13, no. 33, pp. 309-324, 2022.
[18] A. Özdelikara, S. Ağaçdiken Alkan, and N. Mumcu, "Determination of health perception, health anxiety and effecting factors among nursing students," *Medical Journal of Bakirkoy*, vol. 14, no. 3, pp. 275-282, 2018.
[19] S. Doğan, F. Acar, and T. G. B. Doğan, "The effects of internet addiction and health anxiety on cyberchondria behaviors," *Erciyes Akademi*, vol. 35, no. 1, pp. 281-298, 2021.
[20] K. Ozturk, "The mediating role of trust communication in the effect of E-health literacy on cyberchondria," Master's Thesis. Sakarya University, Institute of Business Administration, Sakarya, 2020.
[21] D. Nayır, "Investigation of the relationship between health anxiety and cyberchondria in nurses during the Covid-19 pandemic period," Master's Thesis. Biruni University, Institute of Graduate Education, Istanbul, 2023.
[22] E. McElroy and M. Shevlin, "The development and initial validation of the cyberchondria severity scale (CSS)," *Journal of Anxiety Disorders*, vol. 28, no. 2, pp. 259-265, 2014.
[23] C. Avcı, "Tourism during Covid-19: A conceptual assessment of hypochondriac tourist trends," *Sosyal, Beşeri Ve İdari Bilimler Dergisi*, vol. 4, no. 10, pp. 1028-1037, 2021.
[24] V. Agrawal, Y. Khulbe, A. Singh, and S. K. Kar, "The digital health dilemma: Exploring cyberchondria, well-being, and smartphone addiction in medical and non-medical undergraduates," *Indian Journal of Psychiatry*, vol. 66, no. 3, pp. 256-262, 2024. https://doi.org/10.4103/indianjpsychiatry.indianjpsychiatry_570_23
[25] V. Starcevic and D. Berle, "Cyberchondria: Towards a better understanding of excessive health-related Internet use," *Expert Review of Neurotherapeutics*, vol. 13, no. 2, pp. 205-213, 2013. https://doi.org/10.1586/ern.12.162
[26] B. F. Türkön and A. Toraman, "Investigation of cyberchondria levels of administrative service employees in hospitals: Bursa province example," *Avrasya Sosyal ve Ekonomi Araştırmaları Dergisi,* vol. 8, no. 3, pp. 494-513, 2021.
[27] L. K. Turkiewicz, "The ımpact of cyberchondrıa on doctor-patıent communıcatıon," Doctoral Thesis. The University of Wisconsin-Milwaukee, Wisconsin, 2012.
[28] Y. K. Çalık and S. Aktaş, "Depression during pregnancy: Frequency, risk factors and treatment," *Current Approaches in Psychiatry/Psikiyatride Guncel Yaklasimlar*, vol. 3, no. 1, pp. 142-162, 2011.
[29] F. H. Çelik and Ç. Hocaoğlu, "Definition, etiology, and epidemiology of major depressive disorder: A review," *Çağdaş Tıp Dergisi*, vol. 6, no. 1, pp. 51-66, 2016.
[30] K. Elciyar and D. Taşçı, "Application of cyberchondria severity scale to Anadolu University Faculty of communication sciences students," *Abant Kültürel Araştırmalar Dergisi,* vol. 2, no. 4, pp. 57-70, 2017.
[31] D. Karaman, İ. Durukan, and M. Erdem, "Childhood onset obsessive compulsive disorder," *Psikiyatride Güncel Yaklaşımlar,* vol. 3, no. 2, pp. 278-295, 2011.
[32] A. M. Norr, M. E. Oglesby, A. M. Raines, R. J. Macatee, N. P. Allan, and N. B. Schmidt, "Relationships between cyberchondria and obsessive-compulsive symptom dimensions," *Psychiatry Research*, vol. 230, no. 2, pp. 441-446, 2015. http://dx.doi.org/10.1016/j.psychres.2015.09.034
[33] A. Zayman, *Cyberchondria and OCD: Common behaviors such as feelings of obligation and seeking reassurance*. New York: Springer, 2016.
[34] S. Çağlar and E. G. Şendur, *E-Health literacy and cyberchondria in health promotion* (Sağlık Bilimlerindeki Farklılıkları Açıklamaya Yönelik Araştırmalar). Klaipeda: SRA Academic Publishing, 2023.
[35] B. D. Schalet, K. F. Cook, S. W. Choi, and D. Cella, "Establishing a common metric for self-reported anxiety: Linking the MASQ, PANAS, and GAD-7 to PROMIS Anxiety," *Journal of Anxiety Disorders*, vol. 28, no. 1, pp. 88-96, 2014. http://dx.doi.org/10.1016/j.janxdis.2013.11.006
[36] S. K. Simond, "Health education as social policy," *Health Education Review*, vol. 22, no. 3, pp. 123-135, 1974.
[37] F. Aslantekin and M. Yumrutaş, "Health literacy and measurement," *TAF Preventive Medicine Bulletin*, vol. 13, no. 4, pp. 327-334, 2014.
[38] World Health Organization, *Health promotion: A discussion document on the concepts of health literacy*. Geneva, Switzerland: World Health Organization, 1998.
[39] H. Aktaş, "A measurement tool for evaluating health and education; health literacy," *Sağlık Bilimlerinde Eğitim Dergisi,* vol. 1, no. 1, pp. 12-16, 2018.
[40] S. Eroğlu, "Examining the relationship between multidimensional trust in the health care system and health literacy: A field research," Master's Thesis. Yozgat Bozok University, Institute of Graduate Education, Yozgat, 2023.
[41] T. C. Yılmaz, "The relationship between health literacy and pandemic perceptions in the COVID-19 pandemic process," Master's Thesis, Trakya University, Institute of Social Sciences, Edirne, 2024.
[42] D. Nutbeam, "Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century," *Health Promotion International*, vol. 15, no. 3, pp. 259-267, 2000. https://doi.org/10.1093/heapro/15.3.259
[43] C. Zarcadoolas, A. Pleasant, and D. S. Greer, "Understanding health literacy: An expanded model," *Health Promotion International*, vol. 21, no. 2, pp. 195-203, 2006.
[44] R. S. Balçık, G. Öztürk, and Y. Akbulut, "Adapting Nutbeam's health literacy framework to Turkish society: A study on Turkish university students," *Health Education Research*, vol. 29, no. 6, pp. 1065-1077, 2014.
[45] G. Yılmazel and S. Çetinkaya, "Defining self-regulated learning (SRL): Skills in reading medical concepts, listening, analytical thinking, and decision-making," *Journal of Medical Education*, vol. 42, no. 1, pp. 45-58, 2016.

[46] H. Ishikawa, "The role of communication quality management (CQM) in healthcare systems," *Journal of Health Communication*, vol. 13, no. 4, pp. 321-333, 2008.
[47] World Health Organization, *E-health: A tool for improving health and reducing health inequalities*. Geneva, Switzerland: World Health Organization, 2015.
[48] S. Salar and S. Duran, "Examining the e-health literacy status of elderly individuals applying to family health centers," *Hacettepe University Faculty of Health Sciences Journal,* vol. 10, no. 2, pp. 396-412, 2023. Https://doi.org/10.21020/husbfd.1268108
[49] N. Tosun and H. Hoşgör, "A study to determine the relationship between e-health literacy and awareness of rational drug use," *Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi,* vol. 22, no. 2, pp. 82-102, 2021. Https://doi.org/10.37880/cumuiibf.896847
[50] C. D. Norman and H. A. Skinner, "eHealth literacy: Essential skills for consumer health in a networked world," *Journal of Medical Internet Research*, vol. 8, no. 2, p. e506, 2006. https://doi.org/10.2196/jmir.8.2.e9
[51] A. Arıkan, "The effect of health literacy level on healthy lifestyle behaviors: A study among university students," Master's Thesis, Hacettepe University, Institute of Social Sciences, Ankara, 2020.
[52] S. Senyurt, "Validity and reliability study of e-health literacy scale in Turkish," Master's Thesis. Pamukkale University, Institute of Health Sciences, Denizli, 2022.
[53] S. Scheveneels, N. De Witte, and T. Van Daele, "The first steps in facing your fears: The acceptability of virtual reality and in vivo exposure treatment for specific fears," *Journal of Anxiety Disorders*, vol. 95, p. 102695, 2023. https://doi.org/10.1016/j.janxdis.2023.102695
[54] M. Stellefson, B. Hanik, B. Chaney, D. Chaney, B. Tennant, and E. A. Chavarria, "eHealth literacy among college students: A systematic review with implications for eHealth education," *Journal of Medical Internet Research*, vol. 13, no. 4, p. e102, 2011. https://doi.org/10.2196/jmir.1703
[55] H. Gilstad, "Exploring the paradox of high eHealth literacy and high cyberchondria," *Digital Health*, vol. 9, p. 20552076231158260, 2023. https://doi.org/10.1177/20552076231158260
[56] T. M. Tanbaşı, "The effect of change fatigue on organizational trust and quality of working life in healthcare workers: A university hospital example," Master's Thesis, Selçuk University, Institute of Health Sciences, Konya, 2024.
[57] A. A. Boylu and B. Paçacıoğlu, "Quality of life and its indicators," *Journal of Academic Research and Studies*, vol. 8, no. 15, pp. 137-150, 2016.
[58] G. Çolak, "Determination of the effect of health literacy level on quality of life and related factors in patients applying to Ondokuz Mayıs University, Faculty of Medicine, Family Medicine Outpatient Clinic," Medical Specialization Thesis. Ondokuz Mayıs University, Faculty of Medicine, Samsun, 2023.
[59] Y. Wang, M. McKee, A. Torbica, and D. Stuckler, "Systematic literature review on the spread of health-related misinformation on social media," *Social Science & Medicine*, vol. 240, p. 112552, 2019. https://doi.org/10.1016/j.socscimed.2019.112552
[60] S. M. Jungmann and M. Witthöft, "Health anxiety, cyberchondria, and coping in the current COVID-19 pandemic: Which factors are related to coronavirus anxiety?," *Journal of Anxiety Disorders*, vol. 73, p. 102239, 2020. https://doi.org/10.1016/j.janxdis.2020.102239
[61] D. Scannell *et al.*, "COVID-19 vaccine discourse on Twitter: A content analysis of persuasion techniques, sentiment and mis/disinformation," *Journal of Health Communication*, vol. 26, no. 7, pp. 443-459, 2021. https://doi.org/10.1080/10810730.2021.1955050
[62] E. Ağacı, "What is cyberchondria? Why is it dangerous when people start using the internet as a hospital and Google as a doctor?," Retrieved: https://evrimagaci.org/siberkondri-nedir-insanlarin-interneti-hastane-googlei-doktor-gibi-kullamaya-baslamasi-neden-tehlikelidir-10984. [Accessed January 5, 2024], 2021.
[63] K. Muse and F. McManus, "Cyberchondria: The impact of excessive online health information seeking on mental health and social relationships," *Journal of Anxiety Disorders*, vol. 59, pp. 59-66, 2018.
[64] T. A. Fergus and S. L. Dolan, "The relationship between cyberchondria and daily functioning: Implications for mental health," *Journal of Behavioral Medicine*, vol. 37, no. 4, pp. 723-731, 2014.
[65] N. D. Berkman, D. A. DeWalt, and M. P. Pignone, "Health literacy interventions and outcomes: An updated systematic review," Evidence Report/Technology Assessment No. 199. Agency for Healthcare Research and Quality (AHRQ), 2011.
[66] G. Rowlands and J. Protheroe, "Health literacy and its impact on patient outcomes: A systematic review of health literacy interventions in healthcare settings," *Patient Education and Counseling*, vol. 98, no. 6, pp. 645-650, 2015.
[67] I. Kirsch, J. Sonderegger, and A. Chan, "The role of health literacy in reducing anxiety and stress associated with cyberchondria," *Journal of Health Communication*, vol. 20, no. 12, pp. 1346-1354, 2015.
[68] D. Levin-Zamir, D. Lemish, and R. Gofin, "Health literacy and its impact on the use of health services: A study on the relationship between health literacy and the effects of cyberchondria," *Journal of Health Communication*, vol. 21, no. 3, pp. 314-322, 2016.
[69] J. K. Abbott and B. L. Carpenter, "Cyberchondria and its impact on psychological and social well-being," *Journal of Health Psychology*, vol. 24, no. 4, pp. 477-485, 2019.
[70] S. Y. Lee, J. H. Lee, and Y. S. Kim, "The role of health literacy in improving quality of life: A focus on the ability to access and use health-related information," *Journal of Health Communication*, vol. 22, no. 2, pp. 123-134, 2017.
[71] J. A. Turner, P. R. Smith, and T. L. White, "Exploring the relationship between health literacy and quality of life in the context of cyberchondria," *Journal of Health and Social Behavior*, vol. 59, no. 5, pp. 628-639, 2018.
[72] R. Likert, "A technique for the measurement of attitudes," *Archives of Psychology*, vol. 140, pp. 5-55, 1932.
[73] M. N. Malik, M. A. T. Mustafa, M. Yaseen, S. K. Ghauri, and A. Javaeed, "Assessment of cyberchondria among patients presenting to the emergency department of three hospitals in Islamabad, Pakistan," *South Asian Journal of Emergency Medicine Journal*, vol. 2, pp. 19-23, 2019.
[74] S. K. Yılmaz and G. Eskici, "Validity and reliability study of the Turkish form of the health literacy scale-short form and digital healthy diet literacy scale," *İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi,* vol. 6, no. 3, pp. 19-25, 2021.
[75] C. Haddad, H. Sacre, S. Obeid, P. Salameh, and S. Hallit, "Validation of the Arabic version of the "12-item short-form health survey"(SF-12) in a sample of Lebanese adults," *Archives of Public Health*, vol. 79, no. 1, p. 56, 2021. Https://doi.org/10.1186/s13690-021-00579-3
[76] J. D. Brown, "The Cronbach alpha reliability estimate," *JALT Testing & Evaluation SIG Newsletter*, vol. 6, no. 1, pp. 17 – 18, 2002.

[77] N. J. Gogtay and U. M. Thatte, "Principles of correlation analysis," *Journal of the Association of Physicians of India*, vol. 65, no. 3, pp. 78-81, 2017.

[78] S. Yükselen, "Understanding correlation coefficients and their implications in social science research," *Journal of Social Research Methods*, vol. 15, no. 4, pp. 123-135, 2017.

[79] L. B. Amusa and T. Hossana, "An empirical comparison of some missing data treatments in PLS-SEM," *Plos one*, vol. 19, no. 1, p. e0297037, 2024. https://doi.org/10.1371/journal.pone.0297037

[80] S. Petter and Y. Hadavi, *Use of partial least squares path modeling within and across business disciplines* (Partial least squares path modeling: Basic concepts, methodological issues and applications). Springer. https://doi.org/10.1007/978-3-031-37772-3_3, 2023.

[81] N. F. Richter, S. Hauff, C. M. Ringle, M. Sarstedt, A. E. Kolev, and S. Schubring, *How to apply necessary condition analysis in PLS-SEM* (Partial least squares path modeling: Basic concepts, methodological issues and applications). Springer. https://doi.org/10.1007/978-3-031-37772-3_10, 2023.