**Original Article**

# Intolerance to Uncertainty and Cyberchondria During the COVID-19 Pandemic

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**Abstract**

**Background:** COVID 19 is a problem that significantly affects community mental health. With this problem, many mental problems have emerged. Cyberchondria and intolerance to uncertainty are among the mental problems increasing during the pandemic process. aim, methods, results and conclusion.
**Aim:** This study was carried out to determine the level of intolerance to uncertainty and cyberchondria of the society during the COVID-19 pandemic.
**Method:** In this descriptive-relational study, the random sampling method was used. The study was conducted between September-November 2020 with 1195 people aged 18-65. The data were collected using the Information Form consisting of three parts, the Intolerance to Uncertainty Scale (IUS-12), and the Cyberchondria Severity Scale (CSS-33).
**Results:** The mean Intolerance to Uncertainty Scale score of the participants was found to be 38.39±9.56, and the mean CSS score was 73.80±17.34. The analyses indicated that the predictor variable of the IUS score is using drugs without doctor's recommendation (β=-0.059, p<0.05), while the predictor variables of the CSS score are ceasing to use the prescribed medication based on the information on the internet (β=-0.225, p< 0.01), choosing a doctor and hospital according to the information on the Internet (β=-0.101, p<0.01), and people's belief that they have information about COVID-19 (β=0.075, p=0.08). A weak positive correlation was observed between the IUS and CSS (p<0.001).
**Conclusion**: The study revealed that cyberchondria and intolerance to uncertainty are affected by age, gender, and marital status and the behaviors of individuals seeking health information about COVID-19 from the Internet.

**Keywords:** COVID 19, cyberchondria, intolerance to uncertainty, pandemic

## Introduction

The COVID-19 pandemic has significantly affected the health systems, economy and social balance of the countries. Information and news about the pandemic spread rapidly, and many videos and pieces of information have been shared on the web and social media (Meylahn, 2020). Its rapid spread, high mortality rate and serious physical effects have led to psychological effects, including anxiety and other emotional symptoms (Cao et al., 2020; Huang & Zhan, 2020; Jungmann & Witthoft, 2020). A study conducted by Wang et al. (2020) in China revealed that 53.8% of the individuals evaluated the psychological impact of the disease as moderate to severe and that about one third of the participants have experienced moderate to severe anxiety. The increase in health-related concerns has led to the emergence of information seeking behavior in individuals to perceive the situation and feel safe or to interpret their symptoms (Wang et al., 2020; Jungmann et al., 2020; Jungmann & Witthoft, 2020).

Media can play a central role in pandemics in terms of the need for security or information seeking behavior. While the use of the media represents the individual's own safety-seeking behavior, it can reveal more safety-seeking behaviors (excessive internet use, doctor visits) due to the emotional content and anxiety-causing

messages (Ebrahim et al., 2020; Garfin, Silver, Holman, 2020; Jungmann & Witthoft, 2020; Laato et al., 2020). As a result of people's continuous browsing on traditional and social media to access health information, their anxiety increases and cyberchondria arises (Erdogan & Hocaoglu, 2020; Laato et al., 2020).

Cyberchondria, which is the digital version of hypochondriasis, is defined as an excessive and regular search for health information on the Internet (Erdogan & Hocaoglu, 2020). This search behavior increases with the increase in the anxiety of individuals, which ensures the continuity of Internet searches (White & Horvitz, 2009; Starcevic & Berle, 2013; Erdogan & Hocaoglu, 2020). Confusing, unreliable and inconsistent information, complex algorithms, and imprecise medical terms trigger cyberchondria in individuals (White & Horvitz, 2009; Laato et al., 2020). Although the information obtained seems to reduce the level of uncertainty, the in-depth investigation of health-related information in cyberchondria may lead to an increase in uncertainty in individuals (Dameery et al., 2020).

Uncertainty is often a cause for concern and its simplest negative response is intolerance to uncertainty. This intolerance and the need to find the best information about health problems have been found to be associated with illness anxiety disorder and cyberchondria (Muse et al., 2012; Gencer et al., 2018). Dameery et al. (2020) stated in their study that there is a moderate positive relationship between cyberchondria and intolerance to uncertainty.

It is known that social media platforms used to obtain information about COVID-19 have a significant effect on the spread of panic among people and they negatively affect people's mental health (Jungmann & Witthoft, 2020). It is believed that the COVID-19 pandemic may have an impact on the levels of cyberchondria and intolerance to uncertainty. This study aimed to determine the level of intolerance to uncertainty and cyberchondria of the society during the COVID-19 pandemic.

## Methods

***Research Type and Participants:*** In this descriptive-relational study, the haphazard sampling method was used. The findings of the study conducted by Uzun and Zencir (2021) were used to calculate the sample size, and the standard deviation of the cyberchondria scale (S=17.6) was taken into account. Utilizing the sample calculation used when the size of the target population is not known ($n=t^2x\sigma^2/d^2$) (Karasar, 2005), it is aimed to reach 1189 people, assuming 95% confidence level and d=1 deviation. The data were collected through the online application of the scales between 26 September and 19 November 2020. Data collection forms prepared with the Google-Docs program were sent to the participants via phone applications. Since cyberchondria is related to Internet use, individuals who have internet access, who use social networks, who can read and understand Turkish, and who agreed to participate in the research were included in the study. Due to the pandemic measures, forms were sent to the participants via phone applications. Data collection forms were sent to 3650 people in total and 1195 people (32.7%) agreed to participate in the study. Due to the target number being reached, the process of sending data collection forms was terminated.

***Data Collection Tools and Method:*** The Information Form, the Intolerance to Uncertainty Scale, and the Cyberchondria Severity Scale were used to collect data.

***Information Form:*** The form includes five questions regarding the sociodemographic characteristics of the participants and five questions that evaluate individuals' search for health information on the Internet.

***Intolerance to Uncertainty Scale (IUS-12):*** The scale was developed by Carleton, Norton, and Asmundson and was adapted to Turkish by Sarıçam et al. (2014). It is a 5-point Likert type scale consisting of 12 items and has two sub-dimensions as "prospective anxiety" and "inhibitory anxiety". Higher scores indicate a higher level of intolerance to uncertainty. The Cronbach's alpha of the IUS-12 is .88, while it is .84 and .77 for the factors, respectively (Saricam et al., 2014). In our study, the Cronbach's alpha was .89 for the scale, and .85 and .88 for the prospective anxiety factor and for the inhibitory anxiety factor, respectively.

***Cyberchondria Severity Scale (CSS-33):*** The scale, which was developed by McElroy and Shevlin (2014), was adapted to Turkish by Uzun and Zencir (2021). It is a 5-point Likert-type scale consisting of 33 items and has a five-factor structure. The factors are compulsion, distress, excessiveness, reassurance and mistrust in doctors. Higher scale scores indicate a higher

level of cyberchondria. The Cronbach's alpha of the scale ranges from .65 to .85. In our study, the Cronbach alpha of the scale was found to be .76, while it was found to range between .68 and .80 for the factors.

***Variables***

*Independent variables*

- Socio-demographic characteristics
- Search for health information on the Internet

*Dependent variables*

- Intolerance to Uncertainty Scale
- Cyberchondria Severity Scale

***Ethical Considerations:*** Written permission was obtained from the Ministry of Health, General Directorate of Health Services, Scientific Research Platform (No:2020-08-26T11_44_12) and N….. E…… University Health Sciences Scientific Research Ethics Committee (date: 26.08.2020, no: 1/4) to conduct the study. Permission was obtained for the use of the scales. Furthermore, participants' consent was obtained to collect data.

***Statistical Analysis of the Data:*** Number, percentage, t test, Kruskal Wallis (in the presence of a value below 30) and One Way ANOVA analyses were performed to analyze the data. As the posthoc tests, the Tukey HSD was used if the variances were homogeneous, and the Games Howell test was used if not. The results of the t test made to determine the independent variables to be included in the regression analysis were prepared as an additional file. The multiple regression analysis (Enter model) was performed with the independent variables affecting the total scores of the scales. The categorical variables to be analyzed were re-coded as 1 and 0, and the coding pattern was given in parentheses in Table 3. Before obtaining the analysis results, the model was examined in terms of multiple regression assumptions and was evaluated to test the assumptions. The Pearson Correlation Test was used to determine the relationship between the scales. The results were tested at $p < 0.05$ significance level.

## Results

79.2% of the participants are female; 57.8% are between the ages of 18-25; 61.1% are single; 62.6% are unemployed, and 71% are university graduates. 73.1% of the participants reported that they do not use drugs without doctor's recommendation. 15.6% stated that they stopped using the prescribed drugs based on the information on the Internet. 76.2% reported that they use the Internet to choose the doctor or hospital they will consult. 68.6% stated that either they or their relatives were diagnosed with COVID-19 or were quarantined, and 76.7% said that they obtain information about COVID-19 on the Internet. The mean score of the compulsion factor of the CSS was found to be high in the 26-45 age group and in primary-secondary school graduates, while it was found to be low in single participants ($p<0.05$).

The mean scores of the factors of distress and excessiveness were found to be high in women, in those between 18-25, and in single participants ($p<0.05$). In addition, the mean score of the factor of excessiveness was found to be higher among university graduates ($p<0.05$). It was further revealed that the mean score of the factor of reassurance in the CSS was high in the participants who were between 18-25, single and unemployed ($p<0.05$), while the mean score of the factor of mistrust was found to be higher in males, in those between the ages of 46 and 65, in primary-secondary school graduates, and in those who were employed ($p<0.05$) (Table 2).

The mean score of the factor of prospective anxiety in the IUS was found to be high in the participants between the ages of 18-25 and low in the married and primary-secondary school graduates ($p<0.05$). On the other hand, the mean score of the factor of inhibitory anxiety was found to be significantly higher in women and in those between the ages of 18-25 ($p< 0.05$). The mean total score of the IUS was high in those between the ages of 18-25 and low in those who are married ($p<0.05$) (Table 2).

As seen in Table 3, the effect of independent variables related to the behaviour of seeking health-related information on the Internet, which affect the CSS and the IUS total scores, was evaluated using the multiple regression analysis. Four variables account for the change in the total CSS score by 6.6%. The strongest predictor of the total CSS score was determined as "ceasing to use the prescribed medication based on the information on the Internet". Those who use drugs without doctor's recommendation, those who stop using a prescribed drug based on the information on the Internet, and those who use the information on the Internet to choose the doctor and/or hospital to be consulted lead to an increase of 1.6, 10.8, and 3.8 points in the CSS score, respectively. The two factors of the IUS

scale account for the change in the total IUS score by 0.4%. Those who use drugs without doctor's recommendation cause a 1.2 point increase in the IUS total score.

A weak positive relationship was observed between the total and factor mean scores of the IUS and the total and factor mean scores of the CSS, except for the factor of mistrust ($p<0.001$). A weak negative relationship was revealed between the mean score of the factor of mistrust in the doctor and the mean scores of the IUS and prospective anxiety ($p<0.001$) (Table 4).

**Table 1. CSS Total and factor scores and IUS Total and factor scores (n=1195)**

| | | M | SD | Min-Max |
|---|---|---|---|---|
| Factors | Compulsion | 12.48 | 5.652 | 8-40 |
| | Distress | 17.74 | 6.108 | 8-40 |
| | Excessiveness | 23.27 | 6.099 | 8-40 |
| | Reassurance | 13.91 | 4.595 | 6-30 |
| | Mistrust | 6.41 | 2.857 | 3-15 |
| | Total CSS | 73.80 | 17.345 | 33-165 |
| Factors | Prospective anxiety | 23.23 | 5.514 | 7-35 |
| | Inhibitory anxiety | 15.15 | 5.056 | 5-25 |
| | Total IUS | 38.39 | 9.562 | 12-60 |

**Table 3. Multiple regression analysis for the prediction of independent variables that have an effect on the CSS and IUS scores (Enter model) (n=1195)**

| | B | SH | Beta (β) | t | p | 95% Confidence interval | |
|---|---|---|---|---|---|---|---|
| **Total CSS score** | | | | | | | |
| (Constant) | 101.498 | 3.230 | | 31.426 | **0.001** | 89.083 | 103.770 |
| Using drugs without doctor's recommendation (groups; yes:1; no:0) | -1.697 | 1.099 | -0.043 | -1.545 | 0.123 | -3.853 | 0.458 |
| Ceasing to use the prescribed medication based on the information on the Internet (groups; yes:1; no:0) | -10.843 | 1.347 | -0.227 | -8.050 | **0.000** | -13.485 | -8.200 |
| Using the information on the Internet to choose the doctor and/or hospital to be consulted (groups; yes:1; no:0) | -3.854 | 1.144 | -0.095 | -3.369 | **0.001** | -6.098 | -1.610 |
| Adjusted R2=0.066, F=29.142, p=0.000, Durbin Watson=1.91 | | | | | | | |
| **Total IUS score** | | | | | | | |
| (Constant) | 37.018 | 2.401 | | 15.416 | **0.001** | 32.307 | 41.729 |
| Having been diagnosed or quarantined due to COVID-19 (groups; yes:1; no:0) | 1.843 | 1.098 | 0.048 | 1.679 | 0.093 | -0.311 | 3.998 |
| Using drugs without doctor's recommendation (groups; yes:1; no:0) | -1.268 | 0.622 | -0.059 | -2.038 | **0.042** | -2.489 | -0.047 |
| Adjusted R2=0.004, F=3.507, p=0.030, Durbin Watson=1.884 | | | | | | | |

**Table 4. The relationship between the IUS total and factor scores and the CSS total and factor scores**

| | | Compulsion | Distress | Excessiveness | Reassurance | Mistrust | Total CSS |
|---|---|---|---|---|---|---|---|
| Prospective anxiety | r | **0.120**$^{**}$ | **0.267**$^{**}$ | **0.273**$^{**}$ | **0.174**$^{**}$ | **-0.121**$^{**}$ | **0.255**$^{**}$ |
| | p | **<0.001** | **<0.001** | **<0.001** | **<0.001** | **<0.001** | **<0.001** |
| Inhibitory anxiety | r | **0.150**$^{**}$ | **0.315**$^{**}$ | **0.246**$^{**}$ | **0.172**$^{**}$ | -0.034 | **0.286**$^{**}$ |
| | p | **<0.001** | **<0.001** | **<0.001** | **<0.001** | 0.238 | **<0.001** |
| Total IUS | r | **0.149**$^{**}$ | **0.321**$^{**}$ | **0.287**$^{**}$ | **0.191**$^{**}$ | **-0.088**$^{**}$ | **0.299**$^{**}$ |
| | p | **<0.001** | **<0.001** | **<0.001** | **<0.001** | **0.002** | **<0.001** |

$^{**}$Significance level:0.01

**Table 2. Comparison of the Socio-demographic characteristics and CSS, IUS and factor mean scores (n=1195)**

| | n(%) | Compulsion M(SD) | Distress M(SD) | Excessiveness M(SD) | Reassurance M(SD) | Mistrust M(SD) | CSS Total M(SD) | Prospective anxiety M(SD) | Inhibitory anxiety M(SD) | IUS Total M(SD) |
|---|---|---|---|---|---|---|---|---|---|---|
| Gender | | | | | | | | | | |
| Female | 946 (79.2) | 12.37(5.5) | 17.92(6.19 | 23.52(6.02) | 13.96(4.61) | 6.22(2.73) | 73.98(17.39) | 23.30(5.47) | 15.32(5.11) | 38.62(9.61) |
| Male | 249 (20.8) | 12.90(5.9) | 17.05(5.9) | 22.31(6.31) | 13.74(4.51) | 7.14(3.17) | 73.14(17.18) | 22.97(5.67) | 14.53(4.80) | 37.50(9.33) |
| Test value | | t=2.71 | **t=0.847** | **t=1.623** | t=0.366 | **t=7.967** | t=0.194 | t=0.119 | **t=2.021** | t=0.675 |
| Significance level | | p=0.189 | **p=0.045** | **p=0.005** | p=0.506 | **p<0.001** | p=0.496 | p=0.393 | **p=0.029** | p=0.100 |
| Age | | | | | | | | | | |
| 18-25[1] | 691 (57.8) | 11.99(5.2) | 18.11(6.2) | 23.91(6.0) | 14.35(4,6) | 6.20(2.7) | 74.56(17.4) | 23.69(5.4) | 15.57(5.1) | 39.26(9.5) |
| 26-45[2] | 414 (34.6) | 13.21(6.1) | 17.36(5.8) | 22.42(6,1) | 13.26(4.4) | 6.64(2.8) | 72.88(17.5) | 22.89(5.4) | 14.67(4.8) | 37.57(9.4) |
| 46-65[3] | 90 (7.5) | 12,89(5.7) | 16,63(6.0) | 22,19(5,6) | 13,52(4,6) | 7.00(3.3) | 72.23(15.7) | 21.8(5.6) | 14.14(4.6) | 35.42(9.3) |
| Test value | | **[a]F=5.983** | **[a]F=3.548** | **[b]F=9.469** | **[b]F=7.836** | **[a]F=4.727** | [b]F=1.616 | **[b]F=8.951** | **[b]F=6.087** | **[b]F=8.872** |
| Significance level and difference | | **p=0.003 2>1** | **p=0.030 1>2>3** | **p<0.001 1>2.1>3** | **p<0.001 1>2** | **p=0.010 1<2** | p=0.199 | **p<0.001 1>3.2>3** | **p=0.002 1>2.1>3** | **p<0.001 1>2. 1>3** |
| Marital Status | | | | | | | | | | |
| Married[1] | 446 (37.3) | 13.11(5.96) | 17.19(5.95) | 22.59(5.97) | 13.46(4.48) | 6.63(2.96) | 72.98(17.142) | 22.71(5.33) | 14.75(4.74) | 37.45(9.18) |
| Single[2] | 730 (61.1) | 12.05(5.30) | 18.11(6.17) | 23.72(6.10) | 14.27(4.63) | 6.28(2.78) | 74.44(17.464) | 23.49(5.54) | 15.35(5.20) | 38.84(9.65) |
| Divorced/widowed[3] | 19 (1.6) | 13.74(9.16) | 16.32(6.19) | 21.58(7.20) | 10.89(3.98) | 6.26(3.08) | 68.79(16.732) | 25.79(7.28) | 16.89(5.59) | 42.68(12.44) |
| Test value | | **KW=11.47** | **KW=7.76** | **KW=9.97** | **KW=16.34** | KW=3.23 | KW=3.42 | **KW=10.72** | KW=6.93 | **KW=11.83** |
| Significance level and difference | | **p=0.003 1>2** | **p=0.021 2>1** | **p=007 2>1** | **p=0.000 2>1>3** | p=0.198 | p=0.181 | **p=0.005 1<2,** | p=0.031 | **p=0.003 2>1, 3>1** |
| Level of Education | | | | | | | | | | |
| Primary-Secondary school[1] | 96 (8.0) | 14.21(6.35) | 18.08(6.94) | 20.65(6.89) | 13.75(4.66) | 7.78(3.71) | 74.47(18.48) | 21.66(6.08) | 14.88(5.20) | 36.53(10.62) |
| High school[2] | 251 (21.0) | 12.25(5.50) | 17.33(6.07) | 22.78(6.36) | 13.98(4.92) | 6.69(3.09) | 73.02(17.38) | 23.66(5.38) | 15.53(5.09) | 39.19(9.41) |
| University[3] | 848(71.0) | 12.35(5.58) | 17.82(6.02) | 23.70(5.84) | 13.91(4.48) | 6.17(2.61) | 73.96(17.21) | 23.29(5.46) | 15.07(5.03) | 38.36(9.46) |
| Test value | | **[b]F=4.96** | [a]F=0.772 | **[a]F=9.895** | [b]F=0.087 | **[a]F=10.449** | [b]F=0.357 | **[b]F=4.75** | [b]F=0.933 | [b]F=2.698 |
| Significance level and difference | | **p=0.07 1>2, 1>3** | p=0.463 | **p<0.001 1<2, 1<3** | p=0.916 | **p<0.001 1>2>3** | p=0.700 | **p=0.009 1<2, 1<3** | p=0.394 | p=0.068 |
| Working status | | | | | | | | | | |
| Working | 447 (37.4) | 12.99(6.06) | 17.47(5.86) | 22.85(5.78) | 13.56(4.53) | 6.64(2.68) | 73.51(17.18) | 23.17(5.52) | 14.86(4.78) | 38.04(9.31) |
| Not working | 748 (62.6) | 12.17(5.36) | 17.90(6.24) | 23.51(6.27) | 14.14(4.62) | 6.27(2.94) | 73.98(17.45) | 23.27(5.51) | 15.32(5.20) | 38.59(9.70) |
| Test value | | t=6.30 | t=3.10 | t=3.47 | **t=0.034** | **t=4.696** | t=0.636 | t=0.229 | t=6.155 | t=0.870 |
| Significance level | | p=0.18 | p=0.233 | p=0.70 | **p=0.041** | **p=0.027** | p=0.652 | p=0.767 | p=0.127 | p=0.328 |

[a] ANOVA Welch Variance Analysis, [b] ANOVA Variance Analysis, t: t test in independent groups, KW: Kruskal Wallis, p<0.05, Posthoc test: Tukey HSD Test, Games Howell

**Discussion**

Since the COVID-19 pandemic affects individuals' feelings, thoughts and behaviors about their future, it leads to many problems. The recent emergence of the disease and its widespread media coverage cause individuals to search more about it on the Internet, reach unreliable information, and ultimately, an increase in intolerance to uncertainty and cyberchondria levels (White & Horvitz, 2009; Laato et al., 2020; Dameery et al., 2020 ).

In our study, the mean IUS score was found to be 38.39 ± 9.56 (Table 1). Dameery et al.'s (2020) study conducted during the pandemic determined the IUS score as 35.1±10.0. The COVID 19 pandemic appears to increase the levels of fear (Schimmenti, Billieux, & Starcevic, 2020), anxiety (Ebrahim et al., 2020, Shukri et al., 2020), cyberchondria (Laato et al., 2020), uncertainty and intolerance to uncertainty (Tull et al., 2020; Sauer, Jungmann, & Witthöft, 2020). In their follow-up study, Sauer et al. (2020) reported that health anxiety caused by COVID-19 decreased over time; however, the level of intolerance to uncertainty did not change. COVID-19 is perceived as a threat by individuals and this perceived threat intensifies with false information, which causes not being able to cope with uncertainty effectively (Starceviv et al., 2020a). Uncertainty gives rise to stress in individuals and problems in individuals' feelings, thoughts and behaviors (Tull et al., 2020; Sauer et al., 2020). It is stated that intolerance to uncertainty in individuals during the COVID-19 pandemic increases general anxiety, depression, health anxiety, maladaptive coping methods (Rettie & Deniels, 2020; Kasapoglu, 2020), and mental problems (Ferreira et al., 2020). For this reason, it is believed that health professionals should adopt some practices to reduce the level of intolerance to uncertainty.

In our study, the mean CSS score was found to be 73.80 ± 17.34 (Table 1). Intensive use of the Internet and social media, the increase in the sharing of false information, and the retrieval of all information without filtering cause an increase in anxiety and the risk of cyberchondria (Ebrahim et al., 2020; Laato et al., 2020; Starcevic et al., 2020a; Hashemi et al., 2020). According to the 2020 data of the Turkish Statistical Institute (TSI), the rate of Internet use of households is 79%. Epstein (2017) found that 81% of the participants in the US used the Internet and 72% showed the behavior of searching for health information on the Internet. The rapid spread of false information along with intensive Internet use during the pandemic has made cyberchondria a risk for social media users (Laato et al., 2020). In addition, intense information sharing during the pandemic has caused individuals to experience opposite and changing ambivalent feelings in the form of fear of not knowing or the need not to know. These ambivalent feelings are known to increase the search for information online and to cause cyberchondria in addition to fear (Farooq, Laato, & Islam, 2020; Schimmenti et al., 2020; Starcevic, Berle, & Arnaez, 2020b). Reaching adequate and accurate information is important in crisis situations such as pandemic. In addition to informing people, changing the agenda (celebrity news, etc.) is also recommended (Laato et al., 2020). Furthermore, psycho-education, which includes topics such as disinformation and where and how to access information, is the main approach in the treatment of cyberchondria (Gençer et al., 2018). In this respect, psychiatric nurses have important responsibilities.

During the COVID-19 pandemic, intolerance to uncertainty and cyberchondria have been affected by many variables. Our study revealed that the mean scores of the factors of distress, excessiveness and inhibitory anxiety are higher in women, while the mean score of the factor of mistrust in the doctor is higher in men (Table 2). As revealed in the literature, during the COVID-19 pandemic, women have experienced higher levels of anxiety (Ebrahim et al., 2020; Ferreira et al., 2020; Parlapani et al., 2020), cyberchondria (Laato et al., 2020; Maftei et al., 2020), intolerance to uncertainty (Ferreira et al., 2020), and depression (Ferreira et al., 2020; Parlapani et al., 2020) compared to men, and they have shown more online information seeking behaviors than men (Ebrahim et al., 2020; Laato et al., 2020). The study conducted by Epstein (2017) with 3000 participants found that women search for more health information on the Internet than men.

The mean score of the factor of mistrust in the doctor in the CSS was found to be higher between the ages of 46-65, while the mean scores of the other factors of the CSS, the IUS and its factors were found to be higher in the 18-25 age group (Table 2). Laato et al. (2020) reported that older individuals are better at organizing

information and that sharing of unverified information and the level of cyberchondria are higher in young people. In our study, the participants were mostly between the ages of 18-45 and according to the TÜİK (2020), Internet use is more common in this age group. Also, there have been restrictions due to the pandemic, which may have caused more internet-based information seeking.

Our study revealed that the mean scores of the factors of distress, excessiveness and reassurance in the CSS and the mean IUS score are higher in single participants compared to the married ones, whereas the mean scores of the factor of compulsion in the CSS and the factor of prospective anxiety in the IUS were found to be lower in single participants compared to the married ones (Table 2). The study conducted by Parlapani et al. (2020) reported that the level of intolerance to uncertainty in single individuals was higher and loneliness affected this process. This result is thought to be related to the roles and responsibilities of married couples.

One of the most important findings of the study is that the strongest predictor of the mean CSS score is those who stopped using the prescribed medication due to the information they read on the Internet (Table 3). It is believed that the CSS scores increased due to accessing unreliable information on the Internet, the inability to distinguish between true/false information, and the confusion that arises. Epstein (2017) stated that 38% of the participants rely on the information on the Internet about the decisions they make about health, without the need for a doctor. Instead of trying to keep people away from the Internet during the pandemic, it is emphasized that it is more important to inform people about what purpose the Internet serves and about health information literacy and that online health information is abundant, but inconsistent (Starsevic et al., 2020). In this respect, nursing interventions are important in order to raise the awareness of the society.

The mean IUS score was found to be higher in those who use drugs without doctor's recommendation (Table 3). This behavior may be an indication that the individual is moving away from professional health seeking behavior. Obtaining information from different sources and encountering inconsistent information may give rise to uncertainties in individuals.

Another important finding of the study is that there is a weak positive relationship between the mean scores of the IUS and its factors and the mean scores of the CSS and its factors, except for the factor of mistrust in the doctor (Table 4). Intolerance to uncertainty is accepted as a risk factor for cyberchondria, and many studies indicate that there is a moderate and strong relationship between cyberchondria and intolerance to uncertainty (Norr, 2015; Dameery et al., 2020; Zheng et al., 2020; Zangoulechi, Yousefi, & Keshavarz, 2018). It has been suggested that intolerance to uncertainty is indirectly related to cyberchondria, especially due to its links with health anxiety (Fergus, 2013). Uncertainties in individuals about health conditions can cause them to search for medical information online more, which eventually increases the level of cyberchondria due to the increase in anxiety caused by drowning in the pools of information (Fergus, 2013; Shukri et al., 2020; Dameery et al., 2020). Since searches on the Internet never end with definite answers and there are different explanations about the same topic, no decrease is observed in individuals' anxiety levels (White & Horvitz, 2009; Zangoulechi et al., 2018). In their study, Shukri et al. (2020) found a positive and weak relationship between health anxiety and cyberchondria during the pandemic, while Mullan et al. (2018) revealed a positive and strong relationship between health anxiety and cyberchondria.

**Conclusion and Recommendations:** A positive relationship has been found between intolerance to uncertainty and cyberchondria levels in individuals during the COVID-19 pandemic. It was further revealed that cyberchondria and intolerance to uncertainty are affected by some socio-demographic characteristics of individuals such as age, gender, marital status and their behaviors of seeking information about health on the Internet. It may be recommended to have some interventions during the pandemic to educate risk groups about developing appropriate coping strategies and positive emotions, and to evaluate individuals in terms of some variables such as anxiety, hope and optimism. Not only information emphasizing the severity of the situation but also ways to access reliable health information should be explained in notifications about the COVID-19 pandemic, and individuals should be directed to relevant official sources

(ministry of health, world health organization etc.).

**Limitations:** Participants do not reflect the turkey population in terms of socio-demographic variables. It was observed that the majority of the participants were women. Additionally, this study could not be done face-to-face due to the pandemic and webankets were used. Individuals using social media, who can be accessed by web-survey, were included in the study. This is considered to be the limitation of the study. However, despite these limitations, the large sample size increases the strength of the study.

**Implications for Practice:** With this study, intolerance to uncertainty and severity of cyberchondria during the pandemic were determined. In order to reduce the mental distress caused by the pandemic, it is important to make some protective interventions as nurses and to give priority to risky groups for this. It is thought that the results of the study will contribute to the next experimental studies and the literature.

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