RESEARCH ARTICLE

Enes Sarigedik[1]
Safiye Bahar Olmez[2]

[1] Department of Child and Adolescent Psychiatry, Duzce Ataturk State Hospital, Düzce, Turkey
[2] Department of Psychiatry, İstanbul Kanuni Sultan Süleyman Training And Research Hospital , Health Sciences University, Istanbul, Turkey

Corresponding Author:
Enes Sarigedik
Department of Child and Adolescent Psychiatry, Duzce Ataturk State Hospital, Düzce, Turkey
mail: enessarig@outlook.com

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konuralptipdergi@duzce.edu.tr
konuralptipdergisi@gmail.com
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The Investigation of the Relationships among Coronavirus Anxiety, Cyberchondria, and Online Shopping

ABSTRACT

Objective: During the COVID-19 pandemic some mental disorders has been especially increased. The purpose of this study is to evaluate the relationship between individuals' coronavirus anxiety, cyberchondria, and online shopping addiction features during the pandemic we are in, and try to explain the factors associated with these features.

Methods: The data consist of 407 people between the ages of 18-65 who answered a sufficient number of questions on the scales with the help of the online environment by Google questionnaire method between January 18nd, 2021 and February 18th, 2021. Participants were asked to fill in the socio-demographic form, cyberchondria severity scale (CSS), Bergen shopping addiction scale (BSAS), and coronavirus anxiety (CAS) scales.

Results: In this study, 79.6% of the participants stated that their anxiety increased, 63.4% stated that the frequency of shopping online increased, and 39.8% stated that the number of health searches on the internet increased during the COVID-19 pandemic. Regarding the correlations of the CAS, CSS, BSAS scales with each other, a statistically significant positive moderate correlation was found between CAS and CSS (r: 0.495, p <0.001).

Conclusions: Pandemic has changed lots of routines about our daily life. Individuals' spending a long time on the internet at home and that may be an important risk factor for online shopping addiction and cyberchondria during the COVID-19 pandemic. For this reason, informing individuals about mental problems caused by the intense use of the internet during the pandemic is important in terms of mental health.

Keywords: SARS-CoV-2, Coronavirus, Anxiety, Cyberchondria, Online Shopping, Compulsive Behavior.

Koronavirüs Kaygısının Siberkondria Ve Online Alışveriş Bağımlılığı İle İlişkisinin İncelenmesi

ÖZET

Amaç: COVID-19 pandemisi döneminde bu yeni hastalıkla ilgili birçok belirsizliğin olması, sosyal izolasyon uygulanması, pandeminin yol açtığı bir takım ekonomik zorluklar ile beraber özelikle bazı ruhsal bozukluklarda belirgin artış görülmüştür. Pandemi döneminde en fazla artan ruhsal belirtilerden biri şüphesiz anksiyetedir. Bu çalışmanın amacı içinde bulunduğumuz pandemi sürecinde bireylerin koronavirüs anksiyetesi, siberkondria ve online alışveriş bağımlılığı özellikleri arasındaki ilişkiyi değerlendirmek ve bu özellikler ile ilişkili diğer faktörleri açıklamaya çalışmaktır.

Gereç ve Yöntem: Bu çalışma için gönüllük esasına uygun olarak çalışmaya dahil olan katılımcılardan 18.01.21 ile 18.02.21 tarihleri arasında Google anket yöntemi ile online olarak veri toplandı. Katılımcılara sosyo-demografik form, siberkondria şiddeti ölçeği (CSS), kompulsif satın alma ölçeği (BSAS) ve koronavirüs anksiyete (CAS) ölçekleri uygulandı. Ölçeklerde yeterli sayıda soruyu yanıtlayan 18-65 yaş arası 407 kişi ile çalışma tamamlandı.

Bulgular: Çalışma sonucunda COVID-19 pandemisi döneminde katılımcıların %79,6'sı kaygılarının arttığını, %63,4'ü internet üzerinden alışveriş yapma sıklıklarının arttığını, %39,8'ü ise internet üzerinden hastalık arama davranışlarının arttığını belirtmişlerdir. CAS, CSS, BSAS ölçeklerin birbirleri ile korelasyonları incelendiğinde ise CAS ile CSS arasında istatistiksel olarak anlamlı pozitif yönde orta düzeyde bir ilişki saptanmıştır (r:0,495, p<0,001).

Sonuç: Pandemi, sosyal izolasyon ve evde kal çağrıları sonucu bireylerin evde daha uzun süre internette vakit geçirmeleri online alışveriş bağımlılığı ve siberkondria için önemli bir risk faktörü olabilir. Bu sebeple pandemi süresince internetin yoğun kullanımının yol açacağı ruhsal problemlerle ilgili bireylere bilgilendirme yapılması toplum ruh sağlığı açısından önem taşımaktadır.

Anahtar Kelimeler: SARS-CoV-2, Koronavirüs, Anksiyete, Siberkondria, Online Alışveriş, Zorlayıcı Davranış.

INTRODUCTION

The COVID-19 pandemic that started in the past year has affected the whole society in many ways. COVID-19, a new disease caused by this new virus, previously unknown, has caused individuals to reconsider their sense of trust, relationships, and their views on death and life. The lack of adequate information about COVID-19 and the virus that can change every day has led individuals to research more on the internet. Although some of these researches conducted via the Internet are useful and functional, the excessive and repetitive online information research about diseases is a pathological phenomenon which is defined as cyberchondria (1). Although cyberchondria is a fairly new situation and is still being defined, the number of studies on the subject has increased with the publication of the Cyberchondria Severity Scale (CSS) in 2014 (2). Besides, with the COVID-19 pandemic, there has been an increase in the behavior of searching for diseases on the internet. According to a report published in the United States, internet searches related to coronavirus increased by approximately 36% after the first case was announced in the United States (3). The increased search for information on the Internet has also encouraged researchers to do more research on cyberchondria, and the number of publications on cyberchondria has increased during the pandemic (2,4,5). Moreover, in some previous studies in the literature, it has been found that cyberchondria is also strongly associated with increased health anxiety (2).

During the COVID-19 pandemic, people also faced situations such as intolerance to uncertainty, impaired sense of trust, and fear of death, along with an increase in certain mental disorders (6,7). Anxiety disorders, depression, online shopping, and gambling addictions are the common mental disorders that have been shown to increase during the pandemic (7–10). Undoubtedly, the most increasing psychological symptom during the pandemic period is anxiety. A scale was developed by researchers to measure the coronavirus anxiety in 2020 and made usable in evaluation processes (6).

Due to necessity for staying at home during pandemic most of the people prefer to use online shoppping instead of in store shopping options. However, excessive form of online shopping may also lead negative outcomes such as online shopping addiction, familiy, and economic problems. Previous studies in the literature showed that individuals can tend to do activities such as gambling, pornography, watching online TV series, video games, and online games as coping behaviors because of the compulsory stay-at-home orders, various constraints required to ensure social isolation (8-10). On the other hand, our knowledge about online shopping addiction, which seems more innocent than other addictions but has both an economic and addictive effect on people, is very limited (10).

In studies conducted before coronavirus, it is estimated that compulsive purchasing behavior is quite common, with a rate of 5.8%-8% (11). However, we did not find a study in the literature evaluating how cyberchondria and compulsive purchasing behaviors changed together during the COVID-19 pandemic. The purpose of this study is to evaluate the relationship between individuals' coronavirus anxiety, cyberchondria, and online shopping addiction during the pandemic we are in, and try to explain the factors associated with these features.

MATERIAL AND METHODS

Ethics, Participants, and Procedures: IRB approval for the study was procured from the Ethics Committee of Duzce University Medical Faculty [2020/261]. All of the study procedures were applied following World Health Organization Declaration of Helsinki and local laws and regulations.

The data of this study was collected between 18.01.21 and 18.02.21 on an online basis with the Google questionnaire method. Participants who accepted to participate were first informed about the purpose of the study, procedures, confidentiality of the research data, and how to communicate with the researchers as needed. The informed consent form was completed by marking the informed consent form for the participants who declared that they had read and understood the general information, understood that they were involved voluntarily and that they can withdraw their consent at any time without any consequences. The study started with the consent of every participant. Participants were asked to fill in the socio-demographic form, cyberchondria severity scale (CSS), Bergen shopping addiction scale (BSAS), and coronavirus anxiety (CAS) scales. The study was completed with 407 people between the ages of 18-65 who answered all required questions in the scales.

Measures

1. Bergen Shopping Addiction Scale (BSAS): BSAS was created in 2015 by Andreassen et al. It is a 5-point likert scale that can be scored between 0-112 points consisting of 28 questions (12). The Turkish validity and reliability study was conducted in 2018 with the name of "compulsive online purchasing "(13).

2. Cyberchondria Severity Scale (CSS): The scale was developed by McElroy and Shevlin in 2014. CSS measures excessive online health research. CSS consists of 33 items in total, 5 subscales are defined, and participants can score between 33-165 points (14). The Turkish validity and reliability study was performed by Selvi et al. (15).

3. The Coronavirus Anxiety Scale (CAS): The scale was created by Lee in 2020 and consists

of 5 items in total (8). According to CAS the score of CAS is correlated with coronavirus anxiety. Its Turkish validity and reliability study was conducted by Evren et al. (16).

5. Socio-demographic form: The form consisting of 17 questions such as age, gender, physical and mental illness history, history of COVID-19, etc. The socio-demographic form was created by the researchers in this study.

Statistical Analysis: All analyses were conducted with the use of Statistical Package for Social Sciences (SPSS-26.0) for Windows. All continuous variables were tested for normality and homogeneity of variance. The student's t-test was used for normally distributed data, and Mann–Whitney U test was used for data that were not normally distributed. The Kruskal Wallis test was used to compare more than one group that were not normally distributed. Correlations between continuous variables were evaluated using Spearman's correlation test. A p-value below 0.05 was considered statistically significant.

RESULTS

The socio-demographic, shopping, internet using characteristics of the participants and these characteristics' correlations with the CAS, CSS, and BSAS scales are given in Table 1. The sample of this study consists of a total of 407 people, 260 (63.9%) of the participants were female and 147 (36.1%) were male. The mean age of the sample was 29.54 ± 10.38, while the mean age of men was 35.78 ± 11.0, the mean age of women was 26.01 ± 8.13. A statistically significant difference was found between men and women in terms of age (Z: -9.079, p <0.001). The average monthly income of the participants was determined as 4.050 ± 3.735 TL . There was no correlation with mean monthly income with the CAS, CSS, and BSAS scales (r: -0,168; r: -0,160; r: -0,031, respectively). Participants reported that they made an average of 2.42 ± 3.38 shopping per month before the pandemic, and 4.85 ± 4.96 shopping during the COVID-19 pandemic period. The average technological (phone, tablet, computer) use of the participants was 5.72 ± 3.6 hours in the last two weeks. In terms of the relationship between age and CAS, CSS, and BSAS scales, there is very low negative correlation was found between age and CAS,CSS, and BSAS scores (respectively; r: -0,190; r: -0,157; r: -0,112).

Table 1. The socio-demographic characteristics of participants and the correlations between socio-demograhic characteristics and CAS, CSS, and BSAS scores

		n(%)	Mean(SD)	CAS(r)	CSS(r)	BSAS(r)
Age	Female	260(63.9)	26.01(8.13)	-0.052	-0.030	-0.092
	Male	147(36.1)	35.78(11.00)	-0.114	-0.202*	0.073
	Total	407(100)	29.54(10.38)	-0.190**	-0.157**	-0.112*
Monthly income as Turkish liras			4.050(3.735)	-0.168**	-0.160**	-0.031
Daily time for internet using as hour			4.85(4.96)	0.056	0.078	0.144*
			Median(IQR)			
Number of online shopping before COVID-19 pandemic			2(3)	0.085	0.160**	0.226**
Number of online shopping during COVID-19 pandemic			3(4)	0.148**	0.147**	0.290**

Spearman korelasyon test, r: correlation coefficient ,*. p <0.05 . **. p <0.01 level BSAS: Bergen Shopping Addiction Scale, CSS: Cyberchondria Severity Scale, CAS:The Coronavirus Anxiety Scale

Regarding anxiety, online shopping, and cyberchondria characteristics of participants, 79.6% of the participants stated that their anxiety increased, 63.4% of the participants stated that the frequency of shopping on the internet increased, and 39.8% of the participants stated that the amount of time for online searches for diseases increased.

Examination of CAS, CSS, BSAS scales according to COVID-19 features of participants are given in Table 2. According to Table 2, while 17.2% (n: 70) of the participants reported to had COVID-19, 35.1% of participants had contact with an individual with COVID-19. 71.3% of the participants reported at least one family member who had COVID-19 during the pandemic. BSAS scores of the participants who reported to had COVID-19 were found to be (24.6 ± 18.6) statistically lower than those who did not report COVID-19 history (30.6 ± 18.6) (p = 0.019). Regarding contact history with a person with COVID-19, BSAS scores of the participants with a history of contact with COVID-19 individuals were found to be 24.0 ± 18.8 statistically significantly lower than those without any contact history (28.0 ± 18.4) (p = 0.034). CAS and CSS scores of individuals who have at least one family member had COVID-19 were found to be (1.3 ± 2.3; 68.2 ± 22.3, respectively) statistically significantly lower than those who did not have any family member with COVID-19 (2.6 ± 3.8; 74.4 ± 22.5, respectively) (p <0.001, p = 0.004, respectively) (Table 2).

Table 2. The relationships among COVID-19 related features of participants and CAS, CSS, and BSAS scores.

	Yes	No	CAS		CSS		BSAS	
	n(%)	n(%)	Z	p	Z	p	Z	p
Having the personal history of COVID-19	70(17.2)	337(82.8)	-0.445	0.65	-0.124	0.90	-2.351	0.019
Having the history of contact with someone who had COVID-19	143(%35.1)	264(64.9)	-0.084	0.93	-0.396	0.69	-2.116	0.034
Having the history of at least one familiy member who had COVID-19	290(71.3)	117(28.7)	-3.481	<0.001*	-2.841	0.004	-1.627	0.104
Healthcare professional	69(17.0)	338(83.0)	-.328	0.743	-1.267	0.205	-1.377	0.169

Mann-Whintney U test, BSAS: Bergen Shopping Addiction Scale, CSS: Cyberchondria Severity Scale,CAS:The Coronavirus Anxiety Scale

In terms of history about physical illness or mental disorder of participants 34 (8.4%) of the participants reported physical illness and 43 (10.6%) of the participants reported mental disorder. Most common reported mental disorders were anxiety disorder (n: 16, 3.9%), depression (n: 6, 1.5%), panic disorder (n: 6, 1.5%), obsessive-compulsive disorder (OCD) (n: 6, 1.5%), bipolar affective disorder (n: 4, 1%), Attention Deficiency Hyperactivity Disorder (ADHD) (n: 3, 0.7%), borderline personality disorder (n: 1, 0.2%), trichotillomania (n: 1, 0.2%). When the scale scores were compared between those who reported physical illness and those who did not, a statistically significant difference was found between CAS and CSS (p = 0.04; p = 0.016 respectively). When examined in terms of the mental health history of participants, a statistical difference was found in terms of CAS (p <0.001).

While 69 of the participants (17%) stated that they are healthcare professionals, there was no statistically significant difference between the CAS, CSS, and BSAS scales scores in terms of being a healthcare professionals or not. There were also no statistically significant relationship between the education levels of the participants and the CAS, CSS, BSAS scales' scores. Some of the relationships of the social characteristics of participants and scales' scores are summarized in Table 3 (Table-3).

Table 3. The relationships among physical and mental illness history, marital status, and education features of participants and CAS, CSS, BSAS scores

		n %	CAS Mean (SD)	Z*	p	CSS Mean (SD)	Z*	p	BSAS Mean (SD)	Z*	p
Physical illness History	Yes	34 (8.4)	3.38 (3.93)	-2.014	0.04	81.50 (24.01)	-2.416	0.016	21.85 (19.46)	1.334	0.182
	No	373 (91.6)	2.1743 (3.46)			71.85 (22.3)			26.02 (18.65)		
Mental Disorder History	Yes	43 (10.6)	4.37 (5.10)	-3.289	<0.01	80.39 (27.50)	-1.830	.067	30.42 (21.15)	-1.584	0.113
	No	164 (89.4)	2.02 (3.19)			71.74 (21.78)			25.12 (18.37)		
Mariatal Status	Single	1493 (36.6)	2.6 (3.74)	-2.657	0.008	74.8 (23.5)	-2.364	0.018	26.78 (19.7)	-1.171	0.232
	Married	258 (63.4)	1.71 (2.9)			68.9 (20.4)			23.7 (16.6)		
Education	Elementary school	7 (1.7)	2.14 (3.76)	1.413**	0.842	72.42 (25.2)	3.084**	0.544	24.57 (19.4)	3.300**	0.509
	High School	75 (18.4)	2.48 (3.6)			73.17 (23.6)			24.6 (17.25)		
	College	248 (60.9)	2.28 (3.5)			71.7 (22.2)			25.76 (19.1)		
	Master	55 (13.5)	2.36 (3.8)			77.6 (23.72)			28.92 (19.6)		
	PhD	22 (5.4)	1.36 (1.9)			68.5 (18.1)			21.1 (16.6)		

*: Mann-Whintney U **Kruskal-Wallis Test, BSAS: Bergen Shopping Addiction Scale, CSS: Cyberchondria Severity Scale,CAS:The Coronavirus Anxiety Scale

When the scores of the participants from the CAS, CSS, and BSAS scales were examined in terms of gender, there was a significant difference between men and women for all three scales' scores (p < 0.01; p = 0.003; p = 0.002 respectively). The mean total score obtained from the CAS scale was

2.87 ± 3.83, the mean score obtained from the CSS was 75.22 ± 22.98, and the mean score obtained from the BSAS was 27.97 ± 19.54 in the female group. The examinations of CAS, CSS, BSAS scales in terms of gender are given in Table 4 (Table 4).

Table 4. CAS, CSS, BSAS Scores of participants in terms of gender

	Female		Male		Total			
	mean	SD	mean	SD	mean	SD	Z	p*
CAS	2.87	3.83	1.21	2.55	2.28	3.51	-5.427	<0.001
CSS	75.22	22.98	68.12	21.15	72.66	22.57	-2.956	0.003
BSAS	27.97	19.54	21.63	16.53	25.68	18.73	-3.111	0.002

* Mann-Whintney U test BSAS: Bergen Shopping Addiction Scale, CSS: Cyberchondria Severity Scale, CAS:The Coronavirus Anxiety Scale

One of the purposes of this study was to examine relationships between CAS, CSS, and BSAS scores. The correlations of the CAS, CSS, and BSAS scales with each other were examined in Table-5. A statistically significant positive moderate correlation was found between CAS and CSS (r: 0.495, p <0.01). A statistically significant positive weak correlation was found between CAS and BSAS (r: 0.293, p <0.01). A statistically significant positive weak correlation was found between CSS and BSAS (r: 0.371, p <0.01) (Table-5).

Table 5. The correlations of CAS, CSS VE BSAS scores in all participants

	CAS(r)	CSS(r)	BSAS(r)
CAS	1.000		
CSS	0.495**	1.000	
BSAS	0.293**	0.371**	-0.316**

Spearman korelasyon test, *. p <0.05 . **. p <0.01 level BSAS: Bergen Shopping Addiction Scale, CSS: Cyberchondria Severity Scale,CAS:The Coronavirus Anxiety Scale

DISCUSSION

In this study, the relationship of coronavirus anxiety severity with cyberchondria, and online shopping addiction was investigated in the general population during the COVID-19 pandemic. In the present study, 79.6% of the participants stated that their anxiety increased, 63.4% of the participants stated that the frequency of shopping on the internet increased, and 39.8% of the participants stated that the amount of time for online searches for diseases increased during pandemic. There were several factors and results in terms of the relationships between socio-demographic characteristics and CAS, CSS, and BSAS which will be discussed in the following paragraphs of this paper.

The pandemic period we are in has led to psychological problems in varying levels in many individuals due to many reasons such as social isolation, loneliness, economic difficulties, etc. (3,8,17,18). Anxiety comes at the forefront of mental problems that increase during the pandemic period. However, depression, behavioral addictions such as online shopping, gambling also attract attention by researchers as mental disorders that increase during the pandemic period (4,8,17).

In the present study, 79.6% of the participants stated that their anxiety increased during the COVID-19 pandemic. There are several studies in the literature claiming that pandemic causes people to feel more anxious than usual in several ways (5-8,18,19). For instance; in a study conducted at the beginning of the COVID-19 pandemic in Spain; the stress, anxiety, and depression levels of 976 individuals were evaluated during the first and second half of March. They found that the stress, depression, and anxiety levels of the participants in the second half of March were found to be higher (19).

Cyberchondria and online shopping addiction are in demand for psychiatry research before the pandemic. In this study, 39.8% of participants stated that the number of online searches about their health increased during this pandemic. Since COVID-19 is a very new disease for all world, people search about COVID-19 more and more on the internet. For example; in a study conducted in the United States of America (USA), it was reported that seeing only the first COVID-19 case led individuals to question the symptoms of COVID-19 on online platforms and this searching increased by 36% in just one day (3).

On the other hand, most of the researchers also believe that behavioral addictions also increase in the pandemic due to several reasons (3,4,18,19). One of the important results of the present study, we found that 63.4% of the participants stated that the frequency of shopping on the internet increased during pandemic. Participants in the present study also stated the average number of online shopping they made during the pandemic as 3. The average number of online shopping of the same participants before the pandemic was found to be 2. Online shopping is seen as a functional way that reduces the need to go out in pandemic conditions. Also, the increase in daily internet usage time due to the reasons such as remote working from home due to the pandemic and online shopping has caused many behavioral addiction problems such as online gambling, online shopping addiction (9,20,21,22,23).

Regarding the relationships between the socio-demographic characteristics of the participants and CAS, CSS, and BSAS scale scores; a positive correlation was found between the BSAS scores and the number of monthly online purchases of the

participants both before and after the pandemic. Besides, there is also a weak correlation was found between the average daily internet usage time and the BSAS score. It is an expected result for us. Since the BSAS score increases in correlation with individuals who shop more online, but one of the important findings of the present study is that as the average daily internet usage time increased during the pandemic period, the BSAS score also increased. This means people who spend more time on the internet have much more online shopping tendency than those who spend less time on the internet.

When the CAS, CSS, and BSAS scores were examined according to whether the participants were healthcare professionals, no significant relationship was found between healthcare professionals or others in terms of their CAS, CSS, or BSAS scores. It can be thought that healthcare professionals may exhibit more intense coronavirus anxiety due to their job under intense stress during the pandemic. However, in the present study and another similar study in the literature, it was reported that being a healthcare professional was not associated with coronavirus anxiety (5). This result may be because the concept of "healthcare professionals" was not defined in sufficient detail in the present study. Questioning healthcare professionals who are only in contact with coronavirus patients such as doctors and nurses may help to reach more detailed results about this issue. In addition to this, there is another possibility about this finding. Since healthcare professionals have more accurate information about the COVID-19 and the mechanism of action of the virus may have affected as an anxiety-reducing factor on healthcare professionals.

In terms of the examination of CAS, CSS, and BSAS scores in terms of the history of physical or mental illness, both the CAS and CSS scores of the participants who reported a history of physical illness were found to be statistically significantly higher. On the other hand, only CAS scores of participants who reported any history of a mental disorder were found to be higher than those who never report any mental disorder history. Although every individual feels anxious about the virus and COVID-19 during the pandemic, this anxiety is experienced at higher levels in individuals who are currently followed for any mental disorder. The findings of the present study validated this expectation. Similarly, it is an expected result that individuals with any physical disease have higher CAS scores due to fears such as getting the COVID-19 and having the disease more severe under the condition of present diseases. Besides, it is one of the results we expect that people with physical illnesses have higher CSS scores. In the study of Jungman and Witthoft in which they investigated the factors associated with coronavirus anxiety, it was concluded that individuals with higher health anxiety also have higher coronavirus anxiety and that their cyberchondria levels are also associated with this anxiety level (5). In addition to higher health anxiety and cyberchondria, other factors that were claimed to be related to coronavirus anxiety were highlighted as the ability to regulate emotions and being informed about the pandemic (5). Similarly, in a different study conducted in the USA, the depressive symptoms, anxiety levels, sleep disorders, and quality of life characteristics of a sample of 898 young adults during the pandemic period were examined. In this study, it was found that participants with a diagnosis of the mental disorder showed 6 times more depression and 4 times more anxiety symptoms during pandemic than others who do not have any mental disorder (24). Also, in this study, it was stated that the group with a history of mental disorders had more coronavirus-related anxiety during the pandemic, and their sleep and life quality were lower than others who do not have any mental disorder (24).

Regarding examination of CAS, CSS, and BSAS scores in terms of gender, it was observed that the CAS, CSS, and BSAS scores of women were statistically significantly higher than men. Similar to other studies investigating anxiety levels during the pandemic, coronavirus-induced anxiety levels were found to be higher in women in our study (5,25,26). It is known that anxiety susceptibility traits and all anxiety disorders are more common in the female gender and this may support this result in the present study (27).

When CAS, CSS, and BSAS scores are examined according to the marital status of the participants; CAS and CSS scores of the single participants were statistically significantly higher than the same scores of the married participants. There is a possibility that married individuals have potentially higher social support which protects them both from coronavirus anxiety and cyberchondria. However, in a study conducted in a previous pandemic, it was found that variables such as marital status, age, living together with other adults do not have a protective or calming effect on the possible psychological effects of the pandemic (28). Still, it seems that having family support keeps people calmer during pandemics based on our findings.

In terms of the examination of scores based on age, a weakly significant correlation was found between the mean age of the participants and the CAS, CSS, and BSAS scores. While some of the other studies investigating the effect of age on coronavirus anxiety found more intense levels of anxiety in younger individuals, some other studies suggested that coronavirus anxiety increased with increasing age (19,25).

Regarding examination of the relationship between CAS, CSS, and BSAS scores and COVID-19 history, it was observed that BSAS scores of

individuals who had COVID-19 or contact history were higher. Also, the CAS and CSS scores of those who have a family member with a history of COVID-19 were significantly higher than those who did not have a family member with a history of COVID-19. It seems that having a family member with COVID-19 affects coronavirus anxiety and cyberchondria levels rather than having the COVID-19 in person. There is another possibility about this result is that having a family member who had COVID-19 may cause this situation indirectly by causing people to increase their awareness of COVID-19 and following rules about precautions about the virus. On the other hand, the knowledge that recovering from COVID-19 once makes people have some antibodies towards COVID-19 for a certain period of time, maybe another feature that may lead to this result.

Regarding the examination of the relationships among the CAS, CSS, and BSAS scores, it was found that the CAS scores had a positive correlation with both CSS and BSAS. This finding can be concluded that individuals with high coronavirus anxiety search for more symptoms of illness on the Internet. Since they spend more time on the internet, at the same time they do more online shopping than those who spend less time on the internet. Recently published studies also supported this finding and pointed out that individuals with a higher cyberchondria score also have higher coronavirus anxiety (5,29). In a study conducted in Germany with 1615 participants, the presence of cyberchondria was found to be associated with higher coronavirus anxiety, and it was suggested that cyberchondria may have a regulatory role between the ongoing general anxiety level and coronavirus anxiety (5). Since we did not measure the general anxiety level of participants we can not point out a relationship between general anxiety traits and coronavirus anxiety. But, still, it seems that cyberchondria is associated with coronavirus anxiety during the pandemic.

In another longitudinal study, researchers evaluated the anxiety levels of healthy individuals with low anxiety scores in 2016. Then researchers let participants search about some diseases, symptoms, etc. for 2 months. At the end of 2 months, period researchers evaluated the anxiety levels of participants again and found that the same group had higher anxiety scores at the end of the second month compared to the baseline (30). There is a need for new researches in this field to understand whether the anxiety affects cyberchondria tendency or cyberchondria makes individuals more anxious than others. It should be kept in mind that individuals with high coronavirus anxiety may also be searching on the internet by doing more research about a new virus and the health problems it causes. As a matter of fact, in some previous studies, it has been shown that individuals who are concerned about their health use the internet more to inquire about information about diseases (29,31).

Additionally, CSS scores were found to be correlated with BSAS scores. Online shopping may affect by reducing anxiety levels, given that individuals who shop online are more anxious. In a study conducted in Finland with 211 participants and examining the shopping habits of individuals during the pandemic period, researchers stated that the cyberchondria tendencies of the participants were related to their usual online shopping features (32). In this study, researchers also stated that online shopping addiction was related to the self-isolation as well (32).

People mostly visit psychiatry outpatient clinics for asking help about their anxiety during the pandemic. The main aim of this study to examine the relationship between CAS, CSS, and BSAS. Knowing the relationships between these features may indirectly help reduce cyberchondria and online shopping addiction through interventions that will help individuals reduce their anxiety levels.

Besides, it seems that if the government provides more accurate information about the possible symptoms of the COVID-19 and the conditions that are expected after the infection can also affect the coronavirus anxiety, cyberchondria, and online shopping addiction scores.

CONCLUSION

It is obvious that during the pandemics, most people feel more anxious and search more about their health online. The present study showed that cyberchondria may be an incompatible coping method that is used for reducing intense anxiety against coronavirus. On the other hand, cyberchondria itself can increase existing anxiety because of existing misinformation on the internet.

Besides, it seems that spending more time on the internet seems to affect online shopping behaviors as well. Due to just these two reasons pandemic seems to be a risk factor for both cyberchondria and online shopping addiction in society. For this reason, mental health professionals should inform individuals about mental problems caused by the intense use of the internet during the pandemic which is also crucial for public health. Also, mental health professionals should encourage the use of more adaptive coping mechanisms for anxiety during the pandemic such as exercise, reading books, cooking, spending some time with art, etc.

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