Psikiyatride Güncel Yaklaşımlar-Current Approaches in Psychiatry 2021; 13(3):588-604
doi: 10.18863/pgy.829348

COVID-19 Pandemic and Obsessive Compulsive Disorder

COVID-19 Pandemisi ve Obsesif Kompulsif Bozukluk

Zihniye Okray [1]

Abstract

After the Coronavirus disease-2019 (COVID-19) was declared as a pandemic by the World Health Organization, cleanliness, mask and social distance rules have also become warnings constantly reminded by both the centers for disease prevention and protection and the media. Common symptoms of obsessive compulsive disorder include cleaning/washing compulsions and germ transmission obsessions became confusing with the COVID-19 prevention behaviors. Such measures have made COVID-19 transmission obsessions especially exacerbated by the symptoms of patients with obsessive compulsive disorder, as well as other disease transmission obsessions. While many studies have insisted symptoms of depression, anxiety disorders, Obsessive compulsive disorder symptoms have flared up and the frequency of new obsessive compulsive disorder diagnosis by clinicians has increased. COVID-19 pandemic has negatively affected many children-adolescents, patients diagnosed with obsessive compulsive disorder and ongoing treatment, as well as many people at risk of developing obsessive compulsive disorder. As a result of this study, the media highlighted the need to be careful about the explanations made by the centers for disease prevention and to be more careful in the diagnosis and psychotherapy processes of clinicians who have to deal with obsessive compulsive disorder.

Keywords: Obsessive Compulsive Disorder, COVID-19, pandemic, aggravation

Öz

Coronavirüs hastalığı-2019 (Covid-19) pandemisi Dünya Sağlık Örgütü tarafından bir pandemi olarak ilan edilmesinin ardından temizlik, maske ve sosyal mesafe kuralları da hem hastalık önleme ve koruma merkezleri hem de medya tarafından sürekli hatırlatılan uyarılar haline gelmiştir. Maske, temizlik ve sosyal mesafe hayatlarımızın yeni normalleri haline gelmiştir. Obsesif kompulsif bozukluğunun yaygın belirtiler arasında bulunan temizlik/temizleme kompulsiyonları ve mikrop bulaşma obsesyonları ve Covid-19'dan korunma davranışları ile alevlenmiş ve bu önlemler obsessif kompulsif bozukluğun semptomlarının nerede başladığını ve hangi davranışların obsesif kompulsif bozukluk olarak değerlendirilebileceği konusunda da kafa karışıklıklarına neden olmuştur. Bu gibi önlemler özellikle obsesif kompulsif bozukluğu olan olguların semptomlarının şiddetlenmesinin yanı sıra diğer hastalık bulaşma obsesyonlarını da Covid-19 bulaşma obsesyonu haline getirmiştir. Yapılan birçok çalışma depresyon, anksiyete bozuklukları belirtilerinin artmış olduğunu gösterirken obsesif kompulsif bozukluğu semptomlarının alevlendiğini, klinisyenler tarafından yeni obsesif kompulsif bozukluk tanı konulma sıklığının arttığını tespit edilmiştir. Covid-19 pandemisi çocuk-ergen, obsesif kompulsif bozukluk tanısı almış ve tedavisi devam eden olguların yanı sıra obsesif kompulsif bozukluk geliştirme riski olan birçok bireyi de olumsuz yönde etkilemiştir. Yapılan bu çalışma sonucunda medya, hastalık önleme merkezleri tarafından yapılan açıklamamalar konusunda dikkatli olunması ve klinisyenlerin de obsesif kompulsif bozukluk ile baş etmek durumunda olan olguların tanı ve psikoterapi süreçlerinde daha dikkatli olunması gerekliliğini ön plana çıkarmıştır.

Anahtar sözcükler: Obsessif Kompulsif Bozukluk, COVID-19, pandemi, alevlenme

[1]Lefke Avrupa University, Lefke, K.K.T.C.

✉ Zihniye Okray, Lefke Avrupa University, Department of Physcology, Lefke, K.K.T.C.
zokray@eul.edu.tr | 0000-0002-9117-4991

Received: 21.11.2020 | Accepted: 30.01.2021 | Published online: 03.06.2021

COVID-19 coronavirus is a virus with a high droplet transmission rate that causes severe acute respiratory syndrome and can lead to rapid death, especially in people with chronic diseases. The mortality rate of person-to-person transmission was reported as 2-5% by Li et al. (2020) and Onder et al. (2020). In March 2020, nearly 136 countries took stringent measures to restrain the spread of COVID-19, including stay-at-home orders, 2 meters of physical distance, and banning social gatherings. Large masses of people accompanied these measures. Health campaigns recommended the application of regular hand washing, hygiene and personal protective equipment (PPE) such as face masks and gloves (Abba-Aji et al. 2020). Fear of insecurity and uncertainty caused by COVID-19, separation and loss of certain important relationships, and major changes in lifestyle strongly evoked emotional responses that could cause psychological problems in the general population (Fenfen et al., 2020). During a pandemic, an individual's constant concern about the health of himself and his family members is an important risk factor for mental illness (Li et al. 2020). Excessive anxiety is the most important etiological factor accepted in the development of obsessive-compulsive disorder (López-Solà et al. 2020).

Obsessive Compulsive Disorder (OCD) is a mental disorder in which obsessions, compulsions or both are present in the individual, significantly impairing the social and occupational functionality of the individual, and causing a significant distress in the individual. Patients with OCD often have an overwhelming desire to resist obsession and compulsion for no success. It is almost impossible for the individuals to get rid of the thoughts in their mind, and compulsive behaviors accompany them in some cases. While obsession is a mental occupation, compulsion is sometimes a behavior and sometimes a mental activity. Compulsions are often attempts to reduce the anxiety created by obsession. The most typical obsessions include contagion, pollution or disease themes and doubts about the performance of certain actions. Common compulsive behaviors include repetitive cleaning or washing, checking, editing, repeating and hoarding (Vandenboss 2007, Köroğlu 2016). Obsessions and compulsive symptoms are ego-dystonic and are characterized by harm avoidance, insight, resistance, and the absence of satisfaction (TPD 2006).

Lensi et al. (1996) stated that especially male cases have early onset of OCD, and the presence of perinatal trauma, not being married are widespread among their disease histories; they also claimed that obsessions about certainty, sexuality and symmetry are common among obsessions. On the other hand, it was found that the OCD diagnosis of women was made later in their lives, they had a marital history, they were more likely to show panic disorder after the diagnosis of OCD, and aggressive obsessions were more common. In the study by Lensi et al., it was emphasized that especially gender differences could be found in OCD.

Wang et al. (2020), in their study examining the first psychological symptoms caused by the COVID-19 corona virus pandemic in Chinese society, found that the Chinese population displayed moderate and severe symptoms of depression, anxiety and stress.

Choi et al. (2020) similarly, in their studies conducted in Hong Kong, found that the COVID-19 outbreak caused an increase in depression and anxiety levels. Another finding by Choi et al. (2020) is that the anxiety and depression levels of individuals who were not in Hong Kong during the SARS epidemic in 2003 were higher than those in Hong Kong at that time. They found a serious increase in the depressive symptoms of those who think that there will not be enough masks and that they cannot be protected. Similarly, in their national studies in Ireland, Burke et al. (2020) found a significant increase in depression, anxiety and stress levels during the quarantine process due to COVID-19. In their study on the Italian society, Mazza et al. (2020a) also found that women, individuals with negative affections and those with separation problems exhibited higher levels of depression, anxiety and stress symptoms. Having an infected acquaintance was associated with both depression and increased stress levels, while stressful situations and a history of medical problems were found to be associated with higher levels of depression and anxiety. Finally, higher levels of anxiety and stress symptoms were found in those who had an infected family member and those who had to work outside of their residence, respectively. Similarly, Stanton et al. (2020) applied an online inventory in the Australian community in April 2020 to evaluate the Depression, Anxiety and Stress Scale (DASS) and alcohol use and smoking, sleep patterns, and daily activity before and during the COVID-19 pandemic. In line with the data collected, negative changes such as a decrease in physical activity, sleep disturbances, increase in alcohol use and smoking was detected since the beginning of the COVID-19 pandemic. In addition, higher depression, anxiety and stress have been detected according to the results of DASS. It has been observed that in the case of one or more psychological problems in women and people with no relationship, individuals with low income levels, individuals between the ages of 18-45 or those with chronic diseases, quite high scores were obtained from DASS. Passos et al. (2020) found that the prevalence of anxiety and depression of the COVID-19 pandemic was higher than the pre-pandemic period in studies they conducted in Portugal and Brazil. Before the COVID-19 outbreak, Brazil had the world's highest prevalence of anxiety with 9.3% in the general population, while the prevalence of anxiety before COVID-19 was 4.9% in Portugal. The prevalence of depression before the COVID-19 pandemic in Brazil and Portugal was 5.8% and 5.7%, respectively. The researchers calculated the prevalence of anxiety as 71.3% and the prevalence of depression as 24.7% in their study, and found that 23.8% of the sample had both depression and anxiety. The Centers for Disease Control and Prevention emphasized that it is important to wash hands for at least 20 seconds and disinfect surfaces daily for the prevention of COVID-19 transmission, as well as the use of protective equipment such as social distance, masks and gloves all over the world. It is clear that these recommendations are written for healthy individuals, and how challenging it can be for individuals with obsessive-compulsive disorder to follow them. The purpose of this study is to determine how the pandemic affects individuals with OCD by examining the research articles published in Scopus, Science Direct and PubMED during the COVID-19 pandemic.

Method

This study is a systematic examination which covers articles published on Scopus, ScienceDirect and PubMed databases within the year 2020. Systematic review is the determination of the studies to be included in the review by comprehensively screening all the studies published in that field, by using various inclusion and exclusion criteria and by evaluating the quality of the studies in order to answer a clinical question or to create a solution to the problem, and to synthesize the findings of the studies included in the review (Karaçam, 2013). In November 2020, Scopus, ScienceDirect and PubMED databases were scanned with the keywords " "COVID-19" and "OCD" ". Language restriction was not applied in the survey. During this first search, 34 articles were found in the Scopus database, 30 articles in the ScienceDirect database, and 22 articles in the PubMED database. After this first determination, the main data sources of this study were reached based on some inclusion and exclusion criteria.

The steps applied in the inclusion and exclusion criteria are as follows:

Step 1. The articles have to be published in 2020 and beyond

Step 2. The have to include "COVID-19" and "OCD" expressions in the title, keyword and abstract of the article

Step 3. Review and Elimination of Articles that are in the form of Letter to the Editor.

Step 4. Eliminating scale validity and reliability studies developed on COVID-19 and Corona virus.

Step 5. Surveying of research articles that have been scanned jointly across multiple databases.

According to these inclusion and exclusion criteria, 11 research articles in Scopus database, 2 research articles in ScienceDirect database, 5 research articles in PubMED database, and 18 research articles research articles in total were included in the study.

Results

It is possible to group the research articles examined within the scope of this systematic review study by grouping them as follows: Studies examining the effects of the COVID-19 pandemic on the diagnosis and treatment of OCD, studies conducted with children and adolescents diagnosed with OCD, studies with university students, studies on patients diagnosed with OCD, and studies that contain recommendations as a guide for clinicians working on OCD. The studies examined are given in Table 1.

Fontenelle and Miguel (2020) stated in their study "Effects of COVID-19 on OCD diagnosis and treatment" that the most common obsession of OCD is fear of contamination and washing compulsion. The World Health Organization (WHO) described the COVID-19 pandemic as a rapidly spreading pandemic with high fatality rates, and released statements that some of the leading ways to protect from this pandemic are frequent washing of hands, frequent disinfection of surfaces, and limitation of social relations. Fontenelle and

Table 1. Characteristics of the articles used in the study

Author(s)	Topic	Sample	Data Collection Tool	Conclusion
Rivera and Carballea 2020	COVID-19 prevention measures are a new trigger for OCD	OCD diagnosed patients	Observational evaluation of the effects of COVID-19 pandemic on the diagnosis and treatment of OCD	Especially the warnings made by clinicians about new normal and mask, distance and cleaning issues can increase the symptom severity in patients with OCD.
Fontenelle and Miguel 2020	Effects of COVID-19 pandemic on diagnosis and treatment of OCD	OCD diagnosed patients	Observational evaluation of the effects of COVID-19 pandemic on the diagnosis and treatment of OCD	The hygiene rules recommended by WHO to prevent COVID-19 transmission can be confused with OCD symptoms and may negatively affect OCD treatment.
Jassi et al. 2020	They examined different aspects of OCD during the COVID-19 pandemic.	OCD diagnosed patients	Observational evaluation of the effects of COVID-19 pandemic on the diagnosis and treatment of OCD	It has been discussed that OCD symptoms can be evaluated positively and negatively in terms of the cases and individual differences can be exhibited.
Aardema 2020	How the virus can be interpreted during the COVID-19 pandemic	OCD diagnosed patients	Cognitive factors about how the COVID-19 virus can be evaluated at a cognitive level	In the COVID-19 pandemic, it suggests that germ/contamination obsessions and cleaning/washing compulsions should be evaluated more carefully, since there is a threat that actually exists, not the fear of internal pollution.
Robertson et al. 2020	Evaluation of possible problems experienced by children and adolescents with Gilles de la Tourette Syndrome during the COVID-19 pandemic	Gilles de la Tourette Syndrome	Treatment of children and adolescents with Tourette Syndrome and evaluation of the effects of OCD symptoms by observing the COVID-19 pandemic	Evaluations on pandemic-related anxiety, lockdown/quarantine, disorder-specific tics and variations in behavior, and neurotrophic effects of the COVID-19 virus.
Nissen et al. 2020	Examination of changes in symptoms with pandemic in adolescents diagnosed with OCD, patients newly diagnosed with OCD and patients whose treatments are under control	Children and adolescents diagnosed with OCD (Clinical group n=65, Control Group n=37)	Online questionnaire	An increase and aggravation were detected in the symptoms of the clinical group and the control group.
Seçer and Ulaş 2020	Examining the impact of COVID-19 on OCD in youth in the context of emotional responsiveness, experiential avoidance, depression, and anxiety	598 adolescents (14-18 age range)	Online questionnaire	They found that fear of COVID-19 has a significant effect on OCD, and considering the probabilities such as the rate of spread of the disease and the risk of death, the high level of washing and hoarding obsession in adolescents develops due to anticipation anxiety created by fear, and the COVID-19 pandemic increases depression and anxiety in adolescents.

Table 1. Continued

Author(s)	Topic	Sample	Data Collection Tool	Conclusion
Ji et al. 2020	A questionnaire was applied on university students during the quarantine after and when no new COVID-19 case was detected, and the effect of COVID-19 fear on OCD symptoms was examined.	Faculty of Medicine Students (n = 1591)	Online questionnaire	They found that fear of COVID-19 was associated with a high Y-BOCS score and that the interaction of environment (COVID-19 pandemic) x psychology (fear and/or anxiety) was effective in the development of OCD. It has been reported that adverse events play an important role in the etiology of OCD.
Abba-Aji et al. 2020	The COVID-19 Pandemic's Relationship with OCD Prevalence and New Onset OCD	General population (n = 6041)	Online questionnaire	60.3% of the participants reported that OCD symptoms started and 53.8% of these participants had a compulsion to wash their hands. It has also been found that participants who have had symptoms of OCD since the beginning of the COVID-19 pandemic show moderate and high levels of anxiety and depression symptoms. It was observed that individuals who developed hand washing compulsion had higher levels of anxiety.
Mazza et al. 2020	Evaluation of psychological symptoms of cases who survived COVID-19 after discharge	Cases that survived COVID-19 (n=402)	Semi-structured interview form and other scales	It was determined that 28% of the patients displayed PTSD, 31% displayed depression, 42% displayed anxiety, 20% displayed OCD and 40% displayed insomnia.
French and Lyne 2020	Effects of news published in the media after COVID-19 on symptom exacerbation of a 30-year-old female with OCD diagnosis	Female case	Face to face interview	It has been determined that the news about COVID-19 published in the media causes aggravation in OCD symptoms.
Prestia et al. 2020	Examination of contamination obsessions and symptom severity of OCD patients who received outpatient treatment before and after quarantine	Patients diagnosed with OCD and whose pre-pandemic symptoms were controlled (n=30)	Face to face interview	During quarantine and lockdown, it was found that contamination obsessions increased and OCD symptoms generally worsened.
Benatti et al. 2020	They examined the course of disease of outpatients diagnosed with OCD during the COVID-19 process.	Patients who were diagnosed with OCD and whose treatments were arranged (n=123).	Face-to-face interview and phone interview	It was found that in about one third of the sample, OCDs worsened, they developed new obsessions and compulsions, and acute aggravations occurred in old symptoms. They stated that in addition to worsening OCD symptoms, suicidal thoughts increased in the cases, they checked internet more frequently, and they experienced sleeping disorders, avoidance behaviors and work-related problems.

Table 1. Continued

Author(s)	Topic	Sample	Data Collection Tool	Conclusion
Plunkett et al. 2020	They evaluated the course of disease after the outbreak of COVID-19.	Patients with anxiety and OCD Disorders (n=30; OCD n=12)	Face to face interview	They found that COVID-19 restraints increased anxiety symptoms in approximately 40% of the participants, and that the biggest effect of COVID-19 was the downgrade of social functionality levels. COVID-19 has acted as an epidemic trigger in patients with OCD and their symptoms have increased.
Jelinek et al. 2021	Examination of OCD cases with and without washing compulsion during the COVID-19 pandemic	Patients with a diagnosis of OCD (n=394, OCD patients with Washing Compulsion, n=223)	Online questionnaire	It was found that 72% of the participants had an increase in OCD and this increase was significantly higher compared to the non-washers. It was observed that the worsening of symptoms was primarily related to decreased mobility and interpersonal conflicts. It was observed that dysfunctional beliefs about hygiene were higher in washers than in non-washers, causing symptoms to progress.
Capuzzi et al. 2020	Comparison of the applications made to the emergency psychiatry service during the COVID-19 lockdown and quarantine with the same period applications in 2019	Patients applying to the Emergency Psychiatry Service (n=225)	Face to face interview	While there was no difference in terms of socio-demographic variables from the previous year, an increase in cannabis use compared to the previous year, a decrease in mood disorders, an increase in self-harm and suicide attempts, a decrease in depression and adjustment disorders, but an increase in OCD were found.
McKay et al. 2020	Fear of contamination and the effects of the behavioral immune system on the treatment applied by clinicians who interviewed the cases face to face during the COVID-19 pandemic	Clinicians working with OCD, Anxiety Disorders and Body Focused Repetitive Behavior Disorders (n=139)	Online questionnaire	They found that as the rate of intolerance to uncertainty increases, the individual immune systems of clinicians specializing in OCD and anxiety disorders increase and consequently determine their exposure to COVID-19.
Fineberg et al. 2020	A guide to clinicians for the treatment of patients with OCD during the COVID-19 pandemic	Clinicians working on OCD	Recommendations for clinicians	Considering that the patients live in different cultural environments, it is recommended that clinicians should first calm them down, carefully receive their history of the disease, assess the risk of suicide, provide psycho-education about the mental and physical effects of COVID-19 with a balanced information, and obtain information about the daily internet use and activities of the patients on the internet.

Miguel (2020) also emphasized that these prevention suggestions are similar, or even almost identical, to fear of pollution and microbes, pronounced contamination obsessions and cleaning/washing compulsions of OCD patients. Their predictions about OCD diagnoses were that OCD diagnoses would increase in the next few months and even years. In addition, they tried to clarify a few issues that need attention at this point. The first of these is the need to ask whether individuals who are considered to be at risk of developing OCD again develop OCD if they do not encounter such a pandemic, whether the recommendation of washing hands frequently, emphasized by health authorities, will no longer be considered as a symptom of the disease, and lastly, patients who are currently diagnosed with OCD and have HIV or tuberculosis transmission type obsessions can now change their obsessions to COVID-19. On the other hand, they claim that the possibility of disease transmission and contraction obsessions to develop as new types of obsessions for individuals with OCD has increased. In addition to these questions about diagnosis and course, they shared the opinion that the recommendation of washing hands and frequently disinfecting the surfaces made by the Disease Prevention Centers will cause serious problems in OCD patients and will make psychotherapy ineffective. For individuals with contamination obsessions and cleaning/washing compulsions in the treatment of OCD, the necessity of questioning the applicability of the restrictions on washing hands and cleaning surfaces compulsions due to the COVID-19 outbreak has come to the fore. The researchers emphasized that the COVID-19 pandemic can be turned into an advantageous discourse for OCD cases and that cleaning is an important factor in preventing diseases, and that this pandemic can also save OCD patients from being stigmatized.

Rivera and Carballea (2020), in their study titled "corona virus: a trigger for OCD and disease anxiety disorders", stated that the COVID-19 outbreak is a phenomenon that triggers anxiety, fear and stress for individuals diagnosed with OCD and disease anxiety disorder. It is stated that "fear of illness or being in contact with an infected person increases the ritualistic behaviors for these individuals use to reduce anxiety and causes exaggeration of fears". After WHO declared COVID-19 as a pandemic that affected the world on March 11, 2020, the statements of health institutions that especially cleanliness should be given importance, caused experts working in the field of health to ask the following questions: "Are cleaning measures taken to protect against COVID-19 or are these compulsive behaviors?" and "How will it be decided which behavior is for safety and which behavior is compulsion?" With this pandemic, it is stated that individuals diagnosed with OCD and disease anxiety disorder have a rewarding quality for their obsessions and compulsions. In addition, the fact that rules such as cleanliness and social distance are new normals is stated to be both triggers and rewards of obsessional thinking and compulsive behavior.

Jassi et al. (2020) in their study titled "OCD appearances during COVID-19", stated that OCD may differ from individual to individual and although some cases against the current virus are not affected that much by the situation, some may suffer from this situation excessively and at extremes. They even emphasized that some patients' positive interpretation of social distance measures may be beneficial in terms of the need for safety and associated

compulsions. They also stated that the measures taken by the government relieved a group of patients from contamination-related obsessions and cleaning-related compulsions. Most of the patients in the study group stated that the content of their obsessions has changed since the outbreak of the pandemic, and obsessions related to the transmission of other diseases have been replaced by COVID-19 contamination. Some other patients have stated that there is a significant increase in their symptoms regardless of whether they are related to COVID-19 or not. Researchers have found that information published on social media without filtering increases control and security-seeking behaviors. This information accessed on the internet creates fear and uncertainty. Patients with OCD stated that after shopping or receiving a parcel, they took a shower for hours, touched everything with gloves, and wiped everything that entered the house. It has even been stated that some people think that COVID-19 infects their homes and take extreme measures such as removing wallpapers and carpets to clean their homes. Intolerance to uncertainty is another important finding of OCD. Since it is not known who contracted COVID-19, fulfilling the social distance and other precaution criteria has started to be considered as rules to be observed not only for patients with OCD but also for normal individuals. The New Normal revealed the inability to distinguish how much is sufficient for the patients with OCD and which behaviors are caused by anxiety. In addition to these, psychosocial risks such as the effects of daily living activities due to the pandemic and economic problems are also sources of anxiety that negatively affect OCD symptoms.

Aardema (2020) suggested that in OCD, viruses and microbes are attributed to personal meaning and that they threaten the individual's self with their personification as beings with human-like characteristics, thus especially the fear of contagion becomes obsessive. The threat of viruses and microbes as a result of the fear of internal pollution that characterizes those with OCD is objective for the person. The person with OCD may pretend or believe they are acting according to reality out of fear of contagion, but in reality they are just acting on an underlying fear of internal contamination that is confused with reality itself. In the COVID-19 pandemic, it is recommended that germ/contamination obsessions and cleaning/washing compulsions should be evaluated more carefully because there is a real threat, not such a fear of internal contamination.

In their studies related to the diagnosis and treatment of Tourette disorder during COVID-19, Robertson et al. (2020) evaluated the effects of the COVID-19 pandemic on individuals with Tourette Disorder under four main headings. These are pandemic-related anxiety, closure/quarantine, disorder-specific tics and variations in behavior, and neurotropic effects of the COVID-19 virus. In terms of concerns related to the pandemic, especially the brutal and harsh statements displayed in the media about COVID-19 raise anxiety, it is considered that there are some difficulties in defining this process for children, and parents' concerns are conveyed to children both due to the pandemic itself and the economic difficulties caused by the pandemic. It is also obvious that the lesser hand-washing tasks recommended in cognitive behavioral therapies applied for OCD, another comorbid disorder, are negatively affected by media coverage. In addition to these, it is almost inevitable

that the fear of death of a close person and symmetry and morbid rumination, among other common symptoms of OCD, will increase. It should be explained to families that anxiety will increase the severity of tics, but this does not aggravate Tourette's Disorder, it is just a situational increase depending on the context experienced. Another issue emphasized by Robertson et al. (2020) is that lockdown/quarantine makes ADHD (Attention Deficit Hyperactive Disorder) condition accompanying Tourette Disorder unbearable due to lack of physical energy discharge. They think that opposing behaviors and explosions of anger can make this process unbearable especially for families. On the other hand, it is another challenge that distance education may lead to a certain regression in children with learning difficulties. Under the heading of tics and differentiation of behaviors, which are another important problem for children diagnosed with Tourette's Disorder, they think that touching others may also become prominent in addition to voice-related tics such as coughing, spitting, sniffing, and nasal cleansing. Finally, due to the neurodegenerative effects of the COVID-19 virus (SARS-Co-V-2), which is a neuro-developmental disorder due to the neuro-developmental effects that cause loss of sense of smell and taste, concerns have been brought to the fore arising from the uncertainty about the damage to the central nervous system (CNS) with a neurodegenerative effect.

Nissen et al. (2020) took as a sample a newly diagnosed clinical group in a private OCD clinic of children/adolescents and the questionnaire group whose primary treatments were completed years ago through the Danish OCD Association. Increased OCD symptoms, anxiety and depressive symptoms were found in both groups. A slightly greater increase was observed in the symptoms of the subjects in the survey group compared to the clinical group. It has been found that the aggravation of OCD develops due to the increase in anxiety and depressive symptoms and is associated with the increase in avoidance behaviors. The most important factors that exacerbate OCD have been identified as early onset and the presence of ADHD diagnosis in the family.

Seçer and Ulaş (2020) conducted an online questionnaire for 598 adolescents aged 14-18 in their study titled "Examining the effect of COVID-19 on OCD in the context of emotional reactivity, experiential avoidance, depression and anxiety". The authors examined the mediator roles of emotional reactivity, experiential avoidance, depression, and anxiety on OCD. Research results show that the fear of COVID-19 has a significant impact on OCD. Considering the probabilities such as the rate of spread of the disease and the risk of death, they thought that adolescents' high level of washing and hoarding obsession developed due to anticipation anxiety created by fear. In addition to this finding, they stated that the COVID-19 pandemic increased depression and anxiety in adolescents, which increased OCD symptoms. Finally, it has been revealed that experiential avoidance mediates OCD along with the fear of COVID-19. The fear of COVID-19 has been interpreted as a factor that increases their obsessions about contracting disease.

Ji et al. (2020) applied three online questionnaires to 5827 university students on 8 February 2020, which followed two-weeks quarantine period, on 25 March 2020, when participants had been taking online courses for 2 weeks, and on 28 April 2020, when no

new cases had been reported for 2 weeks. Y-BOCS and Zung Anxiety Scale were given to the participants. COVID-19 fear, OCD, and anxiety scores were the highest in the first survey and the lowest in the third survey. Researchers have found that COVID-19 fear is associated with a high Y-BOCS score, and the interaction of environment (COVID-19 pandemic) x psychology (fear and / or anxiety) is effective in the development of OCD. It has been reported that adverse events play an important role in the etiology of OCD.

Abba-Aji et al. (2020) examined the prevalence of newly diagnosed OCD and related factors along with the COVID-19 pandemic in their studies conducted in Canada. In general, the authors reported that 60.3% of the participants had started to see OCD symptoms and 53.8% of these participants had developed hand-washing compulsions. It has also been found that participants who have shown OCD symptoms since the beginning of the COVID-19 pandemic show moderate and high levels of anxiety and depression symptoms. Individuals who developed hand-washing compulsions were found to have higher levels of anxiety. Abba-Aji et al. (2020) emphasized that the COVID-19 pandemic is an important factor that increases the prevalence of OCD.

In their follow-up studies conducted one month after discharge of 402 patients who survived COVID-19, Mazza et al. (2020b) found out that 28% of the patients suffered from Post-Traumatic Stress Disorder (PTSD), 31% suffered from depression, 42% suffered from anxiety, 20% suffered from OCD and 40% suffered from insomnia. Almost all patients with a previous psychiatric diagnosis saw their psychopathologies deteriorate.

French and Lyne (2020) reported that in the case studies related to acute aggravation of OCD symptoms in the media, pollution/disease contamination obsessions and washing / cleaning compulsions controlled in an OCD case in their 30s were aggravated. They have stated in the media that preventive behaviors related to COVID-19, such as frequent hand washing and protection of social distance, which are recommended for protection from contamination, are important for public health, but have the capacity to harm people who are fragile and at risk.

A semi-structured interview form and the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), which measures the severity of OCD, were applied to OCD patients who were followed up in an outpatient hospital in Italy before the COVID-19 pandemic. Prestia et al. (2020) applied this interview form and scale again 6 weeks after the pandemic and curfew started. In their study, they found a significant increase in OCD total symptoms, obsessions and compulsions before and during quarantine. There was a serious increase in germ/contamination obsessions and compulsions in OCD patients living with their family.

Benatti et al. (2020) examined the disease course of outpatients diagnosed with OCD during COVID-19. In the study, 123 outpatients in three different regions in Italy were evaluated in terms of socio-demographic variables and the course of their diseases. It was found that OCD worsened, new obsessions and compulsions developed, and acute aggravations occurred in former symptoms in approximately one third of the sample. They stated that in addition to worsening OCD symptoms, the cases had increased suicidal thoughts, checked the internet more frequently, and experienced sleep disorders, avoidance

behaviors and work-related problems. The subjects reported that they needed more arrangements about therapy and family participation.

Using a semi-structured interview form, Plunkett et al. (2020) interviewed 30 patients who applied to secondary level mental health services in Ireland and had anxiety disorder according to ICD (WHO International Classification of Diseases). In this way, the authors evaluated the course of their disease after the COVID-19 pandemic. Among the findings they obtained, they determined that COVID-19 restrictions increased anxiety symptoms in approximately 40% of the participants and that the greatest effect of COVID-19 was to downgrade their social functionality levels. It was found that approximately 46.7% of the patients included in this study were not affected by the COVID-19 pandemic, and even their anxiety symptoms improved according to previous evaluations. However, the COVID-19 pandemic acted as a trigger in patients with OCD and the symptoms increased. In this study, it was stated that psychiatric or physical comorbidity and COVID-19 mandatory restrictions do not significantly affect the symptomatology, and there is a slight increase in the symptomatology of patients with preexisting anxiety disorders.

Jelinek et al. (2021) applied an online questionnaire to 394 participants (n=223 washers) with OCD. Participants associated changes in the severity of OCD symptoms with changes in life (e.g. reduced mobility, decreased availability of cleaning products, economic factors, and interpersonal conflicts). In addition, it was reported that the participants made evaluations based on their beliefs and experiences related to COVID-19. It was found that 72% of the participants had an increase in OCD, and this increase was significant compared to those without washer. It has been observed that the worsening of symptoms is primarily related to decreased mobility and interpersonal conflicts. It was observed that dysfunctional beliefs about hygiene were higher in washers than in non-washers, which led to progression of symptoms. Most participants with OCD were adversely affected by the COVID-19 pandemic, and the adverse effects were more pronounced in washers than in non-washers.

Capuzzi et al. (2020) compared the applications filed to the emergency psychiatry service in Northern Italy during lockdown and quarantine with the applications filed in the same period of 2019. They found that during the lockdown, emergency applications accounted for approximately 58% of the previous year. While no difference was observed in terms of socio-demographic variables compared to the previous year, an increase in cannabis use, a decrease in mood disorders, an increase in self-harm and suicide attempts, a decrease in depression and adjustment disorders, and an increase in OCD were found. Researchers have concluded that the increase in cannabis use and OCD diagnoses, in particular, are negative effects of the COVID-19 pandemic on the fragile and vulnerable individuals.

MCKay et al. (2020) studied the fears of transmission during COVID-19. The findings of the author's studies in which the behavioral immune system effects affect the treatment approach of clinicians who carry out exposure and response prevention therapy are as follows: They found that as the rate of intolerance to uncertainty increases, the individual immune systems work harder, and as a result it determined their attitude to exposure COVID-19. It was found that the increase in coldness subscale scores, which is one of the subscales of

the CHILLS scale, affected the attitudes of clinicians with heavy OCD patients towards contamination and treatment. As the number of OCD patients increases, beliefs against contagion decrease. It is thought that these findings will provide a guide for clinicians especially in the post-pandemic period. Fineberg et al (2020) prepared a guide for clinicians for the treatment of patients with OCD during the COVID-19 pandemic. In this guideline, it is recommended that clinicians should first calm patients, taking into account the history of the disease carefully, assess the risk of suicide, provide psycho-education about mental and physical effects of COVID-19 with a balanced information, and obtain information about the daily internet use and activities of the patients in this guide, bearing in mind that they live in different cultural environments. Following this first information-gathering, in cases where OCD symptoms are seen as the most important factor underlying the problem, it was recommended that information should be obtained on existing medication and ongoing psycho-therapies, planning should be made for changes whenever necessary, and that efforts should be paid to ensure social and occupational functionality of the patient as well as family support in this process.

Discussion

The corona virus COVID-19 pandemic, which began to be seen in China at the end of 2019 and declared as a pandemic by WHO in March 2020, negatively affected the life of every individual living in the world. Undoubtedly, these negative effects have created more devastating and adverse consequences for vulnerable individuals who are at risk in terms of mental health or have various mental illnesses. In 2020, several researchers started to conduct research to measure or determine the effects of the COVID-19 pandemic on the mental health of individuals, and the literature on this subject has developed very rapidly. In this paper, studies conducted especially in groups with a diagnosis of OCD or at risk of developing OCD were brought together and the effects of COVID-19 pandemic on OCD were examined.

Together with the COVID-19 pandemic, WHO and the Centers for Disease Prevention and Prevention emphasized that the necessity to take protective measures such as cleaning, social distance and the use of personal protection equipment (such as gloves, masks) causes acute aggravation especially in OCD patients. Especially Fontenelle and Miguel (2020) and Rivera and Carballea (2020) reached the conclusions that these announcements made by WHO and the Centers for Disease Protection and Prevention are more suitable individuals without any mental disorder or risk, but these announcements increase the cleaning and washing compulsions of OCD patients. As a result of these announcements, both researchers emphasized that clinicians working with OCD should reevaluate topics such as frequency and severity specified by the diagnostic classifications used. They emphasized that the questions of whether the emerging or aggravated OCD symptoms are within the scope of the recommended measures due to the COVID-19 pandemic or are caused by the disorder of the disease are also confusing. In addition to the foregoing, among the important issues

discussed is that the cleaning / washing restrictions used in the psychotherapy of OCD patients is not possible during this period and that this process causes both a worsening of the symptoms of the patients and the ineffectiveness of psychotherapy. In particular, Fontenelle and Miguel (2020) stated that OCD diagnoses have increased over the past few months and predicted that it will continue to increase over the next few years. Rosso et al (2012) stated that the presence of traumatic experiences such as the hospitalization of a relative, the individual being diagnosed with a physical illness, and the loss of something valued especially increase OCD diagnoses, and cleaning and symmetry obsessions are the main factors that exacerbate the disease, especially in female patients. As can be seen, traumatic life events play an important role in the diagnosis of OCD and the exacerbation of the existing disease.

Robertson et al. (2020) and Nissen et al. (2020) investigated the psychological effects of the COVID-19 pandemic in children and adolescents with Tourette's Disorder and OCD, respectively. Seçer and Ulaş (2020) conducted a study on the psychological effects of the COVID-19 pandemic in adolescents aged from 14 to 18. Robertson et al. (2020) found that the COVID-19 pandemic increased ADHD and OCD symptoms, especially in children with Tourette Disorder, and that distance education deteriorated special education needs, and increased tics such as coughing, spitting, and touching. Nissen et al. (2020) compared the symptoms associated with OCD in a group of adolescents who were diagnosed with OCD and who were currently being treated, and a newly diagnosed group during the pandemic process. In both groups, an increase in symptoms of depression and anxiety was observed as well as increased OCD symptoms. In another study conducted with adolescents, Seçer and Ulaş (2020) stated that the fear of contracting COVID-19 increases the symptoms associated with OCD and causes behaviors such as cleaning up and hoarding in adolescents. In the study of Millet et al. (2004) evaluating the factual and comorbid features of OCD according to the age of onset, the authors found that parasite / virus contamination obsessions, hoarding and cleaning compulsions were more severe especially in early-onset OCD patients. On the other hand, in the same study, it was determined that late-onset OCD was mostly caused by stressors related to life events such as giving birth or work-related problems.

French and Lyne (2020) conducted case studies examining the relationship of media coverage of OCD symptoms with acute aggravations. In these studies, they reported that pollution / disease contamination obsessions and washing/cleaning compulsions that were under control at the age of 30 were exacerbated. Prestia et al. (2020) found a significant increase in OCD total symptoms, obsessions and compulsions before and during quarantine. Abba-Aji et al. emphasized that the COVID-19 pandemic is an important factor that increases the prevalence of OCD. Ji et al. (2020) have reported that adverse events play an important role in the etiology of OCD in the COVID-19 pandemic. Benatti et al. (2020) examined the disease progression of outpatients diagnosed with OCD during the COVID-19 process, and found that OCD worsened, new obsessions and compulsions developed, and acute

aggravations occurred in old symptoms in about one third of the sample. They stated that in addition to worsening OCD symptoms, suicidal thoughts increased in the cases, they controlled the internet more frequently, and they experienced sleep disorders, avoidance behaviors and work-related problems. According to Plunkett et al (2020), the COVID-19 pandemic acted as a trigger and the symptoms increased in patients with OCD. Jassi et al. (2020) found that the content of obsessions changed during COVID-19, and obsessions related to the transmission of other diseases were replaced by COVID-19 contamination. Some patients have stated a significant increase in their symptoms, regardless of whether they are related to COVID-19 or not. In the study conducted by Jelinek et al. (2021), most participants with OCD were found to have been adversely affected by the COVID-19 pandemic, and the adverse effects were more pronounced in washers than non-washers. Capuzzi et al. (2020) concluded that the increase in OCD diagnoses has negative effects on fragile and vulnerable individuals in the COVID-19 pandemic. Aardema (2020) suggests a more careful evaluation of germ / contamination obsessions and cleaning / washing compulsions due to the fact that there is a threat in the COVID-19 pandemic instead of such an internal pollution fear. Among the results gathered in this systematic review study, Adams et al. (2018) found that stress and traumatic experiences are important factors in the development and expression of OCD symptoms in their study titled "The role of stress in the pathogenesis and continuation of obsessive-compulsive disorder".

Mazza et al. (2020b) determined that 28% of patients who survived COVID-19 displayed PTSD (Post-traumatic Stress Disorder), 31% displayed depression, 42% displayed anxiety, 20% displayed OCD and 40% displayed insomnia. Rees (2014) found that psychosocial stressors are triggering factors especially in the development of OCD.

In their studies with clinicians working with OCD patients, MCKay et al. (2020) found that as the rate of intolerance to uncertainty increased, individual immune systems worked harder and consequently determined their attitudes to exposure to COVID-19. Fineberg et al. (2020) prepared a guide for clinicians for the treatment of patients with OCD during the COVID-19 pandemic.

Conclusion

In the light of the studies conducted related to COVID-19 pandemic, it has been determined that the COVID-19 pandemic affected the mental health of the society negatively but it proved a more devastating process for individuals who experienced OCD and related disorders. In the light of these findings, the necessity to be careful about the diagnosis and treatment of OCD patients and to consider the fragile groups in statements made by the media and other disease prevention and prevention centers came to the fore.

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Authors Contributions: The author attest that she has made an important scientific contribution to the study and has assisted with the drafting or revising of the manuscript.

Peer-review: Externally peer-reviewed.

Conflict of Interest: No conflict of interest was declared by the author.

Financial Disclosure: The author declared that this study has received no financial support.