

COVID-19-Related Obsessions and Its Predictors: A Community-Based Research in Turkey

Esra Çınar Tanrıverdi¹, Büşra Arslan Cevheroğlu², Zual Özkurt³, Mine Şahingöz⁴

¹ Atatürk University, Faculty of Medicine, Department of Medical Education, Erzurum, Türkiye.

² Erzurum Technical University, Department of Psychology, Erzurum, Türkiye.

³ Atatürk University, Faculty of Medicine, Department of Infectious Diseases, Erzurum, Türkiye.

⁴ Necmettin Erbakan University, Faculty of Meram Medicine, Department of Psychiatry, Konya, Türkiye.

Correspondence Author: Esra Çınar Tanrıverdi

E-mail: esracinart@yahoo.com

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ABSTRACT

Objective: This study aims to investigate the psychological effects of the COVID-19 pandemic on the Turkish society and identify COVID-19-related obsessions and predictive factors.

Methods: This cross-sectional study was performed with 859 volunteer participants. Data were collected using an online questionnaire between 01 and 08 June 2020. A sociodemographic information form, Depression, Anxiety and Stress Scale-21 (DASS-21), Impact of Event Scale-Revised (IES-R), and Obsession with COVID-19 Scale (OSC), were used as data collection tools. Data were analysed using SPSS 20 statistical software.

Results: The mean age of the participants was 40.41± 13.69 (18-70), 55.3% were women, and %63.7 were married. Cleaning habits increased during the pandemic in 76% of the participants. The prevalence of depression, anxiety, and stress symptoms were 36.9%, 42.3%, and 18.2%, respectively. Depression was severe or very severe in 6.3% of the participants, anxiety in 15.4%, and stress in 4.3%. Post-traumatic stress disorder (PTSD) was determined in 11.3% of the participants, and COVID-19-related obsessions in 17.6%. Obsessions were greater in the variables of eating ($r = 0.26, p < 0.001$), sleep ($r = 0.20, p < 0.20$), cleaning ($r = 0.17, p < 0.001$), television watching habits ($r = 0.09, p < 0.05$), and family relationships ($r = 0.11, p < 0.01$) during the pandemic. The most effective predictors among the COVID-19-related obsessions were depression ($p < 0.001$) and anxiety ($p < 0.001$), IES-R scores ($p < 0.001$), and finally age ($p < 0.05$), gender ($p < 0.001$), and education level ($p < 0.05$).

Conclusion: The COVID-19 pandemic has had severe psychological effects on society, especially in terms of obsessions. Awareness of these must be established, and measures aimed at improving societal mental health must be adopted.

Keywords: COVID-19, pandemic, obsession, impact of event, depression, anxiety, stress

1. INTRODUCTION

COVID-19 is a global pandemic viral infection that has persisted for more than a year. Over 125 million individuals had been affected when this paper was written, with almost three million people losing their lives (1).

Despite the rapid development and approval of the vaccines, the pandemic has persisted worldwide, and public health is under threat. Numerous restrictions were imposed on social life to prevent the transmission of the disease. New regulations and rules eventually reduced the disease incidence and transmission rates. From education to work, numerous areas of life underwent significant changes following the adaptation to the new pandemic regulations. Mask-wearing, handwashing, social distancing, and isolation were the essential rules imposed to prevent the disease. Society had to adjust to this new and restricted social life. Education was provided employing

distance learning, and staff began working from home. Information concerning transmission routes and prevention of the disease was delivered continuously by the health authorities for personal and societal protection. However, fear of illness and death resulted in emotional stress and depression, meaning that mental health was also affected by the pandemic (2,3).

Economic changes and job losses due to the new restrictions resulted in severe financial difficulties. Adaptation to the new way of life and the accompanying uncertainties and social changes resulted in stress in many individuals. The elderly and other at-risk groups were particularly anxious due to fear of dying from the disease. Patients and individuals with whom they came into contact also experienced stress due to isolation and stigma, as well as fear of mortality (4). Reactions to the new conditions and individual psychosocial

durability or vulnerability determined the mental health of each individual and the society as a whole. During the time this paper was written (April 2021), Turkey was experiencing its third and most severe wave of the outbreak. Peak figures in terms of daily case numbers and deaths since the start of the pandemic had recently been reached following a period of controlled normalization (5). Schools remained closed, weekend restrictions were still in place, and a complete lockdown was re-introduced. Uncertainty over when the disease would end, restrictions imposed to prevent its spread, quarantine procedures, and the extended duration of the pandemic have been shown to result in psychological problems (6) while higher than normal levels of depression, anxiety, and worry along with fear, panic, and obsessions have been determined (7-10).

The World Health Organization (WHO) has frequently emphasized the importance of social isolation, handwashing, and hygiene to prevent individuals from being infected. Appropriate handwashing techniques appeared in the media for public information purposes for a long time. Hygiene behaviors increased in all sections of the society during the pandemic (11). The fact that recommendations for protection against COVID-19 involved repetitive behaviors has been described to be increasing the risk of Obsessive-Compulsive Disorder (OCD) (12). Obsessive-compulsive disorder (OCD) is characterized by obsessions (recurring intrusive thoughts or impulses), and compulsions (repetitive behaviors and/or mental acts performed in response to an obsession, or rules that must be applied rigidly) (13). Although OCD is a heterogeneous condition, those related to fears of germs and contamination, along with obligatory washing rituals, are among the most commonly reported obsessions and compulsions (14). Fear of contracting a disease and infecting others may cause these symptoms in some individuals. Hygienic recommendations in the context of the pandemic such as frequent handwashing, being careful with hygiene, and minimizing contact with others can exacerbate or lead to the emergence of OCD symptoms. Indeed, a number of studies have reported that COVID-19 increases the overall symptom severity of OCD as well as contamination-related obsessions and compulsions (15,16).

Furthermore, stressful life events and lifestyle changes associated with the current pandemic may also be an important mechanism underlying the exacerbation of OCD symptoms. Previous studies have shown that stress responses, anxiety and depression, as well as distress in general, are associated with exacerbation of OCD symptoms (16,17). Despite the increase in research on the impact of COVID-19 on OCD symptoms, there are significant gaps in the information currently available and limitations remain in studies to date. Most of the studies in this area are investigating the effect of the pandemic on OCD symptoms in patients with OCD (18). However, it is also important to address subclinical symptoms at the general population level. In other words, further studies are needed to understand the potential role of the current pandemic-related parameters in the exacerbation of OCD symptoms of COVID-19.

Similarly, stockpiling food and cleaning products may lead to hoarding obsessions, and hygiene-related behaviors such as ritualized handwashing with repetitive movements and cleaning and bathing for prolonged periods of time may contribute to obsessions (19). These behaviors occurring during the COVID-19 pandemic not only gave rise to OCD symptoms but also caused a worsening of the symptoms in individuals with pre-existing OCD. Understanding the psychological effects of the pandemic can provide crucial scientific support for measures aimed at preventing and improving mental problems.

The purpose of this study was to determine the psychological effects of the COVID-19 pandemic on the society, using the Depression, Anxiety and Stress Scale-21 (DASS-21) and the Impact of Event Scale-Revised (IES-R). One of the aims of the present study is to provide data on the frequency of depression, anxiety, stress symptoms and obsessions in the Turkish population during the pandemic period which would help to provide important data in understanding how the general mental health of the society is affected by the COVID-19 pandemic.

Another aim of the study is to understand the underlying factors of COVID-19-related obsessions to serve as a reference for studies improving societal mental health. The study focused on the predictive effects of depression, anxiety, stress, and PTSD on COVID-19-related obsessions. In addition to the clinical sample, it is considered important to investigate how societal mental health is affected by the COVID-19 pandemic. As stated earlier, how Covid-19 affects OCD symptoms has been investigated on individuals with OCD patients. However, one of the aims of this research is to investigate factors associated with COVID-19 related obsessions and its predictors in individuals without any previous diagnosis.

2. METHODS

2.1. Ethical Approval

Ethical approval was granted by the Turkish Health Ministry Health Services General Directorate Scientific Research Platform and the Atatürk University Clinical Research Ethical Committee (IRB No.B.30.2.ATA.0.01.00/266, dated 28.05.2020). The study was carried out under the rules of the Declaration of Helsinki.

2.2. Study Process and Population

This cross-sectional study was performed between 01 and 08 June 2020. Printed materials were not employed due to the pandemic, and the data were collected through an online questionnaire prepared by the authors using Google Forms. Since the authors couldn't specify the participants in a digital setting, the convenience sampling method was employed in data collection. The questionnaire was sent through e-mail, WhatsApp, and other social media accounts. The research

was conducted based on voluntary participation. Participants were able to access the questions after consenting to read the informed consent form. Participant consent was thus obtained online. The survey took approximately 15 minutes to complete.

2.3. Participants

The study population consisted of individuals consenting to use the online survey method on a social media platform. Nine hundred and forty-eight individuals were initially contacted, 89 of the participants who failed to complete the scales or were diagnosed with a psychiatric disease were excluded. The research thus continued with 859 participants.

2.4. Data Collection Tools

A questionnaire consisting of four parts was used to collect the data: 1) the form concerning sociodemographic characteristics, 2) DASS-21, 3) IES-R, and 4) OSC.

2.4.1. Sociodemographic Characteristics

Age, gender, marital status, income level, place of residence, daily habits, history of COVID-19, and presence of chronic disease were investigated.

2.4.2. Depression, Anxiety and Stress Scale

This scale was developed by Lovibond and Lovibond (1995) and is completed based on the conditions applying within the previous one week. The scale consists of three sub-dimensions showing depression, anxiety, and stress, and each containing seven items. The dimensions are scored separately possible scores on each sub-dimension range between 0 and 21¹⁹. DASS-21 was adapted into Turkish by Sarıçam et al. The scale answered according to a 4-point Likert system (from not at all (0), to 'extremely' (4)). Cut-off scores of ≥ 5 , ≥ 4 , and ≥ 8 represent a positive screening of depression, anxiety, and stress, respectively (20).

2.4.3. The Impact of Event Scale-Revised

IES-R was developed by Weiss and Marmar and is used in social screenings to measure levels of post-traumatic stress. The scale evaluates Post-Traumatic Stress Disorder (PTSD) and consists of 21 items investigating the situation within the previous one week and is scored on a five-point Likert-type basis (from 'not at all (0), to 'extremely' (4)). Total possible scores range from 0 to 88. (21) IES-R was adapted into Turkish by Çorapçıoğlu et al. A score above 33 indicates a high level of stress (22). We determined a Cronbach alpha value of 0.92 for this sample.

2.4.5. Obsession with COVID-19 Scale (OSC)

The OSC was developed by Lee et al. (2020) and is used to screen persistent and disturbed thinking about COVID-19 (23). The scale is completed with a five-point Likert-type system (from 0 (never) to 4 (almost every day)) based on experiences within the previous two weeks. A score of 7 or above indicates dysfunctional thinking associated with coronavirus. The scale was adapted into Turkish by Evren et al. (24). Cronbach alpha value of the scale for this sample was evaluated as .92.

2.6. Statistical Analysis

Data were analyzed using SPSS 20.0 (SPSS Inc., Chicago, IL, USA) statistical software. Descriptive statistics were expressed as mean, standard deviation, minimum, and maximum values for continuous variables and number and percentage for categorical data. Pearson's correlation analysis and sequential hierarchical regression analysis were used for data comparisons. Confidence analysis was applied to both scales, and Cronbach alpha coefficients were calculated. The statistical significance level was accepted as $p < 0.05$.

3. RESULTS

3.1. Sociodemographic Characteristics of the Participants

Complete data from 859 participants were evaluated. The mean age of the participants was 40.41 ± 13.69 years (18-70). Four hundred and seventy-five (55.3%) of the participants were women, 547 (63.7%) were married, and 718 (83.6%) were university graduates. Habits such as watching TV had increased in 379 participants (44.1%), religious observances in 299 (34.8%), and hygiene (such as handwashing, bathing, vacuuming the home, and washing clothes) in 653 (76%). Sociodemographic findings are shown in Table 1.

Table 1. Participants' sociodemographic characteristics and various behaviors during the pandemic

Variable	Frequency (n)	Percentage (%)
Gender (n=859)	Female	475 55.3
	Male	384 44.7
Age (n=859)	18-35	336 39.1
	36-50	291 33.9
	51 or over	232 27
Marital status (n=859)	Married	547 63,7
	Single	282 32,8
Education level (n=859)	Divorced	30 3,5
	Elementary	34 3.8
	High school	107 12.5
	University	714 83.6
	Housewife	62 7.2
	Student	152 17.7
	Not working	39 4.5

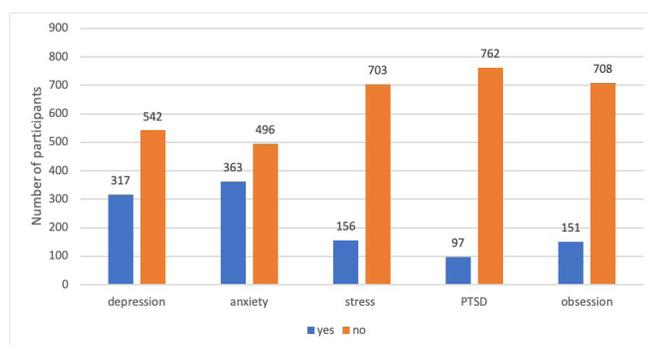
Occupation (n=859)	Clerical	289	33.6
	Small trader	35	4.1
	Manual worker	39	4.5
	Retired	96	11.2
	Health worker	115	13.4
	Member of teaching staff	29	3.4
Income (n=859)	Less than 2000 TL	169	19.7
	2000-4000 TL	187	21.8
	More than 4000 TL	503	58.6
Income level during the pandemic (n=859)	Decreased	311	36.2
	Unchanged	548	63.8
Place of residence (n=859)	City	729	84.9
	Small town	110	12.8
	Village	20	2.3
Do you have a chronic disease? (n=859)	Yes	199	23.2
	No	660	76.8
How would you describe your relationship with your spouse or partner during the pandemic ? (n=568)	Unchanged	424	74.6
	Changed	144	25.4
Has your relationship with your children changed during the pandemic? (n=526)	Unchanged	330	62.7
	Changed	196	37.3
Have your relationships with your family changed during the pandemic? (n=858)	Unchanged	564	65.7
	Changed	290	33.8
Have your cleaning habits changed during the pandemic (such as handwashing, bathing, vacuuming the home, or washing clothes)? (n=859)	Increased	653	76
	Unchanged	206	24
Whom do you live with at home? (n=858)	Nuclear family	723	84.2
	Extended family	64	7.5
	Alone	59	6.9
	Housemate	12	1.4
Have you had COVID-19? (n=859)	Yes	6	0.7
	No	853	99.3
Have any of your relatives had COVID-19? (n=859)	Yes	10	1.2
	No	849	98.8
How afraid are you of contracting COVID-19? (n=859)	Not at all	129	15
	Very little	137	15.9
	Not very	320	37.3

	Moderately	142	16.5
	Very	131	15.3
How afraid are you of your relatives contracting COVID-19? (n=859)	Not at all	42	4.9
	Very little	58	6.8
	Not very	170	19.8
	Moderately	254	29.6
	Very	335	39
What happened to your weight during the quarantine period? (n=859)	Changed	474	55.2
	Unchanged	385	44.8
Has there been any change in your TV-watching habits during the pandemic ? (n=859)	Changed	484	56.3
	Unchanged	375	43.7
Has there been any change in your religious observances during the pandemic? (n=859)	Changed	336	39.1
	Unchanged	523	60.9

TL Turkish lira

3.2. Prevalence of Depression, Anxiety, Stress, and PTSD symptoms

The prevalence of depression, anxiety, and stress symptoms in the present study were 36.9%, 42.3%, and 18.2%, respectively. PTSD was detected in 97 participants (11.3%) and COVID-19-related obsessions in (17.6%) (Figure 1). High or very high levels of depression (6.3%, n=54) anxiety (15.4%, n=132), and stress (4.3%, n=37) were observed.



PTSD: Post traumatic stress disorder

Figure 1. Prevalence of depression, anxiety, PTSD, and obsessions

3.3. Factors Associated with COVID-19-Related Obsessions

In order to examine the correlations between Covid-19 related obsessions and changing habits of individuals, point

biserial correlation was made. According to the results, a significant positive correlation was determined between changes in eating habits ($r_{pb} = 0.26, p < 0.001$), sleeping habits ($r_{pb} = 0.20, p < 0.001$), family relationships ($r_{pb} = 0.11, p < 0.01$), cleaning habits ($r_{pb} = 0.17, p < 0.001$) and TV watching habits ($r_{pb} = 0.09, p < 0.05$) during the pandemic and COVID-19-related obsessions. According to the results, as Covid-19 related obsessions increase, daily routines of individuals change. Factors associated with COVID-19 related obsessions are shown in Table 2.

Table 2. Point Biserial Correlation Results of Factors correlated with the COVID-19 related obsessions

		COVID-19 Related Obsession
Have your eating habits changed during the pandemic?	r	0.26***
Have your sleeping habits changed during the pandemic?	r	0.20***
Have your relationships with your family changed during the pandemic?	r	0.11**
Have your cleaning habits changed during the pandemic?	r	0.17***
Have your TV watching habits changed during the pandemic?	r	0.09**

* $p < .05$, ** $p < .01$, *** $p < .001$

3.4. Predictors of COVID-19-Related Obsessions

Hierarchical regression analysis was performed to determine variables predicting OSC scores. DASS-21 sub-dimensions (depression, anxiety, and stress) were included in the first step of the hierarchical regression analysis, and total IES-R score was included in the second and final step.

According to the results, depression ($F_{1,857} = 257.56, p < 0.001$) and anxiety ($F_{2,856} = 135.14, p < 0.001$) made a 24% contribution to total variance. IES-R scores made an 11% contribution to the total variance, the total variance explained, thus rising to 33% ($F_{3,855} = 141.75, p < 0.001$). Variables predicting COVID-19-related obsessions are shown in Table 3.

Table 3. Hierarchical regression analysis results about predictors of COVID-19-related obsessions

Variable	Adjusted R ²	B	SE.	Beta	t	F
DASS-Depression	.23	.14	.05	.16	2.78**	257.56***
DASS-Anxiety	.24	.10	.05	.06	1.04*	135.14***
IES-R	.33	.09	.01	.41	10.86***	141.75***

* $p < .05$, ** $p < .01$, *** $p < .001$

4. DISCUSSION

This study was performed in the third month of the pandemic, investigating the psychological effects of the COVID-19 pandemic on the Turkish society and predicting factors of COVID-19-related obsessions.

It was found that the COVID-19 related obsession rate among the participants was 17.3%, depression rate was 36.9%, anxiety was 42.3%, and PTSD was 11.6%. The prevalence of depression, anxiety, and OCD symptoms in the present study was significantly higher compared to the pre-pandemic period. A study looking at university students in Turkey reported a prevalence of OCD of 4.2% before the pandemic (25). The prevalence of obsession in the present study (17.3%) was significantly higher than that figure. We think that constant hand washing for protection, disinfectant use, and the emphasis on hygiene and social distancing played a significant role in this high figure. Exacerbation of OCD symptoms in children and adolescents has been observed during the pandemic (26). A study from Italy showed a worsening of symptoms in OCD during quarantine (27). Previous studies have also reported significant increases in depression (28) and anxiety (29) rates compared with pre-pandemic values (2-3% and 5%). A previous study from China reported that depression, anxiety, and stress rates of the participants were 27.9%, 31.6%, and 24.4% (30), while another study from India reported 25.1%, 28%, and 11.6% (31). A different study from China reported a depression rate that is similar to the present study (35.1%) but a lower anxiety rate (20.1%) (8). Casagrande et al. reported anxiety symptoms among adults in Italy at a rate of 32.1%, stress rates of 41.8%, and PTSD rates of 7.6% (32). Relatively high rates were also observed in a study from Austria, at 60% for depression, 50% for anxiety, and 64% for stress (33). A study from the USA reported that participants exhibited high levels of depression, with anxiety symptoms being observed in one in four individuals (34). Another Chinese study using the DASS-21 and IES-R reported a depression rate of 16.5%, an anxiety rate of 28.8%, and a stress rate of 8.1%, while the PTSD rate was relatively higher than it is in the present study (53%) (35).

Another result of the present study has shown that there are significant relationships between COVID-19 related obsessions and changing habits of individuals such as eating, sleeping, cleaning, TV-watching and family relationships. It has been observed that people's daily routines change as COVID-19 related obsessions increase. COVID-19 related obsessions in the present research were greater among individuals whose eating habits, sleep habits, family relationships, cleaning habits, and TV-watching had changed during the pandemic. A study from Netherlands reported similar results with our study. Individuals who reported increase in TV-watching and changing in sleeping and daily communication with their loved ones reported that their OCD symptoms worsened (36). Numerous factors, including the daily provision of new information concerning the disease, uncertainty about when the pandemic would come to an end, and the adoption of new measures daily both increased stress and anxiety, and led to the emergence of obsessions about cleanliness, or the worsening of existing obsessions (37). Seventy-six of the participants in the present study reported increased hygiene-related behaviors such as hand washing, clothes washing, and domestic cleaning during the pandemic. With the declaration

of the pandemic by the World Health Organization and the first case in Turkey, an unprecedented wave of information commenced to be distributed through all forms of media. On the one hand, information was given about protective measures and hygiene and the day-to-day global situation. On the other hand, prolonged and extensive knowledge was provided about proper handwashing (including washing the backs of the hands, the fingertips, and the wrists separately and individually) together with consecutive visual presentations that appeared on the television channels, internet, social media, and public information broadcasts. Following this emphasis on the importance of hand hygiene in preventing infection, an increase in hygiene-related behaviors was observed in the general population.

In the current study, hierarchical regression analysis was also conducted to determine the factors affecting COVID-19 related obsessions. According to the results, it was observed that higher anxiety, depression and PTSD scores predicted COVID-19 related obsessions. In other words, people with higher scores for anxiety, depression, and PTSD also have higher COVID-19 related obsessions. Similar to the present research, a study from China performed three months after quarantine reported a prevalence of OCD of 17.9%, and those psychiatric comorbidities were associated with higher obsession rates (38). Studies show that fear and stress result in OCD symptoms (39). We think that factors such as the scales employed, the pandemic period, and the participants' characteristics may account for the discrepancies between these results. Previous research has indicated that the presence of depression may represent a starting point for obsession (40), and depression and obsession have frequently been reported together (41).

Similarly, in a study conducted with adolescents in Turkey during the pandemic, it was observed that depression and anxiety are predictors of OCD symptoms and had a mediating effect between pandemic related fear and OCD symptoms (42). Anxiety emerged as a significant predictor of obsession in this study. In agreement with our results, COVID-19 related anxiety has been linked to obsessions. The two have been found to be associated, with higher anxiety levels being associated with higher levels of obsession (43,44). Srivastava et al. reported an obsession rate of 13%, and there was a positive correlation between OCD, anxiety and obsession (45).

One significant predictor of COVID-19 related obsessions in the present study was IES-R, with obsession being greater in individuals with higher scores. PTSD rates of 40%, depression rates of 36.4%, and OCD and anxiety rates of 15.6% were observed in one study performed 2-4 years after the SARS outbreak (46). These data suggest that the psychological effects of the COVID-19 pandemic will also be severe and long-lasting. According to our knowledge, there are not any specific studies investigating how PTSD symptoms affect COVID-19 related obsessions. However, various studies underline that the pandemic has had a traumatic effect on the society (47,48). In addition, several articles have

documented the co-occurrence of PTSD and OCD (49,50). In a study conducted with patients diagnosed with both PTSD and OCD, it was stated that participants had the PTSD onset before the onset of OCD (51) consistent with the current research findings.

4.1. Limitations

There are several limitations to this study. In particular, the study was cross-sectional, and it is difficult to draw causal conclusions from it. Furthermore, since the data were collected online, we could not contact individuals who do not have electronic devices or internet connections, which may have affected the results. Finally, the psychological effects investigated rely on scales and participants' self-evaluations, and face-to-face interviews were not conducted. Bias may therefore be unavoidable.

5. CONCLUSION

The findings of the present study show that the COVID-19 pandemic has had severe psychological impacts on the Turkish society, particularly in terms of depression, anxiety, stress, PTSD, and obsessions. Four out of every ten individuals experience depression or anxiety, while two out of 10 experience PTSD or OCD symptoms. Each of these figures is approximately 5-6 times higher than before the pandemic.

In addition to efforts regarding the physical effects of the pandemic, it is also essential that measures protecting mental health be adopted. It should be remembered that the symptoms of individuals with previous diagnoses of a psychiatric disease may worsen and most importantly new cases may also emerge. The necessary precautions must therefore be adopted and appropriate interventions planned.

Since the study was performed in a relatively early period of the pandemic, large-sample, longitudinal studies should now be performed, and these should become routine matters in preparation for future outbreaks, particularly considering that the findings may be altered over time and that the pandemic may have long-term psychological effects.

Conflicts of interest: The authors declare that they have no conflict of interest.

Ethics Committee Approval: This study was approved by Ethics Committee of Atatürk University (Decision date and number: 28.05.2020, IRBNo.B.30.2.ATA.0.01.00/266).

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Author Contributions:

Research idea: ECT, ZO, MS

Design of the study: ECT, ZO, MS

Acquisition of data for the study: ECT, BAC, ZO, MS

Analysis of data for the study: BAC, ECT, ZO

Interpretation of data for the study: ECT, BAC, ZO, MS

Drafting the manuscript: ECT, ZO, MS, BAC

Revising it critically for important intellectual content: ECT, ZO, MS, BAC

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