RESEARCH ARTICLE

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The Effect of the New Type Coronavirus Outbreak on Quality of Life and Suicidal Thoughts in Psychiatric Patients

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SUMMARY

Objective: The aim of this study is to investigate the effect of perceptions on the COVID-19 pandemic on the quality of life and suicidal ideation in both healthy controls and individuals with psychiatric disorders.

Method: The study was conducted on 4 different groups with 83 depressive disorders, 90 anxiety disorders and 61 schizophrenia patients who have been followed in Gazi University Medical Faculty Hospital Mental Health and Diseases outpatient clinic since before the COVID-19 pandemic period and another group of 93 healthy volunteers. Participants were evaluated with Sociodemographic Data Form, Suicide Probability Scale (SPS), SF-36 Quality of Life Scale (SF-36), Perception of COVID-19 Scale (P-COVID-19), and Perception of Causes of COVID-19 Scale (PCa-COVID-19).

Results: The perception on the danger and contaigiousness of P-COVID-19 scored lowest in the schizophrenia group, compared to other groups and PCa-COVID-19's Conspiracy and Belief sub-dimension scores were highest. In all groups, a significant negative correlation was found between the P-COVID-19's dangerousness sub-dimension score and the SF-36 scale's Mental Health sub-dimension. Again, in all groups, significant positive correlations were found between the Dangerousness sub-dimension score of P-COVID-19 and the anger/impulsivity, hopelessness/loneliness and suicidal thoughts sub-dimensions of the SPS.

Conclusion: The negative effects of perceptions associated with COVID-19 on mental health were observed both in groups with a psychiatric disorder and in healthy controls. The higher number of participants and longitudinal research will provide a better understanding of the effects of perceptions associated with COVID-19 and will guide the necessary treatment interventions.

Keywords: COVID-19, mental health, pandemic, suicide, quality of life

INTRODUCTION

In the last 20 years, the threats posed by epidemics that prevailed in the world, such as Severe Acute Respiratory Syndrome (SARS, 2003), Avian Flu (H5N1 2004), Swine flu (H1N1, 2009), and Ebola (2014), have created severe burdens in terms of mental health as much as the problems encountered in physical health and economy (Sun et al. 2020). Previous outbreaks have been shown to have negative effects on mental health. A significant increase in psychiatric disorders and psychological distress was reported following the 2003 Severe Acute Respiratory Failure Syndrome (SARS) outbreak (Mak et al. 2009). As stressors in both acute and chronic processes, outbreaks, as in any traumatic event, have been associated with increased levels of anxiety and depression (Castro and Perlis 2020).

The World Health Organization (2020) reports that the novel coronavirus 2019 (COVID-19) epidemic has a high mortality rate and, as a result, causes a significant level of fear, panic, psychosis, anxiety, trauma, and suicidal behavior around the world (WHO 2020). The rapid increase of COVID-19 has caused people to perceive themselves as at risk of infection worldwide (Yıldırım and Güler 2020). Although some studies have shown that perceived risk, fear, and vulnerability are associated with engaging in preventive behaviors against COVID-19 (Yıldırım et al. 2020), it is emphasized that the perceived risk associated with COVID-19 may be the cause of many psychological problems (Ahorsu et al. 2020, Xiao 2020). Studies have shown that the perceived risk is significantly related to health conditions, distress and life satisfaction (Zhang et al. 2020), sleep disorders, anxiety and stress

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(Casagrande et al. 2020), suicidal ideation, suicide attempts, or completed suicide (Jahan et al. 2020), preventive actions against COVID-19 (Yıldırım et al. 2020), anxiety and disruption of daily life (Kwok et al. 2020).

Studies suggest that, beyond being afraid of the epidemic itself, containment strategies such as quarantine can also profoundly affect individuals (Brooks et al. 2020). The researchers concluded that the COVID-19 pandemic had affected the general population's mental health, and they mainly focused on the issue of how it can affect patients with mental disorders (Yao et al. 2020). It is assumed that stress factors related to the COVID-19 pandemic and related public health measures may worsen mental health in the society. Based on this information, it seems likely that the effects of this condition in patients with schizophrenia will be even more severe (Remington et al. 2014). This is especially because, currently, people with schizophrenia are, on the average, part of smaller and more limited social circles than the general population (Degnan et al. 2018). In a study conducted in China, with the epidemic, more than half of the participants reported that they feared catching COVID-19, and social isolation had a moderate or severe psychological impact on them (Wang et al. 2020). The global coronavirus disease (COVID-19) pandemic has an unprecedented impact on communities worldwide and is expected to disproportionately burden those with schizophrenia and related disorders (Kozloff et al. 2020).

The increased fear, anxiety, and panic after the epidemic mainly increase psychiatric disorders, especially anxiety disorders and depression (Lau et al. 2003). The uncertainty created by the epidemic, the rate of spread, and the catastrophic shares on social media also cause increased anxiety. Increased anxiety imbalance the patients diagnosed with an anxiety disorder who have little tolerance for uncertainty and can cause both an exacerbation of the mental illness and the formation of physical symptoms (Leung et al. 2005). A high level of anxiety, uncertainty, and the inability to quickly produce effective treatment in epidemic situations lead to an increased fear of death in both society and patients. However, it has also been shown that suicidal thoughts increase and quality of life decreases (Lau et al. 2003).

Evidence from past large-scale outbreaks shows that such events have significant impact on physical and mental health, and quality of life in general (Sim and Chua 2004). This affects both healthy people and those considered to be vulnerable groups, indeed the entire population. (Holmes et al. 2020). In one study, it was reported that slightly less than 10% of the participants interviewed in quarantine in China reported moderate to severe levels of stress, and people aged 18 to 30 were more emotionally affected compared to other age groups (Zhang dec Ma 2020). People with pre-existing mental health problems, including severe mental illness, are particularly at risk of increased or aggravated existing symptoms (Holmes et al. 2020). Fear of the high contagiousness of Covid-19, fear of losing loved ones, misinformation about COVID-19, lack of medical treatment, lack of specially designed units, and problems with quarantine (i.e. prolonged home isolation, social distancing, food insecurity, unemployment fear, loss of income, etc.) and depression, anxiety, phobia, insomnia, trauma, etc. associated with mental distress. (Islam et al. 2020).

There are concerns that suicide rates may increase or are already on the rise, as many countries are faced with repeated stay-at-home restrictions to curb the spread of COVID-19 (Gunnell et al. In 2020, Reger et al. 2020). There are several factors underlying these concerns, including deterioration of public mental health. This evidence can be listed as follows: higher prevalence of reported thoughts and behaviors about self-harm among people with COVID-19, problems with access to mental health services, and evidence that previous outbreaks such as SARS (2003) were associated with an increase in deaths by suicide. (John et al. 2020). The possible negative effects of the pandemic on people with mental illness and the population's mental health, in general, can be exacerbated during quarantine processes (Yao et al. 2020). The risk of suicide may increase due to the stigma against individuals with COVID-19 and their families. Worsening symptoms of patients with psychiatric disorders, especially depression, anxiety, and post-traumatic stress (all associated with increased suicide risk), may further increase the risk of emergence of new mental health problems (Gunnell et al. 2020). Social isolation, feelings of being trapped, and loneliness contribute to suicide risk (O'Connor and Kirtley 2018) and are likely to increase during the pandemic. Repeated exposure to stories about the crisis can increase fear and increase the risk of suicide (Garfin et al. 2020). According to some researchers, it is suggested that prolonged isolation, quarantine, or social distancing may increase psychiatric distress directly or indirectly linked to possible suicide linked to COVID-19 (Bhuiyan et al. 2020, Mamun and Griffiths 2020). In literature, there is no clear information the variation of COVID-19-related perceptions of persons with anxiety, depressive and schizophrenic disorders and other healthy controls, which psychiatrists frequently emcounter in daily practice nor on the relationship between the quality of life and the possibility of suicide.

For these reasons, we aimed to investigate the effect of such perceptions about COVID-19 on quality of life and suicidal thoughts in patients diagnosed with schizophrenia, depressive disorder, and anxiety disorder and in healthy controls.

METHOD

This study is a case-control study. The patient sample in the current study constitutes psychiatric patients in the outpatient clinic of the Gazi University Medical Faculty hospital between the dates of 01/05/2020-01/11/2020. Before starting

the study, a power analysis was performed with the G*Power program to determine the number of samples. In the study, four groups were considered: the depressive disorder group, the anxiety disorder group, the schizophrenia group, and the healthy control group, also assuming that the variables between these groups could be compared through a one-way analysis of variance. Based on the alpha margin of error of 0.05, the working power of 0.80, the number of groups of 4, and the effect size of 0.25, it was calculated that the program had but to reach at least 180 patients. A 20% margin of error was anticipated for reasons such as deficiencies and inconsistencies in the participants' data included in the study. In conclusion, the final understanding was that a group of at least 255 had to be reached out.

While patient inclusion criteria were defined as meeting one of the diagnostic criteria of Anxiety Disorder, Depressive Disorder, or Schizophrenia according to DSM-5 and being over 18 years old, these criteria were determined for the control group as not having any psychiatric disorder according to DSM-5 and being over 18 years old. The main exclusion criteria in the patient group were patients with severe anxiety disorder, severe depression, depression with psychotic symptoms, and schizophrenia patients in a state of attack. They were excluded from the study because it was thought that this group of patients would not be as adabtable as to fill out the self-report scales, which might yield poor results. For reasons elaborated above, schizophrenia patients were required to have the disease in remission or partial remission. However, no distinction was made between remission and attack periods in patients with depressive and anxiety disorders. Therefore, a sample group of patients who were both in the period of illness and remission was formed.

Apart from these exclusion criteria, the exclusion criteria common to each group were the absence of a mobile phone, insufficient command of Turkish, poor cognitive function to prevent them from completing an online questionnaire, lack of internet access, and failure to consent to participate in the study.

Two psychiatrists evaluated the patients based on DSM-5 diagnostic criteria. After the examination, patients who met the inclusion criteria were informed about the purpose of the study, what the data would be used for, and how the data would be stored.

Patients who verbally confirmed that they wanted to participate in the study were sent a questionnaire created with an online link. The first page of the questionnaire contained the name of the study, its purpose, by whom it was conducted, the information on the ethics committee approval obtained, and a field where they would confirm their agreement to participate in the study.

We have included the relatives of the patients admitted to the hospital in the healthy control group by appropriate sampling method (except for the psychiatry clinic). It was noted that the gender and age variables of the control group were similar to the patient groups. After meeting with the psychiatrist, the participants in the control group were informed about the study, and an online questionnaire of the study was sent to those who gave verbal consent. Both the patients and the participants in the control group were given clear information that they could withdraw from the study at any time.

In the study, sociodemographic data form, suicide probability scale, SF-36 quality of life scale, COVID-19 Perception Scale, and Perception Scale for COVID-19 Causes were used.

Sociodemographic Data Form

The researchers created the sociodemographic data form. This form includes sociodemographic data such as age, gender, marital status, educational status, and other variables such as alcohol use and smoking.

SF-36 Quality of Life Scale (SF-36)

This scale was developed by Ware Jr. and Sherbourne (1992), and its Turkish validity and reliability study was conducted by Koçyiğit (1999). It consists of a total of 36 questions and eight sub-dimensions. Each sub-dimension gets a value between 0-100 after the scoring (Koçyiğit 1999). In this study, the General Health, Physical Function, Social Functionality, and Mental Health sub-dimensions of the scale were evaluated.

The Suicide Probability Scale (SPS)

It was developed by Cull and Gill (1988) to assess the risk of suicide in adolescents and adults. The Turkish validity and reliability study was conducted by Atlı et al. (2009). It is a 36-item scale using a Likert-type scoring between 1-4. In the original form of the scale, the responses to the items were 'never or rarely' (1), 'sometimes' (2), 'often' (3), and '"often or always' (4). The score interval is between 36-144, and the high scores taken from the scale indicate a high probability of suicide. The original form of the SPS consists of four factors that are as follows: hopelessness/loneliness, suicidal thoughts, social support/self-serception, and anger/impulsivity (Durak Batıgün and Hisli Şahin 2018).

Perception of COVID-19 Scale (P-COVID-19)

The scale developed by Geniş et al. (2020) has seven items and is in a five-point Likert structure. It has two sub-dimensions: dangerousness (3 items) and contagiousness (4 items). The dangerousness sub-dimension evaluates perceptions and beliefs about the dangerousness caused by COVID-19, while the contagiousness sub-dimension evaluates perceptions about the contagiousness of the disease, and there are inverse items on the scale. After these items are reversed, the total

score formed by summing the items in the sub-dimension is divided by the number of items in that sub-dimension. Thus, a value between 1-5 is obtained. If this value is high, it indicates that the perception of dangerousness and contagiousness is high (Geniş et al. 2020).

Perception of Causes of COVID-19 Scale (PCa-COVID-19)

The scale developed by Geniş et al. (2020) consists of 14 items. The scale, which has a five-point Likert structure, consists of three sub-dimensions: '"Conspiracy',' 'Environment,' and 'Faith.' The assessment expressions used in the scale are as follows; 'I strongly disagree (1),' 'I disagree (2),' 'I am indecisive (3),' 'I agree (4),' 'I definitely agree (5).' The sub-dimension of 'conspiracy' includes conspiracy beliefs (biological warfare, efforts to sell vaccines, etc.), which are also often expressed in the media about the causes of the disease). The second sub-dimension is the 'Environment' component, which indicates disruptions in the physical environment as possible causes of the COVID-19 pandemic. In this sub-dimension, such reasons as unhealthy diet, global warming, and pollution of natural resources are mentioned. The last sub-dimension is called 'Faith.' The items in this sub-dimension are related to perceptions of religious and spiritual explanations as to the cause of COVID-19. It includes beliefs, for example, that the epidemic is in our destiny or that the epidemic is a wrath of God against social degradation. There is no inverse item on the scale. A value between 1-5 is obtained by dividing the total score obtained by summing the item scores in the scale sub-dimension by the number of items in that sub-dimension. The height of this value indicates the height of the perception in that sub-dimension. (Geniş et al. 2020).

Ethical Approval

Our study was approved by the Gazi University Ethics Commission with Approval No. 2020-273 dated 07/04/2020 and was conducted in compliance with the Declaration of Helsinki. Permission for the Study was obtained from the Ministry of Health of the Turkish Republic. Informed consent was obtained from all participants online.

Analysis of the Data

The study data were analyzed with SPSS 23.0 software package. Descriptive statistics were expressed using frequency, percentage, mean and standard deviation. Since the skewness and kurtosis values of the numerical variables differed between ± 2, it was assumed that the data revealed a normal distribution. Therefore, parametric tests were used in the analysis. The Chi-Square test was used to compare categorical variables, and Fisher's Exact Test was used whenever necessary. After the significant comparisons after the chi-square test, post-hoc analyzes were performed to determine which pores were significant. In these analyses, Bonferroni correction was used. One-way analysis of variance was used to compare continuous variables. The correlation between sub-dimension total scores of the scales was evaluated by Pearson correlation analysis. For statistical analyses, $p < 0.05$ was considered significant.

RESULTS

The sociodemographic characteristics of the sample are shown in Table 1. There was no significant difference between the groups referring to variables of Age ($F(3)=1.542$, $p=0.203$) and Gender ($X^2(2)=2.636$, $p=0.451$). There was a significant difference between the groups referring to variables of Marital status ($X^2(4)=32.830$, $p<0.001$), level of education ($X^2(8)=48.138$, $p<0.001$), working status ($X^2(2)=42.172$, $p<0.001$), smoking ($X^2(2)=17.647$, $p=0.001$), alcohol use ($X^2(2)=21.913$, $p<0.001$), chronic disease status ($X^2(2)=11.939$, $p=0.008$) and the state of psychiatric illness in the family ($X^2(2)=16.094$, $p=0.001$).

The rate of working (24.6%) and alcohol use (13.1%) of the patients diagnosed with schizophrenia were the lowest, while smoking (65.6%), presence of chronic diseases (49.2%), and presence of psychiatric diseases in the family (52.5%) were the highest.

The comparison of scales applied between the groups is shown in Table 2. There was a significant difference between the scores of the sub-dimensions of Dangerousness ($F(3)=17.186$, $p<0.001$) and Contagiousness ($F(3)=5.896$, $p=0.001$) in the Perception of COVID-19 Scale and among the sub-dimensions of Conspiracy ($F(3)=5.237$, $p=0.001$) and Faith ($F(3)=4.502$, $p=0.004$) of Perception of the Causes of COVID-19 Scale. Among those diagnosed with schizophrenia, COVID-19-related dangerousness (2.79±1.24) and contagiousness (3.19±0.85) perception scores were the lowest compared to other groups, while the Conspiracy (3.19±1.17) and Faith (3.19±1.17) sub-dimensions of the Perception of the Causes of COVID-19 Scale were the highest. There was a significant difference between the groups in terms of anger/impulsivity ($F(3)=2.933$, $p=0.033$) and hopelessness/loneliness ($F(3)=3.795$, $p=0.011$) sub-dimensions of SPS. Anger/impulsivity sub-dimension scores were highest in those with an anxiety disorder (11.35±3.76), while the hopelessness/loneliness sub-dimension was highest in those diagnosed with schizophrenia (14.55±5.15).

The analysis of the correlation between the dangerousness sub-dimension score of the Perception of COVID-19 Scale and the sub-dimension scores of the quality of life and suicide probability scale are shown in Table 3. There was a significant negative correlation between the Dangerousness sub-dimension score of the Perception of COVID-19 Scale and the

Table 1. Sociodemographic Characteristics of the Sample

Variables		Control Group (n=93)	Depression (n=83)	Anxiety (n=90)	Schizophrenia (n=61)
		n (%)	n (%)	n (%)	n (%)
Gender	Female	42 (45.2)	43 (51.8)	47 (52.2)	25 (41.0)
	Male	51 (54.8)	40 (48.2)	43 (47.8)	36 (59.0)
Marital Status	Single	11 (11.8)[a]	16 (19.3)[a]	22 (24.4)[a]	29 (47.5)[a]
	Married	68 (73.1)[b]	57 (68.7)[a]	64 (71.1)[a]	25 (41.0)[b]
	Widowed/divorced	14 (15.1)[b]	10 (12.0)[a]	4 (4.4)[a]	7 (11.5)[a,b]
Education Level	Illiterate	2 (2.2)[a,b]	4 (4.8)[a]	4 (4.4)[a]	1 (1.6)[a,b]
	Elementary	14 (15.1)[b]	26 (31.3)[a]	30 (33.3)[a]	26 (42.6)[b]
	High school	7 (7.5)[b]	16 (19.3)[a]	15 (16.7)[a]	18 (29.5)[b]
	University	53 (57.0)[a]	30 (36.1)[a]	34 (37.8)[a]	16 (26.2)[a]
	Postgraduate	17 (18.3)[a]	7 (8.4)[a]	7 (7.8)[a]	0 (0.0)[a]
Employment Status	Unmployed	23 (24.7)[a]	46 (55.4)[a]	44 (48.9)[a]	46 (75.4)[a]
	Employed	70 (75.3)[a]	37 (44.6)[a]	46 (51.1)[a]	15 (24.6)[b]
Smoking	No	53 (57.0)[a]	51 (61.4)[a]	61 (67.8)[a]	21 (34.4)[a]
	Yes	40 (43.0)[a]	32 (38.6)[a]	29 (32.2)[b]	40 (65.6)[b]
Alcohol Use	No	51 (54.8)[a]	47 (56.6)[a]	61 (67.8)[a]	53 (86.9)[a]
	Yes	42 (45.2)[b]	36 (43.4)[a]	29 (32.2)[a]	8 (13.1)[b]
Chronic Illness	No	72 (77.4)[a]	57 (68.7)[a]	60 (66.7)[a]	31 (50.8)[a]
	Yes	21 (22.6)[b]	26 (31.3)[a]	30 (33.3)[a]	30 (49.2)[b]
Family Member History of Psychiatric Disorders	No	73 (78.5)[a]	52 (62.7)[a]	57 (63.3)[a]	29 (47.5)[a]
	Yes	20 (21.5)[b]	31 (37.3)[a]	33 (36.7)[a]	32 (52.5)[b]
Age	Mean.+sd	43.05±8.83	39.65±12.24	40.21±13.82	40.52±10.19
	Median	43	38	38	41
	Min.-Max.	19-72	19-72	20-84	18-66

Changes in the superscript letters of variables in the category (for example, "a" in one category and "b" in another) indicate a significance level of 0.05 after the chi-square test post hoc analysis (after the Bonferroni correction). Since there was no difference in gender variable between the groups, chi-square test and post hoc analysis were not performed.

Table 2. Comparison of the Applied Scales Between Groups

Scales and Sub-dimesions		Control Group (n=93)	Depression (n=83)	Anxiety (n=90)	Schizophrenia (n=61)	F	p	Post-Hoc Analysis	
								binaries	p
P-COVID-19	Dangerousness	3.61±1.24	3.73±0.94	4.12±0.99	2.79±1.24	17.186	<0.001	1-3	0.004
								1-4	<0.001
								2-3	0.049
								2-4	<0.001
								3-4	<0.001
	Contagiousness	3.68±1.12	3.45±0.98	3.85±0.95	3.19±0.85	5.896	0.001	1-4	0.022
								3-4	0.002
PCa-COVID-19	Conspiracy	2.62±0.95	2.59±1.00	2.82±1.08	3.19±1.17	5.237	0.001	1-4	0.005
								2-4	0.009
	Environment	2.82±0.89	2.60±0.91	2.61±0.91	2.81±1.21	1.529	0.206		
	Faith	2.25±1.10	2.05±1.20	2.28±1.19	2.77±1.28	4.502	0.004	1-4	0.043
								2-4	0.005
SPS	Social Support/Self-Perception	43.67±7.63	43.18±9.02	41.06±9.35	41.61±11.05	1.932	0.124		
	Anger/Impulsivity	10.08±2.97	10.96±3.68	11.35±3.76	11.04±3.69	2.933	0.033	1-3	0.044
	Hopelessness/ Loneliness	12.69±4.07	14.36±5.02	13.34±4.00	14.55±5.15	3.795	0.011	1-4	0.049
	Suicidal Thoughts	18.89±3.08	19.33±4.37	17.92±5.52	18.32±7.42	1.424	0.235		
SF-36	General Health	69.86±13.32	65.66±18.10	64.94±19.32	61.88±17.51	3.878	0.009	1-4	0.012
	Physical Functioning	75.34±13.43	73.97±15.82	70.50±18.82	66.72±17.34	4.889	0.002	1-4	0.005
	Social Functioning	76.13±16.03	73.79±17.85	70.97±21.75	69.26±23.22	2.480	0.061		
	Mental Health	70.05±12.35	68.28±13.97	66.44±16.86	65.31±17.82	1.945	0.122		

P-COVID-19: Perception of COVID-19, PCa-COVID-19: Perception of Causes of COVID, SPS: Suicide Probability Scale, SF-36: Quality of Life Scale Short Form 36

Table 3. Evaluation of the Correlation Between the Dangerousness Sub-dimension Score of the Perception df Covıd-19 Scale and the Quality of Life and Suicide Probability Sub-dimensions of the Scale

		Dangerousness Sub-dimension of P-COVID-19			
		Control Group (n=93)	**Depression (n=83)**	**Anxiety (n=90)**	**Schizophrenia (n=61)**
SPS	Social Support/Self-Perception	-0.141	-0.136	-0.067	-0.295*
	Anger/Impulsivity	0.339**	0.373**	0.266*	0.426**
	Hopelessness/Loneliness	0.288**	0.316**	0.302**	0.278*
	Suicidal Thoughts	0.236**	0.302**	0.387**	0.294*
SF-36	General Health	-0.241**	-0.247*	-0.122	-0.465**
	Physical Functioning	-0.289**	-0.292**	-0.057	-0.316*
	Social Functioning	-0.257**	-0.265*	-0.061	-0.382**
	Mental Health	-0.252**	-0.226*	-0.232*	-0.322*

P-COVID-19: Perception of COVID-19, SPS: Suicide Probability Scale, SF-36: Quality of Life Scale Short Form 36

Mental Health sub-dimension of the SF-36 scale both in the control group ($r(93)=-0.252$, $p<0.01$) and in the psychiatric disease groups ($r(83)=-0.226$, $p<0.05$ for the depression group; $r(90)=-0.232$, $p<0.01$ for the anxiety disorder group; and $r(61)=-0.322$, $p<0.05$ for the schizophrenia group). Again, in all groups, there was a positive significant correlation between the Dangerousness sub-dimension score of the Perception of COVID-19 Scale and the anger/impulsivity, hopelessness/loneliness, and suicidal thoughts sub-dimensions of the SPS (Table 3). Additionally, there was a significant negative correlation between the perception of dangerousness and social support/self-perception in those diagnosed with schizophrenia ($r(61)=-0.295$, $p<0.05$).

DISCUSSION

In this study, we investigated the effect of the COVID-19 pandemic on quality of life and suicidal ideation in both healthy control groups and the group of individuals with psychiatric disorders. The perception of dangerousness and contagiousness associated with COVID-19 was found to be significantly lower in patients with schizophrenia (Table 2). However, patients with schizophrenia believe more in conspiracy theories about COVID-19 and associate the cause of COVID-19 more with faith (Table 2). One of the important results of the study is that the perception of the dangerousness of COVID-19 is negatively related to the quality of life in all groups and is positively related to anger, impulsivity, hopelessness, loneliness, and suicidal ideation (Table 3).

Two common features of schizophrenia are impaired judgment and inadequate self-care (Fonseca et al. 2020). Therefore, it can be said that the schizophrenia group is oriented towards situations that may be associated with impaired judgment (that means this may be a conspiracy) rather than the source of the disease and its possible effects. However, the emergence of COVID-19 in some religious groups around the world is seen as God's punishment for poor observance of religious rules (Dein et al. 2020). Another reason may be the perception that diseases come from God, and whatever will be experienced is the will of God (Dein et al. 2020). In our study, no measurement tool was used to determine the beliefs of people. Therefore, it becomes difficult to discuss this difference in the schizophrenia group considering the number of samples.

Patients with schizophrenia are at a higher risk of infection, as well as they are vulnerable to an increase in psychiatric symptoms and relapse due to anxiety associated with fear of illness, stress, and forced isolation (Fonseca et al. 2020). Additionally, the fears associated with COVID-19 seem to be based on a more distorted background of thinking than healthy individuals. When we consider the worsening mental health of the general public due to stress arising as a result of the COVID-19 pandemic and the corresponding public health measures, it will not be surprising that the psychological effects of the epidemic are even higher in people living with schizophrenia (Remington et al. In 2014, Kozloff et al. 2020). Our study confirms that the negative impact of an existing epidemic situation on people with schizophrenia may be more within the context of anger, impulsivity, hopelessness, loneliness, lacking social support/self-perception. It is known that increased fear and anxiety after the epidemic also increased the severity of most psychiatric disorders (Lau et al. 2003). Based on this, understanding patients' perceptions of COVID-19 in schizophrenia patients, who are seen as a more vulnerable group during the COVID-19 period, seems essential for a sound clinical evaluation and for helping the patient during the treatment process.

It was observed that the increase in the perception of danger was associated with worse quality of life in all groups (both healthy and disease groups). The increase in the perception of danger associated with COVID-19 may increase stress in individuals and lead to deterioration in the quality of life. The literature states that the fear and anxiety caused by the coronavirus epidemic are quite effective and, therefore, will have many psychological and social consequences on the whole society. (Fiorillo and Gorwood 2020). Zhang and Ma (2020)

reported that the COVID-19 pandemic is associated with a low-stress level in the community sample. In the study by Yuan et al. (2020) conducted in endemic and non-endemic provinces of China, it was shown that most people in Hubei province (the endemic state) developed a more positive attitude about the risk of infection outbreak and the likelihood to survive.

On the other hand, Amerio et al. (2020) found that general practitioners showed moderate to severe depressive symptoms, experienced greater helplessness, and spent more than 3 hours researching information related to COVID-19. Furthermore, it has been noted that there is a decrease in the quality of life with high levels of anxiety and insomnia (Amerio et al. 2020). Pulvirenti et al. (2020) concluded that the COVID-19 pandemic increases the risk of anxiety/depression and negatively affects the quality of life of patients diagnosed with primary immunodeficiency. In a comprehensive review examining the relationship between the COVID-19 pandemic and quality of life (Melo-Oliveira et al. 2020), it has been reported that the quality of life of individuals in the sample groups where COVID-19 was reported to deteriorate despite the fact that the standard of living between presented countries was already different.

The increase in the perception of dangerousness is not the only factor associated with the deterioration of the quality of life. The losses experienced during the pandemic, work-related problems, and quarantine-related situations are involved in deteriorating quality of life (Islam et al. 2020). However, the perception of dangerousness is a finding that can be addressed in a psychiatric interview and stands a chance of intervention if necessary. Therefore, it has been thought that it may be helpful to address this issue during this challenging process, especially in those with psychiatric disorders. All around the world, Psychiatric Clinics are changing their routine practices so as not only to provide psychosocial care and support to people with mental disorders but also to those who do not have a mental illness but suffer from the consequences of the pandemic (Fiorillo and Gorwood 2020). Therefore, studies on the impact of the COVID-19 pandemic on mental disorders will play an enlightening role in terms of necessary interventions.

An increase in suicide rates and the risk of suicide is a common occurrence during and after pandemics (Islam et al. 2020). A pandemic causes distress and consequently leaves many people vulnerable to mental health problems and suicidal behavior. Mental health problems are likely to persist longer than the epidemic and peak later (Gunnell et al. 2020). Therefore, it is important to understand the components associated with suicide during the pandemic. Our study found that the increase in the perception of dangerousness related to COVID-19 was associated with an increase in anger, impulsivity, hopelessness, loneliness, and suicidal ideation in all groups (control, depression, anxiety disorder, and schizophrenia) (Table 3). This result is very important in terms of showing that the stress factors related to COVID-19 affect the entire society, whether it is a psychiatric disorder or not. Similar to the past periods of disasters and epidemics, the problems experienced during the COVID-19 period have caused an increase in mental disorders in people (Taquet et al. 2021). It is a well-known fact that the suicide rate is high in psychiatric disorders (Knipe et al. 2019). During the pandemic, experienced social isolation, quarantine, fear of transmission, uncertainty (especially economic uncertainty), the presence of past psychiatric illness, and alcohol/substance use disorders have been identified as factors associated with suicide (Sher 2020).

One of the important results of the study was that while the perception of dangerousness and contagiousness related to COVID-19 was lowest in the schizophrenia group (Table 2), the increase in the perception of dangerousness in the schizophrenia group is associated only with a decrease in social support and self-perception (Table 3). Schizophrenia is a severe psychiatric disorder that is chronic and needs lifelong treatment (Yıldız and Cerit 2006). A recent study (Hülya and Demir 2018) showed that both the perception of social support and self-esteem are low in individuals diagnosed with schizophrenia, and these variables are also closely related to the outcome of treatment. It can be suggested that during the COVID-19 pandemic, increased anxiety and fears about the disease further reduced these perceptions compared to other groups.

Although significant results have been achieved in our study, this was still despite certain limitations. The correlations found between the variables reflect a cross-sectional time frame. However, the entire process of the COVID-19 pandemic, per se, was a very dynamic time frame. The negative impact of COVID-19 on quality of life and suicidal ideation should be evaluated considering these limitations. The study was conducted on a single-center basis. Although the study center is located in a large province such as Ankara, the capital of Turkey, the study results cannot be generalized to the entire population. Another limitation is that a psychopathology scale was not used to evaluate the mental state of psychiatric patients participating in the study. Furthermore, it was not evaluated whether patients other than schizophrenia patients were in remission or their illness was ongoing. Another limitation of the study is that the disease groups contain different sub-diagnosis within themselves. For example, there are many different disease groups in anxiety disorders, such as Social phobia, Panic Disorder, and Generalized Anxiety disorder. Although these diseases are being evaluated under the general category of anxiety disorders, it should be taken into account that each disease may have a different effect.

Briefly, this research is the first study that analyses the perceptions about COVID-19 in two sample groups with and

without psychiatric disorders and the effects of perceptions on quality of life. It was found that schizophrenia patients had lower perceptions that the COVID-19 epidemic was dangerous and had intense contagiousness than the healthy control group, anxiety group, and depressive disorder group patients, and schizophrenia patients had higher perceptions that the COVID-19 epidemic had conspiracy and faith-based causes. In addition, it was determined that the increase in the perception of danger related to COVID-19 was associated with an increase in suicidal thoughts, anger, impulsivity, hopelessness and loneliness, a decrease in the perception of social support, and deterioration in quality of life in all groups.

The effects of perceptions associated with COVID-19 on healthy people and people with psychiatric disorders vary in patients with schizophrenia. Furthermore, identifying perceptions about COVID-19 may change our perspective on the mental symptoms associated with these perceptions and give mental health professionals a chance to intervene from a new perspective. We need studies with a higher number of patients, larger samples, that analyze the mental effects of perceptions related to COVID-19 more longitudinally. In the studies to be carried out in this plan, evaluating the disease according to its sub-dimensions will help to reveal the results more clearly.

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