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The Relationship between Fear of COVID-19 and Psychiatric Symptoms of Schizophrenic Patients During the COVID-19 Pandemic**

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ABSTRACT:
Purpose: Our study aimed to examine the relationship between fear of COVID-19 and psychiatric symptoms in patients with schizophrenia
Material and Methods: Following the rules on infection, a face-to-face questionnaire was conducted with 103 patients with schizophrenia. Participants were evaluated by using the COVID-19 Fear Scale (FCoV-19S) and the Positive and Negative Syndrome Scale (PANSS).
Results: Participants' average FCoV-19 scores were less than half of the maximum score on the scale. We found that positive symptoms score was significantly negatively associated with FCoV-19S scores, whereas negative symptoms score was positively associated with the FCoV-19S scores in the bivariate model. We found that positive symptoms predicted fear of COVID-19 negatively and significantly, while general psychopathology symptoms predicted fear of COVID-19 positively and significantly.
Conclusion: Schizophrenia patients had low COVID-19 fear scores. Fear of COVID-19 were associated with positive and negative symptoms. These findings need to be confirmed together in the future, both with the larger population and also with other variables Thus, it will contribute to the development of special strategies for schizophrenia patients during the covid-19 pandemic period.
Keywords: *COVID-19, schizophrenia, pandemic, fear*

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INTRODUCTION

The 2019 novel coronavirus disease (COVID-19) is a global crisis with high mortality and morbidity rates but with no established cure yet (World Health Organization, 2020; Rogers et al., 2020; Liu et al., 2020). The COVID-19 pandemic has knocked on almost every door and, like other pandemics, has caused some mental health problems such as anxiety and fear (Pappas et al., 2009; Tucci et al., 2017). These problems may arise from the fear of becoming infected, infecting others, dying, and/or losing loved ones. Additionally, other concerns can also burden the individual's mind, such as inability to get the necessary medical care or the possibility of losing one's job (Montemurro, 2020; Ornell et al., 2020; Pakpour and Griffiths, 2020). Continuous monitoring of news and developments associated with COVID-19 (especially via social media that may contain false information) is also a risk factor that increases the fear of COVID-19 (Ahorsu et al., 2020).

Fear is a basic emotion activated in response to perceived threats. Fear is vital to taking appropriate actions, but when people feel fear, they may react inappropriately (Fofana et al., 2020). For instance, when fear is too excessive, individuals may have problems such as phobia and social anxiety. On the other hand, when there is low level of fear, this may bring problems such as ignoring face masking and

social distancing. Different types of COVID-19 fear are reported. There are fear of oneself or loved ones getting infected, fear of job loss, fear of taking actions or not (visit family members or not, looking information on internet or TV about death rates). All these problems bring about mental health problems such as sleep and eating problems, increasing anxiety, depression, anger and smoking rates etc. (Quadros et al., 2021; Schimenti et al., 2020 ; Taylor et al., 2020) Severity of fear can be affected by personal factors such as emotional structure, experiences, and cognitive status, as well as environmental factors such as the intensity and uncertainty of the threat (Gerrard et al., 2008; Loewenstein et al., 2001; Slovic et al., 2004).

Schizophrenia is a psychiatric disorder manifested with positive symptoms, such as delusions or hallucinations, and negative symptoms, such as apathy, isolation, or lower social functioning, and also includes poor attention, a lack of judgement and insight, poor impulse control, or disorientation. The level of these symptoms are linked to poor community based functioning, reduced rates of recovery, low psychological well-being, and illness liability. (Wearne et all., 2018; Strauss et al., 2021). Individuals with schizophrenia may be more affected by these emotional responses due to features of these disorders, such as delusions, hallucinations, disorganized behavior, cognitive impairment, poor insight, and sociodemographic characteristics. This may result in a relapse or worsening of pre-existing psychiatric symptoms such as positive (e.g. paranoia, hallucinations) and negative (e.g. anhedonia, apathy) psychotic symptoms due to a higher susceptibility to stress compared to the general population (Yao et al., 2020; Fusar-Poli et al., 2017). In addition, it is stated that this group has a higher risk of infection due to difficulty in complying with protective measures and the presence of other medical comorbidities (Palomar-Ciria et al., 2020; Correll et al., 2017; Zareifopoulos et al., 2018). Additionally, people with severe mental illness have regular outpatient clinic visits for evaluations and prescriptions. However, travel restrictions and quarantine applications have made it more difficult and impractical to attend these regular visits (Yao et al., 2020).

There are few studies on patients with schizophrenia during Covid-19 pandemic. It has been reported that the fear of Covid-19 may increase depression by causing social isolation in schizophrenia patients (Lee at all., 2022) In another study, it was shown that there was a delay in recovery and a decrease in quality of life in schizophrenia patients who had COVID-19. (Caqueo-Urízar et al., 2021) However, it was stated that information and other intervention methods about COVID-19 for schizophrenic patients accelerated the reduction in symptoms (Haddad et al. 2022).

To of our knowledge, there are not enough studies on the fear of COVID-19 and its relationship with psychiatric symptoms in schizophrenia patients. In this study, we aimed to determine the COVID-19 fear levels of schizophrenic patients and to determine whether there is any relationship between the fear of COVID-19, psychiatric symptoms and sociodemographic characteristics. Investigating the mental health patterns of fear of COVID-19 and related factors will be beneficial in terms of developing appropriate intervention strategies in schizophrenia patients.

MATERIAL and METHODS

Purpose and Type of the Study

This study, which was conducted to relationship between fear of COVID-19 and psychiatric symptoms of Schizophrenic patients during the COVID-19 pandemic, is a cross- sectional descriptive type.

Sampling and participant

This study was conducted in a community mental health center located in İstanbul province of Turkey. This center serves patients with serious mental illnesses who are treated and followed up on an outpatient basis. During the pandemic period, for patients presenting to the center, psychiatric examinations and treatments in this center were conducted face-to-face by complying with infection precautions. Patients of 65 years and older with comorbid problems and were not willing to come to the center due to the concerns of infection were served by phone. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). (American Psychiatric Association

2013) 126 eligible individuals diagnosed with schizophrenia were consecutively interviewed by trained research interviewers. Inclusion criteria for the participants were defined as a) being treated at a community mental health center for at least 1 year b) Age 18 years and above. c) Have been clinically stable for the last 3 months (stabilization was defined as the absence of hospital admissions or a major change in treatment over the past 3 months). Patients with a catatonia, active alcohol or substance abuse, and intellectual disability were excluded from study. After receiving verbal informed consent, they were invited to answer a series of questions contained in the study scales. If the patient was unable to provide valid informed consent (based on the caregiver's response), additional informed consent was obtained from primary caregivers. The interview team consisted of a psychiatrist and an occupational therapist. After the psychiatrist determined the psychiatric symptoms of the patients, the occupational therapist applied the fear of COVID-19 scale. Of these, 11 participants were excluded for recurrence of symptoms, 6 participants were excluded on the grounds that they were unwilling to participate in the study, and 6 participants on the grounds that they did not have sufficient communication skills. Finally, 103 patients completed the study. All of the participants in the study were interviewed face-to-face by following the infection rules.

Data Collection Tools

Demographics

Participants were evaluated by their age, gender, educational status, marital status, job status information.

Fear of COVID-19 Scale (FCV-19S)

The FCV-19S, developed by Ahorsu (Ahorsu et al., 2020) was used to assess participants' fear of COVID-19. Turkish validity and reliability study was conducted by Bakioğlu et al. (2020). It is a unidimensional seven-item scale. Items are responded to on a five-point Likert-type scale (strongly disagree = 1 to strongly agree = 5). Its total score (summation of individual response items) ranges from 7 to 35 with higher scores indicating greater fear of COVID-19. FCV-19S includes the following questions:

1. I am most afraid of coronavirus-19.
2. It makes me uncomfortable to think about coronavirus-19.
3. My hands become clammy when I think about coronavirus-19.
4. I am afraid of losing my life because of coronavirus-19.
5. When watching news and stories about coronavirus-19 on social media, I become nervous or anxious.
6. I cannot sleep because I am worried about getting coronavirus-19.
7. My heart races or palpitates when I think about getting coronavirus-19.

Positive and Negative Syndrome Scale (PANSS*)*

The PANSS is a standardized, clinical interview that rates the presence and severity of positive, negative, and general psychopathology symptoms for people with schizophrenia. (Kay et al., 1987) The 30 items of PANSS have been divided into three subscales. Seven are positive symptoms, seven are negative symptoms, and 16 are general psychopathology symptoms. Symptom severity for each item is rated according to which anchoring points in the 7-point scale (1 = absent; 7 = extreme) best describe the presentation of the symptom. Turkish reliability and validity study was conducted by Kostakoğlu (Kostakoğlu et al., 1999).

Statistical Analysis

Analysis of the data was performed with SPSS version 22. Descriptive statistics (N, %) were calculated for all demographic and clinical variables. Pearson correlation coefficient, Independent sample t test and Anova variance analysis were used to determine the relationship between these variables and fear of COVID-19. A multivariable linear regression analysis was performed to estimate the least square means (with 95% Confidence Interval) with the outcome variable of the fear of COVID-19. For all statistics, the significance limit was selected as $p<0.05$.

Ethical Approval

This study was conducted in accordance with the principles of the Declaration of Helsinki, after the approval of the Ethics Committee of the Institute (AV/IEC/2020/194), between October 2020 and December 2020, in a period when there was no curfew.

RESULTS

Demographic Profile

The mean age of the participants was 44.25 years (SD=11.82). The majority of the respondents were males (71.8%), unemployed (74.8%), single (73.8%) and completed primary school (68%) (Table 1).

Table 1: Comparison of the level of fear according to socio-demographic variables (n=103).

Descriptive variables	n(%)	COVID-19 fear (Mean)
Gender		
Female	29 (28.2)	16.86
Male	74 (71.8)	15.79
Age		
21-30	19(18.4)	17.53
31-40	18(17.5)	14.83
41-50	33(32.0)	17.61
51-60	24(23.3)	15.54
61-74	9(8.7)	16.89
Education status		
Primary school	73(70.9)	16.67
High school	16(15.5)	15.29
University	14(13.6)	17.00
Marital status		
Single	83(73.8)	16.39
Married	20(19.4)	17.30
Occupational status		
Unemployed	77(74.8)	16.79
employee	26(1.0)	15.14

Table 2: Association of psychiatric condition with fear level using Pearson correlation analysis (n=103).

Variables	Mean	S.D.	FCoV-19S	Positive Symptoms	Negative Symptoms	General psychopatholoy	PANSS total
FCoV-19S	16.56	5.86	1				
Positive Symptoms	13.75	3.81	.025*	1			
Negative Symptoms	19.50	3.74	.030*	.379**	1		
General psychopatholoy	36.04	5.76	.184	.517**	.648**	1	
PANSS total	69,27	11,10	.096	.740**	.804**	.915**	1

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Table 3: Association of psychiatric symptoms with fear level using linear regression analysis (n=103).

Variables	$R^2_{adjusted}$	*β*	T	p	Ratio %95 CI
Positive		-.45	-4.26	0.000**	-1.01-(-0.37)
Negative	0.174	0.18	1.57	0.119	-0.07-0.66
General psychopathology		.30	2.38	0.019*	0.05-0.57

∗ P<0.05

∗∗ P<0.01

Clinical correlates fear of COVID-19 level in patients

The results in Table 2 show that positive symptoms score was significantly negatively associated with FCoV-19S scores (weak correlation, r = -0.22, p <0.05), whereas negative symptoms score was positively associated with the FCoV-19S scores in the bivariate model (weak correlation, r = 0.19 p <0.05). In addition, no significant association was found between the general psychopathology and PANSS total score and the FCoV-19S scores of the participants (Table 2).

Multivariate linear regression analysis was performed to predict the COVID-19 fear variable using positive symptoms, negative symptoms, and general psychopathology variables. As a result of the analysis, it was found that a significant regression model F (3.99) = 8.16, p <0.001, and 17% of the variance in the dependent variable ($R^2_{adjusted}$ = .17) were explained by the independent variables. Accordingly, positive symptoms which are an independent variable predict the dependent variable negatively and significantly. β = -.45, t (99) = -4.26, p <0.001, pr^2 =.15. Additionally, the independent variable, general psychopathology, predicts the dependent variable positively and significantly. β = .30, t (99) = 2.38, p <0.05, pr^2 =.05. No significant findings were noted for negative symptoms (Table 3).

DISCUSSION

The relationship between fear of COVID-19 and psychiatric symptoms has been demonstrated in this study. To our knowledge, this is the first study on this subject

One of the findings of our study is that positive symptoms predict the dependent variable negatively and significantly. In other words, patients with higher positive symptoms had lower fear of COVID-19. This finding suggests that high positive symptoms may be associated with ignoring stressors, as stated in some studies (Lysaker et al., 2005). In addition, it has been stated in some studies that positive symptoms are related to the distortion of reality and disorganization dimensions and that these dimensions are related to social cognition and emotional deficiencies. (Ventura et al. 2010) Although there is no study conducted with patients with schizophrenia, a study conducted in a normal population found a positive correlation with fear of COVID-19 and experiences of paranoia and hallucinations (Ahorsu et al., 2020; Lopes et al., 2020). It will be useful to investigate the relationship between all dimensions of positive symptoms and fear of COVID-19 in future research.

Negative symptoms such as social isolation, decreased motivation, emotional withdrawal, and difficulty in establishing relationships are the most important indicators of functionality and prognosis in patients with schizophrenia (Correll and Schooler, 2020; Tso et al., 2010). Typically, individuals with schizophrenia, on average, have smaller and poorer-quality social networks compared to the general population (Degnan et al., 2018). Fears of contracting COVID-19, social isolation, imagining and coming up with catastrophic scenarios, boredom and loneliness, fear, anger and anxiety could all come together and have a particularly negative impact on individuals with schizophrenia. These emotional and behavioral responses may worsen negative symptoms in patients with schizophrenia.

Another important finding of our analysis is that negative symptoms are positively correlated with fear of COVID-19. One study reported that severity of negative symptoms is inversely related to recognition of fear (Yildirim et al., 2018). Sensitivity to negative stimuli and increased emotional responsiveness may increase negative symptoms such as social withdrawal and vice versa. More research is needed to learn exact associations between negative symptoms and fear of COVID-19 and such research will also contribute to improving strategies for both this pandemic and future pandemics.

According to another result of our study, general psychopathology symptoms predict the dependent variable positively and significantly. In other words, patients with high general symptoms of psychopathology have a higher fear of COVID-19. One study suggests that depression, one of the symptoms of general psychopathology, is associated with the fear of COVID-19 (Rodríguez-Hidalgo et al., 2020). Additionally, there are studies suggesting that general psychopathology symptoms such as depression, guilt feelings, anxiety or tension mediate

the relationship between life event burden and expression of psychotic symptomatology. (Betz et al., 2020) We think that determining possible relationships between fear of COVID-19 and general psychopathology and other psychotic symptoms may be beneficial for the management of patients with schizophrenia in this pandemic.

CONCLUSION

The association between psychiatric symptoms and the fear of COVID-19 has been demonstrated in this study. The fear of covid-19 was low in schizophrenic patients and was associated with positive and negative symptoms. A low level of COVID-19 fear may bring about problems in terms of both ignoring the disease and following the protective measures. We recommend that this issue be investigated in future studies. In addition, a high level of fear may lead to worsening of pre-existing psychiatric symptoms. Therefore, health professionals, healthcare authorities and primary healthcare providers should provide extra attention and support to prevent COVID-19 infection among individuals with schizophrenia and should detect psychiatric, physical and emotional symptoms as early as possible. Additionally, studies related to pandemic management for the general population may not be adequately followed up by schizophrenia patients due to access opportunities and intelligibility issues. Therefore, we believe that it would be useful to give special psychoeducation to people with schizophrenia in such life-threatening situations.

It is one of the positive aspects of our study in terms of being a special group that has been forgotten or overlooked in the COVID-19 pandemic. In addition, another strength of the interview is that it was conducted face-to-face by paying attention to infection rules. In addition to the study data with face-to-face interviews, it contributed to our understanding of knowledge, attitudes and behaviors towards the pandemic process and to the planning of various intervention methods, especially psychoeducation.

Limitations

There are some limitations in the present study. The study is a single-centered study. This makes it difficult to generalize the study. We had no control grup. Comparative studies with the control group will provide data that are more reliable. Another limitation of our study is that individuals and/or family members may have a history of comorbid diseases such as diyabetes mellitus, hipertension, and their history of COVID-19 may be associated with fear of COVID-19.

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Conflict of Interests

The authors declare that there is no conflict of interests.

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