

# The Impact of the COVID-19 Pandemic in Schizophrenia Patients Registered with the Community Mental Health Center

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## ABSTRACT

**Objective:** The aim was to examine the effect of the COVID-19 pandemic on schizophrenia patients registered at the Community Mental Health Center (CMHC) in terms of depression, suicide risk, and tendency to violence.

**Methods:** The study was conducted on patients registered at the CMHC who were regularly followed up. It was carried out on one hundred and eight individuals who met the diagnosis of schizophrenia according to the DSM-V and the inclusion criteria. Individuals were respectively classified as hospitalized patient group during the Covid-19 pandemic period (n=39), non-admitted patients with an emergency plan without hospitalization (n=37), and stable patient group (n=32). In the study, the Socio-Demographic Questionnaire, the Calgary Depression Scale for Schizophrenia (CDSS), the Buss-Perry Aggression Questionnaire (BPAQ), and the Suicide Probability Scale (SPS) were used.

**Results:** While there was a significant difference between the groups in CDSS and BPAQ scores ( $p<0.05$ ), there was no significant difference between the groups in the total score of SPS ( $p>0.05$ ). There was no significant difference between the groups in terms of physical, verbal aggression, and anger in the BPAQ sub-dimensions ( $p>0.05$ ), but a significant difference was found in the hostility subgroup ( $p<0.05$ ). While there was no significant difference between the groups in the sub-dimensions of negative self and exhaustion, hostility in the SPS ( $p>0.05$ ), a difference was found between the groups in the sub-dimension of disconnection from life ( $p<0.05$ ). Also, a significant negative correlation was found between education level and CDSS values ( $r: 0.451$ ;  $p: 0.025$ ).

**Conclusion:** In our study, the significant difference found in CDSS and BPAQ total scores of the three groups showed that schizophrenia patients with CMHC follow-up who tend to depression or violence were significantly affected by the pandemic period, and their treatment follow-up was more severe.

## INTRODUCTION

The Covid-19 epidemic, which has become a source of concern worldwide and was announced as a “pandemic”,<sup>[1,2]</sup> makes all health services more difficult to provide, strains their capacity, and keeps people with mental illnesses from getting the psychosocial care they require.<sup>[3]</sup> In addition, studies have stated that the pandemic process may deprive individuals with mental disorders of regular face-to-face rehabilitation, routine psychiatric controls, and even treatment.<sup>[4,5]</sup>

Schizophrenia is a chronic mental health disease characterized by significant deterioration in thought, behavior, adjustment, and functionality.<sup>[6]</sup> It requires lifelong psychosocial support (family, community mental health centers, and

foundations). Although the incidence of Schizophrenia in adults varies between 0.3-1.5%, the lifetime rate of contracting this disease is around 1%.<sup>[6-8]</sup>

Twenty to fifty percent of patients with schizophrenia (PwS) attempt suicide, and it is strongly linked to depression, aggression, and suicide risk.<sup>[7,8]</sup> According to the literature, these suicide instances are explained by severe anxiety at the outset, persistent anxiety along with auditory hallucinations, or severe depression symptoms after a psychotic exacerbation.<sup>[9]</sup> Suicide risk increases and the disease's progression is adversely affected by persistent depression in PwS.<sup>[10,11]</sup> Research indicates that PwS have a higher propensity for aggression than those with other mental illnesses, and there is a regular correlation between violence and suicide in these individuals.<sup>[12,13]</sup>

Rehabilitation treatments are acknowledged to be highly necessary for PwS because of their poor physical health, socioeconomic difficulties, and social disintegration.<sup>[14]</sup> Community Mental Health Centers (CMHC) are designed to assist local residents who suffer from severe mental diseases and comprise a multidisciplinary team of specialists that includes social workers, counselors, psychologists, psychiatrists, and others.<sup>[14-16]</sup> Due to the stress of the COVID-19 pandemic and the limitations in face-to-face rehabilitation services, both the participation in rehabilitation programs at CMHC and the content of the programs had to be restricted.<sup>[17,18]</sup>

Regarding depression, aggression, or suicide risk, no research has been done in the literature on PwS in CMHC during the COVID-19 pandemic. Consequently, the aim of our study was to investigate the effects of the COVID-19 pandemic on depression, suicidal ideation, and violent tendencies in PwS who were registered with the CMHC.

## MATERIALS AND METHODS

This study was carried out on PwS registered at the CMHC and followed up regularly. The study included 108 individuals who were diagnosed with schizophrenia by a psychiatrist and met the inclusion criteria in view of the DSM-V (American Psychiatric Association, 2013). Participants in the study who gave written consent were divided into three groups: those hospitalized during the COVID-19 pandemic (n=39), those not admitted but had an emergency action plan (n=37), and those who were stable and had no emergency action plan (n=32). The inclusion criteria for the study were as follows: being 18-65 years old, receiving CMHC services, having had a schizophrenia diagnosis for at least two years, not experiencing symptoms of the disease, not having an organic mental disorder, not having another psychiatric illness, and being literate to be considered for the study. Individuals with cognitive and physical dysfunction, mental retardation, and a variety of psychiatric diseases were excluded from the study, as were those who refused to participate.

Ethical committee approval for the study was acquired from the Ethics Committee Presidency with decision number 514/194/41 on 27/01/2021.

### Measurement and Evaluation Tools

The clinical and sociodemographic information of the patients was collected by an experienced psychiatrist who conducted the study before the psychiatric interview. Clinical assessments were made using the Calgary Depression Scale for Schizophrenia (CDSS), the Buss-Perry Aggression Questionnaire (BPAQ), and the Suicide Probability Scale (SPS). The scales are explained in detail below.

Calgary Depression Scale for Schizophrenia (CDSS): Ad-dington et al.<sup>[19]</sup> (1994) created it to assess the depression situation and the severity of depressive symptoms in schizophrenia patients. The depression scale involves nine items that are responded to on a four-point Likert scale.

Oksay et al.<sup>[20]</sup> (2000) investigated the scale's validity and reliability among Turkish schizophrenia patients. Cronbach's alpha coefficient was 0.88 in the reliability study. As a result, the scale's cutoff point was set at 11.

Buss-Perry Aggression Questionnaire (BPAQ): The scale, adapted from Buss and Perry's (1992) Buss-Durkee Hostility Inventory, includes 29 items and five-point Likert types.<sup>[21]</sup> This scale involves questions of physical and verbal aggression, hostility, and anger. On the scale, questions 9 and 16 are scored in reverse order. The scale's score value varies in direct proportion to the level of aggression. That is, the higher the score, the more aggressive the person is. The physical aggression subscale has a Cronbach Alpha internal consistency coefficient of 0.89, the verbal aggression subscale has a Cronbach Alpha internal consistency coefficient of 0.72, the hostility subscale has a Cronbach Alpha internal consistency coefficient of 0.77, and the anger subscale has a Cronbach Alpha internal consistency coefficient of 0.83.<sup>[22]</sup>

Suicide Probability Scale (SPS): Cull & Gill (1989)<sup>[23]</sup> developed the SPS to assess the risk of suicide in adolescents and adults. Atli et al.<sup>[24]</sup> investigated the scale's Turkish validity and reliability (2009). The 36-item scale is graded on a four-point Likert scale of "never or rarely," "sometimes," "often," and "often or always".

### Statistical Analysis

SPSS 25.0 package program was used for data analysis. Sociodemographic and clinical characteristics of individuals were calculated as frequencies and percentages for categorical data using descriptive statistical methods. Numerical data are expressed as mean  $\pm$  standard deviation or median (minimum-maximum) values. To find out whether there was a difference between groups in categorical variables, the Chi-square or Fisher Exact Test was used. The normality distribution of numerical data was assessed using the Shapiro-Wilk test. In triplet groups, the One-Way ANOVA test was used to analyze normally distributed data, and the Levene test determined the homogeneity of variances. In Post-hoc comparisons, Tukey and Fisher's Least Significant Difference tests were used after the variances were found to show homogeneous distribution. Finally, the Kruskal-Wallis test compared three groups of variables that did not show normal distribution. The relationship between the data was evaluated at the Spearman statistical significance  $p < 0.05$  level.

## RESULTS

### Sociodemographic Characteristics

The mean age of the 108 individuals comprised in the study was  $44.36 \pm 7.92$ . 41.7% were female, and 58.3% were male. 61.1% were single, 22.2% were married, and 16.7% were divorced. Demographic information belonging to the sample groups is given in Table 1. No significant difference was found between all groups in terms of age, gender, duration of education, the total number of hospitalizations,

**Table 1.** Characteristics of the demographic variables of the participants

	Hospitalized Patients		Non-Admitted Patients with an Emergency Plan		Stable Patients		p
	n	%	n	%	n	%	
<b>Gender</b>							
Female	16	%41.00	13	%35.10	18	%56.30	0.480
Male	23	%59.00	24	%64.90	14	%43.80	
<b>Marital Status</b>							
Single	24	%66.70	21	%62.20	21	%62.50	0.000*
Married	9	%17.90	9	%21.60	6	%18.80	
Divorced	6	%15.40	6	%16.20	6	%18.80	
<b>Income status</b>							
Lower level	9	%23.10	9	%16.20	3	%9.40	0.000*
Intermediate level	30	%76.90	27	%83.80	30	%90.60	
<b>Family structure</b>							
Core	10	%38.50	6	%16.20	3	%9.40	0.000*
Extended	24	%61.50	21	%59.50	27	%81.30	
Broken	0	%0	9	%24.30	3	%9.40	
<b>Social support</b>							
Available	18	%46.20	24	%66.60	12	%37.50	0.000*
None	13	%33.30	6	%18.90	18	%53.10	
Insufficient	8	%20.50	6	%13.50	3	%9.40	
<b>Substance use status</b>							
None	11	%28.20	24	%64.90	9	%28.10	0.000*
Smoking	23	%59.00	9	%24.30	18	%56.30	
Alcohol and smoking	2	%5.10	4	%10.80	2	%9.40	
Psychoactive substance and alcohol	3	%7.70	0	%0	3	%9.40	
<b>Forensic history</b>							
Available	6	%15.40	13	%35.10	6	%18.80	0.000*
None	33	%84.60	24	%64.90	26	%81.30	
<b>Family history of mental illness</b>							
Available	24	%61.50	14	%37.80	20	%62.50	0.441
None	15	%38.50	23	%62.20	12	%37.50	
<b>Involuntary Hospitalization</b>							
Available	20	%51.30	14	%37.80	9	%28.10	0.034*
None	19	%48.70	23	%62.20	24	%71.90	
<b>Suicide status</b>							
Available	9	%23.10	6	%16.20	6	%18.80	0.000*
None	30	%76.90	31	%83.80	26	%81.30	

\*p&lt;0.05

mean length of hospitalization, several suicides, and age at the final diagnosis and first treatment ( $p>0.05$ ) (Table 2).

Comparison of Depression, Buss-Perry Aggression Questionnaire, and Suicide Probability Scale Scores

In the CDSS and BPAQ, there was a statistically significant difference between the groups ( $p<0.05$ ). It was determined that the significance in CDSS scores was due to stable patients. However, when the BPAQ total score between the groups was examined with the Mann-Whitney U test, it was concluded that this difference was due to hospitalized patients. In contrast, no significant difference

was found between the groups in the total score on the SPS ( $p>0.05$ ) (Table 3).

While there was a significant difference between the groups in the physical, verbal aggression, and anger in the BPAQ sub-dimensions ( $p>0.05$ ), in the hostility subgroup, there was also found a statistically significant difference ( $p<0.05$ ) (Table 4). At the same time, while a statistically significant difference was not found between the groups in the Negative Self and Exhaustion and Hostility sub-dimensions in the Suicide Probability Scale ( $p>0.05$ ), a significant difference was found between the groups in the

**Table 2.** Comparison of clinical characteristics of hospitalized and non-admitted patients with an emergency action plan and stable patients

	Hospitalized Patients	Non-Admitted Patients with an Emergency Plan	Stable Patients	p
	X±SD	X±SD	X±SD	
Age	43.33±7.52	48.54±8.44	40.90±6.45	0.108
Education duration	8.51±4.47	9.41±5.50	7.54±5.53	0.684
Substance use duration	11.92±10.84	7.16±11.20	16.78±11.15	0.003*
Total number of hospitalizations	3.61±3.67	2.64±3.66	1.90±1.27	0.106
Average length of stay (days)	17.25±13.52	18.51±23.54	25.40±33.29	0.379
Number of Suicides	0.61±1.16	0.37±0.89	0.46±1.01	0.380
Age at first treatment with final diagnosis	29.35±10.01	32.40±12.73	25.28±4.19	0.452

Mean and standard deviations were expressed as X±SD; \*p<0.05.

**Table 3.** Comparison of the total scores of CDSS, BPAQ, SPS between the groups of hospitalized and non-admitted patients with an emergency action plan and stable patients

	Hospitalized Patients		Non-Admitted Patients with an Emergency Plan		Stable Patients		p
	X±SD	Median (Min-Max)	X±SD	Median (Min-Max)	X±SD	Median (Min-Max)	
CDSS Total	13.94±7.83	9 (6-27)	12.43±6.61	10 (1-23)	8.90±5.12	9 (1-19)	0.011*
BPAQ Total	64.64±15.89	61 (49-109)	69.94±16.87	66 (42-98)	75.25±15.77	69 (53-99)	0.003*
SPS Total	78.87±18.74	75 (52-114)	76.94±18.27	71 (32-110)	78.18±16.23	77 (52-108)	0.777

Mean and standard deviations were expressed as X±SD, \*p<0.05; CDSS: Calgary Depression Scale in Schizophrenia; BPAQ: Buss-Perry Aggression Questionnaire; SPS: Suicide Probability Scale.

**Table 4.** Comparison of the BPAQ sub-dimensions of hospitalized and non-admitted patients with an emergency action plan and stable patients between groups

	Hospitalized Patients		Non-Admitted Patients with an Emergency Plan		Stable Patients		p
	X±SD	Median (Min-Max)	X±SD	Median (Min-Max)	X±SD	Median (Min-Max)	
Physical Aggression	19.28±9.21	15 (10-45)	17.91±6.31	19 (10-34)	20.25±6.48	18 (13-33)	0.141
Verbal Aggression	12.56±3.03	18 (13-31)	14.35±2.25	25 (10-33)	13.15±3.16	23 (15-36)	0.318
Hostility	19.10±4.78	14 (7-24)	22.33±7.65	17 (8-25)	23.45±6.29	16 (10-34)	0.02*
Anger	15.02±4.57	12 (10-23)	17.50±5.45	14 (11-19)	17.90±7.17	13 (8-19)	0.137

Mean and standard deviations were expressed as X±SD, \*p<0.05, BPAQ: Buss-Perry Aggression Questionnaire.

disconnection from life sub-dimension (p<0.05) (Table 5).

Besides, there was found a statistically significant negative correlation between education level and CDSS values

(r=0.451, p=0.025).

While a statistically significant and high level of positive correlation was found between CDSS and BPAQ scores

**Table 5.** Comparison of the SPS sub-dimension results of hospitalized and non-admitted patients with an emergency action plan and stable patients between groups

	Hospitalized Patients		Non-Admitted Patients with an Emergency Plan		Stable Patients		p
	X±SD	Median (Min-Max)	X±SD	Median (Min-Max)	X±SD	Median (Min-Max)	
	SPS						
Negative self and exhaustion	28.30±9.24	27 (16-45)	28.56±7.43	25 (14-45)	27.87±4.27	28 (20-34)	0.750
Detachment from life	20.51±3.98	19 (14-30)	20.43±3.75	19 (11-29)	17.78±4.43	17 (11-24)	0.015*
Hostility	15.02±4.57	13 (8-26)	15.00±4.53	14 (9-25)	14.62±4.17	14 (10-25)	0.143

Mean and standard deviations were expressed as X ± SD, \*p<0.05.

**Table 6.** The relationship between SPS sub-dimension scores and CDSS scores

	SPS					
	Negative self and exhaustion		Detachment from life		Hostility	
	r	p	r	p	r	p
CDSS	0,488**	0,00***	0,244*	0,11***	0,550**	0,00***

\* The correlation is significant at the 0.05 level,\*\* The correlation is significant at the 0.01 level, \*\*\*p<0.05.

(r=0.403, p=0.00), the same result was found between sub-dimensions of BPAQ negative self and exhaustion, fear of commitment to life and hostility, and CDSS scores (respectively r=0.488, p=0.00; r=0.244, p=0.00; r=0.550, p=0.00) (Table 6).

## DISCUSSION

The current study found a statistically significant difference in terms of the CDSS and BPAQ scores between groups. While stable patients caused this significant difference in the CDSS score, hospitalized patients had higher CDSS scores. In terms of BPAQ hostility sub-dimension and SPS sub-dimension of disengagement from life, a statistically significant difference was found.

It is known that suicidal behavior is a common clinical situation in PwS<sup>[25,26]</sup> In the literature, in a study conducted by Devci et al.<sup>[27]</sup> (2008), it was determined that depression with schizophrenia comorbidity increases the risk of suicide. In another study conducted by Atmaca (2016), a positive correlation was found between hostility and disconnection from life, the sub-dimensions of SARS and CDSS. A negative correlation was found between negative self and exhaustion and CDSS. In our study, on the other hand, there was a high level of positive correlation between the hostility, disconnection from life, negative self, and exhaustion sub-dimensions of SARS and CDSS scores.<sup>[28]</sup> Furthermore, current literature proposed that aggressive behaviors increase the risk of suicide and depression

in PwS. A high positive correlation was found between BPAQ and CDSS, and SPS in this study.<sup>[29]</sup>

Recent literature implies the frequency of exposure to depression decreases when the education level of patients with schizophrenia increases.<sup>[30-32]</sup> However, the present study found a negative correlation between PwS with a high level of education and CDSS scores. This may be because educated individuals have better access to written and visual communication tools and accurate information than individuals with low education levels.

As a result, it is known that PwS have to continue their lives in a more isolated way, especially due to the restriction and disruption of CMHC functioning and rehabilitation during the COVID-19 pandemic period. In our study, the CDSS and BPAQ total scores of the patient groups who were hospitalized or not hospitalized during the COVID-19 pandemic period but required emergency intervention were statistically significant compared to the stable follow-up patients. This shows that PwS who are prone to depression or violence with CMHC follow-up are significantly affected by the pandemic period, and that treatment follow-up is more important.

The application of the evaluations used in the study only to PwS during the COVID-19 pandemic is seen as a limitation of the study. Since this study was cross-sectional during the COVID-19 pandemic period, in order to determine whether the schizophrenia patients' susceptibility to violence and depression, as stated in the literature, is entirely due to the COVID-19 pandemic period, evaluating

and comparing them in the same patient group after the pandemic period is over. Rehabilitations have returned to their former state, and functioning may increase the reliability of the study. We suppose that our study will guide other studies on this subject.

## Conclusion

As far as we know, this is the first study to see how the COVID-19 pandemic affected PwS at the CMHC in terms of depression, suicide risk, and violent tendencies. Our study may guide the literature on this topic.

## Ethics Committee Approval

This study approved by the Kartal Dr. Lütfi Kırdar City Hospital Ethics Committee (Date: 27.01.2021, Decision No: 514/194/41).

## Informed Consent

Retrospective study.

## Peer-review

Externally peer-reviewed.

## Authorship Contributions

Concept: İ.K.; Design: İ.K., E.A.K.; Supervision: İ.K., E.A.K.; Materials: İ.K.; Data: İ.K.; Analysis: İ.K., E.A.K.; Literature search: İ.K., E.A.K.; Writing: İ.K., E.A.K.; Critical revision: İ.K., E.A.K.

## Conflict of Interest

None declared.

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## COVID-19 Pandemisinin Toplum Ruh Sağlığı Merkezi'ne Kayıtlı Şizofreni Hastaları Üzerindeki Etkisi

**Amaç:** COVID-19 pandemisinin Toplum Ruh Sağlığı Merkezi'ne kayıtlı şizofreni hastaları üzerindeki etkisinin depresyon, intihar riski ve şiddete meyil açısından incelenmesi amaçlanmıştır.

**Gereç ve Yöntem:** Çalışma Toplum Ruh Sağlığı Merkezi'ne (TRSM) kayıtlı ve düzenli olarak takibi yapılan hastalar üzerinde yapılmıştır. Çalışmaya DSM-V (American Psychiatric Association 2013)'e göre şizofreni tanısını karşılayan ve dahil edilme kriterlerine uyan yüz sekiz birey üzerinde gerçekleştirilmiştir. Çalışmaya katılmaya yazılı olarak onam veren bireyler sırasıyla Covid-19 pandemi döneminde hastane yatışı gerçekleşen (n=39), hastane yatışı olmayan ancak acil eylem planı yapılan (n=37) ve yatış veya acil eylem planı yapılmayan stabil hasta (n=32) şeklinde üç gruba ayrılmıştır. 18-65 yaş arasında olan, TRSM'den hizmet alıyor olan, en az iki yıldır şizofreni tanısı almış olan, hastalığın aktif döneminde olmayan, organik mental bozukluğu olmayan, ek psikiyatrik hastalığın olmayan, okur-yazar olan bireyler çalışmaya dahil edilmiştir. Çalışmada hastaların klinik ve sosyodemografik bilgilerini içeren anket, Calgary Şizofrenide Depresyon Ölçeği (ÇŞDÖ), Buss-perry Saldırganlık Ölçeği (BPSÖ) ve İntihar Olasılığı Ölçeği (İÖÖ) kullanılmıştır.

**Bulgular:** ÇŞDÖ ve BPSÖ skorlarında gruplar arasında istatistiksel açıdan anlamlı fark bulunurken ( $p<0.05$ ), İÖÖ toplam skorunda ise gruplar arasında anlamlı bir fark olmadığı saptanmıştır ( $p>0.05$ ). BPSÖ alt boyutlarda fiziksel, sözel saldırganlık ve öfke açısından gruplar arasında anlamlı bir farklılık bulunmazken ( $p>0.05$ ), düşmanlık alt grubunda ise istatistiksel açıdan anlamlı bir farklılık saptanmıştır ( $p<0.05$ ). İÖÖ'nde Olumsuz benlik ve tükenme, düşmanlık alt boyutlarında gruplar arasında istatistiksel açıdan anlamlı bir fark bulunmaz iken ( $p>0.05$ ), hayata bağlılıktan kopma alt boyutunda ise gruplar arasında anlamlı bir farklılık bulunmuştur ( $p<0.05$ ). Eğitim düzeyi ve ÇŞDÖ değerleri arasında istatistiksel açıdan anlamlı negatif yönde korelasyon saptanmıştır: ( $r: 0,451$   $p: 0.025$ ).

**Sonuç:** Çalışmamızda Covid-19 pandemi döneminde yatış yapan veya yatış yapmayan ama acil müdahale gerektiren hasta gruplarının stabil takipli hastalara göre ÇŞDÖ ve BPSÖ toplam skorlarının istatistiksel açıdan anlamlı bulunmasının TRSM takipli depresyona veya şiddete meyilli olan şizofreni hastalarının pandemi döneminden önemli derecede etkilendiklerini ve tedavi takiplerinin daha önem arz ettiği sonucunu göstermektedir.

**Anahtar Sözcükler:** COVID-19 pandemisi; toplum ruh sağlığı merkezi; şizofreni hastalığı.