

Research Article

Psychiatric conditions and delirium in hospitalized patients with COVID-19 during the pandemic

COVID-19 pandemisinde yatan hastaların psikiyatrik durumları ve deliryum yaygınlığı

 Hülya Ertekin^a,  Erdem Kettaş^b,  Şükrü Alperen Korkmaz^a

^a Department of Psychiatry, Faculty of Medicine, Çanakkale Onsekiz Mart University, Çanakkale, Türkiye

^b Department of Psychiatry, Bursa Yüksek İhtisas Training and Research Hospital, University of Health Sciences, Bursa, Türkiye

Abstract

Introduction: This study aimed to examine the patients who were consulted to psychiatry while receiving inpatient treatment due to COVID-19 infection based on sociodemographic data, medical history, diagnoses and treatments.

Methods: This is a retrospective study in which the consultations were retrospectively reviewed using information obtained from electronic medical records. The consultant psychiatrists created a structured data collection form to evaluate the clinical and demographic features of the patients.

Results: Ninety-nine of the psychiatry consultation results of patients were evaluated. The mean age of patients was 64.48 ± 18.82 . The most common medical diagnoses are hypertension ($n=32$, 32.3%) and heart disease ($n=21$, 21.1%). The most common reason for consultation was agitation ($n=27$, 27.2%), and the most common diagnosis was delirium ($n=25$, 25.2%) and anxiety disorders ($n=23$, 23.2%). Increasing age, presence of hypertension and diabetes mellitus, and oxygen inhalation therapy were factors affecting the diagnosis of delirium. In contrast, the presence of heart disease or diabetes mellitus increased the risk of anxiety disorder, and antipsychotic use decreased this risk.

Conclusion: It has been revealed that inpatients with COVID-19 were at risk of psychiatric disorders, especially delirium and anxiety disorders. Psychiatric conditions may notably influence the prognosis and treatment of COVID-19.

Keywords: COVID-19, delirium, pandemic, psychiatric consultations

Öz


Giriş: Bu çalışmada, COVID-19 enfeksiyonu nedeniyle yatarak tedavi görürken psikiyatriye konsülte edilen hastaların sosyodemografik verileri, tıbbi öyküsü, tanıları ve tedavileri temelinde incelenmesi amaçlanmıştır.

Yöntem: Bu çalışma, elektronik tıbbi kayıtlardan elde edilen bilgiler kullanılarak konsültasyonların geriye dönük olarak incelendiği retrospektif bir çalışmadır. Konsültan psikiyatristler hastaların klinik ve demografik özelliklerini değerlendirmek için yapılandırılmış bir veri toplama formu oluşturdu.

Bulgular: Doksan dokuz hastanın psikiyatri konsültasyon sonuçları değerlendirildi. Hastaların yaş ortalaması 64.48 ± 18.82 idi. En sık konulan tıbbi tanımlar hipertansiyon ($n=32$, %32,3) ve kalp hastalığıdır ($n=21$, %21,1). En sık konsültasyon nedeni ajitasyon ($n=27$, %27,2), en sık tanı ise deliryum ($n=25$, %25,2) ve anksiyete bozukluklarıdır ($n=23$, %23,2). Artan yaş, hipertansiyon ve diyabetes mellitus varlığı ve oksijen inhalasyon tedavisi deliryum tanısını etkileyen faktörler olurken, kalp hastalığı veya diyabetes mellitus varlığı anksiyete bozukluğu riskini artırdı ve antipsikotik kullanımı bu riski azalttı.

Sonuç: Yatan COVID-19 hastalarının deliryum ve anksiyete bozuklukları başta olmak üzere psikiyatrik bozukluklar açısından risk altında olduğu söylenebilir. Psikiyatrik durumlar, COVID-19'un prognozunu ve tedavisini etkilemede önemli olabilir.

Anahtar kelimeler: COVID-19, deliryum, pandemi, psikiyatri konsültasyonları

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December 13, 2023	July 30, 2024	July 31, 2024	Hülya Ertekin	md.ertekin@gmail.com
Correspondence	Dr. Hülya Ertekin, Terzioğlu Kampüsü, Araştırma Hastanesi B Blok 5.kat Merkez/Çanakkale, Türkiye			
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Key Points

1. Symptoms of mental disorders are prevalent in inpatients with COVID-19.
2. Delirium is commonly diagnosed in inpatients with COVID-19.
3. Medical comorbidities increase the risk of mental disorders in those diagnosed with COVID-19.
4. Patients should be carefully examined for mental symptoms and delirium in future epidemics or pandemics.

Introduction

Current evidence shows that the Coronavirus Disease 2019 (COVID-19) has developed a burden of mental disorders (1). This fast-spreading and potentially deadly infection has seriously threatened public health and caused profound changes in health systems worldwide. Many factors, such as the severe effects of COVID-19 that may result in death, uncertainty associated with the outcome of the disease, the measures taken to prevent the rapid spread of the virus during the pandemic, social isolation, and economic problems have negatively affected the mental health of the society (2). On the other hand, direct infiltration of the virus into the central nervous system, increase in cytokine levels, and side effects of the drugs used in treatment may also cause the development of these psychiatric manifestations (3).

When psychiatric conditions that emerged throughout the pandemic were evaluated, fear of death, anxiety, depression and sleep problems were more common in outpatients with COVID-19 (4-7). It was essential to detect delirium in inpatients, especially in those with severe COVID-19 symptoms, and sleep disorders, depression, fluctuations in consciousness and anxiety/fear of death were identified as frequent reasons for psychiatric consultations. (4-6, 8). Severe social isolation, the presence of respiratory problems, comorbid medical diseases, drugs used in the treatment, post-COVID fatigue, and advanced age have revealed the need for psychiatric consultations in these patients in hospitalized COVID-19 cases (9-11).

Psychiatric interventions may positively affect patients' COVID-19 treatment response, prognosis, number of hospitalizations, and post-treatment mental state. In addition, it can guide on the precautions and treatments that should be taken in similar pandemic processes that may occur in the future (12).

This study aimed to evaluate patients hospitalized due to COVID-19 who required psychiatric consultations regarding sociodemographic data, medical history, preliminary diagnosis, and treatment recommendations. It also aimed to determine the variables affecting the mental disorder diagnosed with psychiatric consultation.

Methods

This retrospective study showed that the hospitalized COVID-19 cases received consultations from the psychiatry department during the COVID-19 pandemic in Çanakkale Onsekiz Mart University Training and Research Hospital between March 2020 and July 2022.

Ethical approval

Ethical approval was obtained from the Non-Interventional Clinical Trials Ethics Committee of Çanakkale Onsekiz Mart University's Faculty of Medicine (IRB No. 2022/13-18, 03.11.2022), and permission was obtained from the Republic of Turkey Ministry of Health for the study.

Inclusion Criteria:

1. Over 18-years-old
2. Those who have a positive COVID-19 PCR test,
3. All patients who underwent psychiatric consultation for mental symptoms were included.

Exclusion Criteria:

1. Not diagnosed with COVID-19
2. Patients with missing data

Data Collection

The consultations were retrospectively reviewed using information obtained from medical files and medical electronic records. Consultant psychiatrists created a structured data collection form to evaluate the clinical and demographic features of the patients.

The following data was recorded from the electronic medical records.

1. Consultation requested date
2. Sociodemographic data (age, gender, etc.)
3. Smoking/alcohol/substance use history
4. Length of hospital stay
5. Whether they are treated with oxygen Inhalation therapy or not
6. Whether they were in the intensive care unit.
7. Psychiatric symptom(s) specified in the consultation request
8. Comorbid mental and physical disorders
9. Post-interview psychiatric diagnosis
10. Previously used psychotropic drugs
11. Planned and/or used treatments

Statistical analysis

Statistical analyses were performed using SPSS 26.0 (IBM Corporation) software. The significance level was set at $\alpha=0.05$; all tests were 2-tailed. A skewness, kurtosis and histogram plot were checked after each variable was tested for normality of data distribution. Continuous variables were reported as means \pm standard deviations (SD). Categorical variables are reported as frequencies and percentages. Differences in sociodemographic and clinical characteristics between the two groups were also compared using the chi-square test, Student's t-test, or Mann-Whitney U test, where

appropriate. Binary logistic regression analysis with a stepwise method examined the relationship between clinical variables and diagnoses after consultation.

Results

112 of 2274 psychiatric consultation requests were from patients diagnosed with COVID-19. Consultation request notes and answers, doctors' follow-up notes and medication application pages of patients who received inpatient treatment in COVID-19 inpatient clinics were accessed. The data from 13 patients' records were excluded from the study because they were insufficient, and the findings of 99 patients were recorded (Figure 1).

A psychiatric consultation was requested for 47 patients in the year 2020, 32 patients in the year 2021 and 20 patients in the year 2022. The most common medical diagnoses are hypertension (n=32, 32.3%), heart diseases (n=21, 21.1%), diabetes mellitus (n=19, 19.2%) and cancer (n=13, 13.1%), respectively. Patients had a mean number of medical diseases of 1.35 (SD:1.3); 30 patients had no history of concomitant medical diseases. Forty-eight (48.5%) of all patients were using psychotropic drugs before admission. Antipsychotics were the most common (n=36), followed by antidepressants (n=32) and mood stabilizers (n=15). Women used antidepressants at a higher rate than men (p=0.005). In addition, male patients had a history of tobacco and alcohol use disorders more than female patients (all p <0.05).

Figure 1. Patients flow diagram

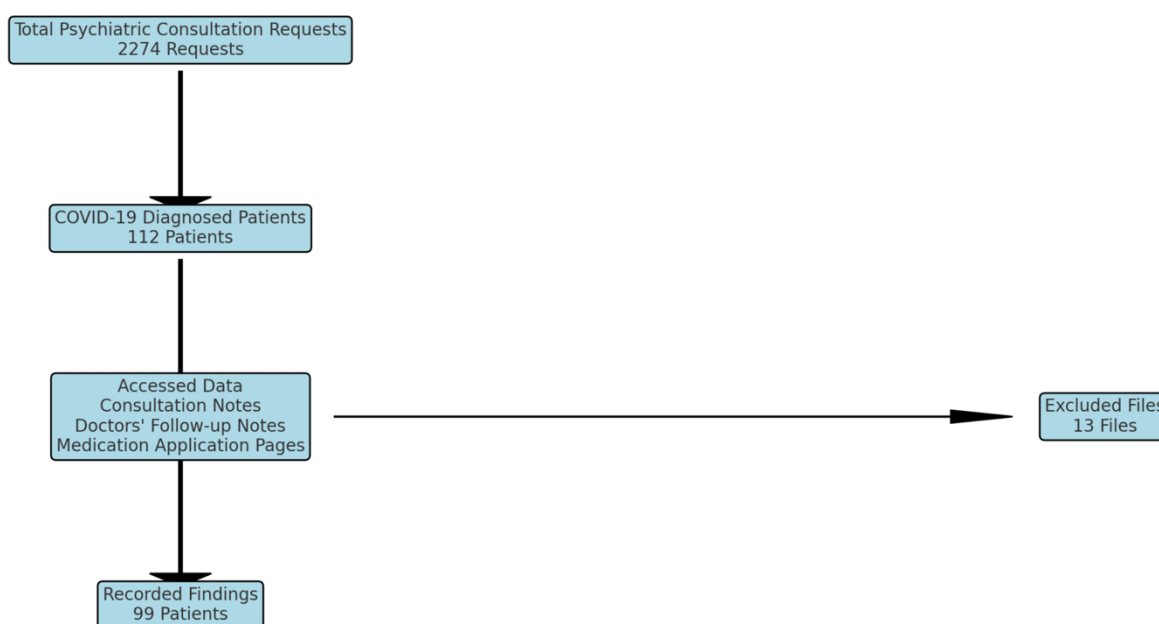


Table 1. Demographic and clinical variables of the patients consulted

Variables	Male (n=57, 57.6%)	Female (n=42, 42.4%)	Statistics	p-value
Age (yr)	64.63 ± 19.19	64.29 ± 18.68	0.09	0.929
Number of consultations by years				
2020	24	23	3.33	0.190
2021	18	14		
2022	15	5		
Marital Status (married)	28 (49.1%)	17 (40.5%)	0.73	0.393
Presence of any medical illness	41 (71.9%)	28 (66.7%)	0.28	0.597
Treatment Unit				
Inpatient unit	48 (84.2%)	40 (95.2%)	6.16	0.104
Intensive care unit	6 (10.5%)	2 (4.8%)		
Emergency room	3 (5.3%)	-		
Receiving oxygen inhalation therapy	26 (45.6%)	18 (42.9%)	0.07	0.785
Active psychiatric medications	23 (40.4%)	25 (59.5%)	3.56	0.059
Antidepressants	12 (21.1%)	20 (47.6%)	7.80	0.005
Antipsychotics	20 (35.1%)	16 (38.1%)	0.09	0.759
Mood-stabilizers	6 (10.5%)	9 (21.4%)	2.24	0.135
Addictions				
Smoking	39 (31.6%)	9 (21.4%)	21.38	< 0.001
Alcohol	29 (50.9%)	12 (28.6%)	4.96	0.026

The most common reasons for consultation were agitation (27.2%) and insomnia (15.2%), respectively. Anxiety or fear of death and adjusting the doses of the medications they were taking were also frequent reasons for consultation. The most common diagnoses were delirium and anxiety disorders, respectively. Delirium was detected in one of four patients. It was observed that antipsychotic treatments were the most frequently recommended treatment, especially haloperidol and quetiapine were often suggested. Escitalopram and lorazepam were most commonly recommended as antidepressant or benzodiazepine treatments. No medication was recommended for 16% of the patients.

Binary logistic regression analysis with a stepwise method was used to examine the relationship between delirium or anxiety diagnoses and clinical variables. Regression analysis identified age, having hypertension and diabetes mellitus, and receiving oxygen inhalation therapy as influencing factors for diagnosing delirium. Furthermore, the presence of heart disease or diabetes mellitus increased the risk of anxiety disorders, whereas taking antipsychotics decreased this risk.

Table 2. Reasons for psychiatric consultations

Symptoms leading to counseling	n (%)
Agitation	27 (27.2)
Insomnia	15 (15.2)
Anxiety/fear of death	12 (12.1)
Adjustment of the current treatment	12 (12.1)
Depressive symptoms	10 (10.1)
Somatic complaints	10 (10.1)
Treatment refusal of COVID-19	7 (7)
Consciousness/Disorientation	6 (6)

Table 3. Diagnoses and Recommended Treatments

Diagnoses	n (%)
Delirium	25 (25.2)
Anxiety disorders	23 (23.2)
Recommendations regarding current treatment	15 (15.1)
Major depression	7 (7)
Subthreshold symptoms	12 (12.1)
Recommended treatments	
Quetiapine	26 (26.3)
Haloperidol	23 (23.2)
Escitalopram	15 (15.2)
Lorazepam	9 (9.1)
No medication	16 (16.2)

Table 4. Regression model of factors predicting delirium.

Variables	B	OR (95% CI)	p-value
Age	0.14	1.15 (1.08-1.23)	< 0.001
Hypertension	1.90	6.7 (1.47-30.46)	0.014
Diabetes mellitus	1.78	5.95 (1.24-28.7)	0.026
Receiving oxygen therapy	1.95	7.03 (1.5-32.66)	0.013

Note. OR: Odds ratio.

Table 5. Regression model of factors predicting anxiety disorders

Variables	B	OR (95% CI)	p-value
Heart Diseases	1.50	4.47 (1.38-14.52)	0.013
Diabetes mellitus	2.64	13.95 (1.57-124.31)	0.018
Being on antipsychotics	-1.32	0.27 (0.08-0.91)	0.035

Note. OR: Odds ratio.

Discussion

This study retrospectively assessed the medical records of patients with COVID-19 who were evaluated with psychiatric consultation during the pandemic. This study is critical in examining psychiatric consultations evaluated at all pandemic stages.

In our study, when the number of consultations requested by year was evaluated, it was determined that in 2020, when the most complex pandemic processes were experienced, the least number of evaluations were asked, and the number gradually increased. This may be due to physicians focusing on patients' physical problems and ignoring their psychological distress (13, 14). However, as patients learned about the negative

consequences of COVID-19, the fear of death, anxiety, and depressive symptoms may have resulted in an increased emergence of anxiety and depressive symptoms in the later stages of the pandemic and the need for psychiatric consultations.

Agitation was the most common reason for consultation, consistent with many studies. This result can be explained by the fact that delirium is common in these patients; agitation is an essential symptom of delirium, and clinicians easily detect it. Similar to many studies (15, 16), delirium was the most common diagnosis after psychiatric evaluation.

The uncertainty of the COVID-19-related process and fear of death may be causing perceived stress and anxiety symptoms. Indeed, one of the essential reasons for psychiatric consultation was the anxiety experienced by the patients. Furthermore, advanced age and low oxygen saturation may be other factors to consider when patients are anxious. Our results were consistent with the high anxiety seen in inpatients hospitalized due to COVID-19 or in patients hospitalized for different reasons during the pandemic period, in line with the literature (17, 18). Many people who had COVID-19 during the pandemic experienced sleep problems, anxiety and depressive symptoms (19). These problems continued in many people even after the disease was cured. Anxiety and depressive symptoms were common symptoms in the condition called post-COVID syndrome. It is expected that similar problems will arise in hospitalized patients with COVID-19.

The smoking rate of the patients for whom consultations were requested was higher than the smoking addiction in society. Most of the patients evaluated had alcohol consumption. Information about whether these patients were diagnosed with alcohol use disorder was not available in the system (20, 21). However, depending on the region where the study was conducted, the rate of alcohol consumption may be considered higher than the average population. These may once again emphasize the fact that smoking and alcohol pose risks for both COVID-19 and many psychiatric features.

One of the groups most affected during the pandemic was those with chronic psychiatric disorders (22). Consultations were requested to evaluate the treatments of 12 patients with chronic psychiatric disorders. The interaction of psychiatric drugs with drugs used in the treatment of COVID-19, dose adjustment, and their possible effects on COVID-19 disease remain unresolved problems even currently.

The most commonly used drugs were haloperidol and quetiapine. Considering that delirium is diagnosed most frequently, it is expected that this drug was started. Haloperidol has been used for many years, is effective in treating delirium, and has a well-known drug interactions and side effects profile (23). It can be considered a suitable drug to be used in the delirium of patients with COVID-19. In addition, quetiapine, which is effective in agitation and delirium, can also be used in COVID-19 patients (24).

This study had some limitations. The first is that it was conducted in a single center. Generalizing a process such as the pandemic, which was effective worldwide, is very difficult. Second, a retrospective review of the study findings revealed missing data because some data were incompletely recorded. Third, another limitation is that intensive care patients without COVID-19 were not included as a control group.

Conclusion

In conclusion, it has been revealed that patients hospitalized with COVID-19 are at risk for mental symptoms and delirium, which is frequently encountered in severe infectious diseases, may be an essential problem for these patients. However, in this case, it should be kept in mind that anxiety symptoms are the second most common problem along with respiratory distress, and physicians should be careful about anxiety, as anxiety symptoms may worsen the prognosis of COVID-19. Currently, COVID-19 is a severe disease with many unknowns that negatively affect public health. Early detection and treatment of psychiatric problems in COVID-19 can be an important parameter affecting the prognosis of the disease. In pandemics such as COVID-19 that affect the whole world, not only the physical symptoms of the patients but also their mental symptoms and needs should be taken into consideration. For this, the first thing physicians should do is to suspect mental symptoms and request psychiatric consultations. We believe that when future studies include longitudinal follow-up of patients with mental symptoms due to COVID-19 infection after psychiatric evaluations, the prognosis of these patients regarding their psychological and physical health will be better understood. These results may also provide insights for possible future pandemics.

Conflict of interest: None

Author Contributions		Author Initials
SCD	Study Conception and Design	HE, EK
AD	Acquisition of Data	HE, EK
AID	Analysis and Interpretation of Data	HE, ŞAK
DM	Drafting of Manuscript	HE, ŞAK
CR	Critical Revision	HE, ŞAK

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