

# Psychiatric Morbidity Associated with Severe Acute Respiratory Syndrome Coronavirus 2 Infection in Referrals to a Consultation-liaison Psychiatry Service

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## ABSTRACT

The coronavirus disease 2019 (COVID-19) pandemic in its second wave presented with increase in intensive care unit admissions and along with it referrals to various departments for liaison consultation. We conducted a study of all psychiatric consultation referrals of admitted patients by accessing their data retrospectively. The most common reason for referral being behavioral complaints such as aggression and non-cooperation in older patients and its assessment finding being that of delirium followed by anxiety and mood disorders. Our brief study sheds light on importance of psychiatric screening and modification of management for prevention and early detection of complications like delirium in patients admitted in COVID Block in Indian Tertiary care settings as a part of consultation-liaison psychiatry service.

**Key words:** Psychiatric problems in coronavirus disease, behavioral health, psychiatric problems in coronavirus disease

## BACKGROUND

Coronavirus disease 2019 (COVID-19), which is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has already affected more than 100 million people and caused over 2.2 million deaths worldwide since the first case was confirmed, in Wuhan, China, in late December of 2019 as per the WHO.

Growing evidence suggests that SARS-CoV-2 may also cause neurological and psychiatric symptoms by affecting the brain (Troyer *et al.*, 2020; Varatharaj *et al.*, 2020; Vindegaard and Benros, 2020). These emerging neuropsychiatric manifestations may occur due to the direct effects of the virus on the brain, the indirect immune responses or the medical treatments administered (Rogers *et al.*, 2020). On the other hand, psychiatric disorders developing in the acute period in patients hospitalized for COVID-19 may arise due to concerns about the consequences of the disease (Banerjee, 2020; Xiang *et al.*, 2020), such as social isolation and quarantine (Brooks *et al.*, 2020; Lewnard and Lo, 2020), unemployment, financial difficulties (Chaves *et al.*, 2018), and stigma (Banerjee, 2020).

There is no Indian study on the psychiatric liaison consultation published for patients admitted for

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COVID infection and therefore I wanted to conduct a study on the same.

### **Aims of the Study**

The aim of this study is to review the assessment of patients referred to psychiatrist from COVID ward.

Furthermore, we analyzed the diagnosis, psychosocial background, and response to psychiatric intervention in these patients with respect to their sociodemographic information.

We also studied the association of medical complications, the need for oxygen treatment and mechanical ventilation, and further its association with neuropsychiatric sequelae in patients admitted in COVID-positive unit.

### **METHOD**

It is a record-based retrospective study conducted over a 2-month period in the second wave, March–May 2021. All referral calls for psychiatric consultation in patients admitted in COVID block, comprising COVID-positive and suspected COVID-infected patients, in a tertiary care center in Pune are included in the study.

All these patients referred from the COVID block for bedside psychiatric consultation were assessed in detail for clinical diagnosis as per ICD 10 criteria. The nature of problem and illness as well as the patients psychosocial background were noted. Laboratory investigation findings and appropriate and relevant treatment records were accessed.

Review psychiatric reference calls, their indications for referral and treatment records were also studied. Associated medical comorbidities and history of substance use and withdrawal, comorbid psychiatric illnesses, and treatment history were noted.

### **Inclusion Criteria Were as Follows**

1. Patient being over 18 years of age who were referred for bedside psychiatry consultation;
2. Having a diagnosis of COVID-19 according to the case definition of the WHO (confirmed or probable cases); nasal and pharyngeal swab specimens were collected on admission to the hospital. The diagnosis of COVID-19 was confirmed by reverse transcriptase-polymerase chain reaction assays for SARS-CoV-2 RNA.
3. Having received inpatient treatment in a COVID-19 ward.

### **RESULTS**

A total of 20 patients were assessed during the psychiatric reference of admitted patients, in which we found out that 12 patients were above the age of 50 years and 8 patients were <50 years of age.

#### **Patients Above 50 Years of Age**

The patients above 50 years included 9 males (75%) and 3 females (25%) as Table 1 (patients above 50 years) shows. In above 50 years of age, it was noticed that the most common complaints were irritability and non-cooperativeness during routine clinical procedures (in nine patients out of 12, 75%). Their irritability and non-cooperation were due to a variety of reasons. These included delirium, ongoing stresses, and substance-related disorders. Refer to Tables 2 and 3 for the same.

Five patients had ongoing stressor during admission which includes complications during COVID illness, intensive care unit (ICU) admission, death of family member due to COVID, prolonged isolation, and health issues (not maintaining well on medications). Four patients had 1–2 comorbidities which included diabetes, hypertension, asthma, hemodialysis, and intermittent hemodialysis.

It was found out that none of these 12 patients above 50 years had a prior mental illness.

Substance use was present in seven patients, out of which one patient was chronic alcoholic since 15 years in dependence pattern but he never took any medications for substance use. Medication was given to patient for alcohol withdrawal, but he did not settle on given medication so review call was given again after 3 days. Two patients were diagnosed as a case of delirium out of which in one patient delirium was due to electrolyte disturbances, while the other had delirium due to cerebrovascular accident secondary to hypertension.

One patient had symptoms of panic attack, which was due the COVID-related anxiety and fear of complications as he was above 50 years old. Due to prolonged isolation and due to long ICU stay, patients were often distressed. Four patients out of 12 did not qualify for any psychiatric diagnosis.

One patient had complaints of irritability and was uncooperative due to ICU psychosis.

The patients responded very well to minimal doses of psychotropics prescribed. Low-dose haloperidol (0.5 to 1 mg) was effective in reducing irritability and managing delirium-related behavioral problems.

### Below 50 Years Age

Five males and three females (8 patients) were <50 years of age, out of which three were already on psychiatric treatment. These findings are reflected in Table 4 ( below 50 years of age). Two patients had diagnosis of schizophrenia and one patient had diagnosis of major depressive disorder. Two patients were newly diagnosed as cases of acute transient psychotic disorder. In this age group, common presenting complaint was of sleep disturbances in five patients and low mood in three patients. Unemployment due to lockdown was a common stressor seen in three patients. Two patients were newly diagnosed as a case of mild and moderate depressive episodes and they were called to the outpatient department (OPD) for follow-up. One patient was diagnosed as a case of alcohol dependence syndrome. He was in alcohol withdrawal that led to causing sleep disturbances.

The most common reasons for requesting psychiatric consultation were psychomotor agitation/restlessness, behavioral disturbances, and impairment of sleep. Psychiatric evaluations were performed during their consultations, the patients were diagnosed and treated suitably.

The hospital stays were significantly longer for patients with delirium in comparison to the other psychiatric illnesses. The hospital stays of patients diagnosed with other psychiatric disorders were also

longer than patients who did not seek psychiatric consultations at all. The duration was about 3 weeks for these patients as per indoor data records.

In addition, patients with COVID-19 in ICU who experienced severe delirium were all on invasive mechanical ventilation.

### DISCUSSION

Recent research findings by QuanQiu Wang at Center for Artificial Intelligence in Drug Discovery, USA, published in World Psychiatry 2021 have revealed psychiatric illnesses to be newly occurring in about 2% patients with COVID infections and patients with known psychiatric illness have a higher chance of contracting the infection as well. Study of COVID inpatients by Iqbal *et al.*, 2020, has reported insomnia in 70%, anxiety in 64%, agitation in 50%, depressed mood in 42%, and irritability in 36% in COVID inpatients. This has also been reflected in other studies.

Comparatively, we had very few numbers of patients referred to psychiatry department. The main reason for referral in our setting was irritability and uncooperative behavior.

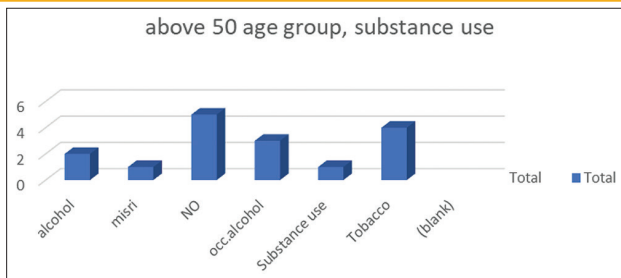
Delirium was one of the most common conditions found to be the underlying cause for this behavior.

While effective pharmacological therapies for the treatment of COVID-19 and its complications like

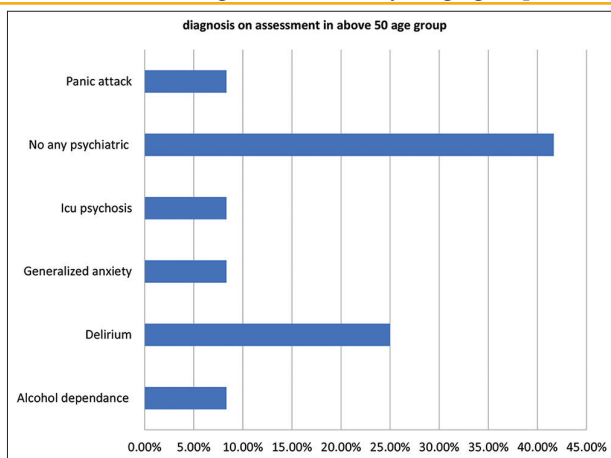
**Table 1:** Data of over 50 years age group

Age	Reason for referral	Perceived Stresses	medical Co morbidity	Provisional psych diagnosis	Treatment advised
70/M	Irritability, on cooperative for procedure	NO	NO	No any psychiatric diagnosis	T. Serenace 0.5mg bd
74/F	Irritability, on cooperative, disoriented	NO	DM, HTN, Haemodialysis	Delirium	T. Serenace 0.5mg bd
50/M	Breathlessness, palpitation, restlessness	Covid complications	NO	Panic attack	T. Zapiz 0.5mg sos
54/M	Irritability, on cooperative	NO	NO	No any psychiatric diagnosis	T. Serenace 0.5mg bd
53/M	Irritability, sleep disturbances	NO	NO	No any psychiatric diagnosis	Inj. Serenace 0.5mg sos
80/M	Irritability, sleep disturbances, non cooperative	NO	NO	No any psychiatric diagnosis	T. Serenace 0.25 mg bd T.Qutan 50 mg 1/2 hs
64/F	Pulling of iv lines, irritability, sleep disturbances	ICU admission	NO	Delirium	T. Haloperidol o.25mg bd T. Haloperidol o.25mg sos
53/F	Excessive worry, restlessness, palpitations	Covid death in family	NO	Generalized anxiety disorder	T. Escitalopram 5mg hs T. Zapiz 0.5mg hs
56/M	Irritability, noncooperative, excessive worrying	NO	NO	No any psychiatric	T.Serenace0.25mg bd
77/M	Irritability, irrelevant talk, fluctuating orientation	Health issues ( not maintaining well on medication)	HTN,CVA	Delirium	Inj. Serenace 2.5mg sos T.Serenace 0.5mg bd
55/M	Irritability, sleep disturbances, decreased appetite, 1 episode of seizure	NO	DM	Alcohol dependance syndrome	Inj. Serenace 25mg sos
65/M	Irrelevant talk, abrupt crying	Prolonged isolation	DM, HTN Asthma, IHD	ICU psychosis	T. Serenace 25mg 1/2 bd

**Table 2:** Substance use above 50 yrs age group



**Table 3:** Diagnosis above 50 yrs age group



delirium are not yet available, our study sheds light on the need to prevent delirium using various modalities of management.<sup>[1]</sup>

The continued use of screening tools for delirium and delirium severity can also provide bedside clinicians with dynamic assessments to measure the impact of interventions in real-time.<sup>[2-4]</sup> As resources shrink in the face of the pandemic and the health-care response disrupts, it is imperative to continue to follow and implement time-tested evidence-based practices. Finally, delirium in critically ill patients has been associated with long-term cognitive decline.<sup>[5,6]</sup> Other studies confirm higher rates of delirium in COVID-19 ICU patients, longitudinal follow-up will be crucial to understand the full impact of COVID-19 and understand the pathophysiology of COVID-19-related delirium. In addition, it has been proposed that COVID-19 may directly infiltrate the central nervous system leading to delirium.<sup>[7-9]</sup>

Individuals with substance use disorders (SUD) form a large proportion of patients seen in most specialized psychiatric settings in India. From a service delivery standpoint, emergency IP admissions for SUD are mostly related to substance intoxication, substance withdrawal or co-occurring SUD, and severe mental illness.<sup>[10]</sup> It is well established that individuals with SUD are at greater risk for developing COVID-19. In

**Table 4:** Data of under 50 years age group

Age/Sex	Reason for referral	Perceived Stresses	Medical Comorbidity	provisional psych. diagnosis	Treatment advised
36/M	Irritability, anger outbursts, Suspiciousness, sleep disturbances	Excessive worry about family's wellbeing and health condition	NO	Acute transient psychotic disorder	T. Risdone 1mg bd, T. Zapiz 0.5 mg hs, Inj. Serenace 1/2 amp sos
28/F	Muttering to self, fearfulness, sleep disturbances	Death of family member due to covid	NO	Acute transient psychotic disorder	T. Riscure 1mg bd T. Zapiz 0.5mg hs
42/M	Easy irritability, tremulousness craving, sleep disturbances	Job loss	NO	Alcohol dependence syndrome	T. Lopez 2 mg tds T.Lopez 2 mg sos
22/F	low mood, sleep disturbances	NO	NO	mild depressive episode Without somatic syndrome	T. Escitalopram 5mg h T. Zapiz 0.25 mg hs
33/M	Sadness of mood, crying spells decreased interaction sleep disturbances	Unemployment	NO	Major depressive disorder	T. Sertraline 25 tds T.Zapiz 0.5mg hs
30/F	Irritability, low mood, PDW repetitive thoughts about, IP issues	IP issues with husband	NO	Moderate Depressive episode without somatic syndrome	T. Serenace 25mg bd T. Risdone 0.5mg T.Zapiz0.25mg hs
31/M	Excessive daytime sleepiness	NO	NO	Paranoid schizophrenia	T. Clozapine 100mg h T. Trifluoperazine 2m T. Divalproex 250 mg hs
41/M	Palpitation, restlessness, fearfulness	Unemployment	NO	Paranoid schizophrenia	T. Risdone forte hs T. Ativan 2mg hs T. Etizo 0.25



our study setting, 11 out of 20 (55%) cases had substance related problems, three of them needed psychiatric treatment.

Elderly patients in COVID wards were found to have physical comorbidity which included cardiovascular disease, hypertension, diabetes, liver disease, lung disease, and chronic kidney disease.

Past psychiatric history was present in only three patients who had taken medication for the same at some point in their lives. The patient with schizophrenia in remission who had mild symptomatic COVID-19 infection and was admitted, reported recurrence of these illness symptoms while admitted, and psychiatric medication dose needed to be adjusted. The patient continues to visit the psychiatry OPD post-discharge from COVID block after 3 weeks and medication is continued.

One patient was diagnosed with major depression as first episode while admitted in COVID-positive ward, she had been caring for her parents, both who were COVID positive for 2 months while managing work and her household responsibilities. The care taker burden is also found in many relatives caring for their many family members, who simultaneously tested positive and are critically ill. The relatives of many patients were given supportive counseling and five even opted to formally consult psychiatric OPD and four out of five were diagnosed with anxiety disorder.

## CONCLUSION

This study sheds light on the need for brief psychiatric screening of all patients admitted in COVID wards by the treating team. A history about substance use such as alcohol and tobacco is very helpful in preventing acute withdrawal after admission and abstinence. The history of admitted patients should include medical as well as psychiatric history, treatment details of psychiatric condition, and family history of psychiatric illness.

Daily assessment of orientation will be important to detect delirium. Furthermore, patients' orientation can be maintained by a big clock and calendar in COVID wards. Informing patient about their own improvement, explaining laboratory reports and treatment plan will help to reduce their anxiety and proneness to panic attacks.

Pharmacological treatment of patients with known psychiatric illness should be continued in COVID wards after consulting psychiatrist. Sleep disturbances also need prompt assessment and management.

This is likely to improve overall treatment outcome.

## Direction of Future Studies

This study focused on psychiatric presentations associated with acute infection. Future studies will be necessary to determine the pattern of psychiatric morbidity months and years after acute infection. Furthermore, this study sheds light on the need for brief psychiatric screening of all patients admitted in COVID wards in the 1<sup>st</sup> week of admission. A simple history about substance use such as alcohol and tobacco is very helpful in preventing acute withdrawal after admission and abstinence. The history of admitted patients should include medical as well as psychiatric history, treatment details of psychiatric condition, and family history of psychiatric illness.

The protocol for prevention of delirium, ABCDE screening and management when followed thoroughly improved patient outcome, and mortality as studied by Pun BT, Balas MC, Barnes-Daly MA, *et al.* Prospective studies using diagnostic instruments are needed to more accurately characterize the psychiatric morbidity associated with SARS-CoV-2, both during and after infection.

High rates of depression,<sup>[11]</sup> anxiety,<sup>[12]</sup> and post-traumatic stress disorder<sup>[13]</sup> are seen in survivors of critical illnesses 1 year later. Some cases may represent chronic disorders that started during or soon after an acute illness whereas others may represent illnesses commencing after a latent period. It is possible that SARS-CoV-2 may also lead to latent neuropsychiatric disorders. This is partly based on the 1918 flu pandemic being suggested as a cause of encephalitis lethargica and subsequent post-encephalitic Parkinsonism.<sup>[14]</sup>

It was found that pre-admission counseling of the patient and relative as well as positive interaction with patients in daily ward rounds, daily assessment of orientation, informing patient about their own improvement, explaining laboratory reports and treatment plan helped not only to prevent delirium but detect it early, and reduce anxiety in patients. All of these strategies and measures improve overall treatment outcome in patients admitted in Covid wards.

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