

## Are Senior Citizens at a Higher Psychological Risk from COVID-19?

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### Abstract

SARS Cov-2 novel coronavirus disease (COVID-19) of 5 types known so far type Beta and Delta and Omicron corona viruses are known as Variants of Concern (VOC) by WHO. They all cause severe acute respiratory syndrome. In 2020 Delta variety was highly infectious and had spread widely around the world. While 471 million people are affected globally and 6.1 million succumbed by 20 March 2022, back home in India and Karnataka 43 million and 3.94 million people infected respectively, and 516516, and 40,000 Individuals respectively have died. Pandemic was feared for respiratory tract infections, pneumonic consolidation as common consequential symptoms and signs leading to oxygen insufficiency and deaths, in the initial months, soon it became evident that any system of the body can be affected. The documented neuropsychiatric symptoms of COVID-19 ranged from mild common symptoms like Anxiety or Depression to delirium in acute phase and Depression in long-term psychological disturbances. Delirium, an acute disorder of attention and cognition has been recognized as a hallmark of severe Covid 19 disease commonly observed among older patients. Mood variations and anxiety are observed commonly at follow-up, but psychosis is rare. One of the long Covid manifestation among affected and recovered individuals, that bothers their family members is either extended periods of anxiety or depression. We report here one such case from the second phase of Covid 19 pandemic, dominated by Delta variety viruses, in a 79 old elderly male who got covid-19 positive, recovered in 10-12 days, but continues to suffer from depression even now.

**Keywords:** Covid 19; Hospitalization; Long Covid Symptoms; Delirium and Depression

### Introduction

The 'novel coronavirus pneumonia' was reported in Wuhan City, Hubei Province of China in December 2019 [1]. India's first Covid 19 patient was a Kerala girl who returned home after the lockdown contracting the virus while she was studying medicine in Wuhan. She was asymptomatic and was diagnosed due to a mandatory RT-PCR test on arrival. The disease was mainly an urban phenomenon in its first phase in Karnataka and across India. In the second phase starting in early April 2021, it has spread in rural Karnataka and

more than 70% of the villages were reporting cases in last April-June 2021.

SARS-CoV-2 viruses threatened the entire world since December 2019 spreading like a wildfire across the globe resulting in what is commonly known as Covid 19 Pandemic. Among those who get infected some developed symptoms, and others did not. Most of the symptomatic cases (about 80%) are mild and recover from the disease without needing hospitalization. The pandemic has now spread to 225 countries/territories/areas worldwide. Under the International Health Regulations, the World Health Organization

declared this outbreak initially as a “Public Health Emergency of International Concern” (PHEIC) on 30<sup>th</sup> January 2020, and later 11<sup>th</sup> March, 2020 as a pandemic, making it one of the deadliest, pandemics in the global public health history! Among symptomatic about 15% developed seriously respiratory distress and required oxygen and 5% become critically ill needing intensive care with ventilators [2].

Globally many symptoms have been recognized over a period of one year by WHO, CDC Atlanta, John Hopkins Institute, and other world renown institutions. The earliest symptoms of COVID-19 were fever, dry cough, nasal congestion, fatigue, sore throat, headache. Later Other symptoms like diarrhea, loss of taste or smell sense, conjunctivitis, muscle or joint pain, cardiac symptoms, psychological symptoms like anxiety or depression and different types of skin rashes, nausea or vomiting, Chills or dizziness were added by CDC Atlanta, WHO and MOHFW, GOI in late 2021.

Persons aged 60 years or over, and those with pre-existing medical problems like diabetes, -hypertension, Cardiac and pulmonary (Asthma, COPD TB etc.) diseases, obesity, or cancer, are at higher risk of serious illness. Immunosenescence in aging is accompanied by a chronic inflammatory state, simultaneously, chronic stress during a pandemic may deregulate negative feedback from the hypothalamic-pituitary-adrenal (HPA) axis. The long-term increase in glucocorticoids is accompanied by an increase in cytokines and other pro-inflammatory molecules. Such pro-inflammatory cytokines contribute to the imbalance of the HPA axis, that leads into resistance to glucocorticoids, contributing to an increase or maintenance of a chronic pro-inflammatory state. These associated conditions predispose the elderly to trigger major depressive disorder (MDD) and other psychiatric disorders, as well as make them more vulnerable to the severity of COVID-19 symptoms. The pro-inflammatory cytokine storm, a condition observed based on the severity of SARS-CoV-2 infection, triggers, or worsens psychiatric disorders in the elderly [3].

The documented neuropsychiatric symptoms of COVID-19 ranged from mild common symptoms like Anxiety or Depression to delirium in acute phase and Depression in long-term psychological disturbances. Delirium, an acute disorder of attention and cognition has been recognized as a hallmark of severe Covid 19 disease commonly observed among older patients. Mood variations and

anxiety are observed commonly at follow-up, but psychosis is rare [4]. Globally more than 200 symptoms across 10 organ systems have been documented in patients of long (more than 6 weeks) COVID 19 [5].

### Case Report

A 79-year-old man, suffering from fever, cold and fatigue for 2 days, reported at a private clinic in Hangal, Karnataka, following attending a grandson’s marriage a week ago at Agasanahalli, Hanagal taluk, Haveri district, Karnataka on 5<sup>th</sup> MAY 2021.

On a physical examination he was tachypneic (98) and tachycardiac (17) but stable. His axillary temperature was 104<sup>o</sup> F. and the SPO<sub>2</sub> saturation level was 78%. He was advised immediate hospitalization. Immediate treatment was started in the hospital and monitoring oxygen level with oximeter was done continuously every 2-3 hours. RT-PCR test sample was collected and sent for laboratory test, and report came positive next day.

### Medical treatment protocol followed

- **Oxygen Support:** SpO<sub>2</sub> was targeted at 92-96% for 3 days. The device used for administering oxygen were nasal prongs, mask, or masks with breathing reservoir bag. After ECG Assessment, Tab. Hydroxychloroquine (400 mg) was given twice on 1st day followed by 200 mg twice each day for 4 days was given.
- Ivermectin tablet was also given on day one.

The treatment protocol followed MOH&FW guidelines [6,7]. He was in the hospital for 5 to 6 days and his condition on discharge was fine, but for sadness and unhappiness for hours.

### Outcome

- Patient recovered physically after 15 days, but depression continued for more than 9 months. He is seen always resting, not much active and is not interested in his life.
- He continues to keep coughing for some times.
- He has become so weak that he is not able to stand for more than 10 mins.
- His mental condition is always depressed. The depressed moods range from dejection to sorrow, low self-esteem, and pessimism.

- The symptoms noticed even now include sleep disturbance, fatigue, loss of appetite, weight loss, irritability, and non-social behavior.

**Follow-up**

After discharge he was in isolation for another 10 days at home. The first assessment on first day after discharge he had scored only 4 points out of possible maximum of 25.

He did show improvement in each monthly assessment by the authors from score 9 to a maximum of 17 point in December 2021.

WHO (Five) Well-being Index (1998 version- {<5 Severe Depression, 5-9 =Moderate Depression, 10-14= Mild depression and >15 No depression.

Patients Score by month of Assessment

May 2021	June	July	August	September	October	November	December
9	10	12	12	13	14	14	14
Limitation: The assessor is neo-literate in using the tool							

**Table 1**

He continued to be so much depressed that he was silent all the time, did not talk to anybody.

Stopped his pre-illness activities like going for a walk, taking interest in family discussions, gardening, and enjoying his meals.

Nearly a year now he sleeps for only 4 to 5 hrs. instead of 7 to 8 hrs. prior to covid-19.

His diet of 2 rotis and one bowl of rice sambar etc. prior to hospitalization has got reduced to eating only small bowl of rice and no roti at all.

Before this illness he used to talk with grandsons/granddaughters and his sons very intimately but now talks very less and appears to be not interested in any family issues.

He was going for walk before now he is does not go outside the house.

He often gets angry for small provocations like any family members make fun, talk, or even request him to eat more.

**Methodology**

This is a case report based on a close observation of a happy-go lucky elderly man’s behavior after Covid 19 hospitalization for a week in mid-May 2021. The primary author, a scholar of

master’s in public health (MPH) was motivated to make these keen observations after her 3 semester classes on Health Psychology and Human behavior. The scholar used a modified WHO 5 Scales tool shown below to assess first time immediately after discharge from Hospital and subsequently every month between June to December 2021.

**WHO (Five) Well-being Index (1998 version)**

Over the first 2 weeks after discharge	All the time	Most of the Time	>half times	<half times	Occasionally
He was seen cheerful	5	4	3	2	1
He was Calm and Relaxed	5	4	3	2	1
Active and Vigorous	5	4	3	2	1
Woke up Feeling Fresh and rested	5	4	3	2	1
Daily life filled with interesting things	5	4	3	2	1

**Table 2**

## Discussions

COVID-19 disease is currently causing a big concern to the governments and the medical fraternity as the virus is spreading around the world and new symptoms coming to light as more and more systems are exhibiting damages. The phases of remissions and recurrence are becoming unpredictable. Recently cases have been increasing again in China, parts of Europe and Hong Kong, and South Korea, where a fourth wave is being seen. With daily new Covid-19 cases ebbing and vaccination coverage surging, health experts opine that it's time not to fear of the novel coronavirus, but still observe pandemic protocols such as wearing masks and widening vaccine coverage. A point prevalence of depressive disorders in the elderly population in India varies from 13 to 25% [8]. A modified 5 scale scoring was used to assess the patient. From October to December 2021, he scored 14 points and no further improvement is seen. The case under report was diagnosed within 3-4 days of the symptoms, had signs of respiratory distress, and hence was admitted, and given Oxygen along with other drugs that helped fast recovery. Some patients with confirmed COVID-19 pneumonia need to be hospitalized as was done in our case. Treatment has been done as guidelines given by the WHO and MOH&FW GOI, like isolation, test, O<sub>2</sub> therapy and monitoring.

A survey representing 37.1% of the seniors affected by COVID-19 in China experienced depression and anxiety as early as first quarter of 2020, has shown that the emotional reaction of the aged is more obvious. The study observed that women experienced more anxiety and depression than men. Survey included seniors of 60-90 + years segments and all had depression and anxiety issues, with no significant distinctions between different age segments ( $P > 0.05$ ). This may be attributed to the physiological changes and psychological characteristics of the seniors [9].

A process of immune dysfunction known as Immunosenescence that includes remodeling of lymphoid organs, leading to changes in the immune function of the elderly occurs as age advances. This leads to development of infections, autoimmune diseases, and malignant tumors and a chronic inflammatory state. Chronic stress during a pandemic due to isolation and lack of social interactions among elderly fails to regulate negative feedback from the hypothalamic-pituitary-adrenal (HPA) axis. The increase in glucocorticoids results in an increase in cytokines and other pro-inflammatory molecules.

The pro-inflammatory cytokines imbalance the HPA axis, that ends up in resistance to glucocorticoids. Resistance to glucocorticoids either increases or maintains chronic pro-inflammatory state. These immunological changes trigger or worsen major depressive disorder (MDD) and other psychiatric disorders. They also make elderly Covid 19 patients more vulnerable to severe symptoms. The pro-inflammatory cytokine storm, that occurs in SARS-CoV-2 infection, triggers or worsens psychiatric disorders in the elderly [3].

**Figure 1:** Pyrolysis products from microwave pyrolysis of agro-residue.

A secondary analysis of a large cross-sectional study determined the psychological impact of the COVID-19 pandemic and lockdown across Spain, using two self-report questionnaires namely the Depression, Anxiety, and Stress scale (DASS-21) and the Impact of Event Scale (IES) assessed psychological impact. Results showed that 52.6% of women and 34.3% of men were cases of any emotional distress ( $p < 0.001$ ). The commonest psychological change was avoidance behavior of 34.7% and 23.8%, respectively in women and men. This was followed by depression (28.5 in women and 14.2% in men). Older women and men were fewer probable cases of any emotional distress than younger ones (women: 52.6% vs. 72.3%,  $p < 0.001$ ; men: 34.3% vs. 50.6%,  $p < 0.001$ ). The binary logistic regression showed that only depressive and stress responses are psychological factors associated with age group 60 years and above, with O.R. 0.617 and 0.437 respectively among women and men respectively. In conclusion older women, were at lower risk of developing depressive and stress consequences from COVID-19 and lockdown than those under 60 years of age [10].

An online survey of 1060 cases to assess the predictors of distress, showed that more distressed people were in the age group of 21-35 years, females more than men, those working on construction sites compared to other jobs and those who had pre-existing medical conditions and those who had perceived seriousness of COVID-19 outcomes. The ones who had higher social support and psychological capital were less distressed [11].

A review of existing literature suggests that symptoms of anxiety and depression range between 16–28% and self-reported stress much less at 8% as common psychological reactions to the COVID-19 pandemic and may be associated with disturbed sleep as is being observed in our case [13].

Another study points to the major mental health issues reported as stress, anxiety, depression, insomnia, denial, anger, and fear as was witnessed in our case. Among more vulnerable population were Children and older people, frontline Covid 19 warriors, people with existing mental health illnesses [9].

### Conclusions

- This case report confirms early identification plays a pivotal role in the accurate diagnosis, isolation, and treatment for patients infected with COVID-19, but the emergence of high distress/anxiety experienced by Indians is not amenable to routine standard treatment.
- The reported case provides pragmatic implications for psychological health at macro and micro levels during an epidemiological crisis and the role of family and psychologist in addressing the Long Covid -19 psychological symptoms among elderly.
- The impact of the pandemic on the physical and mental health of the seniors is more explicit as seniors are debilitated physically, feeble immune system, and often associated with chronic underlying disease, decrease psychological capability, fragile information receiving and processing ability,
- Health system needs to concentrate on psychological attention of women, illiterates, divorced, or widowed seniors, those living alone, and having sleep problems.
- The system and mechanism of psychological counselling and psychological crisis intervention for the seniors be provided and if the emotional response is serious, it is recommended to visit a professional institution.

### Lessons learned

- Covid 19 infection is in a pandemic form currently in many countries
- About 15-20% may come moderately and severely sick needing hospitalization.
- Household monitoring of Temperature, respiratory rate and SPO<sub>2</sub> along with comorbidities like hyperglycemia and hypertension in the first week are important for hospitalization.
- Around half of women and 1/3 of men end up in cases of some to severe emotional distress.
- Family support after recovery to keep the elderly engaged go a long way in addressing mental issues like depression, anger, or anxiety.
- Evolving Covid 19 epidemiology based Vulnerable-group-specific need-based interventions is the need of mental health care resources now.

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