

# Epidemiological and Clinical Features of COVID-19 in Elderly Patients: A Cross-Sectional Study

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## Abstract

**Background:** Elderly population represents the most vulnerable group with increased risk of developing severe COVID-19 infection and high mortality. More research is needed in understanding the complexity of disease due to limited data as only few studies have been conducted till date in India. **Objectives:** This study aimed to identify the epidemiological and clinical features among elderly population with COVID-19 infection at a tertiary care center, south India. **Materials and Methods:** A prospective, cross-sectional study was conducted among reverse transcription-polymerase chain reaction (RT-PCR)-confirmed COVID-19 elderly patients  $\geq 60$  years admitted at a tertiary care center in south India from June 2021 to August 2021 after the institutional ethical committee clearance. Their demographic and clinical data were collected and analyzed. **Results:** A total of 32 RT-PCR-confirmed patients of age  $\geq 60$  years were included. Majority (62.5%) of them were in the age group of 60–70 years, and the mean age was  $70.25 \pm 5.68$  years. Females were predominant. Severe infection was found in 31.25% of the patients, and 56.25% had moderate infection. Hypertension (43.75%) was the predominant comorbidity followed by diabetes mellitus (34.37%). Cough (82%), dyspnea (70%), and fever (63%) were the most common presenting symptoms. The mean duration of symptoms to hospitalization was  $4.7 \pm 2.09$  days, with majority of patients presenting bilateral lung involvement. **Conclusion:** There is high prevalence of COVID-19 in the age group of 60–70 years, predominantly female patients. Cough and dyspnea are common presenting symptoms. Hypertension and diabetes are major comorbidities. Most patients presented with bilateral lung involvement and longer duration of symptom onset to hospitalization. High index of suspicion with preventive strategies is required for better healthcare in elderly patients.

**Keywords:** Clinical features, comorbidities, COVID-19, elderly population

## INTRODUCTION

COVID-19 (caused by SARS-CoV-2 coronavirus) is an infectious disease causing high mortality worldwide.<sup>[1]</sup> According to the World Health Organization, over 433 million confirmed cases and 5.9 million deaths have been reported globally as of March 2022, and India accounts for 46% of new cases of COVID-19 and quarter of deaths.<sup>[1]</sup> Increase in COVID-19 severity, poor treatment outcome, and high case-fatality rate among elderly patients are major concerns as reported in various studies<sup>[2,3]</sup> as they are more vulnerable due to the immune factor deficiency and associated comorbidities.<sup>[4,5]</sup> Elderly patients account for 53% of case fatalities due to COVID-19.<sup>[6]</sup> As per the ICMR National Guidance published in 2021, COVID-19 infection is categorized into mild (upper respiratory tract symptoms and/or fever without shortness of breath or hypoxia), moderate (any one of respiratory rate  $\geq 24$ /min,

breathlessness, and  $SpO_2$   $90 \leq 93\%$ ), and severe disease (any one of respiratory rate  $>30$ /min, breathlessness, and  $SpO_2 < 90\%$ ).<sup>[7]</sup> Very few studies have focused on the elderly population with COVID-19 in India and globally as well.<sup>[8-12]</sup> Increasing age and atypical presentation-associated comorbidities are the major determinants of prognosis and outcome of COVID-19 infection and pose diagnostic challenge among elderly patients. Further research is required to understand the complexity of disease among elderly patients in India.

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## Objectives

The study aimed to identify epidemiological and clinical features among elderly patients with COVID-19 infection at a tertiary care center, south India.

## MATERIALS AND METHODS

A prospective, cross-sectional study was conducted among reverse transcription-polymerase chain reaction (RT-PCR)-confirmed COVID-19 patients of 60 years and above age. The study included both male and female patients, who had visited the outpatient department and emergency room and were admitted to ward/intensive care unit according to the severity of clinical presentation as per the ICMR national guidelines<sup>[7]</sup> at a tertiary care center<sup>[7]</sup> in South India. The study was conducted from June 2021 to August 2021 after obtaining institutional ethics committee clearance and informed consent from patient and patient’s relatives. Patients were selected by purposive sampling. Their demographic, clinical (clinical history, comorbidities, and severity assessment), and radiologic data were collected and analyzed.

### Inclusion criteria

- All patients of age  $\geq 60$  years, including both males and females
- RT-PCR–confirmed COVID patients
- COVID-19–suspect symptoms as per the ICMR national guidance.

### Exclusion criteria

- Negative RT-PCR
- Age  $< 60$  years
- Not willing to participate.

### Statistics

Data were entered into Microsoft Excel 2019 (MS-Excel). Descriptive statistics analysis was carried out. Results on continuous and categorical measurements were presented in mean, standard deviation, frequencies, and percentage. Chi-square test was used to calculate the difference and significance is assessed at 5% level of significance with  $P \leq 0.05$ .

## RESULTS

Out of 48 elderly patients aged  $\geq 60$  years and RT-PCR–confirmed COVID-19 patients, a total of 32 eligible participants were included. Of the 46 study population, 14 of them who were not interested to participate in the study and did not give consent for the study therefore were excluded from the study as per the exclusion criteria. Most of the study participants were in the age group of 60–70 years (62.5%). Mean age of the study population was  $70.25 \pm 5.68$  years. Majority of them were female patients (59.3%) and found to have severe infection (18.75%) compared to males (12.5%), and 18.75% of the patients were smokers [Table 1].

## Clinical characteristics

Cough and dyspnea were the most common presenting symptoms. Majority of patients had moderate infection (56.25%), while severe infection was seen in 31.25% [Table 2 and Figure 1].

The mean duration of symptoms to hospitalization was  $4.7 \pm 2.09$  days.

### Comorbidities

One-third of patients (34.37%) had more than one comorbidity. Hypertension and diabetes mellitus were the common comorbidities found among the patients [Figure 2].

### Severity of infection

Out of the total patients, high prevalence of moderate-to-severe disease was found in the age group of 60–70 years ( $P = 0.002$ ) [Figure 3].

Among the severely infected patients (31.25%), majority of them were female patients (18.75%) and were found to have significantly increased severity compared to males (12.5%,  $P = 0.008$ ) [Table 3].

**Table 1: Sociodemographic data**

Parameter	Frequency (%)
Age groups (years)	
60-69	20 (62.5)
70-79	8 (25)
>80	4 (12.5)
Gender	
Male	13 (40.6)
Female	19 (59.3)
Habits	
Alcohol	3 (9.3)
Smokers	6 (18.75)

**Table 2: Clinical characteristics of COVID-19**

	Frequency (%)
Symptoms	
Cough	26 (81.25)
Dyspnea	23 (71.87)
Fever	21 (65.62)
Myalgia	2 (6.25)
Abdominal pain	1 (3.2)
Diarrhea	1 (3.2)
Severity/categories	
Mild	4 (12.5)
Moderate	18 (56.25)
Severe	10 (31.25)

**Table 3: Distribution of gender and severity**

	<i>n</i>	Mild, <i>n</i> (%)	Moderate, <i>n</i> (%)	Severe, <i>n</i> (%)	<i>P</i>
Males	13	3 (9.37)	6 (18.75)	4 (12.5)	<0.008
Females	19	1 (3.12)	12 (37.5)	6 (18.75)	
Total	32	4 (12.5)	18 (56.25)	10 (31.25)	

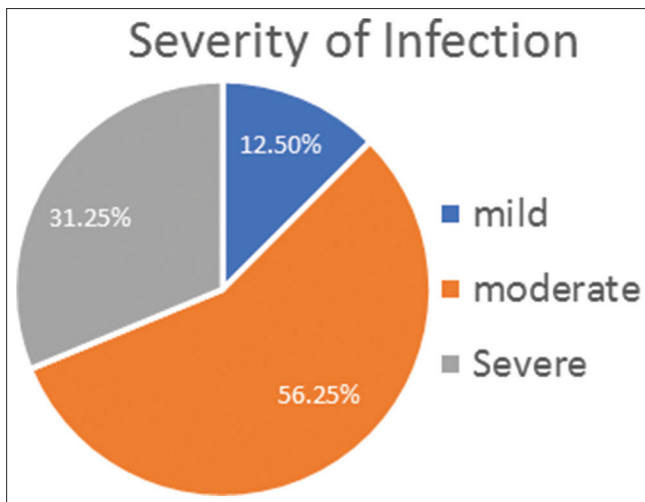


Figure 1: Severity of COVID-19 among elderly patients

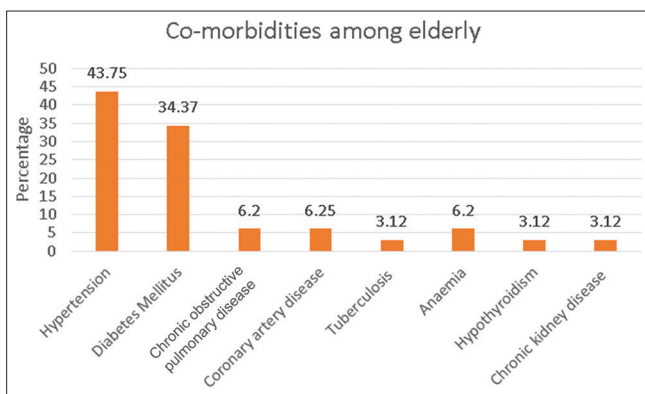


Figure 2: Comorbidities among elderly patients

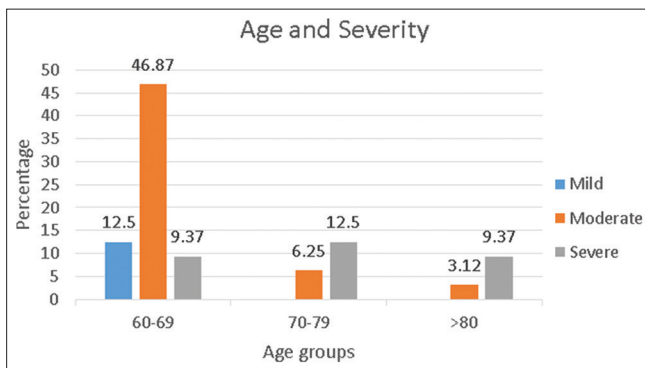


Figure 3: Distribution of age and severity in the patients

### Radiological presentations

Majority of patients (84.37%) presented with bilateral infiltrates with consolidation and ground-glass opacity, and one patient (3.12%) had peripheral lung involvement which was consistent with acute respiratory distress syndrome (ARDS) features based on clinical correlation.

### DISCUSSION

COVID-19 infection poses a major threat to the elderly population and is associated with poor treatment outcome and high mortality.<sup>[8,13]</sup> In the present study, the prevalence of COVID-19 was high in the age group of 60–70 years (62.5%), indicating higher transmissibility, susceptibility, and vulnerability of elderly subjects during the second COVID wave, which is similar to the results of previous studies.<sup>[12]</sup> Many studies have reported that males are more affected than females;<sup>[12,13]</sup> however, in our study, we found females (59.3%) more affected compared to males. Most of the patients presented with moderate (56.25%) to severe disease (31.25%). In a study conducted in India during the second wave, it was found that young people were more affected than the elderly population.<sup>[14]</sup> Various other studies have reported fever and cough as the major symptoms.<sup>[9–12]</sup> However, in our study, cough and dyspnea were the major presenting symptoms which may be one of the factors for delayed hospitalization. It was noticed that hypertension and diabetes were the most common comorbidities associated with the infection in our study, which is similar to the findings from other studies as well.<sup>[12,15]</sup> Elderly patients with comorbidities are at increased risk of developing the severe disease and poor outcome;<sup>[13,16,17]</sup> the present study showed that 34.37% of patients had more than one comorbidity which is high compared to other studies.<sup>[12,16]</sup> Similar to previous studies,<sup>[9,12]</sup> in the current study, majority of the patients had bilateral lung involvement. Our study findings showed increased mean duration of symptom onset to hospitalization, which is reported in other studies<sup>[12,13]</sup> as well for being important factor for poorer prognosis.

### Limitation of the study

Sample size was small as it was a single-center, prospective study and the study period was latter part of the peak of the second COVID wave. Outcome of the study subjects could not be followed upon due to nonaccessibility of some of the study participants.

Future studies are required with larger sample size, multicenter, and outcome analysis.

### CONCLUSION

There is a high prevalence of moderate-to-severe infection of COVID-19 in the elderly, particularly in the age group of 60–70 years and predominantly female patients. Hypertension and diabetes were the common comorbidities found in patients. Majority of the patients had cough and dyspnea as symptoms with increased mean duration from symptom onset to hospital admission. High index of suspicion for early diagnosis and treatment of COVID-19 infection along with preventive strategies is needed for better healthcare outcomes in the elderly patients.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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