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## Clinical profile and outcomes of COVID-19 children and adolescents admitted at DRDO Hospital in Srinagar

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### Abstract

**Objective:** To study clinical profile and outcome in children infected with SARS-CoV-2.

**Study Design:** 42 children 0 to 18 years age with moderate to severe SARS-COVID-19 illness admitted in COVID-19 designated DRDO COVID hospital Srinagar between November and December 2021 were included. Demographic and clinical data were collected.

**Results:** Out of 42 children admitted 24 were male and 18 were female and out of these 18(43%) patients required less than 7days of hospitalization, 20(48%) patients required 7-14 days of hospitalization and 4(10%) patients required more than 14 days of hospitalization. 9(21%) patient were having co-morbid conditions. One patient died as parents refused mechanical ventilation.

**Conclusion:** Children of all age groups were susceptible to COVID-19 illness with a slight male predominance. The results assessed in this provided data to screen the epidemiological profile of children and adolescent with COVID-19.

**Keywords:** COVID-19, SARS-CoV-2, Co-morbid

### Introduction

COVID-19 pandemic has affected human life globally. Pediatric cases have been found to be 1-5% of the total affected population in various studies <sup>[1, 2]</sup>. The disease affects all age groups and its spectrum varies from mild flu-like illness to severe pneumonia with complications like acute respiratory distress syndrome (ARDS), shock, multi-organ dysfunction, myocardial injury and acute kidney injury <sup>[3]</sup>.

Children of all ages are susceptible to COVID-19 illness <sup>[4, 5]</sup>. The disease in children is asymptomatic or mild in majority; however, critical illnesses are observed in small proportion <sup>[6, 7]</sup>. Despite the worldwide spread, the epidemiological and clinical patterns of the COVID-19 remain largely unclear, particularly among children. Since the virus is novel and there exists a lot of heterogeneity in the spectrum and severity of illness across age groups globally, it is pertinent to study and identify the clinical profile and outcome of these patients.

Overall, the incidence of critical illness in children with COVID-19 is not well known, with limited data on possible associated risk factors. The objectives of this study were to describe the clinical profile of children admitted with moderate to severe illness caused by coronavirus 2 (SARS-CoV-2).

### Materials & Method

The study was conducted in DRDO hospital Srinagar, the main COVID-19 designated Institution. The data was collected from children aged 0 month to 18 years admitted between November and December 2021 with a laboratory confirmed SARS-CoV-2 infection. Infection was confirmed by reverse transcription polymerase chain reaction testing a specimen using nasopharyngeal swab on one of several different platforms adopted by the Clinical Microbiology Laboratory.

Sepsis, severe sepsis, and septic shock were defined as per the pediatric surviving sepsis guidelines <sup>[11]</sup>. Acute kidney injury was defined using the Kidney Disease: Improving Global Outcomes classification based upon the change in serum level of creatinine and creatinine clearance <sup>[12]</sup>.

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Virus-associated sepsis was defined as presence of >2 systemic inflammatory syndrome criteria, severe sepsis as sepsis with organ dysfunction or tissue hypoperfusion, and septic shock as severe sepsis with volume resistant hypotension.

The case records of patients admitted in COVID ward were reviewed and the clinical, biochemical, radiological and management details recorded. The inclusion criteria were children up to 18 y of age and with at least one positive RT-PCR test for novel COVID-19 virus. The patients who absconded or left against medical advice were excluded from the study. Details of each patient including demographic profile, clinical presentation and severity, co-morbidities, treatment received, course during hospital stay and outcome were recorded. Data was entered in EXCEL sheet. Descriptive statistics were used with continuous data represented as mean  $\pm$  SD and categorical data as counts and proportions.

### Results

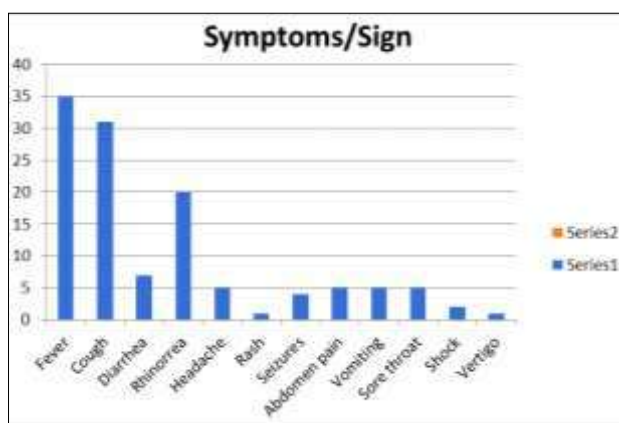
Of the 42 symptomatic moderate to severe COVID-19 patients, 24 (57%) were males and 18 (33%) were females. 31 (74%) had family affected, 9 (21%) had co-morbidities. 22 (52%) needed iv antibiotics. 31 (74%) required oxygen therapy. 1 patient required mechanical ventilation. Average length of hospital stay was 10 days. 1 patient died.

**Table 1:** Distribution of patients

M:F	24:18
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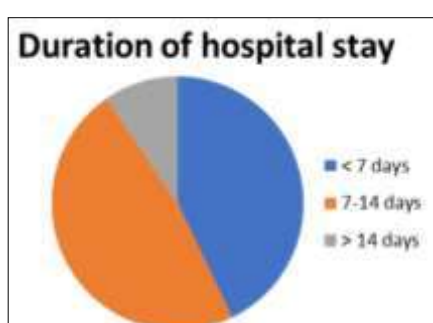
Table I shows that group I had 24 males and 18 females

### Graph 1



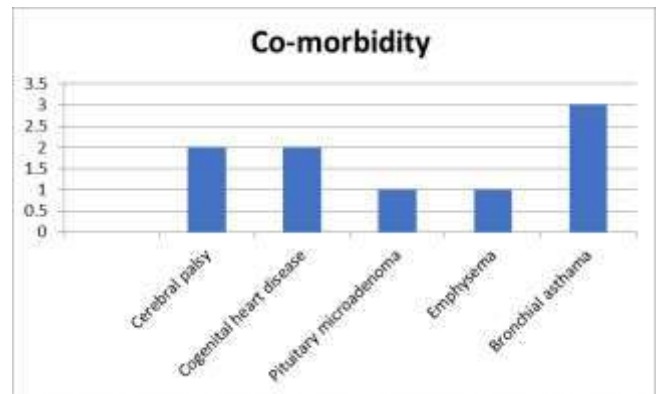
**Graph 1:** Shows symptoms/signs of patients

### Graph 2



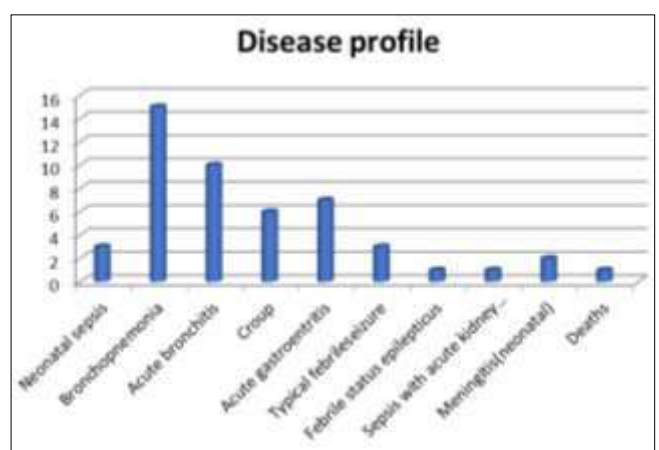
**Graph 2:** Shows duration of hospital stay

### Graph 3



**Graph 3:** Shows co-morbidity.

### Graph 4



**Graph 4:** Shows disease profile

### Discussion

Addressing COVID-19 pandemic was challenging in a resource constrained developing country. Limited health care facilities and large vulnerable population, many of whom were already burdened with comorbid conditions posed challenges on every dimension. This retrospective study highlights the clinical profile of children with SARS-CoV-2 infection from a COVID-19 designated pediatric hospital in northern India. The most common presentation was fever followed by cough and fast breathing.

The mean age and sex distribution of children admitted with SARS-CoV-2 infection in this study was comparable with the studies published elsewhere [7]. Children of all age groups were susceptible to COVID-19 infection as reported elsewhere [13]. Although the clinical features of COVID-19 illness in children are diverse, still fever and cough were the most common symptoms reported in this cohort. The spectrum of clinical features reported in other published studies are heterogeneous depending on the setting and the cohort analyzed [14]. Unlike the studies on disease severity from different settings, more than two third of the admitted cases in this study had moderate illness, similar to the results reported by Dong *et al.* [7], infants were more vulnerable to SARS-CoV-2 infection and had more severe disease. However, the data on relationship of disease severity and gender are limited in children. Children with comorbidities had severe illness. Comorbidities among

children with SARS-CoV-2 have been reported in studies from China <sup>[15]</sup>, India (61%) <sup>[16]</sup> and US/Canada (83%) <sup>[17]</sup>.

### Conclusion

Children of all age groups were susceptible to COVID-19 illness with a slight male preponderance. Though fever and other respiratory symptoms make up the commonest clinical presentation, many may present with gastrointestinal symptoms.

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