



## RESEARCH ARTICLE

# RETROSPECTIVE STUDY OF 18,561 PAEDIATRIC COVID-19 PATIENTS BELONGING TO DIFFERENT AGE GROUPS

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### ABSTRACT

**Introduction:** Compare to adults, there are relatively few studies on COVID-19 infection in children, preliminary reports suggest that children ( $\leq 18$  years of age) have relatively lower odds of adverse clinical outcomes associated with COVID-19. **Objective:** To identify the COVID-19 prevalence in different age groups of paediatric Patients. **Materials and Method:** This is a retrospective study done in tertiary care hospital of western Rajasthan from march 2021 to June 2021. All children 18 and under who had family or social history of COVID-19 exposure were included in study. Confirmation of COVID-19 was done using RT-PCR. Result: Total 18,561 cases of 18yr and below of ages were screened out of which, 395 infants (0-1yr), 798 toddlers (1-3yr), 917 preschoolers (3-5yr), 3633 middle childhood (6-11yr), 3413 young teenagers (12-14yr), 9404 teenagers (15-18yr). **Conclusion:** The cases of COVID-19 are more among teenagers as compared to other age groups, followed by young teenagers and middle childhood. Though studies shows that minimum reporting of cases from paediatric age group but it is important to be cautious and continue to screen COVID -19 in paediatric age group as this SARS CoV-2 has shown great capability to mutate which leads to generation of new variants which can be detrimental to paediatric population.

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## INTRODUCTION

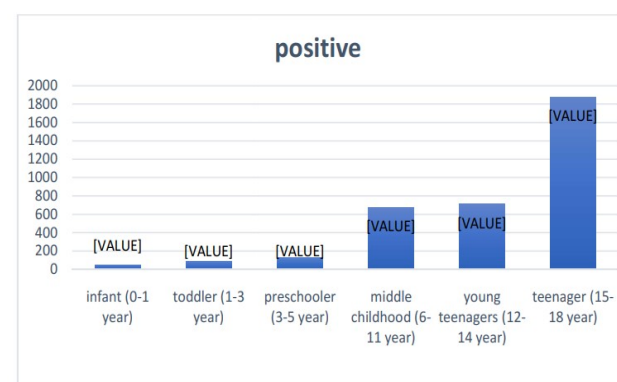
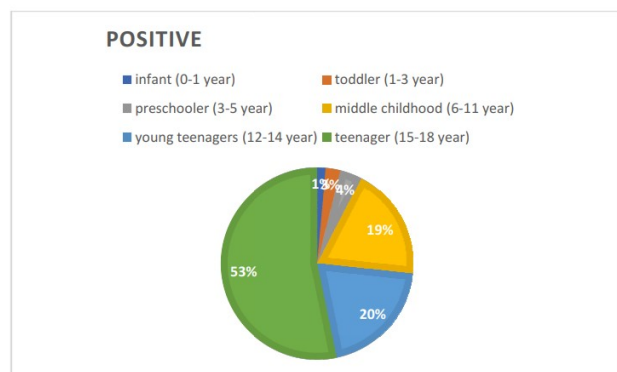
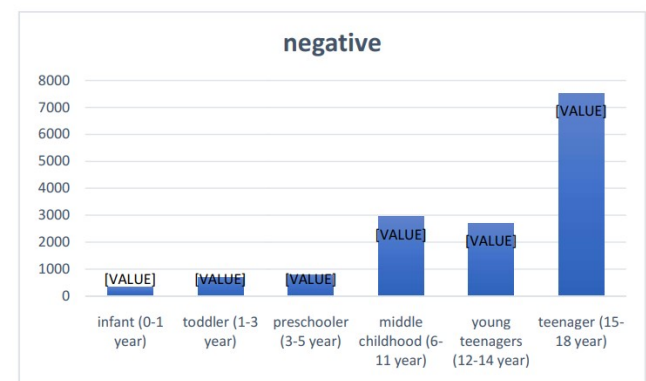
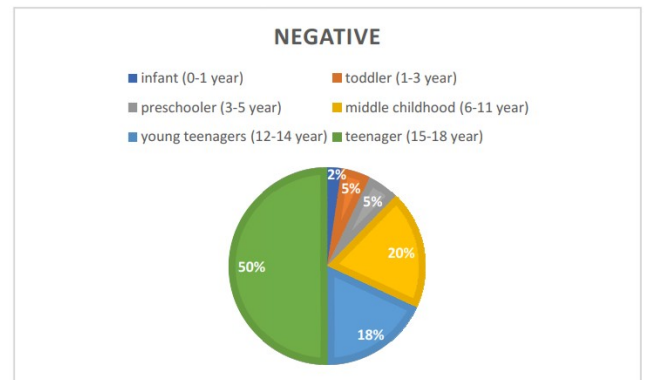
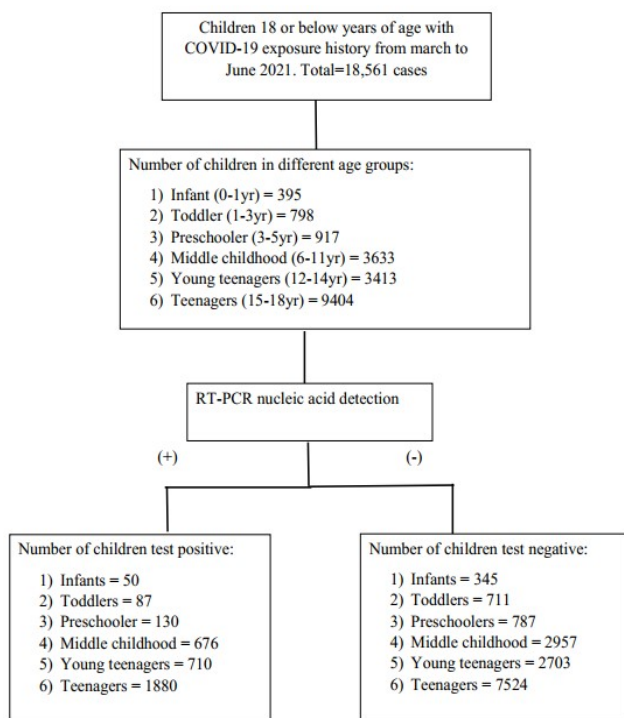
The impact of the COVID-19 pandemic has been widespread, and no one has been spared. COVID-19 severely affected the geriatric population and adults with comorbidity; children have also been affected and have suffered from the pandemic<sup>1,2</sup>. Children are a particularly vulnerable group, especially the younger ones, considering their limited ability to express and take care of themselves<sup>3</sup>. Compare to adults, there are relatively few studies on COVID-19 infection in children, preliminary reports suggest that children ( $\leq 18$  years of age) have relatively lower odds of adverse clinical outcomes associated with COVID-19. The lower observed prevalence of COVID-19 in the paediatric age-group worldwide is partially attributed to widespread school closures in response to the pandemic<sup>4</sup>. Furthermore, challenges in the adequate screening and testing of children, especially those who are asymptomatic or minimally symptomatic, may have also contributed to the underreporting of COVID-19 in children.

The cautious reopening of schools has occurred in the backdrop of an increased possibility of community transmission of COVID-19 among children in schools<sup>4</sup>. Thus, it is important to characterize the demographic outcomes in children infected with COVID-19.

**Objective:** To identify the COVID-19 prevalence in different age groups of paediatric patients.

## MATERIALS AND METHODS

**Study design and patient selection:** For this retrospective study patients were recruited from march to June 2021. Real-time reverse-transcriptase polymerase chain reaction (PCR) was performed on children under 18 years of age and under who had a family or social history of COVID-19 exposure. Based on the RT-PCR results, these patients were stratified into groups.



## RESULTS

Total 18,561 cases of 18yr and below of ages were screened for COVID-19 by RT-PCR nucleic extraction out of which, 395 infants (0-1yr), 798 toddlers (1-3yr), 917 preschoolers(3-5yr), 3633 middle childhood (6-11yr), 3413 young teenagers (12-14yr), 9404 teenagers (15-18yr).

Out of total positive cases (3,533) -1% infants, 3% toddlers, 4% preschooler, 19% middle childhood, 20% young teenagers, and 53% teenagers are found positive for COVID-19. Out of total negative cases (15,027) – 2% infants, 5% toddlers, 5% preschooler, 20% middle childhood, 18% young teenagers, and 50% teenagers are found negative for COVID-19.

## DISSCUSSION

Since the start of the COVID-19 pandemic, India has witnessed two waves with considerable morbidity and mortality during the second wave. The present study is a description of COVID-19 disease in children during second wave. The data is taken from march 2021 to June 2021 during peak of second wave.<sup>5</sup> Previous studies on paediatric patients in India shows similar findings as this study, high positivity is seen among teenager, young teenagers, and middle childhood as compare to infant, toddler and preschooler. According to study conducted in China which reviewed all affected infants under one-year-old in the period between 6 December 2019 and 8 February 2020 reported that only nine infants were affected. This figure reflects the rarity of COVID-19 in infants. Additionally, all cases were mild enough so that none of them required intensive care admission, mechanical ventilation nor developed complications.<sup>6</sup> There are many factors that could explain why SARS-Cov-2 is not primarily a disease with high mortality in paediatric populations. Hoffmann *et al.* in their study found that foetal lung ACE2 receptors have different characteristics than mature lung tissue (e.g. lower binding capacity).<sup>7</sup> Yuanyuan Dong *et al.* reported that the children are exposed to other respiratory viruses such as respiratory syncytial virus, Influenza A and Influenza B viruses, which enhance their serum antibody levels and could provide cross protection.<sup>8</sup> Due to mild symptoms or even asymptomatic cases in paediatric age group actual number of COVID 19 in children maybe higher than published figure.

## CONCLUSION

The cases of COVID-19 are more among teenagers as compared to other age groups, followed by young teenagers and middle childhood.

The least positivity is found in infants (0-1 year) age group. As the number of people across India testing positive for the COVID-19 has increased, the number of children contracting the virus has also increased<sup>2</sup>. However, we have not seen a sudden spike in the overall percentage of children affected by COVID-19 in India. One feature of the new wave is that now entire households are becoming infected with the virus, more so than in the first wave. We still need to be cautious and continue to follow COVID-19 appropriate behaviours strictly. It's also important to be aware how children are feeling each day. More and more studies should include paediatric population as no vaccine till date is available for children below 16 years of age, which predisposes paediatric population at high risk for COVID-19 infection.

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