

Is COVID-19 Really Sparing Children?

Jia Kangbai*

Center for International Health, University of Munich (LMU), Munich, Germany

Corresponding author:

Jia Kangbai, Center for International Health, University of Munich (LMU), Munich, Germany,
Tel: 23276900358;
E-mail: Jia.Kangbai@lrz.uni-muenchen.de

Abstract

Since it started in late December 2019, the impact of the COVID-19 pandemic is now widespread with over 1,300,000 cases and more than 7,000 deaths globally. Preliminary data tend to suggest that the burden of COVID-19 on children is relatively low. In one Chinese study only 1% of the 44,672 COVID-19 cases were below 10 years while another study reported that children just like adult get infected. Also, a recent analysis has suggested that community transmission of COVID-19 may be link to pediatric COVID-19 cases. Pediatric COVID-19 infection rates tend to differ by underlying infections. In one viral surveillance pediatric study in China, there were more COVID-19 cases among children with ARDS than those with human metapneumovirus while 10% of the pediatric hospitalized children with respiratory tract infections in Norway were diagnosed with COVID-19.

Keywords: COVID-19; Children, Underlying infections; Pandemic; China

Since it started in late December 2019, the impact of the COVID-19 pandemic is now widespread with over 300,000 cases and more than 7,000 deaths globally. [1] Preliminary data tend to suggest that the burden of COVID-19 on children is relatively low. [2-4] In one Chinese study only 1% of the 44,672 COVID-19 cases were below 10 years [3] while another study reported that children just like adult get infected. [4] Also, a recent analysis has suggested that community transmission of COVID-19 may be link to pediatric COVID-19 cases. [4]

Dong and colleagues reported over 2000 suspected or confirmed COVID-19 pediatric cases; 13% of virologically-confirmed asymptomatic cases, 5% of symptomatic cases presented with dyspnea or hypoxemia, and 0.6% of the symptomatic cases progressed to Acute Respiratory Distress Syndrome (ARDS) or multiorgan system. [5] Pediatric COVID-19 infection rates tend to differ by underlying infections. In one viral surveillance pediatric study in China, there were more COVID-19 cases among children with ARDS than those with human metapneumovirus [5] while 10% of the pediatric hospitalized children with respiratory tract infections in Norway were diagnosed with COVID-19. [6] While these observations are real, they may however being borne out of age-related biases, missed identification, over surveillance of adult COVID-19 cases, and the use of naïve data.

Firstly, the early flu-like symptoms such as fever, cough, and running nose that are associated with COVID-19 are common symptoms for many childhood infections and can easily be missed out in COVID-19 infected pediatric cases. These COVID-19 signs and symptoms are however less frequent but more specific in adults. Also, it should be noted that many children will be missed out because there are different subpopulations of children with increased risk for other infections which makes such subpopulations less likely to become severely ill with COVID-19 as compared to adults. [7]

Secondly, COVID-19 being a respiratory infection may now been over surveillance among adults especially among those with underlying chronic respiratory conditions compared to children. Adults above 60 years are highly susceptible to

respiratory infection than children and as such adult COVID-19 cases are picked up and reported through such clinical care as a result of this over surveillance. Also, current data suggests that children have high incidences of upper respiratory tract [5] rather than lower respiratory tract involvement seen in adults COVID-19 infection. These high incidences of upper respiratory tract involvement in pediatric COVID-19 cases may be missed out for other common childhood illnesses which are usually self-treatable, self-diagnosed, normally not requiring X-ray or CT scan, and are often short lived.

Thirdly, children may appear to be benefiting from previous and frequent exposures to coronaviruses generally which may prepare them to fight off or short-circuit the chain of infection in the early phase of a COVID-19 infection. Coronaviruses infections are more common among children below 5 years. [8,9] and can produced specific antibodies in their nasal secretions which offer short lived protection for future infection.

Additionally, children are usually a major contributor to community-based viral transmission of outbreaks because of their behavior, which makes them not to be spared from coronavirus infection. There are data to show the fecal viral shedding of coronavirus by patients several weeks after they have been diagnosed with COVID-19; [10] raising concern about the fecal-oral transmission of COVID-19 that may have been possibly propagated by infants and children who may not be well trained in toilet etiquette. Sustained nasal and fecal shedding of COVID-19 virus has implication for both community and family transmission of the pandemic.

Fourthly, children appear to have less contact with adult relatives who have been diagnosed with COVID-19 compared to adult. Adults in many families are both the healthcare givers and home providers; something that puts them at higher risk of infection than children. Additionally, contact tracing of a COVID-19

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infected child and non-infected children is challenging because of the incoherent explanation by children. This poor contact tracing can lead to the missing of the various sub networks of COVID-19 transmission among children thereby leading to the underreporting of pediatric COVID-19 cases.

Finally, worthy of note is that there is still much more science out there to be learned about the COVID-19 pandemic and how the virus itself behaves. The data that are being reported are still preliminary, limited and often obtained from not well planned research often involving small sample sizes. For example Dong et al., failed to standardized the testing for other viral infections, and concentrated their study on clinical but not virological diagnosis of their pediatric cases. ^[5] Virologically-confirmed pediatric COVID-19 cases tend to have the more severe form COVID-19 compared to clinically diagnosed COVID-19 pediatric cases, potentially because of co-infection with other pathogens. Similar reports ^[8,9] of children being spared during the West Africa Ebola outbreak in 2013-2016 were made during that outbreak. Researches which are done during ongoing outbreaks mostly used naïve data which often produce findings that will require larger studies for their generalization. ^[11-15]

Competing Interests

The authors indicate no potential conflicts of interest.

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