

Editorial – Children infected by SARS-CoV-2

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The COVID-19 epidemic broke out in Wuhan, China, at the end of 2019¹. This started shortly before the Chinese Spring Festival. Many people travelled home from Wuhan for the New Year's holidays. This caused the epidemic to spread around the country². As time went by, a huge number of people became infected. Under the active control of the Chinese government, the epidemic is now well under control. Our government is still working to eliminate the virus.

We analyzed the age distribution of the infected population. The main group of infected people were adults. The age of this group ranged between 40 and 70 years. There were fewer infected people in the older age group of 70 years old or more, and also fewer infected children (Figure 1)³. We proceeded by focusing our analysis on data of infected children, the youngest of which was 30 hours⁴.

Infected children have relatively mild symptoms and few deaths have been reported among them. Based on this, we summarized the information and performed an etiological analysis. First, at the beginning of the epidemic, it was assumed that children were not susceptible to the SARS-CoV-2. However, with the progress of the epidemic, experts came to believe that all age groups were susceptible. If a child was in contact with an infected person, it would become infected⁵. Second, reports from around the world showed that the symptoms of infection in children were relatively mild. There are relatively few children with serious manifestations of the disease. In children, the rate of infection with SARS-CoV-2 differ from infection with the seasonal flu. The presented symptoms are also different⁶. Third, experts believe that children's immunity is relatively robust, so they might have a strong resistance to COVID-19. One possible explanation might be the fact that their thymus has not yet degenerated⁷.

However, in the case of China, we think the possible reasons are as follows. First, after the outbreak of the disease, children were well protected. They had to stay at home and were not allowed to be exposed to infected people. In effect, they were in a state of isolation at home. Compared with adults, children have good compliance. Second, when children showed symptoms of fever, cough, or other discomforts, they were quickly taken to the hospital for treatment. This was beneficial for them because they could get better and timely treatment. Compared with children, adults often go to hospital late, when the disease had advanced. In terms of treatment, children might be superior to adults in following and responding to it. Third, the immune function is relatively immature in children so, it is not as strong as that of adults. This is especially so in the respiratory system, where children's immune response is mild. As a result, the occurrence of acute respiratory distress syndrome is rare. Fourth, Chen and Zhong⁸ showed that ACE2 might be involved in immune regulation during infection with SARS-CoV-2. We speculate that the expression of ACE2 protein in children's lungs is relatively low. Therefore, the children would show mild clinical symptoms when they become infected by the virus. We plan to further explore the relationship between ACE2 expression and SARS-CoV-2 infection to clarify this aspect. Fifth, children have a strong ability to recover.

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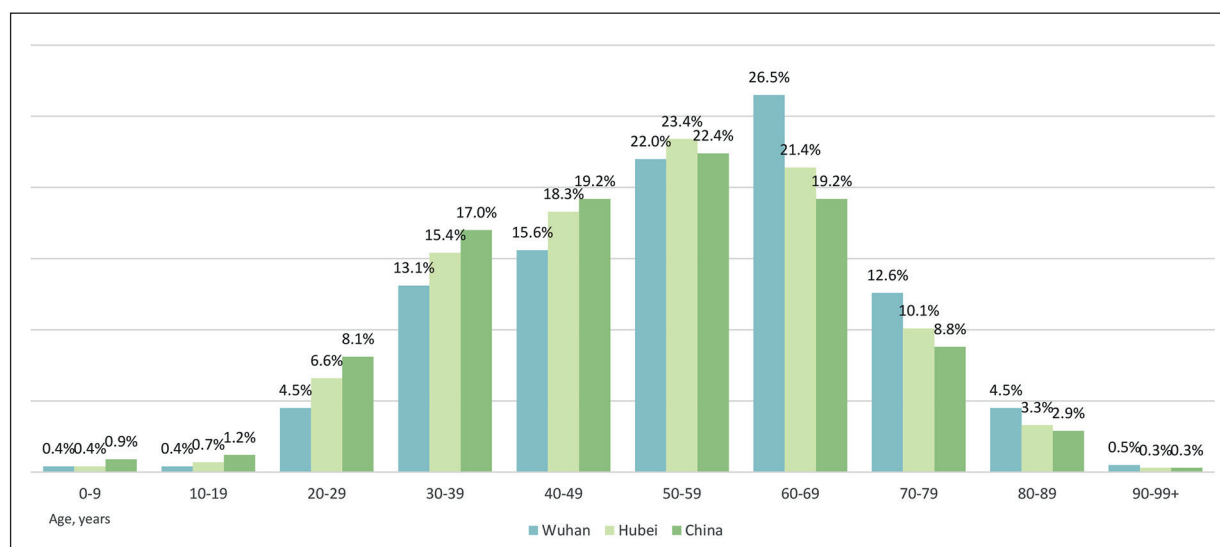


Figure 1.

With a good first-class medical treatment, the recovery rate is expected to be good. In summary, we think we should actively protect children, and minimize their exposure to those infected with SARS-CoV-2.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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