

Influence of COVID-19 pandemic on inhaled allergens in children with allergic diseases, Henan, China

Dear Editor,

The reports of Ye et al.¹ in this journal, which demonstrated that the Coronavirus disease 2019 (COVID-19) pandemic had an impact on the incidence rate and deterioration of allergic diseases in children. However, no data was available regarding the influence of COVID-19 pandemic on inhaled allergens in children with allergic diseases in Henan, China.

Epidemiological studies over the past 30 years showed that the prevalence of allergic disorders increased significantly in parallel with economic development, especially in children.² Allergic diseases in children have increased significantly and affect up to 35% of children.³ In addition to genetic susceptibility, exposure to environmental allergens and irritants is the main cause of allergic diseases.⁴ Meanwhile, the COVID-19 pandemic disrupted the people's normal lifestyle.⁵ In response to COVID-19, many countries had implemented strict interventions,

such as wearing masks, restricting outdoor activities, maintaining social distance, and limiting crowd gathering.⁶ These control measures taken during the COVID-19 pandemic may have an impact on the allergen levels and incidence rate of allergic diseases in children. Analyzing the local allergen epidemiological data before and after the COVID-19 pandemic can provide evidence-based strategies for the prevention and management of allergic diseases in children.

In this study, we compared the number of children with allergic diseases, and the positive number and rate of children with inhaled allergens levels > 0.35 KUA/L to explore the impact of the COVID-19 pandemic on the inhaled allergens in children with allergic diseases. As shown in Figure 1A, We found that the number of children with allergic diseases decreased in 2020 and subsequently increased in 2021. The inhaled allergens of children in Henan were mainly dermatophagoides farina, dermatophagoides pteronyssinus, mixed

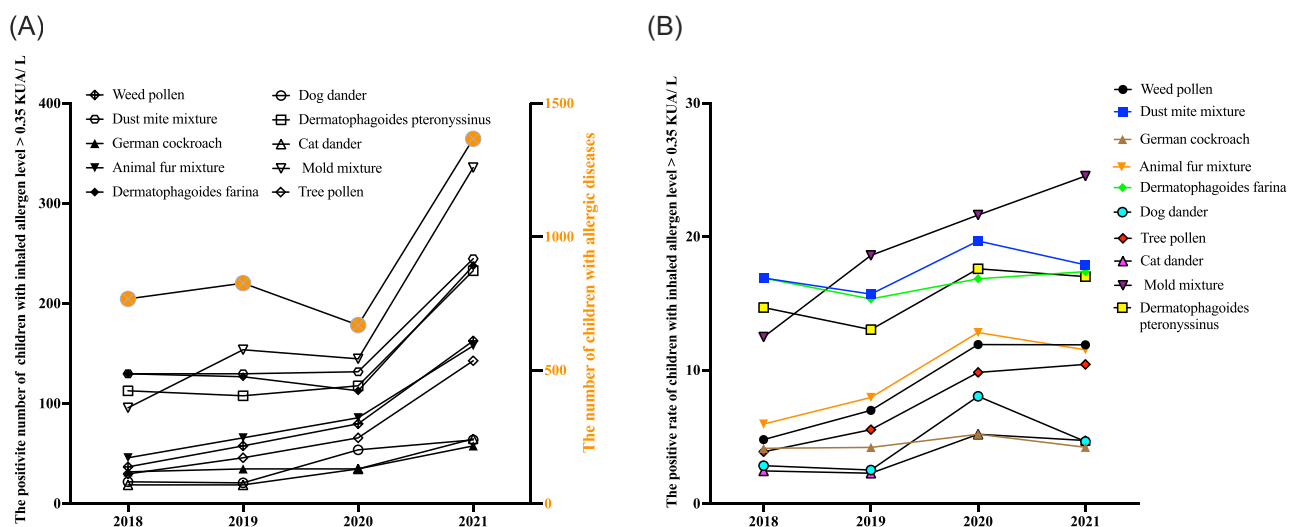


FIGURE 1 The positive number and rate of children with inhaled allergens levels > 0.35 KUA/L. (A) The total number of children with allergic diseases and positive number of children with inhaled allergens levels > 0.35 KUA/L. (B) The positive rate of children with inhaled allergens levels > 0.35 KUA/L.

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mold, and dust mite mixture. Except for the dermatophagoides farina, the positive number of other allergens gradually increased from 2018 to 2021. Meanwhile, we further analyzed the positive rate of allergens and found that the positive rate of weed pollen, dust mite mixture, German cockroach, animal fur mixture, dog dander, dermatophagoides pteronyssinus, cat dander, mold mixture and tree pollen were increased in 2020 compared to that in 2018 and 2019, and the positive rate of dust mite mixture, dog dander, cat dander and animal fur mixture decreased in 2021 compared to that in 2020 (Figure 1B).

Our data showed that the COVID-19 pandemic, as well as its prevention and control measures, increased the positive number and rate of children with inhaled allergens levels > 0.35 KUA/L. With the gradual control of the COVID-19 pandemic, people's lives will return to normal, and the positive rate of some inhaled allergens will also change, especially the indoor allergens. For example, the positive rate of dust mite mixture, dog dander, cat dander, and animal fur mixture increased during the period of strict control of COVID-19 (2020), whereas the positive rate decreased during the recovery period of the pandemic (2021). The changes on inhaled allergens in children with allergic diseases before and after the COVID-19 pandemic require attention.

In conclusion, we found that the positive number and rate of children with inhaled allergens levels > 0.35 KUA/L increased during COVID-19. Continuous monitoring of the changes in inhaled allergens in children can be helpful for preventing allergic diseases in children.

AUTHOR CONTRIBUTIONS

Xiaojuan Li, Tiewei Li, Junmei Yang, and Lijun Bi contributed to the study design and methods. Xiaojuan Li, Tiewei Li, Nan Chen, and Xuchen Wang were responsible for data collection and statistical analysis. Xiaojuan Li wrote the original draft of the manuscript. Tiewei Li and Junmei Yang provided overall guidance and managed the project. All authors read and approved the final manuscript.

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CONFLICT OF INTEREST

The author declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data used to support the findings of this study are available from the corresponding author upon request.

Xiaojuan Li¹
Tiewei Li¹ 
Nan Chen¹
Xuchen Wang¹
Junmei Yang¹ 
Lijun Bi²

¹Zhengzhou Key Laboratory of Children's Infection and Immunity,
Children's Hospital Affiliated to Zhengzhou University,
Henan Children's Hospital,
Zhengzhou Children's Hospital, Zhengzhou, China
²Institute of Biophysics,
Chinese Academy of Sciences, Beijing, China

Correspondence

Tiewei Li and Junmei Yang, Zhengzhou Key Laboratory of
Children's Infection and Immunity, Children's Hospital Affiliated to
Zhengzhou University, Henan Children's Hospital, Zhengzhou
Children's Hospital, Zhengzhou, China.

Email: litieweind@163.com and yangjunmei7683@163.com

ORCID

Tiewei Li  <http://orcid.org/0000-0003-4890-1134>

Junmei Yang  <http://orcid.org/0000-0003-4066-455X>

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