

Study finds link between birth order and asthma symptoms

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Among four year-olds attending Head Start programs in New York City, those who had older siblings were more likely to experience respiratory symptoms including an episode of wheezing in the past year than those who were oldest or only children. Children with at least two older siblings were also 50% more likely than other children to have gone to an emergency department or been hospitalized overnight for breathing problems. These findings from the Columbia University Mailman School of Public Health were recently pre-published online in the journal *Clinical and Experimental Allergy*.

“Our findings support the hypothesis that having older siblings increases a child’s risk of exposure to infectious agents before age two years, and in turn increases the child’s risk for wheezing,” said Matthew Perzanowski, PhD, assistant professor of Environmental Health Sciences at the Mailman School of Public Health and the lead author of the paper. “Some studies have found that having older siblings increases the risk of wheeze in babies and toddlers. Our findings are novel in that we found that among the four year-olds in this study, the pattern was the same as has been observed in younger children elsewhere.”

The children in the study were selected for participation because they attended Head Start programs in neighborhoods with the highest rates of childhood asthma hospitalization in New York City.

One possible explanation for the association is that children with older siblings have more exposure to respiratory infections at an early age than

oldest or only children. Respiratory infections are a common cause of wheezing in very young children. This study shows that children with older siblings may be appropriate targets for interventions to reduce the risk of infections that may lead to hospitalization.

“Previous findings of the opposite association between asthma and birth order among older children and adults have served as the basis for what is called the hygiene hypothesis, the idea that exposure to infectious agents at a very young age reduces the risk of asthma in the long term. Only by continuing to follow these children can we determine whether and how birth order predicts diagnosed asthma and asthma that persists throughout childhood,” noted Inge Goldstein, DrPH, a senior lecturer in the Mailman School’s Department of Epidemiology and senior author of the study.

“But even if the patterns of association change as the children grow, we have learned from this study that four year-olds with older siblings are more likely than other four year-olds to experience respiratory symptoms that burden them and their families and impose the costs of care on them and the community,” commented Judith Jacobson, DrPH, associate professor of clinical Epidemiology at the Mailman School and principal investigator of the study, which was funded by the National Heart, Lung, and Blood Institute.

In this study, the prevalence of recent wheeze was higher among boys than girls (32% vs 21%) and higher among children with an asthmatic parent than other children (53% vs 22%). Having younger siblings, unlike having older siblings, was not associated with respiratory symptoms. The associations of birth order with respiratory symptoms were statistically significant only among those children who were not atopic (allergic) and among those without an asthmatic parent.

Source: Columbia University's Mailman School of Public Health

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