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POINT OF VIEW

Children and COVID-19, should we be concerned?

Jandrei Markus¹

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Abstract

Children with viral diseases are generally considered to be spreaders of this infection. With the appearance of COVID-19, children were thought to be one of the main agents in the spread of this disease. In addition, it was initially considered that the pediatric age group would be a population at high risk of complications and even mortality when the virus infected a greater number of people around the world. However, the spread of the virus around the world has shown that children are a privileged group, with a lower number of serious infections and, in addition, a lower rate of hospitalizations and especially mortality. At the same time, epidemiological studies have observed that seroprevalence in children is lower than the adult population and that the transmission of children to others in COVID-19 appears to have a very low rate. Considering this data, going back to school would be important for the child population, who often need school not only for teaching but also for food, through school lunch.

¹ Federal University of Tocantins, Child and Adolescent Health Department - Palmas, Tocantins - Brazil.

Correspondence to:

Jandrei Markus.

Universidade Federal do Tocantins. Quadra 109 Norte, Av. NS 15, ALCNO-14, Bloco BALA II, sala 22. Plano diretor Norte Palmas - TO - Brasil. CEP: 77001-090.

E-mail: jandreimarkus@gmail.com

Children are known for contracting more viral diseases than individuals of other ages, with numbers usually getting to eight or more upper airway infections a year.¹ When the number of COVID-19 cases rose in China, children were thought to be one of the main agents in the transmission of the virus and a population at higher risk of developing severe disease. The first case series published in China showed a different reality, in which virtually no cases were reported in children.^{2,3} Some believed that the source of infection was located on a site not frequented by children. The global dissemination of the virus revealed that the disease was less lethal to children, sparking discussions on how to deal with the situation.⁴⁻⁷ Numerous ideas have been considered to explain a probable protective factor connected with young age, ranging from the lower number of ACE2 receptors to cross reactions with antibodies against other coronavirus strains often present in common colds affecting children.⁸ Some even wondered whether the disease occurred in children, since until April there had been practically no deaths of individuals in this age range. Epidemiology studies designed to describe the circulation of the virus confirmed that children were becoming infected, albeit at a lower order of magnitude than adults. Data collected in the city of Vo in Italy, where most of the population was tested for the disease, showed that children under the age of ten had not contracted it.⁹ The same was observed in Iceland in a prevalence study looking into a sample of the local population, in which antibodies were found 50% less frequently in children than in adults and children aged less than ten years did not test positive.¹⁰ Therefore, we may say that individuals aged 18 and younger fare relatively better than adults, although they are not immune to infection. Another element that supports this statement is the hospitalization rate, although most children are treated for milder disease with death rates significantly lower than the ones observed in adults. Data from the CDC indicated that as of April 2, 2020, individuals aged 18 years or younger accounted for 1.7% of the total number of confirmed cases, with a hospitalization rate of 5.7% and an ICU admission rate of 0.58% among reported cases.¹¹ In China, infants reportedly developed more severe disease, although only one death – a 14-year-old – was reported from a series enrolling 2,143 children.⁵ A statistical forecast study looking into pediatric cases in the American population considered that the study performed in China overestimated the number of cases of disease, since it included only individuals with detected disease, suggesting that hospitalization and ICU admission rates might be even lower.¹² Data from the CDC updated as of May 30, 2020, indicated that the accumulated hospitalization rates by COVID-19 were 4.9 and 2.4 per 100,000 population for individuals aged 0-4 and 5-17 years, respectively. The same rate rises to 254 per 100,000 population among individuals aged 65 years or older.¹³ For purposes of comparison, the

hospitalization rates by influenza reported by the CDC as of April 25, 2020, were 95.3 and 24.8 per 100,000 population for individuals aged 0-4 and 5-17 years, respectively, orders of magnitude higher than the rates seen with COVID to this moment.¹⁴ With this in mind, one might wonder about the role children have in this context and whether this might be positive. If children are less infected with the virus than adults and if they develop less severe forms of the disease and are hospitalized to a much lesser degree, could this be a path to building herd immunity in the population? This way we would have part of the population immune to the disease, decrease the circulation of the virus, and protect individuals in age ranges more susceptible to infection. Another recently reported fact should be considered about infection and children. In general, children with viral disease have more trouble eliminating the virus and present persistent higher viral loads for weeks, which turns them into potential spreaders of disease.¹ The situation with SARS-CoV2 is apparently different. The attack rate in children is low, i.e., children do not spread this virus effectively. Some have even questioned whether children can transmit the virus at all, based on reports of infected children who were in touch with several other individuals, none becoming ill with the disease.¹⁵⁻¹⁷ In China, children were initially believed to transmit the disease. Further reviews were unable to find a case in which a child was the index case in a family.¹⁵ Another publication discussed that if children can be infected by the virus, develop milder disease, have lower death rates, and are not spreaders, why should they be kept from returning to school?¹⁸ We must remember that although most children do not develop severe disease, their parents and guardians might. This is an important element to be managed rationally, so that crowds are not allowed form at school gates at the start and end of classes. Children are often accompanied by individuals belonging to risk groups, and that has to be considered. Teachers belonging to risk groups must also be given special attention.

Another important element to consider is the role schools play in society. A reason to encourage the reopening of schools is the meals many students rely on, often the only decent meal they have in a day. Reopening schools would benefit underprivileged students in particular and give them access to much needed help. Society can be reopened only with sound plans. Based on current evidence, it is reasonable to think of schools as one of the first institutions to reopen. Other diseases are also occurring, and it would be wise to immunize children returning to school against influenza, since it is a condition of increased risk in pediatric populations. Additionally, children with flu-like symptoms should not go to school while they are sick. Children belonging to risk groups should remain in isolation until circulation levels of the virus are deemed safe or an effective and safe vaccine has been developed.

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