Air Pollution and Risk of Violence in School Settings Among Minnesota Children

Translating research to practice may be difficult, yet a better understanding of current research is necessary to ensure child welfare workers, educators, and other professionals engage in best practices when working with children and families. The Minn-LInK Discussion Guide is designed to help facilitate thoughtful dialogue about the information presented in the research brief in order to inform practice and enhance discussion surrounding meaningful issues.

In this issue we were interested in understanding how how environmental pollution may contribute to violence among children. Violence is the leading cause of death for children in the United States, and while socio-economic mechanisms may drive violent events, less emphasis has been placed on understanding how pollution may increase the risk of violence. We used administrative data on Minnesota children to estimate associations between air pollution and school violence. We found urban schools had higher rates of violence compared to rural schools. Carbon monoxide had the greatest impact on school-level violence among Minnesota children. However, when evaluating urban and rural schools separately, we found nitrogen dioxide was most strongly associated with violence among children in urban schools and carbon monoxide was most impactful for children in rural schools.

Discussion on Practice Implications

1. In this study, we found that higher levels of air pollution around schools led to an increase in the frequency of school violence among children. Have you seen examples in your interactions with children of how the surrounding environment of their school (natural greenery, access to playgrounds, pollution, traffic noise, crime etc.) affects their own behavior, happiness, or performance in school? How about in other settings?

2. How might you advocate for changes in the quality of school environments to local and state policymakers? In what ways can you engage with the communities you serve to help them have a voice and advocate for improvements in the school environments to better the health and well-being of their children?

Discussion on Agency- & System-Level Changes

1. Are you aware of what the national and/or state limits are for the concentrations of air pollution used in this study? Would it be beneficial to have stricter air pollution regulations around schools and what barriers might exist in implementing such a policy?

2. Do you think there is sufficient awareness regarding the potential health effects of environmental pollution on children in school settings? How might you inform communities on the potential health risks of environmental pollution in schools? Which agencies might be good partners in developing educational materials for community members?

3. How might you engage with your professional field to advocate for systemic changes in where potential sources of pollution can be located in proximity to schools? How might systemic racism play a role in the surrounding environmental conditions of schools in communities of historically marginalized people?