

School's indoor air quality and respiratory health implications among children

ABSTRACT

Background: Concern about recent increases in respiratory illnesses among schoolchildren worldwide has stimulated much research on potential indoor air pollutants (IAPs) and its health impacts on schoolchildren. A critical review was conducted on the quantitative literature linking indoor air pollution in schools to respiratory illnesses among schoolchildren. **Method:** This review summarizes 13 epidemiologic studies on the associations between schools' indoor air quality (IAQ) and respiratory health of schoolchildren. Online databases and literature from universities were referenced. **Results:** Strong associations were reported between risk factors (Particulate Matter, Volatile Organic Compounds, Indoor mold and microorganisms, indoor concentration of Carbon Dioxide and Carbon Monoxide) and respiratory effects among schoolchildren. The studies on schools' IAQ are consistent and show significant increases in risk for exposed schoolchildren. Most researches that controlled for confounders found that strong and significant risks remained. Reviewed studies were entirely observational, limited in size and variable in quality. Specific risk factors identified may only indicate correlated or casual exposures. However, it is important to quantify and confirm any risks to promote preventive actions. **Conclusion:** The characteristics of IAPs in schools are synthesized, strategies to minimize schoolchildren's exposure proposed and improvements in research design for future research on schools' IAQ are recommended.

Keyword: Indoor air quality; School children; Respiratory health effects