

The Impact of Air Pollution and Asthma on Educational Outcomes: A Scoping Review

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It is unclear if, and to what extent, exposure to air pollution is associated with educational outcomes and how asthma might mediate the association. This study aimed to describe the understanding and knowledge gaps in research on the associations between outdoor air pollution, asthma, and educational outcomes.

This scoping review used the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) and the Joanna Briggs Institute methodology for scoping reviews to ensure reproducibility and validity. A scoping review was chosen to capture a broad range of articles to determine the amount and quality of the literature that describes the impact of air pollution or asthma, individually or in combination, on educational outcomes and to describe the methodologies, evidence, and the gaps in knowledge. Eight academic databases were searched and following peer review forty-one articles were included for full review and data extraction.

The evidence for an association between air pollution and educational absence was described well but was less strong than for asthma as an exposure. Uncontrolled asthma was shown to be associated with lower educational attainment, but the association between air pollution and lower educational attainment was variously found to be positive, negative, or not present. One article reported an association between air pollution and lower educational attainment for young people treated for respiratory symptoms. One article described an association between air pollution and educational absence for young people with asthma. Whilst a third article linked air pollution, poorer health, and lower educational attainment. Some studies made use of routinely collected and linked health data but very few used anonymised linked health, environmental and educational data.

Novel studies should explore asthma exacerbations, exposure to air pollutants and baseline air pollution, types of educational assessment, and the support for young people (from home, school, health providers and society). Studies should consider a variety of geographical settings to identify patterns of inequality in asthma health and educational outcomes.



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