



The Relationship between Adverse Health Outcomes and Air Quality among Minority Communities

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There is a vast amount of knowledge on the relationship between air quality and deleterious health outcomes. Air pollution is associated with a range of adverse health outcomes, and it is widely accepted that emissions exposure effects vary distinctly by neighborhood. So, disparities in established health outcomes are largely caused by differences in air pollution exposure. Moreover, pollutant exposure rates in the US are largely determined by socioeconomic status, immigration status, race, and various other factors. Thus, low-income and minority communities tend to face higher levels of exposure to air pollution and deleterious health outcomes. These communities are considered “vulnerable populations” that are disproportionately impacted by the effects of poor air quality.

Until now, emissions reporting is generally aggregated to the city level and thus, evidence to support this dynamic among vulnerable populations has been tenuous. However, since 2015, new technology and increased affordability of air quality sensors have produced large amounts of data. This increased availability has provided more granular data that is at or below the zip code level of analysis. Therefore, research on the correlates between socioeconomic dynamics and air quality is now possible and relevant with the increased awareness for applying environmental research to various occupations, races, and economic groups.

Still, little work has been conducted to summarize and map the novel advancement in the last six years of research. Thus, our goal is to conduct a scoping review on the literature from January 2015 to December 2020 concerning the effects of outdoor air quality and air pollution (specifically criteria pollutants) on deleterious cardiovascular and pulmonary health outcomes within various adult populations and locations in the United States. Once completed, the review will provide an overview of the literature using the available evidence through a robust criterion; clarifying concepts and/or definitions; examine how research is being conducted; and identify any gaps in the literature. The review will inform specific recommendations for policymakers to reduce the health outcome disparities caused by poor air quality and provide serious implications for urban planning, public health, air quality policy, policy/health interventions, among others. Lastly, this scoping review has the potential to be a precursor for a future systematic review by providing a narrowed, novel research question and by developing the priori inclusion criteria for future research.