

An Environmental Health Impact Assessment (EHIA) of Ambient Air Quality in India: A Systematic Review

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Abstract

Introduction: The changing scenario of Globalization has been successful in bringing about great climatic barriers and pollutants are also one among them. According to the World Health organization, air pollution has been responsible for 6.7 million/year pre-mature deaths worldwide. The deteriorating air quality has been responsible for various chronic co-morbid conditions and deaths. This systematic review critically examines the existing body of research on air quality in India, with a focus on its environmental impact. India, as one of the fastest-growing economies, grapples with severe air pollution and threats to public health and environment.

Material and Methods: A systematic search was conducted in reputable academic databases, including but not limited to PubMed, Google Scholar, Web of Science, and government repositories. The search strategy used includes keywords such as “air quality,” “India,” “environmental impact,” and specific pollutants (e.g., PM2.5, NO2), health impact terms like “co-morbidities,” “multi-morbidities” and others. Titles and abstracts were screened independently by two reviewers to identify potentially eligible studies with consultation of the third reviewer. This study includes articles between 2019 and 2023. The quality and reliability of data sources were evaluated to ensure consistency and validity. Inclusion criteria: All original articles, peer-reviewed articles, government reports and international assessment published between the study period was included. Exclusion criteria: All reviews, meta-analyses, expert opinions, animal studies, and studies related to cells and tissues.

Results: Among 3408 studies screened, 220 original articles satisfied the inclusion criteria and 22 studies were finally included. The majority of the Studies were carried out by researchers from institutions in China, the US, the UK, and Italy. The most commonly investigated health outcome type was respiratory illnesses (mainly asthma and COPD), followed by cardiovascular outcomes (mainly stroke). An IAP framework for EHIA has been developed which is based upon the findings from the study.

Conclusion: This study gives us a detailed account of Health and environmental interdependencies. The purpose of this study is to provide an idea of a conceptual framework based on the systematic review conducted which will enable policy experts to develop the conceptual framework into a mitigation strategy.