

Editorial

Air Pollution and Its Impact on Human Health

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Corresponding Author: Dr. Asif Hussain, **Email:** dtrasifhussain@gmail.com**Received:** 04-08-2025 **Revised:** 08-10-2025 **Accepted:** 10-11-2025 **DOI:** <https://doi.org/10.70302/jpsim.v6i4.2556>This is an open access article under the CC BY4.0 license. <https://creativecommons.org/licenses/by/4.0/>**Introduction**

More than 90% of the World population face this problem of air pollution, though it's the worst in the low- and middle-income countries. These problems are very much prevalent in developing countries and often are either unrecognised or not addressed due to various reasons. Air pollution both household and ambient (outside) is a major threat to the health.¹ It is measured by analysing particles in the air and assessing the gases by spectrometry. Air quality index is calculated which indicates the level of pollution in the air.

Health Impacts of air-pollution:

Globally, almost seven million deaths per annum are attributed to air pollution causing &/or worsening various diseases including but not limited to lung diseases (COPD, lung infections, worsening of asthma, & lung cancers), ischemic heart disease, and stroke. Lung infections such as COVID-19, tuberculosis and many others are also additional risks posed by the low air quality. These infections and illnesses are a major cause of poor quality of life, loss of productivity, health cost, morbidity & mortality². Rising incidence of these diseases especially various cancers and vascular diseases in younger age is contributed by many factors such as genetic, nutritional and likely carcinogenic chemicals in the air.

Air pollution role in various other diseases such as psychiatric & mental health issues, neurodegenerative diseases, autoimmunity and various cancers hasn't been well established yet. There is also a concern regarding the contribution of air pollution towards cognition decline and accelerating the process of ageing. However, there are several studies and meta-analysis conducted which showed that with increasing air pollution there is increased risk of asthma worsening. A similar meta-

analysis also found a directly proportional effect of poor air quality with alteration in the gut bacteria and immune response which may be a trigger for inflammatory bowel disease or many systemic autoimmune / inflammatory diseases.³ But these possible contributing factors need more evidence to establish a causative link hence need further research. Therefore, it is important to explore this global health risk to understand the factor causing air pollution and its link with diseases to mitigate the impact.

Factors contributing to air pollution:

Major contributors include household combustion devices, vehicles, forest fires, agricultural practices, mining and industries. Overcrowding and poor public hygienic practices to manage waste are also cause of the problem. Air pollution in the residential areas is also caused by public throwing trashes and wastes on to the street.^{2,3}

Measures to reduce health impact of air-pollution

WHO has issued a comprehensive plan 2023-2030 to address impact of air quality on the human health. This plan focuses on educating public about this issue and improving institutional capacity to manage the issue.^{1,4} The plan also emphasises on initiatives, leadership and coordination to implement needful policies across the globe.

1. Role of individuals is very important to help manage waste, and this can only be achieved by educating the people to create awareness of this health risk. A very cost-effective measure is using face mask when going out of the home especially in an open area with pollution, smoke and smog.
2. House construction should ensure adequate ventilation especially for the kitchen smoke and fumes.

- This can avoid unrecognised and unnoticed exposure to pollution at home.
3. Societies must make sure that their government is accountable and implementing measures for improving air quality. It's needed to promote a culture of environmental stewardship where individuals participate in these activities and promote a healthy air quality and cleanliness.
 4. There is need for investment in clean energy system and public education. WHO guidelines need to be followed.
 5. There needs to be a close coordination between government, scientists, society, and individuals to create awareness and implement rectifying measures. This close collaboration between various stakeholders is necessary to achieve, sustain and promote these practices which meet the needs of the growing population but doesn't compromise the air quality. There is also a need for more collaboration with public health professionals and environmental scientists to find the solutions for these health issues contributed by low air quality.
 6. Development of major towns and cities should incorporate measures for improving air quality. The planning needs to focus especially on the waste management. Cities which are overcrowded has more pollution. Therefore, less population in the cities and compact development is helpful. Advantages of compact development may be due to decreased vehicle use due to shorter distances, more efficient energy utilisation and more space left for nature. There have been studies indicating that compact development in majorly urban cities has more advantages than disadvantages.
 7. Urbanisation also need to implement a sustainable but environmentally friendly energy production & consumption system. Major cities and towns also need a transport system which can help minimise the air pollution. Electric vehicles, buses and trains may help reduce smoke and pollution.

Conclusion:

Health impact of air pollution is devastating and an ongoing issue. But implementing effective strategies such as improving transport system, developing towns focussed on air quality, transitioning to renewable carbon-free energy, educating the masses and preserving nature can help reduce these concerns. However, this needs planning and investment through collaboration between governments, industries, scientists, health professionals and society. Long-term outcome depends on implementing sustainable practices to protect ecosystem, air quality and public health for a better present & future.

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