

## **THE IMPACT OF AIR POLLUTION ON OUR HEALTH**

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**Abstract:** Air pollution is one of the most pressing environmental and public health challenges facing the world today. It occurs when harmful substances such as particulate matter, carbon monoxide, sulfur dioxide, nitrogen oxides and other toxic chemicals are released into the atmosphere. These pollutants originate from a variety of sources, including industrial activities, transportation, burning of fossil fuels, agricultural practices and even natural events like wildfires and dust storms. As urbanization and industrialization continue to grow, the level of air pollution has increased significantly, posing serious risks to human health and well-being.

**Keywords:** air pollution, lung, effect, caused, impact, health, affect, human.

### **Introduction**

One of the most immediate and noticeable effects of air pollution is on the respiratory system. When polluted air is inhaled, tiny particles known as particulate matters can penetrate deep into the lungs. These particles irritate the airways, causing inflammation and reducing lung function. As a result, individuals may experience coughing, shortness of breath, wheezing and chest tightness. Long-term exposure can lead to chronic respiratory diseases such as asthma, bronchitis and chronic obstructive pulmonary disease (COPD). Children are particularly vulnerable because their lungs are still developing and exposure during early life can have lasting effects on lung growth and function.

In addition to respiratory problems, air pollution has a profound impact on the cardiovascular system. Pollutants can enter the bloodstream through the lungs and contribute to inflammation and oxidative stress within the body. This increases the risk of developing serious conditions such as hypertension, atherosclerosis, heart attacks and strokes. Scientific research has shown that prolonged exposure to polluted air is associated with higher rates of cardiovascular mortality. Even short-term exposure to high levels of pollution can trigger acute cardiac events in individuals who are already at risk.

Air pollution also affects the nervous system and mental health, an area that has gained increasing attention in recent years. Toxic substances in polluted air can reach the brain either through the bloodstream or directly via the olfactory nerve. This exposure has been linked by cognitive decline, memory problems, reduced attention span and an increased risk of neurodegenerative diseases such as Alzheimer's and Parkinson's diseases. Furthermore, living in polluted environments has been associated with higher levels of stress, anxiety and depression, highlighting the connection between environmental quality and psychological well-being. Another important but often overlooked effect of air pollution is its impact on the immune system. Continuous exposure to pollutants can weaken the body's natural defense mechanisms, making individuals more susceptible to infections. This is especially concerning in the context of respiratory infections where polluted air can worsen symptoms and increase the severity of illness. For example, during outbreaks of viral diseases, people living in highly polluted areas often experience more complications and slower recovery.

Air pollution does not affect all population equally. Vulnerable groups such as children, the elderly, pregnant women and individuals with pre-existing health conditions are at greater risk. In developing countries where environmental regulation may be less strict and access to healthcare is limited, the impact of air pollution is even more severe. Socioeconomic factors also

play a role, as people living in poorer communities are often exposed to higher levels of pollution and have fewer resources to protect themselves. Moreover, indoor air pollution is another serious concern, particularly in households that use solid fuels like wood, coal or biomass for cooking and heating. Poor ventilation can lead to the accumulation of harmful smoke and gases inside homes, exposing individual especially women and children to high levels of pollution on a daily basis. This type of exposure significantly increases the risk of respiratory infections and chronic diseases.

The economic and social consequences of air pollution are also substantial. Increased healthcare costs, reduced productivity and loss of life place a heavy burden on societies and governments. Addressing air pollution is not only a matter of environmental protection but also an essential step toward improving public health and economic stability.

In conclusion, air pollution has wide-ranging and serious effects on human health, impacting the respiratory, cardiovascular, nervous and immune systems. It is a global issue that requires urgent attention and collective action. Reducing emissions, promoting clean energy, improving public transportation and raising public awareness are crucial steps in combating air pollution. Ensuring access to clean air is fundamental to protecting human health and creating a sustainable future for the next generations.

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