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Smog Exposure and Its Consequences for Human Health in Lahore

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Lahore is a metropolitan city and the capital of Punjab province, which is acclaimed due to historical sites, cultural diversity, and economic involvement. It is under this vibrant city atmosphere that there is a serious environmental and health concern of smog. Smog can be defined as a continuous presence of smoke, dust, and chemical contaminations suspended in humid air, which are very dangerous to human health. Research has reported its influence on respiratory and cardiovascular outcomes in residents, and thus an urgent need to intervene. [1-3]

The smog is a complex of various pollutants, among which are: particulate matter (PM2.5 and PM10), nitrogen oxides (NOx), sulfur dioxide (SO2), ozone (O3), and volatile organic compounds. These are due to motor vehicle emissions, industrial operation, construction, brick kiln, crop burning and burning of solid waste. Lahore has a high traffic density with intersections like Kalma Chowk, Liberty Roundabout, and Thokar Niaz Baig showing the level of vehicular pollution, and the industrial estates significantly add to the ambient pollutant concentrations. The issue is aggravated by winter months when the meteorological conditions promote the accumulation of smog. [4]

The long-term effects of being exposed to smog are health-threatening. Fine particulate matter is very deep-seated and aggravates asthma, chronic obstructive pulmonary disease (COPD), and pneumonia. There is also epidemiological evidence that smog contributes to cardiovascular risks (such as ischemic heart disease and stroke) with systemic inflammation and oxidative stress. The children, the elderly and socioeconomically disadvantaged populations are more affected at the expense of the rest of the population and this is part of greater environmental health disparities. The hospital surveys in Lahore verify that residents regularly cough, wheeze, have eye irritation, and shortness of breath at the time of high pollution, and the effects of this on daily living and well-being can be measured. [5,6]

The smog crisis in Lahore needs a well-coordinated, evidence-based approach. Although the health risks are well documented, the lack of appropriate interventions is due to the ineffective regulation enforcement, industrial lobby, and poor awareness among the population. The main actions that should be taken are the strong air quality monitoring, the tightening of the industrial emission regulations, the propagation of cleaner transportation use, the development of the urban green areas, and the educational campaigns among people to make them more aware and precondition the protective behavior. [2,5]

Smog is a critical health crisis affecting respiratory and cardiovascular well-being. Policymakers, industry, and citizens must take urgent measures to reduce emissions, improve air quality, and protect vulnerable populations. While actions like stricter emission controls, cleaner transportation, and public awareness are essential, extensive urban plantation and afforestation should be central to the strategy. Planting trees along roads, industrial zones, and residential areas can trap pollutants, absorb harmful gases, and enhance air circulation. Prioritizing green belts and urban forests alongside other interventions will help Lahore effectively combat smog, improve ecological resilience, and safeguard the health of its citizens.

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