THE EVIDENCE

E-ISSN:3048-7870
Vol. 2 No. 4 (2024)

Editorial | Environmental health | Check for updates

Pollution – the evolving public health apocalypse

Sameer Mehta[1], Yashendra Sethi[1,2*]

[1] Lumen Foundation, Miami, USA.

[2] Government Doon Medical College, Dehradun, Uttarakhand, India

*Correspondence: yashendrasethi@gmail.com

Abstract

This editorial highlights the severe public health crisis caused by pollution, with a specific focus on New Delhi, India, where the Air Quality Index (AQI) frequently surpasses hazardous levels. Pollution has surpassed traditional risk factors such as smoking as a principal health hazard, significantly curtailing life expectancy and increasing the incidence of diseases including cardiovascular disorders, lung cancer, and chronic obstructive pulmonary disease. The article calls for immediate revisions to public health protocols and calls for international efforts to address this widespread environmental menace.

Keywords: *Air pollution, public health crisis, cardiovascular diseases, lung cancer, COPD, environmental health*

www.evidencejournals.com

Cite this Article

Mehta S, Sethi Y. Pollution – the evolving public health apocalypse. THE EVIDENCE. 2024:2(4):1-3.
DOI:10.61505/evidence.2024.2.4.87
Available From https://the.evidencejournals.com/index.php/j/article/view/87/

Received:	2024-07-05
Revised:	2024-07-17
Accepted:	2024-07-22
Published:	2024-10-18

Evidence in Context

- New Delhi's AQI often exceeds 600, significantly reducing lifespans by up to 12 years.
- Toxic air boosts diseases like heart conditions, strokes, cancers, and COPD.
- Pollution surpasses traditional health risks such as smoking.
- Younger, more diverse populations are increasingly affected by lung cancer.
- These findings necessitate urgent updates in public health guidelines.

To view Article

Editorial

We stand at a pivotal moment in history, where the pervasive and insidious epidemic of pollution has become a silent yet potent killer, more so in regions like New Delhi, India. It is with a sense of urgency and a plea for immediate action that I write this note, highlighting the catastrophic impact of environmental pollution on public health, particularly in the context of New Delhi's alarming situation.

New Delhi, a city with a rich history and vibrant culture, now grapples with an invisible enemy – air pollution. The Air Quality Index (AQI) in this city often surpasses 600, a figure that stands starkly in the "Hazardous" category. This is not just a number but a grim indicator of the air residents breathes daily. The consequences are dire, with projections indicating that inhabitants could see their life spans reduced by an astounding 10 to 12 years due to this crisis [1].

The health implications of such pollution are profound and far-reaching (Table 1). We are witnessing dramatically increased morbidity and mortality rates, predominantly from heart attacks, strokes, cancers, and chronic obstructive pulmonary disease (COPD). The air in New Delhi is not just polluted; it is a toxic cocktail of carcinogens, affecting every individual, from the elderly to infants. This is not hyperbole; it is a reality backed by scientific evidences [2].

Table 1 compares air quality, pollution levels, and health impacts in New Delhi from 1990 to 2024. It includes AQI values, PM2.5 levels, mortality rates, reductions in life expectancy, and the incidence of heart disease, stroke, COPD, and lung cancer. Data sources include the Central Pollution Control Board (CPCB), WHO, GBD, and others. The table highlights the increasing severity of pollution and its significant health and economic impacts. As per GBD study - the economic loss as a proportion of the state GDP varied 3·2 times between the states, ranging from 0·67% (0·47–0·91) to 2·15% (1·60–2·77), and was highest in the low per-capita GDP states of Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, and Chhattisgarh. Delhi had the highest per-

Capita economic loss due to air pollution, followed by Haryana in 2019, with 5·4 times variation across all states.

Table 1. Historical and current impact of air pollution in New Delhi, India

Parameter	1990 Data	Current data (2024)	Source
Air Quality Index (AQI)	150-200 (Unhealthy)	Often surpasses 600 (Hazardous)	Central Pollution Control Board (CPCB), India
Annual Average PM2.5 (μg/m³)	60	98.6	World Health Organization (WHO)
Mortality Rate due to Pollution	0.6 million premature deaths annually in India	2.3 million premature deaths annually in India	Lancet Planetary Health, 2021
Reduction in Life Expectancy	4-5 years	10-12 years	Energy Policy Institute at the University of Chicago
CVD	6.9% of total deaths	13.6% of total deaths	Global Burden of Disease (GBD)
COPD Prevalence	3.3% of the population	7.4% of the population	Global Burden of Disease (GBD); Lung India
Lung Cancer Incidence	12 cases per 100,000	26 cases per 100,000	National Cancer Registry Programme, India
Primary Pollutants	PM10, SO2, NO2	PM2.5, PM10, NO2, SO2, CO, O3	CPCB
Comparison with Other Cities	New York (AQI < 50), London (AQI < 40)	New York (AQI < 50), London (AQI < 40)	US EPA, UK DEFRA
Economic cost attributable to pollution	-	$36.8 billion annually	Greenpeace Southeast Asia and Centre for Research on Energy and Clean Air (CREA); BBC

Two critical myths need urgent debunking. First, the traditional risk factors for atherosclerosis - smoking, diabetes, hypertension, and hyperlipidemia - have now been overshadowed by pollution. This marks a critical shift in our understanding of public health risks. Unlike traditional factors that affect specific populations at risk, environmental pollutants spare no one, indiscriminately impacting every citizen. The cumulative effect of pollution as a risk factor is, therefore, potentially far greater than those of traditional factors [3].

Second, the epidemiology of cancers has undergone a drastic transformation. The entire population, including all ages, genders, and groups, is now at risk for lung cancers, which are occurring at younger ages and affecting a wider demographic. This shift in cancer epidemiology is not just a statistic; it is a warning sign of the changing dynamics of public health [4].

These changes are not merely academic concerns; they demand a radical rethink in our approach to clinical research and public health guidelines. It is high time that entities like the World Health Organization (WHO) and other public health agencies recognize and advance these changes in epidemiology as critical issues. The reliance on outdated metrics and data in the face of overwhelming evidence of pollution's impact is no longer tenable.

The gravity of this situation cannot be overstated. Every breath in a polluted environment is a reminder of the urgent need for action. It is an issue that transcends geographical boundaries and requires a collective global response. We must act now, for the health of our present and the legacy of our future.

Abbreviations

AQI: Air Quality Index

CPCB: Central Pollution Control Board

COPD: Chronic obstructive pulmonary disease

WHO: World Health Organization

Supporting information: None

Ethical Considerations: Not applicable

Acknowledgments: None

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Author contribution statement: All authors (SM, YS) contributed equally and attest they meet the ICMJE criteria for authorship and gave final approval for submission.

Data availability statement: Data included in article/supp. material/referenced in article.

Additional information: No additional information is available for this paper.

Declaration of competing interest: The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Clinical Trial: Not applicable

Consent for publication: Note applicable

References

[1] AQLI study. 2023. [Internet]. [cited 2023 Dec 23]. *Available from: [Article][Crossref][PubMed][Google Scholar]*

[2] EPA. Particle Pollution and Respiratory Effects. [Internet]. [cited 2023 Dec 23]. *Available from: [Article][Crossref][PubMed][Google Scholar]*

[3] Bevan GH, Al-Kindi SG, Brook R, Rajagopalan S. Ambient Air Pollution and Atherosclerosis: Recent Updates. Curr Atheroscler Rep. 2021;23(10):63. *[Crossref][PubMed][Google Scholar]*

[4] Huang Y, Zhu M, Ji M, Fan J, Xie J, Wei X, et al. Air Pollution, Genetic Factors, and the Risk of Lung Cancer: A Prospective Study in the UK Biobank. Am J Respir Crit Care Med. 2021;204(7):817-825. *Erratum in: Am J Respir Crit Care Med. 2022;205(10):1254. PMID: 34252012 [Crossref][PubMed][Google Scholar]*