



## Science REPORTER

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## Deadly Cocktail of Toxic Air Worsening COVID

EVERY year as winters approach, the falling temperatures and decreasing wind speeds exacerbate the problem of pollution. This year too, the air quality in the Delhi/NCR region has started worsening with a cocktail of toxic gases from vehicles, construction, and crop burning. But this year we have COVID-19 to contend with too.

Studies the world over have been pointing to an increasing correlation between air pollution and increased risk of COVID-19 disease. A recent study by researchers at the Nagpur-based CSIR-National Environmental Engineering Research Institute (CSIR-NEERI) has established the linkage between deaths due to COVID-19 and air pollution. The research team studied data from nine Asian cities listed among the top 500 most polluted cities in the world in relation to PM<sub>2.5</sub>. While three cities were from

China, Pakistan, and Indonesia, the team selected Delhi, Nagpur and Kanpur in India. The researchers found a relationship between exposures to high level of air pollutants over long periods, and increased reported deaths due to COVID-19.

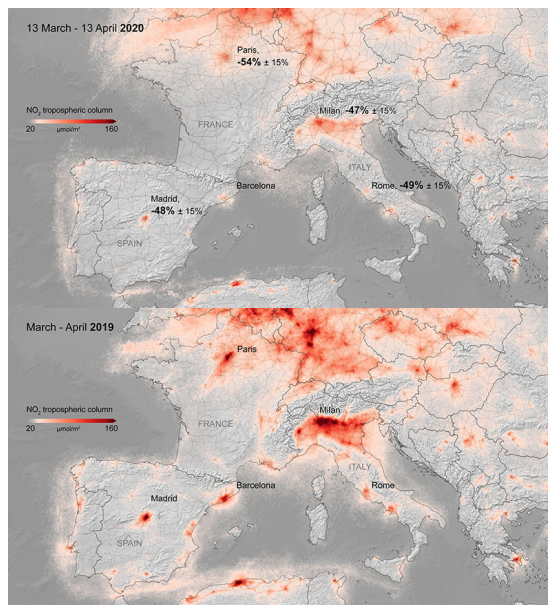
It is well-established that chronic levels of air pollution could be a major risk factor for death from cardiovascular and pulmonary obstructive diseases. In a study published in *Science Advances*, Wu *et al.* (*Sci. Adv.* 2020; 6: eaba5692) after examining U.S. Medicare data for 68.5 million enrollees over 16 years found that even very small decreases in PM<sub>2.5</sub> pollution can result in a significant decrease in elderly mortality.

In yet another study in China (*Sci Total Environ.* 2020 Jul 20; 727: 138704), the researchers observed significantly positive associations of PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>2</sub> and O<sub>3</sub> with COVID-19 confirmed cases, indicating a significant relationship between air pollution and COVID-19 infection.

In another study, published in *Cardiovascular Research*, researchers from Max Planck Institute for Chemistry, Cyprus Institute Nicosia, University Medical Center of the Johannes Gutenberg University, and the German Center for Cardiovascular Research, estimated that about 15% of deaths worldwide from COVID-19 could be attributed to long-term exposure to air pollution. A member of the research team, Prof. Münzel, says that when people inhale polluted air, the PM<sub>2.5</sub> causes damage to the inner lining of arteries, the endothelium, and leads to the narrowing and stiffening of the arteries. The COVID-19 virus also enters the body *via* the lungs, causing similar damage to blood vessels. Together, long-term exposure to air pollution and infection with the COVID-19 virus could have an additive adverse effect on health.

The studies point to the substantial health benefits that could accrue from reducing air pollution, especially in the midst of the deadly COVID-19 pandemic. And as experts are increasingly saying, this is not going to be the last pandemic...there are more to come. Air pollution has to be looked at in terms of long-term measures.

Hasan Jawaid Khan



Effects of air pollution on COVID-19 related mortality in northern Italy  
(Courtesy: <https://www.unsdsn.org/air-pollution-and-covid-19-related-deaths>)

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