

Latest lockdown had less impact on UK air pollution levels than the first, new analysis shows

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The latest winter lockdown did not have the same impact on air pollution levels as the first lockdown of 2020, new research from the University of York shows.

Researchers say the disparity was probably due to people using more heating as they were working from home during the winter months and also from people who were starting cars in colder conditions.

During the spring 2020 UK lockdown, [nitrogen dioxide](#) (NO₂) decreased by 52 percent on average compared with only 28 percent on average in the lockdown which started in January 2021. NO₂ is a key pollutant caused by vehicles and other emissions.

Restrictions

The research was led by undergraduate student Rhianna Evans and Dr. Will Drysdale from the Department of Chemistry and used data from roadside monitoring stations across the UK.

Rhianna Evans said: "Despite restrictions being similar, it seems the impact of the winter lockdown reduced [pollution](#) less due to factors like people working from home and therefore using more heating and others who were going into work starting cars in colder conditions which creates more pollution.

"It is important to consider this diversity of sources for future reductions in air pollution. The winter lockdown scenario where these domestic sectors made up a greater proportion of total NO₂ sources shows that a shift in society's behavioral patterns can produce pollution from other sources."

Emissions

Dr. Drysdale added: "This change in behaviour may mimic future scenarios where emissions from road transport continue to decline, either through uptake of electric vehicles or work patterns including a

greater remote component. It is worth examining as we look forward on how we continue to improve air quality.

"The key difference in the winter is the weather. Air pollution is heavily influenced by this, for example concentrations are lower on windy days, as it spreads out more. The model we have used takes this kind of effect into account however. In this case the colder temperatures influence our activity, which in turn leads to us emitting more. This seems to have muted the reductions from lockdown this time around."

Greater disparities between the lockdowns for NO₂ pollution were observed in [large urban areas](#), such as Leeds and London, with NO₂ reductions in the most recent lockdown less than half that of the spring lockdown.

Air pollution

In the [winter lockdown](#) NO₂ dropped by 25 percent in Leeds and 30 percent in London compared to a much larger decrease of 59 percent in both last spring. These cities have large workforces who are most likely working from home increasing the domestic emission footprint and causing smaller changes in air pollution.

The reductions were calculated using a model based on the weather and previous air quality data from the UK's Automatic Urban and Rural Network of air quality monitoring stations.

Provided by University of York

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