Medical Xpress

Children switch to walking and cycling to school after introduction of London's Ultra-Low Emission Zone

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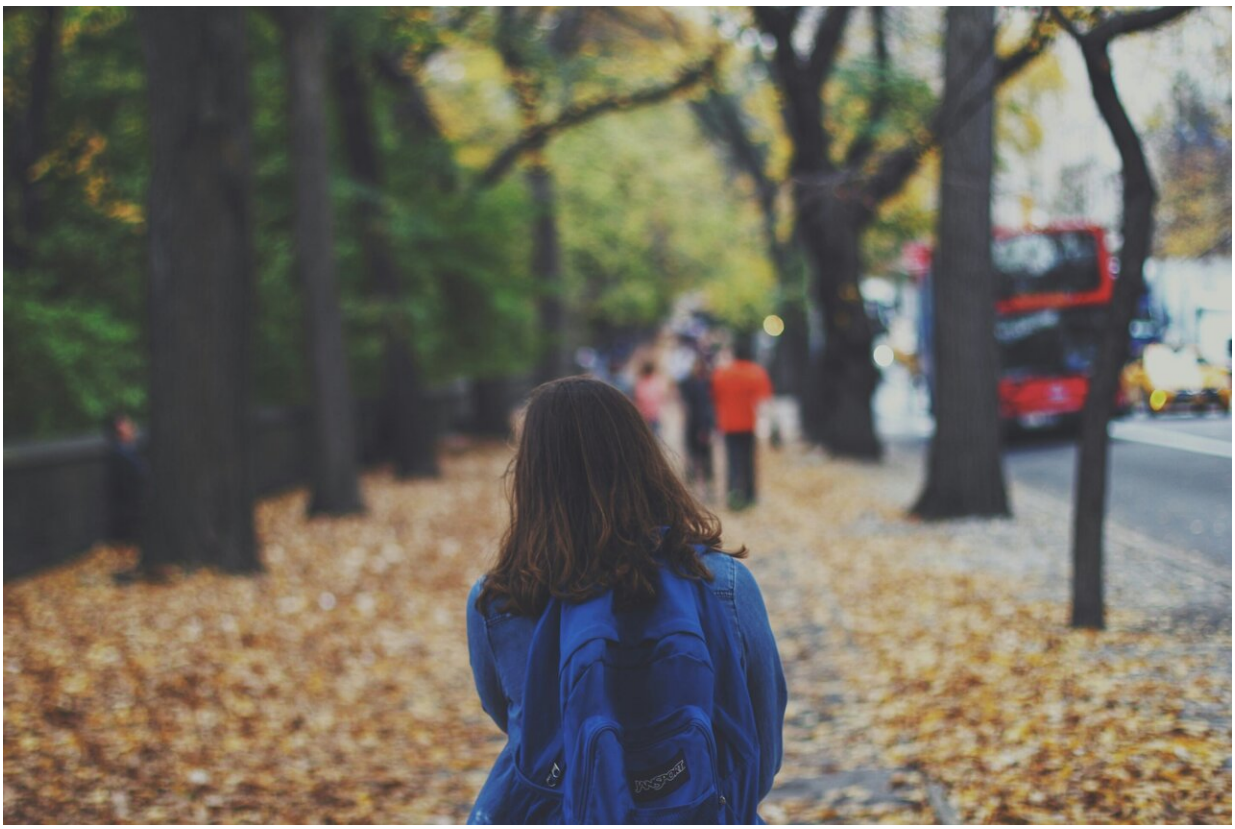

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Four in 10 children in Central London who traveled to school by car switched to more active modes of transport, such as walking, cycling, or

public transport, following the introduction of the Ultra-Low Emission Zone (ULEZ), according to research published in *International Journal of Behavioral Nutrition and Physical Activity*. In the comparison area with no ULEZ, Luton, only two in 10 children made this switch over the same period.

Car travel contributes to air pollution, a major cause of heart and lung diseases including asthma attacks. Beyond this, it limits children's opportunities for physical activity, hindering their development and mental health, and increasing their risk of obesity and chronic illnesses.

Despite UK guidelines recommending a daily average of 60 minutes of moderate-to-vigorous physical activity for school-aged children and adolescents, less than half (45%) of children aged 5–16 met these levels in 2021. One in three children aged 10–11 in the UK are overweight or obese.

In April 2019, London introduced the ULEZ to help improve air quality by reducing the number of vehicles on the road that do not meet emissions standards. According to Transport for London, the central London ULEZ reduced harmful nitrogen oxides by 35% and particulate matter by 15% in central London within the first 10 months of its introduction.

A team led by researchers at the University of Cambridge and Queen Mary University of London examined the impact of the ULEZ on how children travel to school. The research was part of the CHILL study (Children's Health in London and Luton).

The study examined data from almost 2,000 children aged six to nine years attending 84 primary schools in London and the control area, Luton; 44 schools were located with catchment areas within or bordering London's ULEZ, and these were compared to a similar number in Luton

and Dunstable (acting as a comparison group).

The inclusion of the comparison site enabled the researchers to draw more robust conclusions and increased confidence in attributing the observed changes to the introduction of the ULEZ.

The researchers collected data from the period June 2018 to April 2019, prior to ULEZ implementation, and again in the period June 2019 to March 2020, the year after implementation of the ULEZ but prior to COVID-19-related school closures.

Among those children in London who traveled by car prior to the introduction of the ULEZ, four in 10 (42%) switched to active modes, while one in 20 (5%) switched from active to inactive modes.

In contrast, only two in 10 (20%) children in Luton swapped from car travel to active modes, while a similar number (21%) switched from active to car travel. This means that children in London within the ULEZ were 3.6 times as likely to shift from traveling by car to active travel modes compared to those children in Luton and far less likely (0.11 times) to switch to inactive modes.

The impact of the ULEZ on switching to active travel modes was strongest for those children living more than half a mile (0.78km) from school. This was probably because many children who live closer to school already walked or cycled to school prior to the ULEZ and therefore there was more potential for change in those living further away from their school.

The study's first author, Dr. Christina Xiao from the Medical Research Council (MRC) Epidemiology Unit at the University of Cambridge, said, "The introduction of the ULEZ was associated with positive changes in how children traveled to school, with a much larger number

of children moving from inactive to active modes of transport in London than in Luton.

"Given children's heightened vulnerability to air pollution and the critical role of physical activity for their health and development, financial disincentives for car use could encourage healthier travel habits among this young population, even if they do not necessarily target them."

Joint senior author Dr. Jenna Panter from the MRC Epidemiology Unit, University of Cambridge, said, "The previous government was committed to increasing the share of children walking to school by 2025 and we hope the new government will follow suit.

"Changing the way children travel to school can have significant effects on their levels of physical activity at the same time as bringing other co-benefits like improving congestion and air quality, as about a quarter of car trips during peak morning hours in London are made for school drop-offs."

After ULEZ was introduced in Central London, the total number of vehicles on the roads fell by 9%, and by one-third (34%) for vehicles that failed to meet the required exhaust emission standards, with no clear evidence of traffic moving instead to nearby areas.

Joint senior author Professor Chris Griffiths from the Wolfson Institute of Population Health, Queen Mary University of London, said, "Establishing healthy habits early is critical to healthy adulthood and the prevention of disabling long term illness, especially obesity and the crippling diseases associated with it.

"The robust design of our study, with Luton as a comparator area, strongly suggests the ULEZ is driving this switch to active travel. This is evidence that Clean Air Zone intervention programs aimed at reducing

air pollution have the potential to also improve overall public health by addressing key factors that contribute to illness."

Due to the introduction of COVID-19 restrictions in late March 2020, the study was paused in 2020/2021 and results are only reported for the first year of follow-up. However, as both London and Luton, the study areas, were similarly affected, the researchers believe this disruption is unlikely to have affected the results.

The study has restarted, following up with the children to examine the longer-term impacts of the ULEZ. This will identify if the changes they observed in the year following the introduction of the ULEZ persist.

The study was conducted in collaboration with Queen Mary University of London, Imperial College, University of Bedfordshire, University of Edinburgh, University of Oxford and University of Southern California.

More information: Children's Health in London and Luton (CHILL) cohort: A 12-month natural experimental study of the effects of the Ultra Low Emission Zone on children's travel to school, *International Journal of Behavioral Nutrition and Physical Activity* (2024). DOI: 10.1186/s12966-024-01621-7

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