

Traffic pollution can make children more anxious, study finds

Ben Webster, The Times Environment Editor - May 20 2019

Living near a busy road can make children more anxious because of the toxic effect of traffic pollution on the developing brain, a study has found.

Scientists scanned the **brains of 12-year-old children** living in areas close to main roads and compared the results with those from homes in quieter, less-polluted neighbourhoods.

They found that children exposed to more air pollution had higher levels of myo-inositol, a naturally occurring sugar that the researchers found was linked to increased anxiety.

Fine particles and other exhaust pollutants are known to cause inflammation in organs, including the brain.

Raised levels of myo-inositol are an indicator of inflammation of the brain. The researchers also asked the same children a set of questions designed to determine their anxiety level, such as whether they were afraid of the dark, were afraid of being alone at home or often had a nervous feeling in their stomach. Children from polluted areas were 7 per cent more likely to report such feelings of anxiety, the study in the journal *Environmental Research* said.

Kelly Brunst, the lead author from the University of Cincinnati, said that the result was significant because the 145 children from the city and surrounding area who were tested were generally normal and healthy.

“On the population level this has much greater implications and shows [traffic pollution] could lead to more children being diagnosed with anxiety disorders,” she said.

A separate study of the same children found that those who had a home address registered at birth in a more polluted area were more likely to suffer anxiety at the age of 12.

Previous studies have found links between traffic pollution and anxiety but Dr Brunst said that this was the first to have detected a strong connection by two methods: scanning children’s brains and asking them about their anxiety levels.

Dr Brunst said that traffic pollution was only one of several causes of childhood anxiety but it was one that society could address, such as by reducing the number of vehicles with toxic exhaust fumes.

“Anxiety is a very complex phenomenon that has a lot of contributing factors,” she said. “Traffic is a very important piece of that puzzle given these results. Our findings suggest that traffic is significantly related to anxiety symptoms. If we can intervene and prevent exposure to traffic pollution this would reduce the risk of children becoming anxious.”

The Clean Air for All campaign, launched this month by The Times, includes objectives that would help to protect children from traffic pollution, such as temporary traffic bans outside schools at drop-off and pick-up times.

This newspaper is also calling on the government to bring forward the ban on sales of new diesel and petrol cars from 2040 to 2030 and to make electric cars more affordable by reversing the recent £1,000 cut in the green car grant.

Dr Brunst said that a growing proportion of children in the United States had anxiety disorders. “We are seeing anxiety symptoms pop up at an earlier age, pre-adolescence, and even as young as six to eight-year-olds,” she added. She said that the same children would continue to be tested up to the age of 16 to try to determine how lasting the impact of traffic pollution was on anxiety levels.

Jonathan Grigg, professor of paediatric respiratory medicine at Queen Mary University of London, said: “This study provides evidence of a new link between exposure of children to traffic-related air pollution and changes in children’s brain metabolism and feelings of anxiety. One of the strengths of the study is that the researchers have adjusted for other important factors that can affect brain function and anxiety.”