

“People waiting at bus stops exposed to pollution”



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CHENNAI: The city may have a strong bus network compared to other metros, but waiting for a bus may be hazardous. An IIT-M study shows passengers at bus stops at busy intersections are exposed to high levels of PM2.5 and noise pollution due to vehicles emitting smoke and drivers honking frequently.

The study measured an average concentration of PM2.5 in six bus stops at 46.3 microgram/m³, with those waiting for a minimum of 15 minutes in a bus stop may be exposed to 7.6 micrograms. Similarly, they were exposed to an average noise level of 76.8 dBA (decibels), which exceeded 95 dBA frequently due to constant honking. Srinath Mahesh, of IIT-M's department of civil engineering and corresponding author of the study, said in his paper that emissions from diesel powered cars, buses and trucks with internal combustion engines could be a source of high PM2.5 levels at bus stops. The high noise levels were due to habitual honking, particularly at intersections when traffic light turns from red to green. "In our study, emissions from buses may be considerably high because most MTC buses are very old and often emit a substantial amount of visible smoke from the tailpipe. Idling of buses at stops for boarding and alighting of passengers adds to PM2.5 concentrations. These emitted particles are pushed towards the bus stop by the turbulence caused by vehicles moving at high speed," he said.

Exposure to particulate matter is known to cause cardiovascular ailments, lung cancer and premature death. “Commuters are also continuously exposed to noise levels exceeding CPCB guidelines,” the author added. The study was done at bus stops at Kotturpuram, CLRI, Madhya Kailash, Gurunanak College and Taramani, and Vana Vani on the IIT-M campus using low-cost portable optical sensors and smartphone application. In January, the highest concentration of 68.7micrograms/m³ was recorded at Gurunanak College stop, the lowest of 21.1microgram/m³ was at CLRI. In October, highest of 70.4microgram/m³ was recorded at Taramani and lowest of 14.5microgram/m³ at Gurunanak College. The concentration varied during the two periods possibly due to meteorological parameters like the wind speed, which if low could lead to accumulation of pollutants in the air. The permissible limit of PM_{2.5} in the air is 60microgram/m³ for 24 hours and 40micrograms/m³ annually.

The median noise level at all the bus stops except Vana Vani was around 85 dBA (decibel), 30 dBA greater than the permissible limits. In addition, the maximum noise levels at all the bus stops except Vana Vani exceeded 100 dBA. Proper planning of location and design of bus stops could cut down exposure to pollution, say experts. “Buses have to arrive on time and not make people wait for long. Second, if bus stations are wide and away from the main road, exposure to pollutants will be limited,” said Prof S M Shiva Nagendra, department of civil engineering, IIT-M.