

# Air pollution linked to cognitive dysfunction, early dementia

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BANGKOK – Health experts have warned that there is “emerging evidence” showing that air pollution can harm children’s cognitive development and cause early dementia.

According to Mazrura Sahani, a physician and chair of the Center of Health and Applied Sciences at the Faculty of Health Sciences at the National University of Malaysia, there were also evidence that cardiovascular diseases can be “exacerbated” by air pollution.

“The characteristics of the population most associated with increased susceptibility to air pollution ... include life state or especially children and adults and the preexisting cardiovascular disease,” she said in a presentation during the “Air Pollution Journalist Training: Effective Use of Data in Reporting” workshop held here recently by New York-based Vital Strategies, a global health organization that advocates for clean air and healthy food, among others. In an interview, Sahani noted that air pollutants from traffic are mainly organic hazardous chemicals such as lead and polycyclic aromatic hydrocarbon, which are both harmful to health.

She added that based on various literature and researches done over the past years in Asia, including Thailand, China, Malaysia and Japan, air pollutants gravely impact public health. Children, she said, are most susceptible because their lungs are not yet fully developed and yet they inhale more air “per unit of body weight than adults.” When they ingest toxic pollutant, it goes to their brain, leading to cognitive effects like difficulty in learning.

On the other hand, aluminium being emitted by vehicles can also affect the brain, causing early dementia among adults.

“For cardiovascular diseases, for example dust, some of the points in particulate matter (PM) increases the viscosity or the thickness of the blood. So if the blood is very thick, circulation is not improved, obstructing some areas in the bloodstream,” she added.

## Take action

In his presentation, Vital Strategies senior vice president for environmental health Daniel Kass underscored the need for everyone in the world to take immediate and concrete action to address air pollution, saying that “major harmful pollutants move between places.”

These substances include PM, nitrogen oxide, ozone, carbon monoxide, sulfur dioxide and lead that are produced by burning through various processes such as vehicle emission, factories, cottage industry, forest fires, and even cooking using wood, charcoal, coal, dried dung, crop waste and “less efficient than clean liquid fuels.”

Kass said PM has the “greatest health impact” primarily PM<sub>2.5</sub> or fine particulate matter which contains 2.5 micrometer and smaller solid and liquid droplets that can be inhaled by humans, causing health issues.

He cited that “transboundary pollution” in Southeast Asia is the biggest example how air pollution generated in an area can have vast impacts in “faraway” countries.

The expert added because of this, “all leading sources need to be addressed to improve air quality” as air pollution is among the top 10 “global health risk factors.”

Based on State of Global Air 2018, ambient air pollution from PM2.5 is the sixth leading cause of global mortality in 2016, accounting for 4.1 million deaths. Household air pollution ranked eighth, causing 2.6 million deaths.

“Air pollution from ambient PM2.5, ozone and household burning of solid fuels combined was the fourth-highest global risk factor, accounting for 6.1 million deaths – 11 percent of the global total,” the report stated.

The study showed that if no further action is taken, population exposures to PM2.5 are likely to increase by over 40 percent by 2050.