

- Heart diseases

Air pollution can cause obesity, dementia and arrhythmia

Sun.Star Pampanga · 11 Nov 2022

According to three different studies, obesity, dementia and arrhythmia (irregular heart rhythms) have something in common – they are all linked to air pollution. In all three studies, the culprit is fine particulate matter called PM 2.5.

PM 2.5 are very small particles, only less than 2.5 microns in diameter, so they are able to travel deeply into the respiratory tract, reaching the lungs and even enter the bloodstream.

Exposure to these fine particles can also cause short-term health problems such as eye, nose, throat and lung irritation, coughing, sneezing, runny nose and shortness of breath. The harm to our body caused by these tiny pollutants is no longer confined to the lungs.

One research shows that PM 2.5 also affects our memory. The findings of increased risk of dementia due to high exposure to PM 2.5 came from a meta-analysis published in the October 26, 2022, online issue of *Neurology*, the medical journal of the American Academy of Neurology. Researchers found that the risk of dementia increased by 3% for every one microgram per cubic meter ($\mu\text{g}/\text{m}^3$) increase of PM 2.5 exposure.

Another research shows that obesity, a health issue commonly caused by unhealthy diets and sedentary lifestyle, may also be influenced by exposure to PM 2.5.

A University of Michigan study suggests that women in their late 40s and early 50s exposed long-term to air pollution, specifically, higher levels of fine particles PM 2.5, nitrogen dioxide and ozone, saw increases in their body size and composition measures.

The third study relates PM 2.5 exposure to a heart problem. Breathing tiny particulate matter may trigger irregular heart rhythms (arrhythmias) in healthy teenagers, according to a research published in the *Journal of the American Heart Association*, an open access, peer-reviewed journal of the American Heart Association. The study examined the impact of breathing PM 2.5 on heart rhythms of adolescents.

Where do these fine particulates come from?

There are outdoor and indoor sources of PM

2.5. Outside, they come primarily from vehicle exhausts and other activities like burning wood.

Indoor sources on the other hand are smoking, cooking and burning candles. Good ventilation at home is needed to minimize exposure to these fine particulates.

The World Health Organization (WHO) said that outdoor air pollution in both cities and rural areas was estimated to cause 4.2 million premature deaths worldwide per year in 2016 due to exposure to PM 2.5.

The safe level of air quality according to the WHO is from $10 \mu\text{g}/\text{m}^3$ of PM2.5, or below. The Philippines has an air pollution level of $17.6 \mu\text{g}/\text{m}^3$ of PM2.5 according to the 2019 World Air Quality report. It is 57th in the list of countries with the worst air quality.

PM 2.5 can also damage the environment. They are the main cause of reduced visibility (haze). Fine particles can be carried over long distances by wind and then settle on ground or water.

Depending on their chemical composition, the effects of this settling may include making lakes and streams acidic and damaging sensitive farm crops.