JPSIM Journal of Pakistan Society of Internal Medicine

Editorial

Smog Becoming Serious Problem

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How to cite this:

Iqbal R, Munir MK. Smog Becoming Serious Problem. J Pak Soc Intern Med. 2022;3(4): 290-291

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DOI: https://doi.org/10.70302/jpsim.v3i4.2257

Smog is formed by the combination of smoke and fog that occurs in various highly populated industrial metro political cities, that reduces visibility. Vehicles create pollution, both acid rain and smog. Smoke contained chemical fumes which makes the fog heavier and darker. Solar ultraviolet radiations act to form photochemical haze in atmosphere already polluted with nitrogen oxides and hydrocarbons particularly vehicle exhaust. So it may be considered as toxic blend of gases and particulates which are consequences of municipality air effluences. Actually the "smog" considered a mixture of fog and smoke, but it has been referred to be a combination at ground level ozone and particulate matters at present. Other harmful components like volatile organic compounds, nitrogen oxides, carbon monoxide and sulphur dioxide may also be present in smog.[1]

At large humans are responsible to induce the pollutants in a great magnitude and mostly they are formed by burning of fuels and fossils which are recognized to induce severe health issues. Smog has been categorized as photochemical and sulfurous type. Ozone present at ground level is main component of smog which is also associated to many health issues like higher emergency visits due to asthma, increased frequency of inpatients, compromised lung function and escalations in premature mortalities. Smog has been recognized as the main contributing factor in global warming.[2]

Various items involved in mixing air pollutants are enlisted as factories, surging numbers of vehicles, burning wood, coal or other dense fuels for cocking. Automobiles like planes, buses, trucks, trains and cars are also great sources of pollution. Similarly stationary sources like oil refineries, power plants, factories and industrial facilities are also contributing to air pollution. Various agricultural areas may also be identified such as wood burning at fireplaces.[1]

A thick fog is formed by mixing of cold air in polluting particles which greatly worsens overall quality of air. Characteristics of sulfurous smog are to contain heavy amounts of dust, nitrogen dioxides and sulfur dioxides. Fog is like lowering clouds majorly consisted of suspended air born droplets of water thus appear mostly in natural white color through satellite images. Formation of industrial smog requires cool, humid environments, having high amounts of minor aerosols to show it in gray appearance.[2]

After inhalation, smog irritates respiratory passage, elevating the risks of severe lung and heart diseases. These serious health issues are the reason to monitor the levels of smog in various cities. On exposure to a high ozone alert day, one's throat and eyes might burn further resulting in wheeze and coughing. Studies proposed that extended exposure to polluted air can lead to development of asthma.[3]

The toxins get access in the body after inhalation of smog which settles in the lungs resulting in cough, sore throat, wheezing, and irritation in nose, eyes and tiredness. Literature has revealed that polluted air keeps a notable effect on human skin. Pollutants including dust, cigarette smoke, vehicle exhaust and smog develop all types of skin itching comprising wrinkles, rashes, diminished elasticity and provoke aging.[3]

Actually scattered UV rays are absorbing air pollutants, ultimately decreasing the level of UV

radiation affecting human. Thus there is a great contribution of pollution in securing the depleted ozone layer. Cold air consisted of higher density thus moves slower as compare to the warm air. So the existence of density refers cold air to trap the pollution but not whisk it away. In winter season, air pollution stays for much longer duration ultimately breathed for longer duration as compared to the summer. As far as temperature being dropped in cold night time hours, the environment traps CO2, car emissions and other polluted particles in the living areas and downwards to the ground therefore effects worse in cases where residences are poorly ventilated.[3]

Lahore and Karachi has been reporting smog since last more than a decade and has been listed among the top ten cities of the world affected from smog. This phenomenon of smog is growing by every passing year because of high polluted environment which is secondary to the establishment of large number of industries, heavy traffic, extraordinary construction work and unchecked cutting of trees due to urbanization.

Rain eases this problem by forcing down the most common air pollutants, like particulate matter and pollen down. Thereby, the quality of air becomes drastically better. This phenomenon is called wet deposition.

If the AQI reading is in the range of 16 to 31, the air quality is in the good category. If the AQI reading is in the range of 32 to 49, the air quality is in the moderate category, and there may be some adverse effects for very sensitive people.

Air Quality Index AQI Colour

0-15	Very Good	
16-31	Good	
32-49	Moderate	
50-99	Poor	
100+	Very Poor	

Everyone can do their part to reduce smog by changing a few behaviors such as:

- Drive less and take care of old cars.
- Avoid cutting of trees and new plantation is to be encouraged.
- Avoid products that release high levels of volatile organic compounds VOCs
- Avoid gas powered yard equipment, like lawn mowers.
- Public transport usage to be encouraged.
- Strict ban to be imposed on crop remnants burning.
- Turn off the lights when not in use.
- Recycle and Reuse.
- No to plastic bags.
- Reduction of forest fires and smoking.
- Use of fans instead of Air Conditioner.
- Use filters for chimneys.
- Avoid usage of fire crackers.

Usually symptomatic treatment is suggested according to level of effect on lungs, throat, eyes and heart. Eye wash should be used in case of irritation. Preventive measures, however of great importance. It may be divided in short term and long term prevention. Short term preventive measures include using face masks and glasses to protect eyes. Avoid exercise which deals with deep breathing however to exercise in smog free indoor environment. Stay hydrated by taking fluids especially during exercise. Avoid outdoor activities and try to stay home as much as possible. Schools may be closed for few days to protect children if needed. Doors and windows should be closed at more dense times.

Strong political will is necessary for implementation of above measures. State support is also vital to cope with the issues related to smog, in particular farmers should be strictly discouraged burning of crop remnants and alternatively being provided and motivated to use modern mechanism of crop waste management.

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