

## From Tragedy to Prevention: Addressing Carbon Monoxide Poisoning Across Pakistan

Syeda Efraah Mushtaq<sup>1</sup>

Multiple cases around Pakistan have continuously been reported on carbon monoxide poisoning in areas like Murree, Rawalpindi, and Pishin. This deadly gas is released from domestic gas geysers and generators. It is odorless and colorless, which is why it is called a silent killer. People in northern areas of Pakistan and Punjab use gas-run geysers during winters in both cars and homes, while generators are used by almost everyone in Pakistan during load shedding, especially in summers, which run on petrol, another major source of carbon monoxide. In 2022, 23 tourists in Murree died from CO poisoning in their cars during a snowstorm (1). Although many factors, like administrative failure and no warnings about harsh weather, do play a role in causing this tragic incident but the report again tells how the stranded tourists died due to poisoning and lack of ventilation. Another such case was reported in Hyderabad, where all 7 of the family members were found dead in their house in the village of Haq Nawaz Junejo. During investigations, it was later found that the generator in that house was completely dry, suggesting carbon monoxide as the main suspect (2).

Carbon monoxide can cause severe harm even when present in small concentrations in the air. When inhaled, this gas enters the lungs to diffuse through the respiratory membranes into the blood. Hemoglobin has an affinity for carbon monoxide that is 200 to 250 times stronger than for oxygen. Thus, less oxygen than carbon monoxide is bound to the hemoglobin while also increasing the affinity of remaining hemoglobin for oxygen in a way that oxygen can't diffuse into the tissues. As the concentration of carbon monoxide-bound hemoglobin rises in the blood, it causes the dilation of cerebral vessels and increased coronary blood flow, which ultimately leads to cerebral hypoxia (3). It also halts mitochondrial respiration by binding to ferrous heme a3 proteins of COX, which have 3 times more affinity for carbon monoxide than oxygen. This causes a reduction in oxidative phosphorylation and thus leads to decreased ATP production in tissues (4).

It is an alarming situation and a cause of serious concern amongst people living in chilly areas who mainly rely upon gas geysers and heaters. Interventions should be made, and awareness sessions should be conducted through news channels and advertisements in order to stop the use of these dangerous devices. Also, preventative measures should be taken to stay safe during a snowstorm or an emergency, like ventilation, carbon monoxide detector alarms, and checking for signs of dizziness or drowsiness when the devices are in use. Moreover, the use of electric heaters and geysers should be promoted as a public health measure to reduce the number of casualties.

### References

1. Administrative failures led to Murree snow storm deaths: report. Pakistan Today. 2022 Jan 22.
2. Staff reporter. Seven of a family found dead in their home. The Express Tribune. 2019 Mar 7.
3. McMahon K, Launico M V. Carbon Monoxide Toxicity. 2025.
4. Rose JJ, Wang L, Xu Q, McTiernan CF, Shiva S, Tejero J, et al. Carbon monoxide poisoning: Pathogenesis, management, and future directions of therapy. Vol. 195, American Journal of Respiratory and Critical Care Medicine. American Thoracic Society; 2017. p. 596–606.

**How to cite this article:** Mushtaq SE. From Tragedy to Prevention: Addressing Carbon Monoxide Poisoning Across Pakistan. Pak J Public Health 2025 Dec. 24;15(4):101.  
DOI: <https://doi.org/10.32413/pjph.v15i4.2007>

**Copyright** © 2025 The Author(s). Published by Health Services Academy. This is an Open Access article under the CC BY-NC 4.0 license.



<sup>1</sup> Dow Medical College, Dow University of Health Sciences, Karachi, Pakistan.

**Correspondence:**  
Syeda Efraah Mushtaq  
voiceofefrahmushtaq@gmail.com

**Submitted:** 23-11-2025  
**Accepted:** 24-11-2025  
**Published:** 24-12-2025