Breathing behind filters

Are Air Purifiers Luxury Gadgets Or Health Necessities?

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Nikhil wakes up coughing, his throat dry and his eyes stinging. Even with the windows tightly shut, a faint haze seems to be hanging in the room. He rushes to his father who is getting dressed for work.

Nikhil: Papa…why does my room look smoky even with the windows closed? Is this why everyone is buying air purifiers? Even Rajat's house has one.

Father: I'm not surprised, *beta*. Every winter, the pollution gets worse. The air we breathe - both outdoors and indoors - fills up with tiny particles or micropollutants that cannot be seen. This can be dust, pollen, smoke, and sometimes even bacteria and viruses that float around us.

Nikhil: I always thought indoors was more safe!

Father: That's a common misconception. But as per news reports, indoor air can be more polluted than outdoor air. Smoke emitted from cooking, burning candles, dust, and even pet hair - all get trapped inside. If I remember correctly, it was around 2016 when Delhi experienced severe smog, that people realised their homes weren't really safe. That's when air purifiers changed from 'luxury' to 'necessity'.

Nikhil: I see, so an air purifier is like a vacuum cleaner for the sky.

Father: *(laughs)* True! Purifiers pull in dirty air and trap all the bad stuff. Some remove 60 - 80% of PM2.5 in closed rooms. In places like Delhi/NCR where AQI crosses 450, and sometimes even 900, this becomes important.

Nikhil: Then shouldn't we get one? My throat hurts a lot.

Father: I've been thinking the same. Let's visit a store today.

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Later that afternoon, they visit an electronics store to buy an air purifier. A salesman spots them scanning the purifier section and walks over.

Salesman: Welcome, Sir! Looking for an air purifier?

Father: Yes, but I don't want to buy 'any' air purifier. I need to make an informed decision.

Salesman: Certainly. First let me tell you about the most important component – its filter. The HEPA filter is considered the gold standard. It captures 99.5% of particles smaller than 3 microns - dust, pollen, even some bacteria. It provides many benefits including fewer allergy symptoms, reduced airborne infections and cleaner air for everyone. Doctors, too, recommend HEPA based systems for children, elderly and asthma patients.

Nikhil: But does it work on smoke too?

Salesman: Absolutely. In fact, many models list separate CADR ratings - Clean Air Delivery Rate - for smoke, dust, and pollen. Ideally, the CADR should cover at least two-thirds of your room size.

Father: What varieties are there?

Salesman: Three major ones - filtered air purifiers are the classic ones with HEPA and activated carbon layers; electrostatic air purifiers using charged plates to attract pollutants; and UV-light air purifiers targeting viruses and bacteria with ultraviolet radiation.

Father: And I read about some portable one?

Salesman: Ah, the Atovio Pebble, India's first portable air purifier, launched in 2024. It claims to filters PM2.5, PM10, bacteria, viruses, and other nanoparticles - even better than HEPA models.

Father: Sounds impressive. But what about its negative impact?

Salesman: I understand. Some models produce ozone, also marketed as 'energised oxygen', but this can be harmful in high amounts. Of course, air purifiers need electricity to run which can add to your existing bills. They also generate a lot of filter waste because you need to change the filter regularly. But what is most daunting is that air purifiers are expensive ranging between 8,000 INR to 40,000 INR.

Father: Also, are they really safe for long-term use?

Salesman: Honestly, they haven't been tested long enough on humans, leaving the long-term effects of breathing ionised or artificially processed air, unclear.

Father: In fact, my family doctor mentioned that constant exposure to heavily filtered air may weaken the body's immune system.

Salesman: I agree. But it does reduce allergies, infections, and asthma triggers. More and more people are realising its need, and numbers prove this. The air purifier industry is projected to reach 30 billion USD by 2033 from mere 16.9 billion USD in 2024.

Father: I think we need one as well. We would like to buy a mid-range HEPA model, please.

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They return home with a sleek HEPA-based purifier. Nikhil watches as his father installs it in the living room. A soft hum fills the room as the device turns on.

Nikhil: Papa, look! The AQI number is going down!

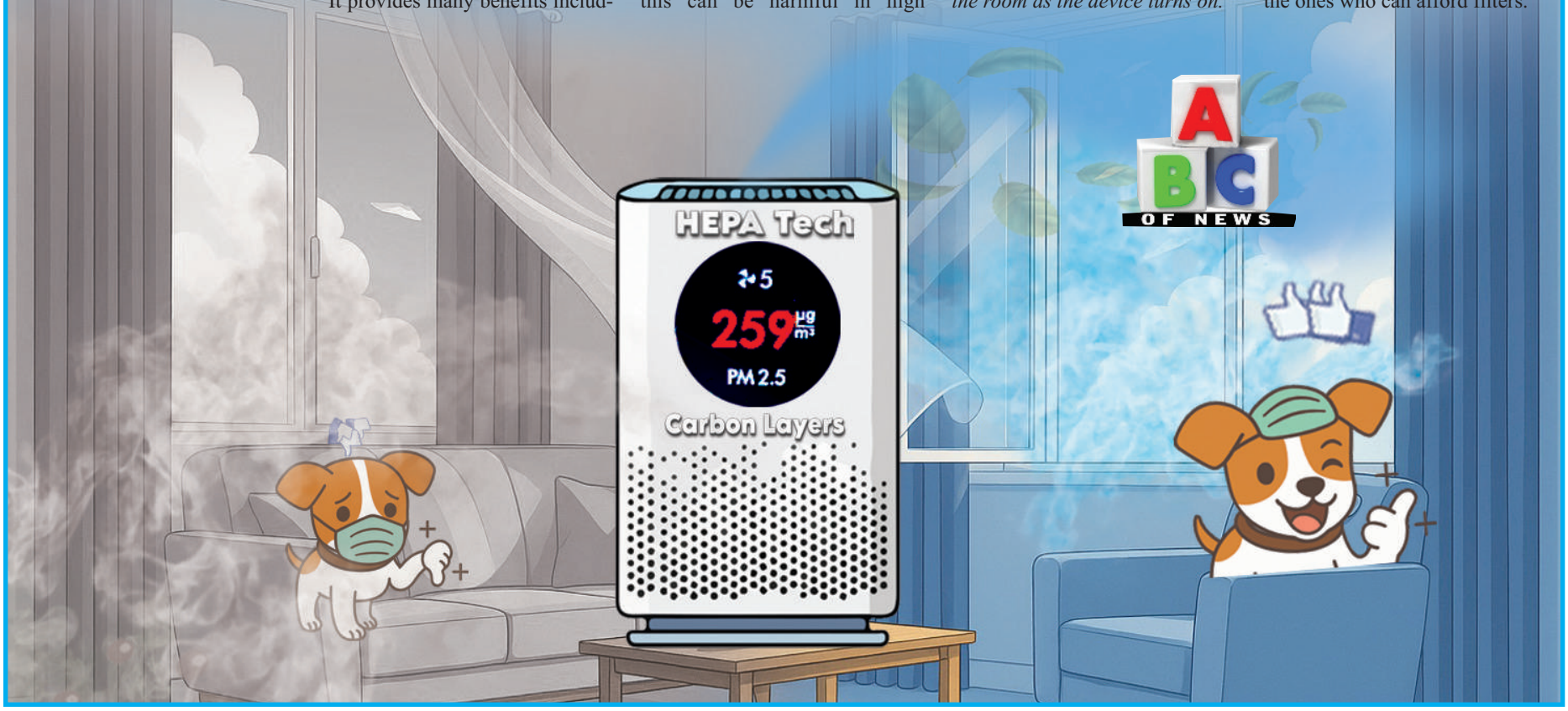
Father: Yes… from 320 to 180 already. Give it an hour - it should go even lower.

Nikhil: Papa, I wish someone would address all the concerns you discussed with the salesman!

Father: Change will happen, *beta*. I believe some researchers are developing smarter filters that last longer and capture more pollutants. Some pilot projects in Delhi even use vehicle-mounted air filters, which are attachments installed on cars to trap PM10. My gym too has launched clean air workout zones. This shift is also reshaping architecture, with newer buildings being designed with sealed windows, HEPA-ready ventilation systems, etc. These advances demonstrate that as a society, we're not only trying to deal with indoor air, but also the city's pollution problems that exist outdoors in nature.

Nikhil: Papa, so will the air outside get clean someday?

Father: I hope so. Purifiers make homes safer… but real change will come only when the real issue is solved and our cities fix the air for everyone - not just for the ones who can afford filters.



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