

# Assessing the Health Impact of Air Pollution and Policy Effectiveness in Urban Bangladesh: A Mixed-Methods Study

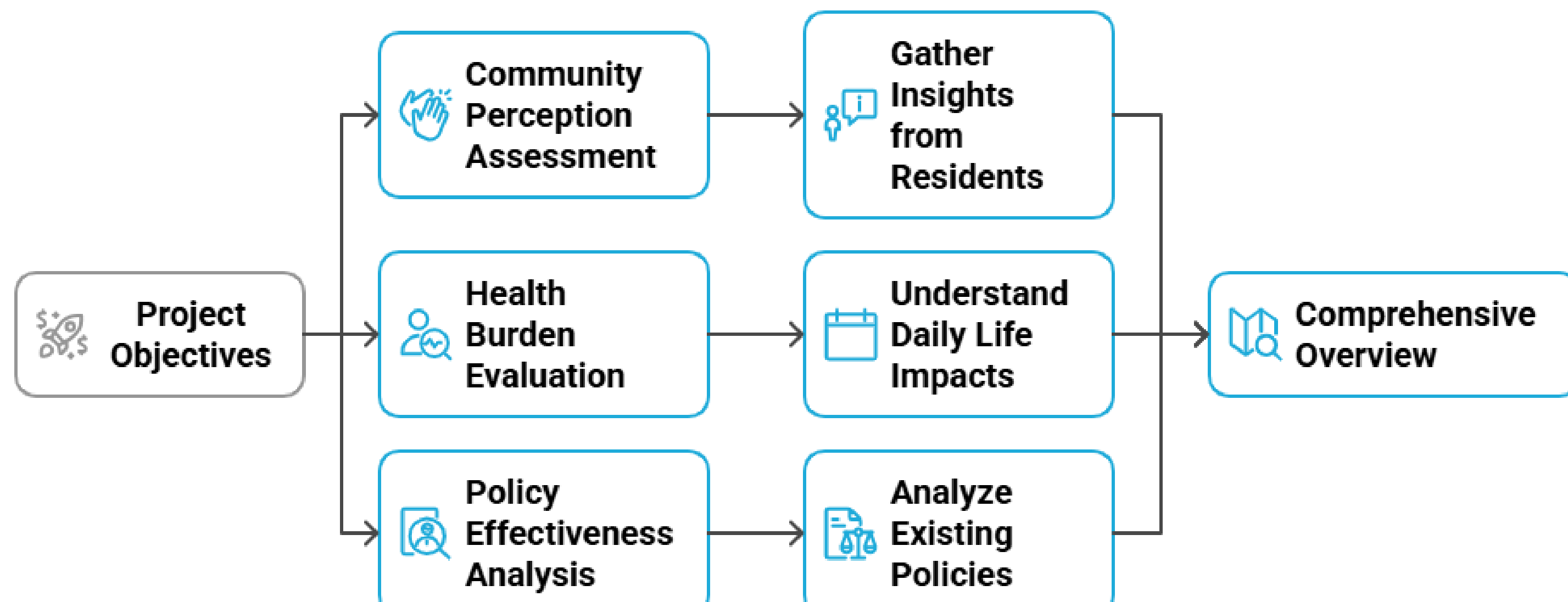
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## 1. Background

Air pollution is among the top environmental threats in Bangladesh. Dhaka ranks within the top 10 most polluted cities globally (1,2). PM<sub>2.5</sub> exceeds WHO standards by over 20 times. Although regulations such as the Air Pollution Control Rules 2022 and NAQMP (2024–2030) (1) exist, enforcement remains weak, and regional sources are not effectively addressed (1,2,3).

## 2. Objectives



## 3. Methods

Mixed-methods study in Sreepur (Gazipur) & Mohammadpur (Dhaka), Bangladesh

**Quantitative:** PM<sub>2.5</sub> data (12 months), 1,200 hospital cases, 400 surveys  
**Qualitative:** 8 FGDs, 10 KIIs with residents, experts, policymakers

## 5. Insights

"We have policies on air quality, but without enforcement and monitoring, they remain words on paper. People are still breathing polluted air every day, and the most vulnerable suffer the most."  
 - Local Policymaker

"Every week, we see children and the elderly coming in with severe respiratory issues. Most cases could be prevented if pollution sources were controlled and communities were better informed."  
 - Healthcare Professional

From a community resident (FGD, urban poor household)  
 "We know the smoke from nearby factories and roads is harmful, but what can we do? We have no clean fuels, and our children play outside in this polluted air."

## 7. Policy Recommendation

- Enforce Air Quality Standards**  
Implement strict controls on vehicles, industries, and construction to reduce PM<sub>2.5</sub> exposure.
- Integrate Urban Planning Strategies**  
Minimize pollution hotspots, regulate waste disposal, and promote green infrastructure and clean transportation.
- Conduct Community Awareness Campaigns**  
Support household interventions such as clean cooking fuels and improved ventilation.
- Strengthen Health System Preparedness**  
Improve access to care, train healthcare professionals, and integrate environmental indicators into surveillance.
- Foster Multi-Sectoral Collaboration**  
Collaborate among government, NGOs, and academia, with real-time data sharing and participatory policy design.

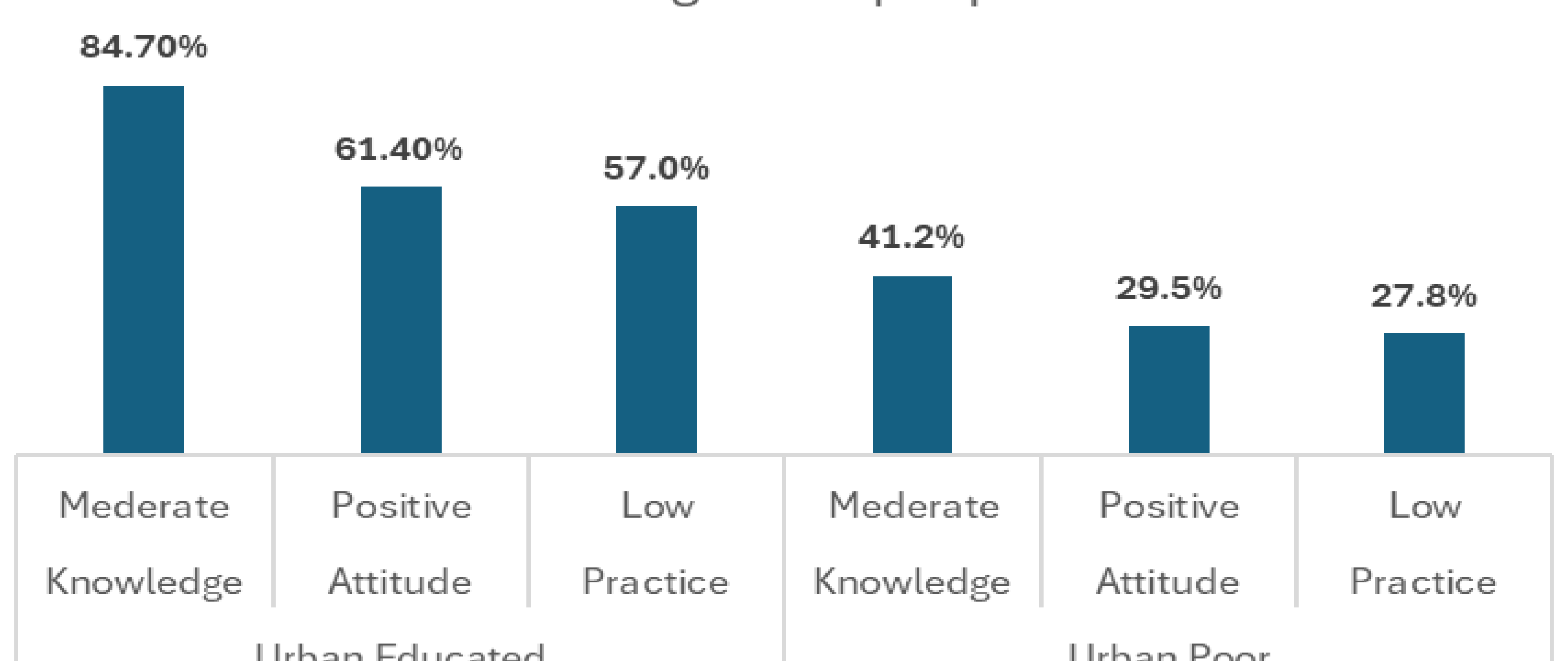


## 4. Results

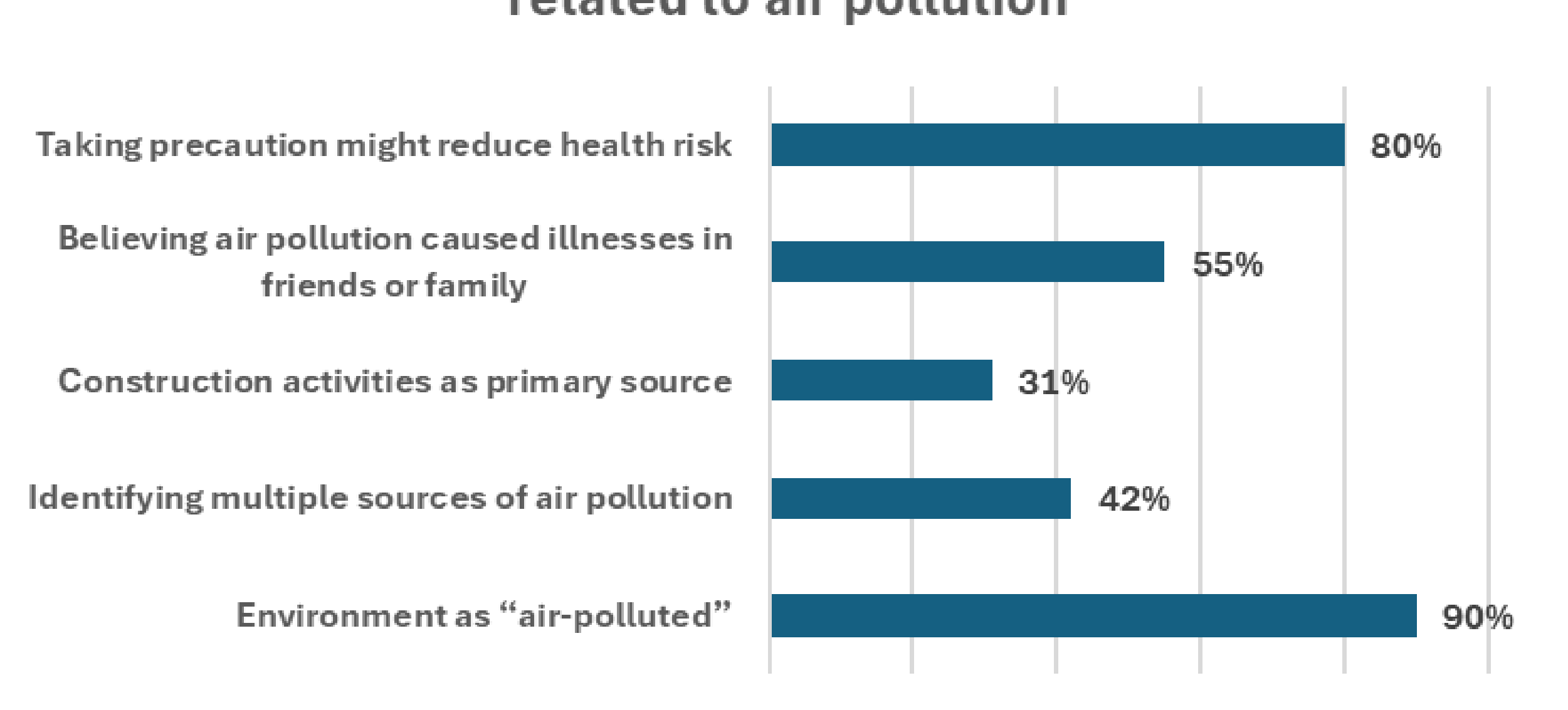
Health outcome	Estimated annual burden (Bangladesh)
Total deaths attributable to PM <sub>2.5</sub>	102,456
Ischemic heart disease deaths	29,920
Stroke deaths	23,075
COPD deaths	20,976
Lower respiratory infection deaths (all ages)	9,720
Lung cancer deaths	3,063
Asthma — emergency room visits attributable	668,482 visits / year
Preterm births attributable	900,485

"Modeled health impacts (CREA/GBD framework) show large mortality and morbidity burdens from PM<sub>2.5</sub> in Bangladesh. Estimates are conservative and reflect ambient (outdoor) PM<sub>2.5</sub> exposure integrated with population data."

KAP regarding air pollution and health effects among urban people



Perceptions and self-reported health symptoms related to air pollution



## 6. Conclusion

Air pollution is a major health crisis in urban Bangladesh. Stronger regulations, local monitoring, and community engagement are essential. Multi-sectoral, long-term strategies can safeguard health and support sustainable development.

## 8. References

- Department of Environment (DoE), Government of Bangladesh. National Air Quality Management Plan (NAQMP) 2024–2030. Dhaka: Ministry of Environment, Forest and Climate Change; 2024. Available from: <https://doe.gov.bd>
- The Business Standard. Bangladesh moves from worst to 2nd worst in air quality rankings 2024. The Business Standard. 2024 Mar 20. Available from: <https://www.tbsnews.net/bangladesh/environment/bangladesh-moves-worst-2nd-worst-air-quality-rankings-2024-1089951>
- The Business Standard. At least 15 ministries linked to air pollution; poor coordination hampers action. The Business Standard. 2023 Nov 12. Available from: <https://www.tbsnews.net/bangladesh/environment/least-15-ministries-linked-air-pollution-poor-coordination-hampers-action>

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