Clearing the Air: Tobacco Smoke Pollution in Karnataka

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Sponsorship
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&
The Bloomberg Initiative to Reduce Tobacco Use

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Introduction

Tobacco smoke pollution, also known as secondhand smoke (SHS) is a mixture of over 4,000 chemicals released from burning cigarettes. This deadly mixture includes over 250 toxic or cancer-causing chemicals.

Secondhand smoke exposure from cigarettes, bidis and hookahs can be harmful to both smokers and non-smokers.

Exposure to tobacco smoke causes a wide range of immediate and long-term health effects, including:

- Eye irritation
- Headache
- Cough
- Sore Throat
- Dizziness and nausea
- Lung cancer
- Heart disease including heart attacks
- Asthma
- Respiratory disease
- Sudden infant death syndrome, upper respiratory infections, ear infections, and severe asthma in children.

India's Smoke-Free Law

To protect individuals from the effects of secondhand smoke, the Indian government enacted a smoke-free air law restricting smoking in public places as of October 2, 2008.

As per the Indian smoke-free law, smoking is not allowed in enclosed public places or workplaces in India. However, restaurants and bars serving 30 or more persons may allow smoking as long as designated smoking rooms (DSRs) are present. All public and private offices are required to be 100% smoke-free with no DSRs allowed.

According to this law, persons responsible for public places (i.e., managers, owners, proprietors, and supervisors) are expected to comply with the law and may be fined for not enforcing smoke-free activity. Signage on smoking restrictions must also be displayed throughout their establishments. The law also requires for ashtrays, matches and lighters to be removed/not made available inside establishments.

Measuring Air Quality in Karnataka

An air quality study was conducted in Karnataka to compare the levels of air pollution in locations where smoking was observed to air pollution in places where no smoking was observed. A variety of places including restaurants, bars, cafes, hotels, and tea stalls were tested in the cities and surrounding areas of Bangalore and Dharwad.

Burning cigarettes, bidis, and hookah emit large quantities of tiny particles that are easily inhaled deep into the lungs. These particles, or $PM_{2.5}$, are a good marker for tobacco smoke pollution.

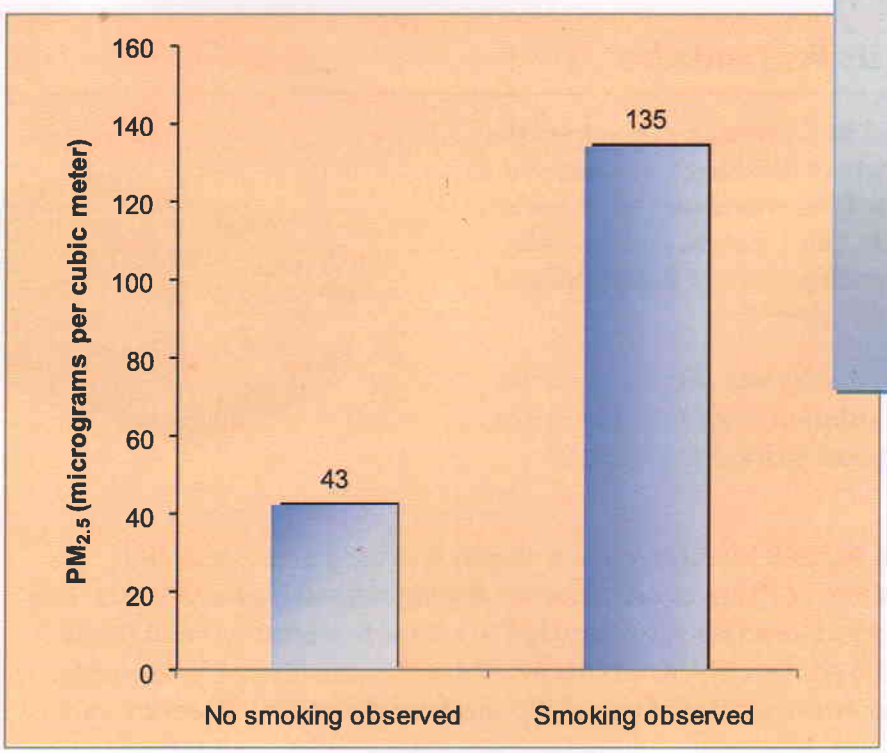
A particle monitor called a Sidepak Aerosol Monitor (shown above) was used to measure the concentrations of harmful air pollution, or $PM_{2.5}$, at each location during normal business hours. The average $PM_{2.5}$ levels in smoke observed locations are compared to smoke free locations and to the World Health Organization's (WHO) Air Quality Standards for $PM_{2.5}$ This device has been used in thousands of locations in over 60 countries around the world to measure exposure to tobacco smoke pollution.

KARNATAKA STATEWIDE RESULTS

Study Highlights –Karnataka

- The study was conducted from September 2009 to March 2010 in Karnataka.
- A total of 79 locations were visited in cities (urban), towns (sub-urban), and villages (rural) of Bangalore and Dharwad.
- Illegal smoking activity was observed in 45 out of 79 locations sampled (57%).
- Places where indoor smoking was observed had high levels of air pollution (average level 135 $\mu g/m^3$).
- Levels of $PM_{2.5}$ in smoking locations were **3.1** times higher than smoke-free locations (average level of 43 $\mu g/m^3$) and **14** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.
- Of the 45 places where smoking was observed, only 11 (24%) had any of the required "No Smoking" signage.
- Of the 34 places where there was no observed smoking, 10 (29%) had any of the required "No Smoking" signage.
- Sixty percent of the places visited also had smoking occurring in the entranceway or other adjacent outdoor areas where patrons and workers are exposed upon entry and exit and where smoke can drift into the indoor spaces.

The World Health Organization (WHO) has established air quality standards to protect from the health impacts of air pollution. The WHO's target air quality guideline for $PM_{2.5}$ is 10 $\mu g/m^3$ (annual mean).



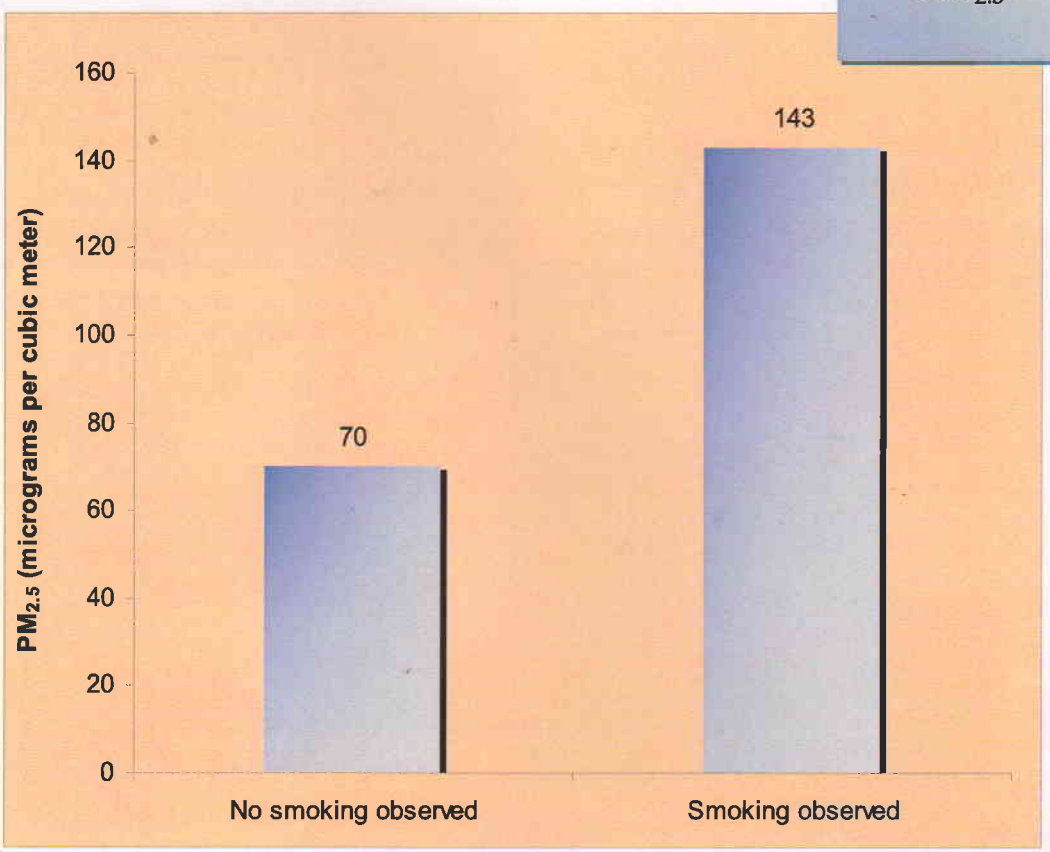
*Levels of $PM_{2.5}$ in smoking locations were **3.1** times higher than smoke-free locations and **14** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.*

BANGALORE RESULTS (URBAN)

Study Highlights – Bangalore City

- Illegal smoking activity was observed in 9 out of 14 locations sampled (64%).
- Places where indoor smoking was observed had high levels of air pollution (average level 143 $\mu g/m^3$).
- Levels of $PM_{2.5}$ in smoking locations were **2** times higher than smoke-free locations (average level of 70 $\mu g/m^3$) and **14** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.
- Of the 9 places where smoking was observed, 7 did not have any of the required "No Smoking" signage.
- Of the 5 places where there was no observed smoking, 4 had the required "No Smoking" signage.

*Levels of $PM_{2.5}$ in smoking locations were **2** times higher than smoke-free locations and **14** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.*

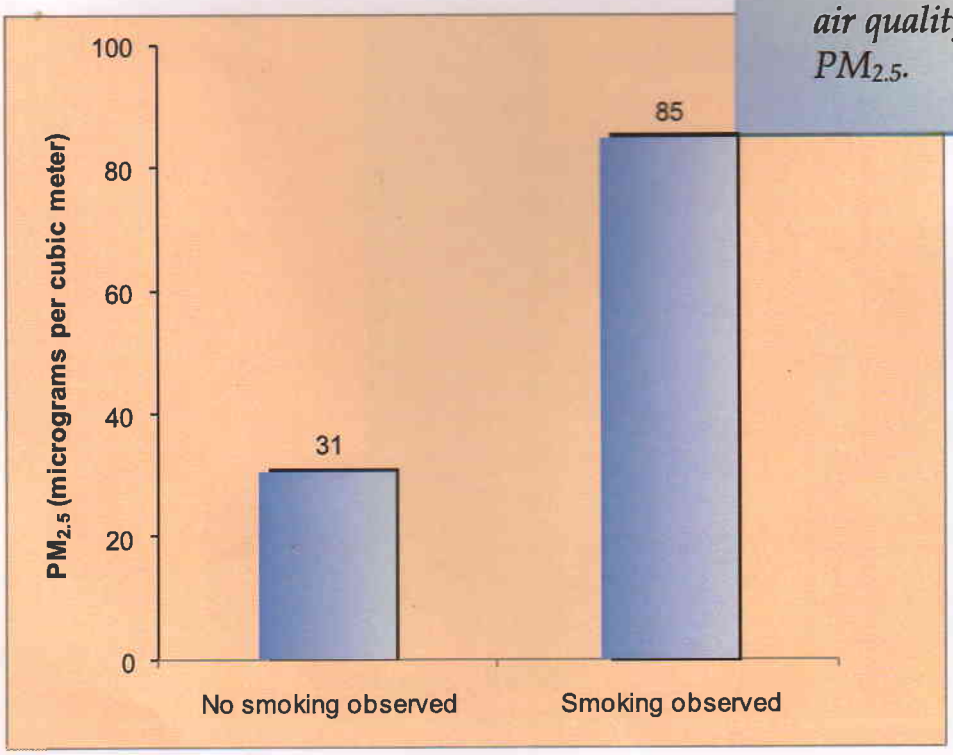


BANGALORE RESULTS (SUB-URBAN)

Study Highlights – Bangalore Towns (Nalamanagala and Anekal)

- Illegal smoking activity was observed in 6 out of 8 locations sampled (75%).
- Places where indoor smoking was observed had high levels of air pollution (average level 85 $\mu g/m^3$).
- Levels of $PM_{2.5}$ in smoking locations were **2.7** times higher than smoke-free locations (average level of 31 $\mu g/m^3$) and **9** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.
- 3 of the 6 places where smoking was observed did not have the required "No Smoking" signage. One also provided ashtrays.
- Half of the places visited also had smoking occurring in the entranceway or other adjacent outdoor areas where patrons and workers are exposed upon entry and exit and where smoke can drift into the indoor spaces.

*Levels of $PM_{2.5}$ in smoking locations were **2.7** times higher than smoke-free locations and **9** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.*



BANGALORE RESULTS (RURAL)

Study Highlights – Bangalore Villages

- Illegal smoking activity was observed in 8 out of 15 locations sampled (53%).
- Places where indoor smoking was observed had high levels of air pollution (average level 107 $\mu g/m^3$).
- Levels of $PM_{2.5}$ in smoking locations were **3.1** times higher than smoke-free locations (average level of 35 $\mu g/m^3$) and **11** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.
- None of the 8 places where smoking was observed had the required "No Smoking" signage. Three of them also provided ashtrays.
- More than half of the places visited also had smoking occurring in the entranceway or other adjacent outdoor areas where patrons and workers are exposed upon entry and exit and where smoke can drift into the indoor spaces.

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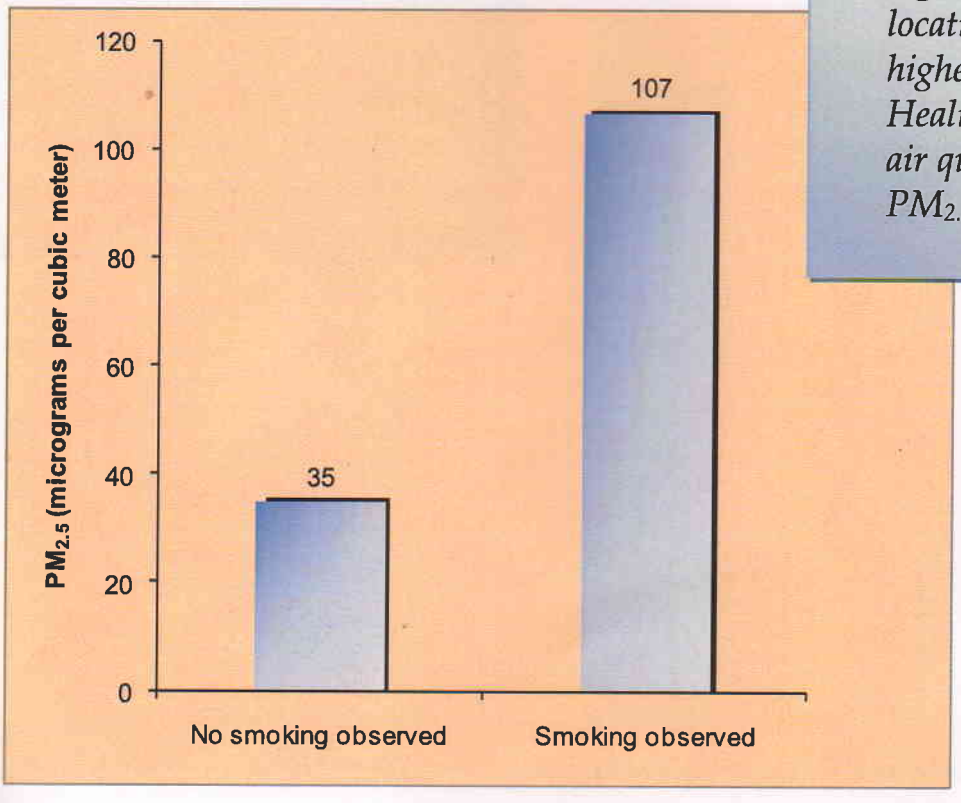
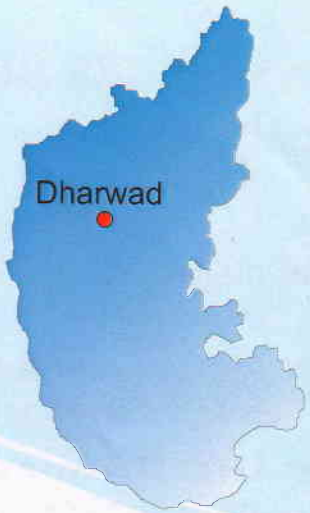


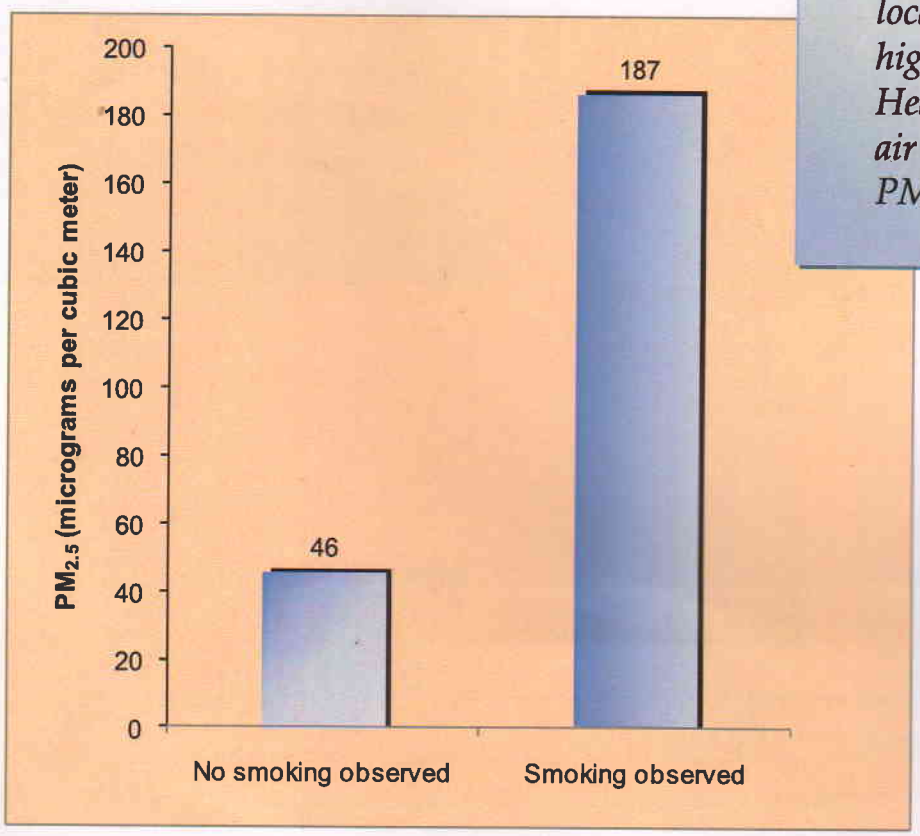
DHARWAD RESULTS (URBAN)

Study Highlights – Dharwad City



- Illegal smoking activity was observed in 10 out of 18 locations sampled (56%).
- Places where indoor smoking was observed had high levels of air pollution (average level 187 $\mu g/m^3$).
- Levels of $PM_{2.5}$ in smoking locations were **4.1** times higher than smoke-free locations (average level of 46 $\mu g/m^3$) and **19** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.
- Only 5 of the 10 places where smoking was observed had "No Smoking" signage. Six also provided ashtrays.
- Two-thirds of the places visited also had smoking occurring in the entranceway or other adjacent outdoor areas where patrons and workers are exposed upon entry and exit and where smoke can drift into the indoor spaces.

*Levels of $PM_{2.5}$ in smoking locations were **4.1** times higher than smoke-free locations and **19** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.*

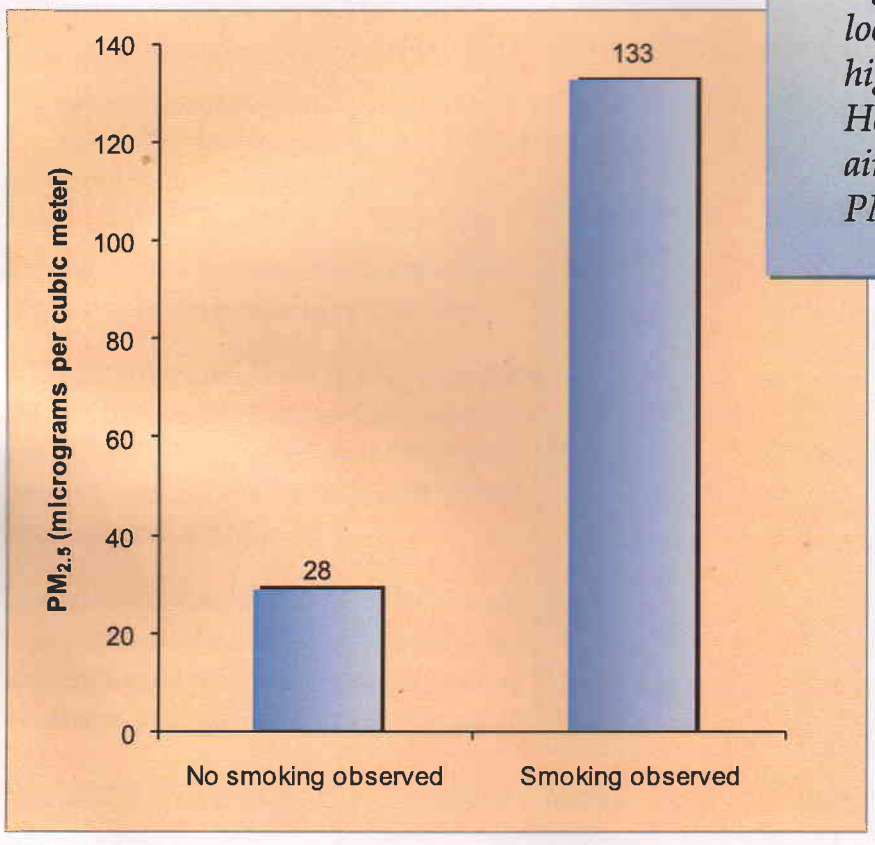


DHARWAD RESULTS (SUB-URBAN)

Study Highlights – Dharwad Town (Kalaghtagi)

- Illegal smoking activity was observed in 5 out of 7 locations sampled (71%).
- Places where indoor smoking was observed had high levels of air pollution (average level 133 µg/m³).
- Levels of $PM_{2.5}$ in smoking locations were **5** times higher than smoke-free locations (average level of 28 µg/m³) and **13** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.
- Four of the 7 places visited had the required "No Smoking" signage.
- All but one of the places visited also had smoking occurring in the entranceway or other adjacent outdoor areas where patrons and workers are exposed upon entry and exit and where smoke can drift into the indoor spaces.

*Levels of $PM_{2.5}$ in smoking locations were **5** times higher than smoke-free locations and **13** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.*

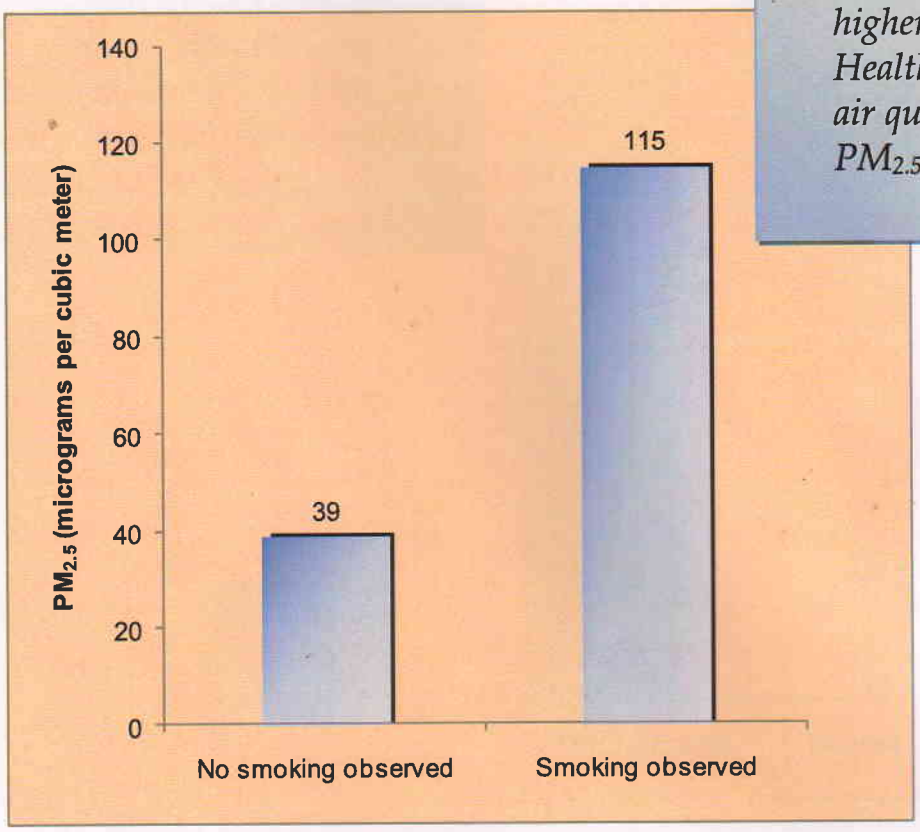


DHARWAD RESULTS (RURAL)

Study Highlights – Dharwad Villages

- Illegal smoking activity was observed in 8 out of 17 locations sampled (47%).
- Places where indoor smoking was observed had high levels of air pollution (average level 115 $\mu g/m^3$).
- Levels of $PM_{2.5}$ in smoking locations were **3** times higher than smoke-free locations (average level of 39 $\mu g/m^3$) and **12** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.
- None of the 17 places visited had the required "No Smoking" signage.
- Almost half of the places visited also had smoking occurring in the entranceway or other adjacent outdoor areas where patrons and workers are exposed upon entry and exit and where smoke can drift into the indoor spaces.

*Levels of $PM_{2.5}$ in smoking locations were **5** times higher than smoke-free locations and **13** times higher than the World Health Organization target air quality guideline for $PM_{2.5}$.*



Conclusions from the Study

- The air quality monitoring project in Karnataka found that *smoking was occurring in over half of the locations visited*.
- Places where smoking was observed showed significantly higher levels of pollution than smoke-free places. As a result, *workers and patrons continue to be exposed to harmful secondhand smoke*.
- *Compliance with the smoke-free law was low*. In addition to the high levels of smoking across all the places, observers noted lack of signage in most places. Additionally, ashtrays were also visible in a number of places.
- While progress has been made since the Indian smoke-free law went into effect, *the findings from this study demonstrate the need to increase awareness of the smoke-free law and improve enforcement measures* to completely eliminate smoking and the harmful effects of secondhand smoking in indoor public places.
- *There is no safe level of secondhand smoke!*

Key Messages

- Enforcement of the India smoke-free air law in Karnataka must be improved. Over half of the locations visited allowed illegal smoking indoors.
- Places where indoor smoking was observed had high levels of unsafe air pollution.
- 100% smoke-free laws protect workers and the public from exposure to tobacco smoke pollution. Designated smoking areas do not protect against the harmful effects of secondhand smoke.
- In order for the law to be effective, authorities must ensure that smoke-free laws are enforced – this includes posting proper signage, removing ashtrays, and prohibiting smoking in indoor spaces.

The Centre for Multi Disciplinary Development Research (CMDR) conducted this study with support from Campaign for Tobacco Free Kids, Roswell Park Cancer Institute and the Bloomberg Initiative to Reduce Tobacco Use.

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