

Clearing the Air: Measuring Secondhand Smoke in Manama, Bahrain

Background

The WHO Framework Convention on Tobacco Control states; Article 8: "...scientific evidence has unequivocally established that exposure to tobacco smoke causes death, disease and disability ... [Parties] shall adopt and implement ... measures providing for protection from exposure to tobacco smoke in indoor workplaces, public transport, indoor public places and, as appropriate, other public places".¹ WHO FCTC Article 8 guidelines are intended to assist Parties in meeting their obligations under Article 8 of the Convention and provide a clear timeline for Parties to adopt appropriate measures (within five years after entry into Force of the WHO FCTC).²

There is no safe level of exposure to secondhand smoke (SHS), which contributes to a range of serious and often fatal diseases, including heart disease, respiratory illness, and lung and other cancers. Completely smoke-free environments with no exceptions are the only proven way to protect people from second-hand smoke. Separate smoking rooms and ventilation systems do not prevent secondhand smoke exposure.³

Governments are expected to maintain strong support for laws once they are enacted through proactive and uniform enforcement that achieves high compliance levels.

In Bahrain, 34% men and 8% women smoke tobacco.⁴ Among youth, 28% boys and 11.7% girls between the ages of 13-15 years use tobacco, whereas around 45% amongst both sexes are exposed to second hand smoke outside their homes.⁵

Current Smoke-free legislation in Bahrain

In Bahrain, by a special decree since 2009, smoking is banned in all closed public places, government institutions, hospitals, educational institutions, hospitality and ports; although designated smoking areas are allowed that follow strict regulations.

Methods

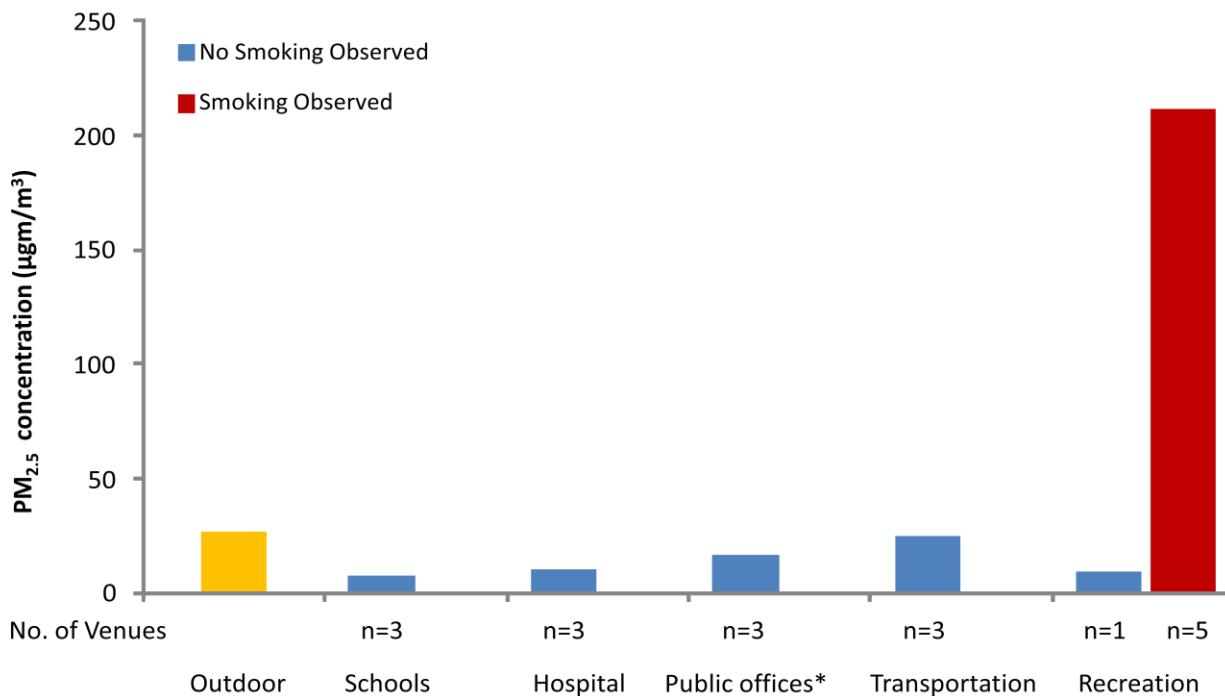
The objective of this study was to monitor SHS levels, as well as smoking behavior, in public places and work places in Manama, the capital of Bahrain. The results provide a brief snapshot of selected venues whether or not these are compliant to the national legislation.

The study was conducted by using special PM_{2.5} monitoring instrument that measured the concentration of suspended SHS particulate matter (PM) in indoor air. Indoor Air monitoring was conducted for thirty minutes at every venue in a sample of hospitals, schools, public offices, transportation, and recreation venues. The study took place during July, 2010. A total of 18 venues were monitored using PM_{2.5}. A brief summary of the findings from this study is presented here.

PM_{2.5} Highlights

What are the levels of exposure to tobacco smoke particles in indoor places in Manama?

In Manama, the study found an average PM_{2.5} level of 211 µg/m³ in venues with evidence of smoking, which is 15 times higher than indoor places where no smoking was observed.



*public offices like government buildings, banks, telecommunication, etc.

Figure: Mean indoor particulate air pollution (PM_{2.5}) concentrations by type of location and observed smoking in Manama

PM_{2.5} concentrations in indoor places by observation of smoking in Manama

Recreation venues detected the highest levels of PM_{2.5}. An average PM_{2.5} level of 211 µg/m³ was detected in recreation venues where smoking was observed.

Venue Type	Smoking Observed	N	PM _{2.5} concentration (µg/m ³)			
			Mean	Min	Median	Max
Schools	No	3	8	6	8	8
	Yes					
Hospitals	No	3	10	5	10	16
	Yes					
Public offices	No	3	17	6	17	27
	Yes					
Transportation	No	3	25	22	23	30
	Yes					
Recreation	No	1	9	9	9	9
	Yes	5	211	60	147	515
Outdoor			27	9	24	70

Figure: PM_{2.5} concentrations in indoor places in Manama

Observational findings based on building type in Manama

Smokers were observed in five out of six or 83% of recreation venues visited where there were no signs prohibiting smoking.

Venue Type	N	100% Smoke-free regulation ⁴	Smokers observed (%)	Cigarette Butts found (%)	Tobacco smell detected (%)	Signs prohibiting smoking (%)
Schools	3	No	0	0	0	67
Hospitals	3	No	0	0	0	67
Public offices	3	No	0	0	0	100
Transportation	3	No	0	0	0	0
Recreation	6	No	83	0	83	0

Figure: Observational findings based on building types in Manama.

Study Findings

Levels of PM_{2.5} in Indoor Places in Bahrain

- PM_{2.5} levels were 15 times higher in venues where smoking was observed compared to venues with no smoking observed and nearly 8 times higher than outdoors.
- Smoking was only observed in recreation venues. All other venues had signs prohibiting smoking and very low levels of PM_{2.5}.
- The average PM_{2.5} levels detected in recreation venues with smoking was 211 µg/m³. In only 30 minutes, visitors to these venues would be exposed to levels 8 times higher than what is acceptable for a whole day (25 µg/m³), defined by the World Health Organization.⁶
- There was no evidence of smoking in schools, hospitals, public offices or transportation venues included in this study.

Study Summary

- There is no risk-free level of secondhand smoke exposure. Even brief exposure can be dangerous. SHS is a pollutant that causes serious illness in adults and children.⁶

- This study provides a brief examination of a few different venues in Manama.
- Although the sample size was small (18 buildings), schools, hospitals, public offices and public transportation included in this examination seem to be compliant with the 100% smoke free.
- Recreation venues which included restaurants and entertainment places and where smoking was observed, detected very high levels of PM_{2.5}. Exposure to SHS remains a problem in recreation venues.
- The findings from this study may not represent other similar buildings but it does provide a small assessment of the situation highlighting potential areas that need to be addressed.

Recommendations

- In order to protect the health of children and adults, the smoke free policies need to be supported by a national level legislation.
- Smoking policies in recreation venues need to be re-examined to protect health of the public and the workers.
- Signage prohibiting smoking should be posted in all venues including public transport and recreation places.
- The World Health Organization recommends that cities and countries adopt a comprehensive smoke-free law, requiring all public places and work places to ban smoking indoors, without designated areas.⁷

1) WHO Framework Convention on Tobacco Control. 2003 (updated 2005). 2) Guidelines for implementation of Article 8 of the WHO Framework Convention on Tobacco Control (Protection from exposure to tobacco smoke). 2007. 3) WHO report on the global tobacco epidemic, 2009: implementing smoke-free environments. 2009. 4) WHO Report on the Global Tobacco Epidemic. 2011: Warning about the Dangers of Tobacco. 2011 5) Global Youth Tobacco Survey (GYTS) 2009; data reported in WHO Report on the Global Tobacco Epidemic. 2011 6) WHO air quality guidelines for particulate matter, ozone, nitrogen dioxide, and sulphur dioxide. Global update, 2005. 2006. 7) World Health Organization, "Making cities Smoke-free". 2011. All documents can be accessed and downloaded from <http://www.who.int/publications/en/>