

# Pioneering study finds dangerous pollution levels in shisha bars

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Revellers in shisha bars experience pollution levels higher than those in smog-hit Beijing, according to a report commissioned by Birmingham City Council – the first UK study of its kind.

The investigation into air quality inside 12 shisha bars across the city found dangerous levels of [carbon monoxide](#) (CO) and fine particulate matter (PM2.5) – substances linked with respiratory illnesses such as cardiovascular disease, bronchial asthma, lung cancer and low birth rate in pregnant women. Most shisha contains tobacco – tobacco smoke is a known carcinogen.

University of Birmingham researchers and environmental health officers found levels were significantly higher than those experienced in pubs and bars prior to the [smoking](#) ban, introduced in England in 2007.

The study – the first in the UK to measure CO and PM2.5 concentrations, published in *Science of the Total Environment* – also found:

- Inside shisha premises PM2.5 and CO levels were eight and 11 times greater than outdoor background levels
- PM2.5 and CO levels were 13 and nine times higher in shisha bars than in five control pubs/restaurants with cooking facilities
- Levels of PM2.5 in shisha premises were around 43 times higher than those recorded on a busy arterial road (Tyburn Roadside 5.9 µg/m<sup>3</sup> / shisha premises 255 µg/m<sup>3</sup> )

- Compared to PM<sub>2.5</sub> levels recorded in Beijing (137 µg/m<sup>3</sup>) – a city known for its air quality issues – those found in Birmingham shisha bars were nearly double that (255 µg/m<sup>3</sup>)
- Evidence that PM<sub>2.5</sub> leaks out into the immediate environment outside shisha premises, potentially affecting local communities' health.

A number of studies have examined the levels of second-hand smoke created in shisha bars in the US and Europe, but no primary research had been carried out in the UK prior to this study.

Birmingham is a young, ethnically diverse city, however researchers found that many customers and bar staff believed smoking shisha was safer than smoking cigarettes, as the smoke is 'filtered through water', and more socially acceptable.

During the visits, carried out between March and June 2014, bar owners/managers' awareness of the associated health risks was assessed: 75 per cent did not recognise the smoke from shisha pipes was a hazard to their customers or staff, nor the importance for smoking areas to be open to the air.

Carbon monoxide and fine particulate matter are both products of combustion. High levels of CO will lead to oxygen depletion in haemoglobin in the blood, which can cause dizziness, shortness of breath, confusion through to loss of consciousness and death.

Fine particulate matter is made up of tiny particles caused by burning candles, cooking, tobacco smoke, fireplaces and diesel engines. These can travel deep into the respiratory tract and cause coughing, sneezing and shortness of breath. Longer term exposure to PM<sub>2.5</sub> can cause chronic bronchitis, increased mortality from lung cancer and heart disease.

The number of shisha premises has significantly risen not just in the UK but around the world, many of which opened after smoke-free legislation was introduced. To comply, designated smoking areas must meet the 50 per cent rule, which ensures at least half its area must be open to the air.

Jacqui Kennedy, Acting Strategic Director of Place for Birmingham City Council, said: "Our environmental health officers have noted the smoky atmosphere in shisha bars/restaurants whenever they had visited premises, which have to comply with smoke-free legislation.

"Working in partnership with the police, fire service, licensing and trading standards colleagues, we advise businesses on how to achieve compliance and what they must do to protect their staff and customers. This study shows a worrying lack of awareness of the risks from premises and staff, as well as those who visit shisha bars.

"Given the success of the [smoking ban](#), which has been in place for nearly a decade, compliance with the spirit of the smoke-free law is paramount in order to protect the health of non-smokers and staff, by reducing their exposure to [second-hand smoke](#).

Dr Juana Maria Delgado-Saborit, from the University of Birmingham, said: "Due to the rise in popularity of shisha premises in UK (and worldwide) and the lack of awareness of the risks associated with shisha smoke, this is an emerging area of interest and one that needs to be better understood.

"Both smoking shisha and being exposed to shisha environment smoke have the potential to cause short and long term health effects similar to those associated with [tobacco smoke](#) and traffic air pollution. More research is required to understand how exposure to shisha smoke affects human health."

Since 1 July 2007, Birmingham City Council has prosecuted six shisha premises for failing to comply with smoke-free legislation.

A report on this study's findings is due to be presented at this month's Licensing and Public Protection Committee meeting on 17 February 2016.

## **How can shisha businesses reduce the risk to customers and staff?**

- Comply with the 50 per cent rule of smoke-free legislation.
- Ensure staff are knowledgeable about the risks associated with shisha smoke.
- Make sure shisha preparation area is well ventilated.
- Reduce the number of pipes active during any one sitting.
- Ensure employees do not smoke shisha to 'prime' the pipes.

## **How can customers reduce the risk?**

- Consider reducing or stopping smoking. For information and support contact the Smokefree National Helpline on 0300 123 1044 or visit [www.nhs.uk/smokefree](http://www.nhs.uk/smokefree)
- Know and understand the risks associated with smoking shisha.
- Shorten the time spent smoking shisha and time spent on premises.
- Sit close to the open part of a designated smoking area or shelter.

## **What are the penalties for non-compliance?**

- Smoking in a no-smoking place: £50 fixed penalty notice
- Failure to display minimum no-smoking signs: £200 fixed penalty notice.

- Failing to prevent smoking in a smoke-free place: a fine up to £2,500.

**More information:** Gam Gurung et al. Effects of shisha smoking on carbon monoxide and PM2.5 concentrations in the indoor and outdoor microenvironment of shisha premises, *Science of The Total Environment* (2016). [DOI: 10.1016/j.scitotenv.2015.12.093](https://doi.org/10.1016/j.scitotenv.2015.12.093)

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