

SECONDHAND TOBACCO SMOKE EXPOSURE IN BARS AND NIGHTCLUBS IMPACTS NON-SMOKING AND SMOKING EMPLOYEES

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Background and Aims: In the absence of comprehensive smoking bans in public places, bars and nightclubs have the highest concentrations of secondhand tobacco smoke, posing a serious health risk for workers in these venues. The objective of this study was to assess exposures of bar and nightclub employees to secondhand smoke, including non-smoking and smoking employees.

Methods: Between 2007 and 2009, we recruited around 10 venues per city and up to 5 employees per venue in 24 cities in the Americas, Eastern Europe, Asia and Africa. Air nicotine concentrations were measured for 7 days in 238 venues. To evaluate personal exposure to secondhand smoke, hair nicotine concentrations were measured for 625 non-smoking and 311 smoking employees. The relationship between hair nicotine and air nicotine concentrations was estimated using mixed-effect models with country specific intercepts.

Results: Median (interquartile range) air nicotine concentrations were 3.5 (1.5, 8.5) $\mu\text{g}/\text{m}^3$ and 0.2 (0.1, 0.7) $\mu\text{g}/\text{m}^3$ in smoking and smoke-free venues, respectively. Median (interquartile range) hair nicotine concentrations were 1.7 (0.5, 5.5) ng/mg and 6.0 (1.6, 16.0) ng/mg in non-smoking and smoking employees, respectively. After adjustment for age, sex, education, living with a smoker, hair treatment and region, a 2-fold increase in air nicotine concentrations was associated with a 29% (95% confidence interval 22%, 37%) increase in hair nicotine concentrations in non-smoking employees and with a 10% (2%, 19%) increase in smoking employees.

Conclusions: Exposure to secondhand smoke in the workplace, assessed by air nicotine, resulted in elevated concentrations of hair nicotine among both smoking and non-smoking bar and nightclub employees. Legislation measures that ensure complete protection from secondhand smoke exposure in indoor public places are urgently needed.