**Indoor air pollution (PM2.5) due to secondhand smoke in selected hospitality and entertainment venues of Karachi, Pakistan.**

**Abstract**

**OBJECTIVE:** To determine particulate matter smaller than 2.5 μm (PM(2.5)) levels at various hospitality and entertainment venues of Karachi, Pakistan.

**METHODS:** This was a descriptive cross-sectional study conducted at various locations in Karachi, during July 2009. Sampling was performed at 20 enclosed public places, including hospitality (restaurants and cafés) and entertainment (snooker/billiard clubs and gaming zones) venues. PM(2.5) levels were measured using an aerosol monitor.

**RESULTS:** All entertainment venues had higher indoor PM(2.5) levels as compared to the immediate outdoors. The indoor PM(2.5) levels ranged from 25 to 390 μg/m(3) and the outdoor PM(2.5) levels ranged from 18 to 96 μg/m(3). The overall mean indoor PM(2.5) level was 138.8 μg/m(3) (± 112.8). Among the four types of venues, the highest mean indoor PM(2.5) level was reported from snooker/billiard clubs: 264.7 μg/m(3) (± 85.4) and the lowest from restaurants: 66.4 μg/m(3) (± 57.6) while the indoor/outdoor ratio ranged from 0.97 to 10.2, highest being at the snooker/billiard clubs. The smoking density ranged from 0.21 to 0.57, highest being at gaming zones. The indoor PM(2.5) concentration and smoking density were not significantly correlated (Spearman's correlation coefficient = 0.113; p = 0.636).

**CONCLUSIONS:** This study demonstrates
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unacceptably high levels of PM(2.5) exposure associated with secondhand smoke (SHS) at various entertainment venues of Karachi even after 8 years since the promulgation of smoke-free ordinance (2002) in Pakistan; however, better compliance may be evident at hospitality venues. The results of this study call for effective implementation and enforcement of smoke-free environment at public places in the country.

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