不同隔菸策略對餐廳二手菸之減少率探討

The ETS reducing rate in restaurants with different smoking restriction policy

中文摘要

香菸的健康危害已眾所皆知，減少吸菸及二手菸暴露之人口群，是菸害防制之目標工作。檢視我國的菸害防制法，除有各類公共場所除吸菸區外不得吸菸之規定，卻未對吸菸區是否能真正「有效」地減少二手菸的暴露加以著墨；然而，吸菸／非吸菸區之隔離設施是否得當，影響隔菸效果至巨。本研究之主要目的為瞭解國內餐廳在不同禁菸規定下，室內二手菸污染物濃度及一般室內空氣品質指標之現況，並探討在不同隔菸設施下之隔菸效果，且嘗試建立二手菸污染物之預測模式。

本研究以台北地區餐廳為母群，依隔菸型式立意選取不同隔菸設施之餐廳為研究樣本，樣本餐廳之隔菸型式分成 A、B、C、D 四類並以全面禁菸之餐廳為對照組（E），其中 A 類餐廳之隔菸型式為以全牆面區隔出吸菸室，B 類是以半牆面隔出吸菸區與非吸菸區，C 類分為吸菸樓層與非吸菸樓層，D 類則是室內空間全為吸菸區，或未設隔菸牆僅劃定空間中某區域為吸菸區某區域為非吸菸區。針對樣本餐廳之室內空氣中二手菸（氣態 nicotine、3-ethenylpyridiner 及 PM10）與一般空氣品質指標物質（包括溫溼度、一氧化碳及二氧化碳）進行採樣與測定，同時紀錄其隔菸硬體設施現況，並以非吸菸區/吸菸區 nicotine 及 3-ethenylpyridine 的濃度比值來評估樣本餐廳之隔菸效果。

研究結果顯示，室內吸菸區的 nicotine 及 3-ethenylpyridine 的平均濃度(20.23, 1.77 μg/m3）遠高於非吸菸區(3.1, 0.75 μg/m3)，呈統計上顯著之差異（$P<0.05$）；但全面禁菸之餐廳其 nicotine 及 3-EP 平均濃度（0.93, 0.43 μg/m3）則又顯著低於非吸菸區（$P<0.05$）。同時各項空氣品質參數，除濕度外，吸菸區之平均值均略高於非吸菸區。在隔菸效果方面，以樓層區隔之餐廳隔菸效果最佳（二手菸減少率>80%），以全牆面區隔者次之（二手菸減少率 70%以上）。樣本餐廳多有換氣率不足的問題，吸菸區尤其嚴重，亟待改善。

英文摘要

The adverse health effects of environmental tobacco smoke (ETS) are well recognized. Eliminating or minimizing exposure of ETS is the target work in smoking control programs. However, the designated “non- smoking” and “smoking” areas could provide how much protection from ETS for nonsmokers has not yet been concerned. In this study, we investigated 18 restaurants with different smoking restriction policies in Taipei Metropolis to compare the indoor air quality and ETS minimizing rates between those restaurants. Three types of separating facilities (one is full wall

separation, another is short wall separation and the third type is separated by floor) to separate the smoking and nonsmoking areas were selected. The smoke-free restaurants and restaurants without any smoking restriction were also selected as control groups.

The results showed that the mean levels of PM10 were no difference between all types of sample restaurants, however the concentrations of other ETS-markers (nicotine and 3-EP) were significantly higher ($P<0.05$) in the smoking areas compared to the non-smoking areas of restaurants with both smoking and non-smoking areas. For nicotine and 3-EP, mean levels were 20.23, 1.77μg/m3 respectively in the areas where smoking occurred and 3.1, 0.75 μg/m3 in the non-smoking areas. The ETS concentrations in smoke-free restaurants were even lower than non-smoking areas. In regard to the ETS reducing rates, the type of floor separation has a greatest reducing rate (over 80%) and the type of full wall separation come second (over 70%). In addition, we found that all selected restaurants have potential ventilation problems especially in smoking areas. The improvements of ventilation and occupancy in those restaurants are strongly recommended.