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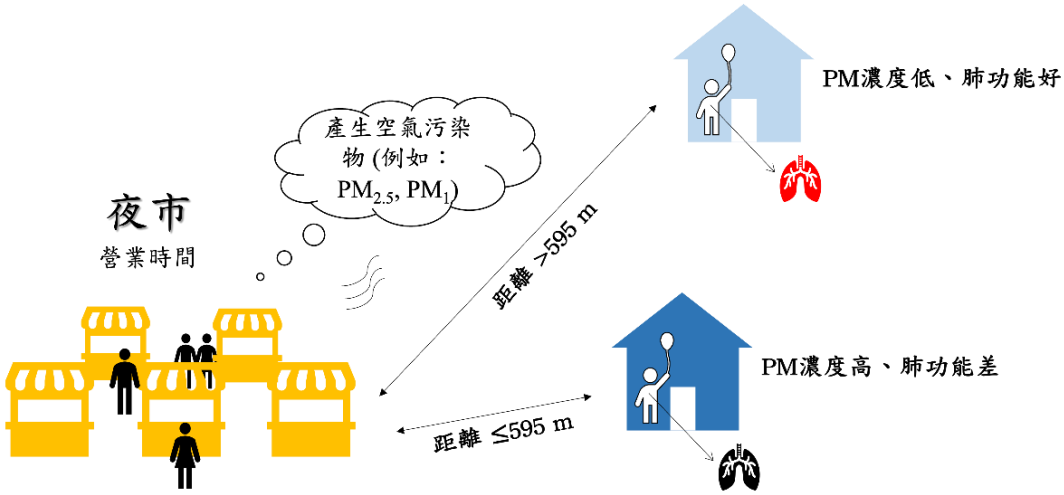
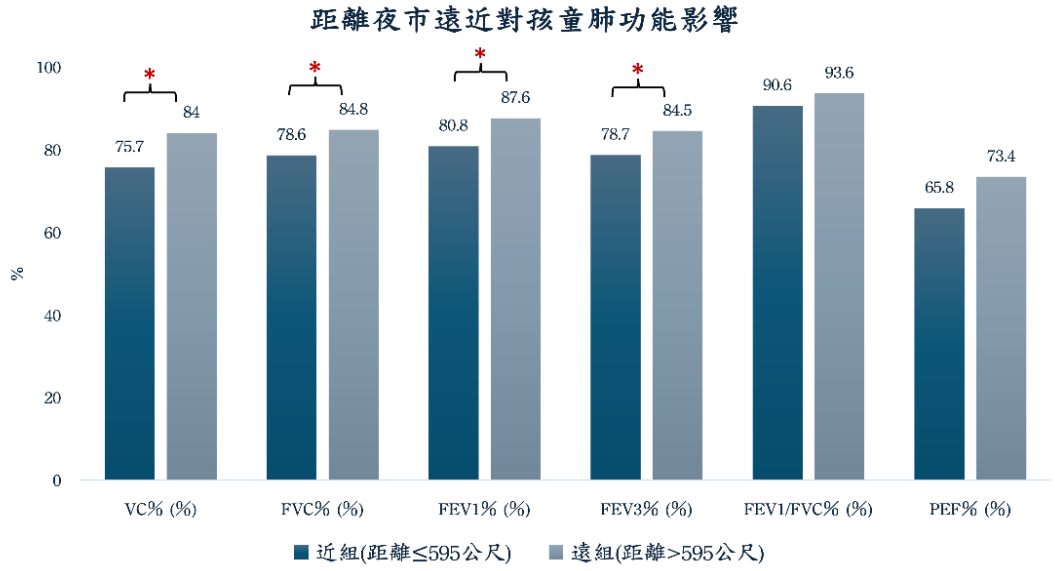
全世界首篇探討夜市營業日及住家距離夜市遠近對室內空氣品質與兒童肺功能的影響的研究



夜市是亞洲獨特的文化場域，其烹飪與燃燒活動會產生多種空氣污染物，可能會對健康帶造成影響。然而，目前尚無研究探討夜市污染是否影響鄰近家庭室內空氣品質及兒童肺功能。本研究旨在評估夜市營業日及住家距離夜市遠近，對室內空氣品質與兒童肺功能的影響。

研究招募位於高雄市夜市周邊 58 戶家庭，使用即時監測儀器量測室內懸浮微粒 (PM_1、$PM_{2.5}$、PM_{10})、二氧化碳、一氧化碳、二氧化氮、二氧化硫、臭氧、總揮發性有機化合物、空氣中細菌與真菌濃度，並檢測家中兒童的肺功能。

本研究為全世界首篇探討夜市營業日及住家距離夜市遠近，對室內空氣品質與兒童肺功能的影響的研究。在夜市營業日時，室內 PM_1 與 $PM_{2.5}$ 濃度顯著高於休市日。與居住距離市場 595 公尺以內的「近組」家庭，其室內空氣中二氧化碳濃度顯著高於距離 595 公尺以上的「遠組」家庭。與近組家庭的兒童相比，「遠組」家庭兒童的肺活量預測值百分比、用力肺活量預測值百分比、第一秒用力呼氣量預測值百分比、第一秒用力呼氣量值預測值百分比顯著較好。



【具體成果】

- 學術成就

  Zhang JL, Wang TN, Lin PC, Lin KT, Chen YH, Jhang JM, Yao TC, Lin YC, Chen PS. Impacts of night market on indoor air quality and lung function of children in nearby households. J Expo Sci Environ Epidemiol. 2025 Mar 20. doi: 10.1038/s41370-025-00755-5. Epub ahead of print. PMID: 40113881.

【研究團隊】

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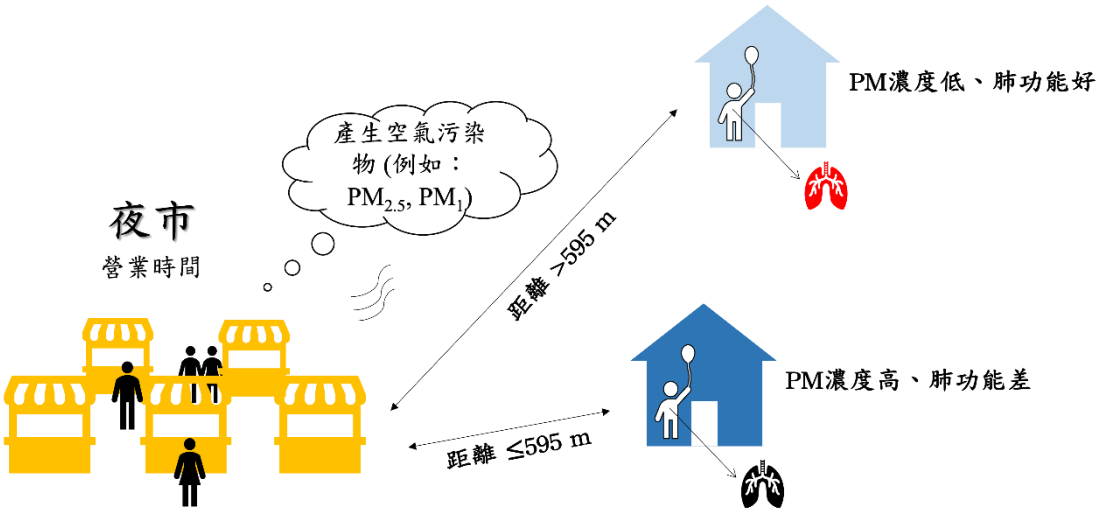
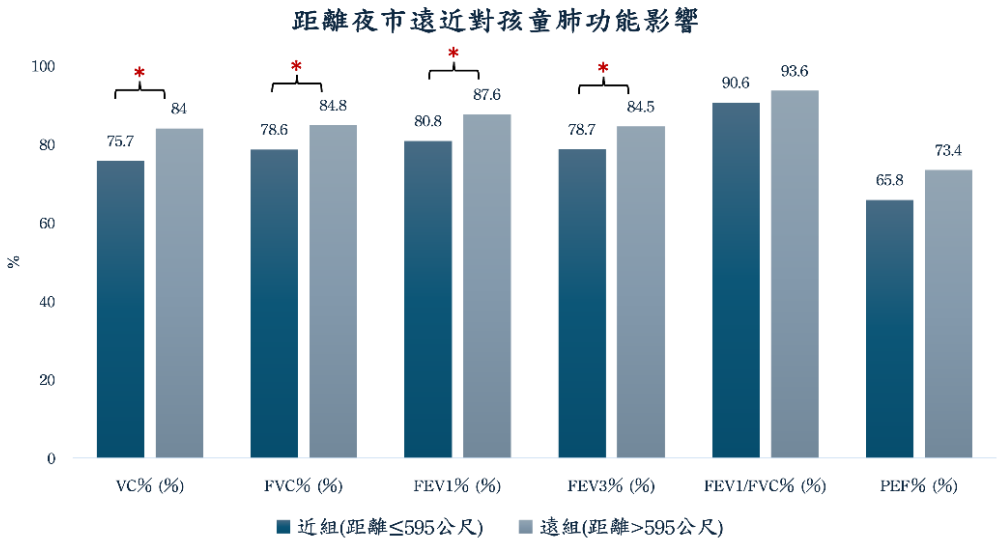


Night markets—a unique element of Asian culture—involve various cooking methods and combustion, generating air pollutants with adverse health effects. However, there is no scientific literature on whether air pollutants from night markets affect indoor air quality and the lung function of children in nearby households.

We evaluated the impacts of night market, specifically market opening days and household distance from the market, on indoor air quality and the lung function of children in nearby households. Using real-time monitoring equipment, we measured concentrations of particulate matter $(PM)_1$, $PM_{2.5}$, PM_{10}, carbon dioxide (CO_2), carbon monoxide (CO), nitrogen dioxide, sulfur dioxide (SO_2), ozone, total volatile organic compound (TVOC), airborne bacteria, and fungi in 58 households located near a night market. Additionally, we assessed the lung function values of children living in these households.

This study is the first to reveal hazardous air pollutants emitted from night markets affect the indoor air quality and lung functions of children. PM_1 and $PM_{2.5}$ concentrations were significantly higher during opening days than during closing days. Additionally, we observed significantly higher indoor CO_2 in the near group than that in far group. The lung function values for children were significantly lower in households located ≤595 m from the market (near group) than in those located >595 m from the market (far group).



【Concrete Results】

- **Academic Achievements**

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【Research Team】

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