

# Investigating the effect of an open window vs. a closed window on the concentrations of suspended particulate matter in the indoors with respect to the outdoors

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## Abstract

A study was conducted to see the effect of an opened window vs. a closed window in New Delhi in peak winters. This is the time when the PM 2.5 and PM 10 concentrations are the highest in the ambient air due to various external factors. A PM 2.5 and PM 10 air quality meter was used at a singular location near the window for 10 days with 9 readings taken during the daily working hours. Contrary to the possible conjectural belief, it was found that the window opened or closed did not have a substantial effect on the concentrations of the indoor levels of PM 2.5 and PM 10. The results showed that opening of the windows does not substantially affect the levels of the indoors with respect to the levels of PM 2.5 and PM 10 in the outdoors. Outdoors may provide the source of the particulate matter in the indoor, but due to diffusive effect, open windows play a key role in the reducing the indoor levels. This study was reconfirmed with options where the windows were opened and then closed and vice-versa. In all cases, the effect of the outdoor was not visible. To curb indoor particulate matter levels, isolation is not the solution. (200 words)

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