

Traffic exposures and respiratory symptoms (SAPALDIA cohort study)

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In SAPALDIA 1, conducted in 1991 in 8 Swiss areas among 9651 randomly selected adults aged 18-60 years, ambient PM₁₀ was associated with prevalence of respiratory symptoms. In SAPALDIA 2 (2002) 8047 subjects were re-examined. To evaluate traffic-related health effects in the two cross-sections, we assigned individual GIS-based estimates of traffic exposures to subjects.

The addresses of subjects were geocoded and distance to the nearest main street (DNMS) and length of main streets within a 200m perimeter (LMS) were derived as exposure proxies. The outcome, reported respiratory symptoms for the 12 months preceding the interview, was controlled for sex, age, social status, nationality, BMI, active and passive smoking, occupational exposures, atopy, early respiratory infections, family history of asthma and atopy, season and area.

Among never-smokers in SAPALDIA 1 (n=3581), reported dyspnoea was decreased by 18% (95%CI: 3-30%) per 100m increment in DNMS, reported wheezing by 16% (1-28%) and reported wheezing with breathing problems by 23% (4-38%). Per 100m increment in LMS, reporting of these symptoms was increased by 4% (1-8%), 5% (1-8%) and 6% (2-10%), respectively. In SAPALDIA 2 quite similar estimates were observed and significant for LMS vs. wheezing w. breath. problems. Adjusting for PM₁₀ did not change the effect estimates.

Our results contribute to the growing evidence that living near busy streets leads to health effects beyond those attributable to background air pollution.

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