

# TRAFFIC NOISE AND CARDIOVASCULAR HEALTH IN SWEDEN: THE ROADSIDE STUDY

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**Background and Aims:** Long-term exposure to community noise has been suggested to contribute to the development of cardiovascular diseases. However, the evidence is inconclusive. We investigated cardiovascular effects of living near busy roads and railways with regard to noise exposure.

**Methods:** The study population consists of 25,851 men and women, aged 18-80 years, who had lived in Sweden for at least five years. All subjects participated in a National Environmental Health Survey, performed in Sweden in 2007 (response rate 59.4%), in which they reported on health, annoyance reactions and environmental factors. Self-reported doctor's diagnosis of hypertension and/or of cardiovascular disease were used as outcomes. Exposure to road traffic was assessed as Road Traffic Work, expressed as millions of vehicle kilometers per year (Mvkm/y), within radii 50, 250 and 500m around each participant's residential address. For a subsample ( $n=2,496$ ), we also assessed road and railway noise as the  $L_{den}$  level at the most exposed façade of the dwelling, based on digital noise maps produced in accordance with the European Environmental Noise Directive. Multiple logistic regression was used to assess prevalence Odds Ratios and 95% Confidence Intervals.

**Results:** No statistically significant associations were found between Road Traffic Work in any of the three radii (average 0.02, 0.81 and 3.42 Mvkm/y) and self-reported hypertension or cardiovascular disease, adjusting for sex, age, country of birth, education, smoking and air pollution ( $PM_{10}$  and  $NO_2$ ). In the subpopulation, there were no associations between road traffic noise (average 56 dB) and the outcomes. A borderline statistically significant trend was found per 5 dB increase in railway noise in relation to cardiovascular disease (OR 1.21; 95% CI 0.99 to 1.48), however, there was no clear dose-response pattern.

**Conclusions:** In this study, community noise exposure was not significantly associated with an increased risk of hypertension or cardiovascular disease.