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Medication use in relation to noise from aircraft and road traffic in six European countries: results of the HYENA study

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Abstract

Objectives: Studies on the health effects of aircraft and road traffic noise exposure suggest excess risks of hypertension, cardiovascular disease and the use of sedatives and hypnotics. Our aim was to assess the use of medication in relation to noise from aircraft and road traffic.

Methods: This cross-sectional study measured the use of prescribed antihypertensives, antacids, anxiolytics, hypnotics, antidepressants and antasthmatics in 4,861 persons living near seven airports in six European countries (UK, Germany, the Netherlands, Sweden, Italy, and Greece). Exposure was assessed using models with 1 dB resolution (5 dB for UK road traffic noise) and spatial resolution of 250×250 m for aircraft and 10×10 m for road traffic noise. Data were analysed using multilevel logistic regression, adjusting for potential confounders.

Results: We found marked differences between countries in the effect of aircraft noise on antihypertensive use; for night-time aircraft noise, a 10 dB increase in exposure was associated with ORs of 1.34 (95% CI 1.14 to 1.57) for the UK and 1.19 (1.02 to 1.38) for the Netherlands but no significant associations were found for other countries. For day-time aircraft noise, excess risks were found for the UK (OR 1.35; CI: 1.13 to 1.60) but a risk deficit for Italy (OR 0.82; CI: 0.71 to 0.96). There was an excess risk of taking anxiolytic medication in relation to aircraft noise (OR 1.28; CI: 1.04 to 1.57 for daytime and OR 1.27; CI: 1.01 to 1.59 for night-time) which held across countries. We also found an association between exposure to 24hr road traffic noise and the use of antacids by men (OR 1.39; CI 1.11 to 1.74).

Conclusion: Our results suggest an effect of aircraft noise on the use of antihypertensive medication, but this effect did not hold for all countries. Results were more consistent across countries for the increased use of anxiolytics in relation to aircraft noise.

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