Health effects of noise

Recent studies on environmental noise caused by traffic, industrial and recreational activities have revealed that it can damage our health, prompting the need for more in-depth research on the topic.

The goal of the European Commission's Environmental Noise Directive (END) is to achieve a common approach across the EU for the assessment and management of environmental noise to limit its harmful effects. Under the directive, countries must produce noise maps modelling noise exposure and action plans to tackle areas of high noise and preserve quiet areas.

The EU-funded ENNAH (European network on noise and health) project established a research network of experts and reviewed existing literature on noise exposure and health to determine the impact of environmental noise. The aim was to identify knowledge gaps in research and examine whether noise maps can be used to establish the adverse health effects of exposure to noise.
Project partners reviewed the advantages and disadvantages of noise maps and recommended future changes to make the maps more appropriate for health research. Researchers also considered new methods for acoustic measurement and modelling to help develop innovative exposure measurement techniques for future studies. Standardisation of health outcome measures in noise research was discussed and the priorities for future research on environmental noise and health were defined.

One important feature of ENNAH was the involvement of researchers who primarily work on air pollution. The aim was to consider the joint impact of both transport noise and air pollution on health. Scientists also exploited existing cohort data on air pollution, adding in data on noise exposure. This had direct relevance on transport and environmental policy with regard to deciding priorities for reducing air pollution and/or noise when planning new environmental mitigation actions. The project also facilitated the exchange of young noise researchers across Europe.

ENNAH recommendations included distinguishing between short- and long-term effects, analysing exposure–disease pathways more efficiently and measuring outcomes for specific age groups under study. Identified age-related research priorities involved the effect of noise on growth effects, puberty disorders and sleep disorders for children, as well as fertility, metabolic syndrome, diabetes and hypertension for adults. They also included heart attacks and strokes for the elderly, implying a much stronger impact of noise on health than previously acknowledged.

**Keywords**

Health, END, noise maps, ENNAH, air pollution

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