

Science for Environment Policy

Housing type has an influence on traffic noise annoyance

A recent pan-European study has reviewed the factors which influence how annoyed a person feels about road traffic and aircraft noise. Among its findings, residents in terraced housing or apartments were less annoyed by road traffic noise than residents in semi-detached or detached housing.

People who are exposed to long-term noise may experience annoyance as well as [health](#) problems, including high blood pressure (hypertension). This study, conducted under the EU HYENA project¹, focuses on factors, such as type and layout of housing, which might influence the effects of [noise](#) from aircraft and [road traffic](#) near airports on blood pressure and annoyance levels of local residents.

The researchers interviewed a total of 4861 people living near seven European airports (London-Heathrow, Berlin-Tegel, Amsterdam-Schiphol, Stockholm-Arlanda, Milan-Malpensa, Athens-Elephtheros Venizelos and the City Airport (Bromma)-Stockholm) between 2003 and 2005. The participants were asked about their homes, experiences of the noise and ways of dealing with it.

People who were exposed to high levels of road traffic noise and who had not moved for more than 25 years had a higher occurrence of high blood pressure compared with those who lived there for less than 25 years. Particularly, the long-term exposure to noise caused adverse cardiovascular health effects, which is plausible if chronic noise stress is considered as a hazardous factor. People who usually opened the living room windows during summer or winter, when in the room, tended to have a higher risk of high blood pressure if they lived on a noisy street, compared to those who had the windows closed. In situations where noise levels are high better sound insulation had a beneficial effect on cardiovascular health.

Residents who tried to reduce noise levels by closing windows or shutters were more annoyed with road traffic noise, and their annoyance levels increased as the noise grew louder. It is possible that these people felt there was little they could do to control the noise and their reactions were more to do with the perceived disturbance than the actual measures taken to reduce the noise. However, increased aircraft noise was more annoying to people who had not modified their homes to reduce noise levels. For example, those who only had single glazed windows in the living room or bedroom expressed greater annoyance than those with those with better insulated windows.

This shows that noise causes adverse effects even in subjects who are not annoyed by the noise, for example by non-conscious disturbances during sleep.

People who had their living room or bedroom facing away from the noisy street reported less annoyance with road noise, and with increasing levels of traffic noise compared with those people whose rooms faced the street.

The study found that people living in semi- or detached properties were more likely to be annoyed by noise – possibly because they are more likely to own their homes and to seek a better quality of life. They may have higher expectations regarding the quality of their acoustic environment at low and moderate noise levels. At higher noise levels no difference was found compared with those who live in semi-detached or detached housing, meaning that both groups consider high noise levels equally annoying.

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