

Press Release 19/2004

Chronic traffic noise increases risk of heart attack

Results of a new noise study prove definite correlation

Traffic noise and workplace noise are heart attack risk factors. A new study by the Federal Environmental Agency (UBA) corroborates a correlation between road traffic noise and heart attack and concludes that the risk of suffering a heart attack increases by about 30 percent in men who live in areas with elevated levels of traffic noise at daytime average outdoor sound pressure levels of over 65 dB(A). This evidence confirms knowledge gained earlier. Ten years ago, the UBA carried out a study about heart attack based on the Berlin noise map. It produced basically identical results except that this latest study is statistically more significant.

The research project investigated possible risk factors for heart attack, especially road traffic noise and workplace noise. The UBA carried out the traffic-related tests, which were funded by the Federal Environment Ministry (BMU). The workplace noise-related tests were sponsored by the Federal Institute for Occupational Safety and Health (German acronym BAuA). The results of the NaRoMI study (Noise and Risk of Myocardial Infarction) are part of the Action Program for Environment and Health (APUG) proposed jointly by the BMU and the Federal Ministry for Health (BMGS).

A total of 4,115 patients in 32 Berlin hospitals were part of the study. They were interviewed by researchers at the Institute of Social Medicine, Epidemiology, and Health Economics of the Charité hospital in Berlin. They filled out a questionnaire answering questions about noise disturbances in their residential environment along with a description of the location and condition of their dwellings. Other known heart attack risk factors such as diabetes, a family history of MI, smoking habits, and socioeconomic class were also taken into account.

With noise maps from the Berlin Senate Department of Urban Development, the UBA determined road traffic noise levels outdoors in front of the test persons' dwellings. The BAuA performed an analysis of the questionnaire data concerning noise annoyance at the workplace.

Test persons who live near roads with heavy traffic demonstrated an elevated risk of heart attack compared to those who live on relatively quiet streets. This applied only to men. The correlation of traffic noise to heart attack was statistically proven for those who had not moved residence for quite some time. It remains unclear why women seem unaffected. It may be that hormones or different activity profiles play a role. Besides objective noise annoyance, there was a correlation between nighttime road traffic and increased heart attack risk in men. A similar correlation exists in women with regard to nighttime air traffic noise.

Noise annoyance at the workplace also proved to carry an increased risk of heart attack in men. What is significant in terms of its effect is annoyance caused by workplace noise that produced by others, e.g. colleagues' phone conversations or office machines.

The results regarding workplace noise indicate that perhaps other factors besides sound pressure level should be taken into account when assessing the risk of heart attack. For example, it would make sense to apply methods that record subjectively perceived disturbance due to verbal communication. Results demonstrate that measures to reduce noise in the environment are urgently needed—through both avoidance of noise at its source and through appropriate planning measures. In densely populated urban areas one individual's needs for peace and quiet and the mobility of another are difficult to reconcile. Even passive noise reduction measures on buildings themselves can help to minimize indoor noise annoyance and thereby ensure undisturbed nighttime peace. Chronic environmental noise annoyance, which exerts an impact on those affected over many years, increases the risk of cardiovascular disease.

The "Noise and Risk of Myocardial Infarction" (NaRoMI) study has been published in the Federal Environmental Agency's WaBoLu series as Nr. 02/04, is 426 pages.

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