

Air Pollution and Traffic Noise Increase Risk of Hypertension



According to a study published in the *European Heart Journal*, long-term exposure to air pollution and traffic noise is associated with a greater incidence of self-reported high blood pressure (BP).

Past research has linked exposure to air pollution and traffic noise with cardiovascular morbidity and mortality. Kateryna B. Fuks, University Hospital of Düsseldorf, Germany, and colleagues are the first to investigate both factors simultaneously and estimate the risk that is associated with air pollution and traffic noise separately. The researchers included seven cohorts of the 'European Study of Cohorts for Air Pollution Effects' (ESCAPE) project, which investigates long-term effects of exposure to the aforementioned factors on human health.

A total of 41,072 people living in five different countries, i.e. Denmark, Germany, Norway, Sweden and Spain, participated in the study. All relevant information on BP was gathered when the participants joined the study as well as during a follow-up examination in later years. None of the participants had hypertension when they joined the study. The researchers measured air pollution during three separate two-week periods and used filters to capture information on concentrations of polluting particles of different sizes in 20 sites in each of the studied areas. Measurements of nitrogen oxides were taken at 40 different sites in each area. Traffic density was assessed outside the homes of the participants.

The results showed that a total of 6,207 (15%) participants developed hypertension or started to take BP-lowering medications and that, for every 5 micrograms per cubic metre of polluting particles, the risk of hypertension increased by 22% in people living in the most polluted areas compared to those living in the least polluted areas. In addition, participants living on noisy streets with an average night-time noise of 50 decibels, showed a 6% increased risk of developing hypertension compared to those living on quieter streets with an average night-time noise of 40 decibels. The association of air pollution with hypertension remained even when exposure to traffic noise was considered. This finding is important since there are differing ways of reducing air pollution and traffic noise.

The current study is the largest to investigate the effects of both air pollution and traffic noise and indicates that air pollution and traffic noise affect different pathways involved in disturbances of bodily functions. Possible mechanisms for the impact of air pollution on health include inflammation, oxidative stress and imbalance in nervous system functioning. Noise, on the other hand, possibly affects the functioning of both the nervous and hormonal systems.

Source : [European Heart Journal](#)

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