

# TRENDS OF NOISE EXPOSURE IN BRATISLAVA AGGLOMERATION AT DIFFERENT TIME INTERVALS (10, 15, 20 YEARS)

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**Background and aims:** Noise is currently one of the most widespread environmental and occupational pollutants. It has become a serious problem in recent years, with significant development of industry and transport. The aim of the study is to objectively and subjectively evaluate and to follow the time trends of noise load of selected population groups in Bratislava agglomeration at different time intervals (10, 15, 20 years).

**Methods:** We used the validated methodology for the subjective assessment of "annoyance" and psychosocial well-being, as well as the objectification of noise levels by direct measurement method using sound analyzer with a module for frequency analysis. Statistical and epidemiological elaborations have been based on bivariate, stratified and multivariate analyses (multiple logistic regression).

**Results:** Based on the results of measurements of noise exposure in internal and external environments in the exposed and control site, we found a continuous increase in traffic noise burden in the exposed area at intervals of 10, 15 and 20 years beyond the health risk zone. Subjectively, we observed an increase of value risks causing road traffic noise annoyance and interference with several activities in the exposed group of university students over 20 years (OR=2.56 (95 % CI=1.93-3.42) vs 5.41 (95 % CI=4.28-7.25)). In addition to road traffic noise we observed an increase in noise annoyance and disturbance from neighboring apartments (OR=1.71 (95 % CI=1.29-2.27) vs 2.48 (95 % CI=1.99-3.19)), the entertainment facilities (OR=1.51 (95 % CI=0.90-2.52) vs 3.60 (95 % CI=2.85-4.90)), from home construction sources, railway and industrial noise.

**Conclusions:** The contribution of our work is in the analysis of noise burden population trends and the elaboration of methods for environmental noise exposure assessing risk and the possibility of using this methodology for other physical factors such as suitable methodology in the practice of public health authorities.