Impact of road traffic noise on sleep disturbances and attention disorders amongst school children living in Upper Silesian Industrial Zone, Poland.

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Abstract

OBJECTIVES:
Published reports suggest that some adverse health impact may be related to noise exposure, and motor vehicle traffic is considered to be the main source of environmental hazard of noise. The aim of this study has been to assess an association between occurrence of sleep and attention disorders with exposure to the traffic noise generated by motor vehicle traffic in the case of a large group of children living in an urban environment.

MATERIAL AND METHODS:
The data was obtained using a cross sectional study design in Bytom (Silesia, Poland) from 2003-2007 for a selected group of 7-14 year olds (N = 5136). The geographic information system was used for assessing the exposure to noise generated by the motor vehicle traffic. The association between occurrences of sleep disturbances or attention disorders and exposure to the traffic noise was examined by means of multivariable logistic regression.

RESULTS:
Sleep disturbances and attention disorders were found to be statistically significantly associated with exposure to the traffic noise. The multivariable logistic regression results suggest that sleep disturbances and attention disorders were more likely to occur in the case of children living in the area with higher traffic density, the odds ratio (OR) = 1.44 (95% confidence interval (CI): 1.05-1.97) and 1.38 (95% CI: 1.03-1.86), respectively.

CONCLUSIONS:
The results of the study have confirmed that the exposure to the traffic noise could be a significant risk factor for sleep disturbances and attention disorders among children.