

Association between different indices of greenspace “exposure” and noise annoyance in youth

Angel Dzhambov¹; Donka Dimitrova¹; Iana Markevych²; Boris Tilov¹

¹ Medical University of Plovdiv

² Institute of Epidemiology I, Helmholtz Zentrum München

Corresponding author's e-mail address: angelleloti@gmail.com

ABSTRACT

This study aimed to explore the association between greenspace “exposure” and road traffic noise annoyance. We sampled 652 participants (15 – 25 years of age) at two randomly selected high schools and three universities in the city of Plovdiv, Bulgaria. Data on sociodemographic factors, road traffic noise annoyance (0 – 10 scale), noise sensitivity, orientation of rooms, and indices of access, availability, usage, and quality of neighborhood greenspace were obtained by a self-administered questionnaire. In addition, 399 participants reported their address, allowing the calculation of Lden and several vegetation indices (e.g., NDVI, tree canopy density, %UGS) within several buffers around the address. Mixed linear models showed lower noise annoyance among participants living in greener environment, having better access to greenspace, and having available greenspace of higher quality. Objectively-measured vegetation did not have substantive effect on noise annoyance. In conclusion, perceived “exposure” to neighborhood greenspace is beneficial for road traffic noise perception among Bulgarian youth, but the lack of a dose-response relationship with remotely-sensed/land use vegetation indices might be a hindrance for evidence-based urban planning.