High frequency hearing loss estimated as noise-induced in adolescents and young adults in Sweden

Johan Ruijie Wang[1], Eva Westman[1], Marie-Louise Barrenäs
[1] ÖNH kliniken Sundsvall

Abstract

Background: According to the WHO, over one billion people are at risk of noise-induced hearing loss (NIHL) due to recreational noise exposure, particularly from personal listening devices (PLDs). This study aims to estimate the prevalence of high-frequency hearing loss among individuals aged 12–34 in Sweden, and to explore differences across age groups and gender.

Methods: Audiometric data from 18 Swedish regions were extracted from Auditbase for individuals aged 12–34 at the time of testing, divided into subgroups (12–17 and 18–34 years) and six 3-year intervals from 2002 to 2019. Air conduction thresholds were analyzed across eight frequencies. NIHL was defined using the criteria by Niskar et al. The number of unique individuals with an audiometric notch was compared to the regional population in the same age range to estimate prevalence.

Results: A total of 24,214 individuals met the criteria for an audiometric notch, corresponding to 36,955 qualifying audiograms. For the full age range (12–34 years), average prevalence remained stable around 250 per 100,000 between 2008 and 2019, peaking at 408 (excluding Stockholm and Skåne) in 2014–2016. Among 12–17-year-olds, prevalence was consistently higher, reaching 590 per 100,000 in 2014–2016. The 18–34 group showed lower but gradually increasing rates, around 220 per 100,000 in recent years.

Conclusion: High-frequency hearing loss consistent with NIHL is prevalent among Swedish adolescents and young adults, particularly in the younger age group. These findings underscore the need for preventive strategies targeting youth and recreational noise exposure.