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Is Noise-Induced Hearing Loss Increasing Among Youth? A Generational Analysis of a national Swedish audiogram database.

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Background: In 2015, WHO estimated that 1.1 billion young persons were at potential risk of hearing loss from voluntary recreational noise exposure and 'unsafe listening practices'. Our aim was to study, using a generation-based design, if the risk of hearing loss with a noise-induced profile had increased in Sweden.

Material and Methods: This national register study used data assessed during 2000-2019 in 17 Swedish regions from "Auditbase" on 158.048 patients, categorized by birth decade (1960s–1990s). Comparisons between generations were made for PTA3,4,6 kHz, a modified Klockhoff classification for NIHL, and age- and sex-adjusted Z-scores of hearing thresholds relative to corresponding median thresholds in the ISO-7029 using odds ratios for NIHL and ANOVA for differences in PTA3,4,6 and Z-scores.

Results: Males aged 18–27 born in the 1990s had 12% higher odds of high-frequency hearing loss (HFHL) and poorer PTA3,4,6 compared to those born in the 1980s ($p<0,0017$), while men born in the 70-ies had lower odds and better hearing than men born in the 60-ies, who in turn had lower odds and better hearing than men born in the 50-ies ($p<0,001$). Similar results were seen for women. The Z-score analyses showed some inconsistency, probably due to overestimations of hearing function in the ISO-7029 as also observed by the American NHANES survey.

Conclusions: A significant increase in HFHL in men born in the 90-ies generation compared to men in the 80-ies generation and the opposite for older generations. Similar trends occurred for women. This shift may support the WHO estimation.