

# Socioeconomic differences in hearing among middle-aged and older adults in the Health Survey for England

## BACKGROUND

Hearing loss impacts on physical and social functioning. Using audiometry data collected in 2014, we estimated the current prevalence of hearing loss in a nationally-representative sample of adults aged 45+ years. We also estimated current hearing aid use among persons with hearing loss.

## METHODS

Cross-sectional analysis of the Health Survey for England 2014 ( $n=3292$  participants aged 45+ years with valid screening audiometry data;  $n=769$  with hearing loss).

Using Stata, we estimated the prevalence of: (1) hearing loss (defined at  $\geq 35$ dBHL at 3 kHz in the better hearing ear), and (2) current hearing aid use (among persons with hearing loss). Differences in these outcomes were examined by groups stratified by demography, duration of work-related noise exposure, cardiovascular disease (CVD) risk factors, and socioeconomic status (SES: equivalised household income, education, and area-based Index of Multiple Deprivation). Using sex-specific logistic regression modelling, we evaluated the associations between SES and hearing after adjustment for potential confounders. Results are presented as fully-adjusted Odds Ratios (OR) with 95% Confidence Intervals (95% CIs).

## RESULTS

Hearing loss was higher for men (26%) than women (20%,  $P<0.001$ ); increased monotonically with age; and was higher for men exposed to work-related noise for  $\geq 5$  years. SES differences in the odds of hearing loss remained significant in fully-adjusted models for men but not for women. For example, the odds of hearing loss were almost twice as high for men in the lowest versus the highest income tertile (OR: 1.77; 95%CI: 1.15-2.74).

Among persons with hearing loss, the prevalence of current hearing aid use was similar for men (30%) and women (27%,  $P=0.533$ ); increased with the severity of hearing loss; and increased monotonically with age but remained below 40% even for persons aged  $\geq 75$  years. Fully-adjusted ORs for current hearing aid use were

lower for persons in the lower SES groups among men but not among women, but SES differences did not attain statistical significance. For example, the odds of current hearing aid use for men in the lowest versus the highest income tertile were 0.55 (95% CI: 0.27-1.11).

## **CONCLUSIONS**

Hearing loss is another potential source of socioeconomic inequalities in health, especially in men. Among persons aged  $\geq 45$  years, more than one in four men and one in five women had hearing loss severe enough to benefit from hearing aid use. However, there is significant unmet need: fewer than one-third of adults with hearing loss currently used a hearing aid.