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Hearing health in the 10th decade of life – prevalence of hearing loss and its implications

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Introduction

Hearing loss has a negative impact on verbal communication, quality of life, as well as physical and mental health throughout the lifespan. Hearing loss and its effects steadily increase with age. Still, knowledge regarding the prevalence and severity of hearing loss in the rapidly growing nonagenarian population remains sparse. In this study, we report on the prevalence and characteristics of hearing loss based on standardised pure-tone audiometry in an unselected sample of 90- and 95-year-olds, using air- and bone-conduction, as well as tympanometry. To maximise participation, all measurements were conducted during home visits, which included nursing homes and special housing facilities.

Participants

This cross-sectional study comprises 91 individuals born 1930 and 1923/24, sampled from the multidisciplinary, population-based Gothenburg H70 Birth Cohort Studies. The final sample size was smaller than initially planned due to the COVID-19 pandemic. However, measures were taken to ensure the representativeness of the study sample.

All participants *n* = 91 (67 % female)		
Age group	90 yo (n=42)	95 yo (n=49)
Sex, female	62 %	69 %
Living in own house or apartment	86 %	69 %
Sensorineural type of hearing loss	91 %	88 %

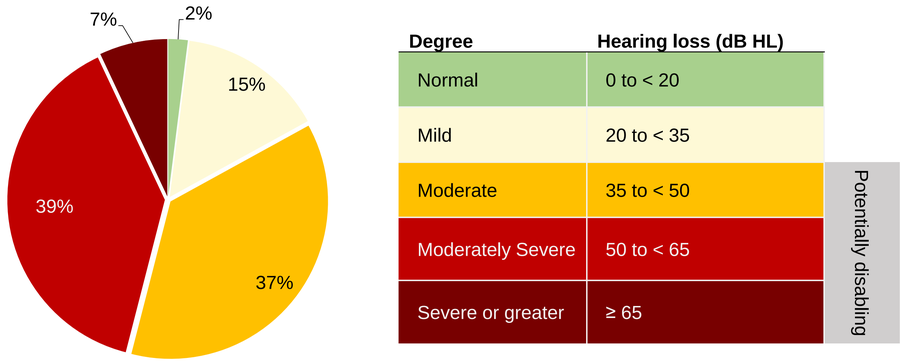

Fig 1. Degrees of hearing loss in the better ear based on all participants´ (n=91) pure tone threshold average for 0.5, 1, 2 and 4 kHz. (WHO, 2021)

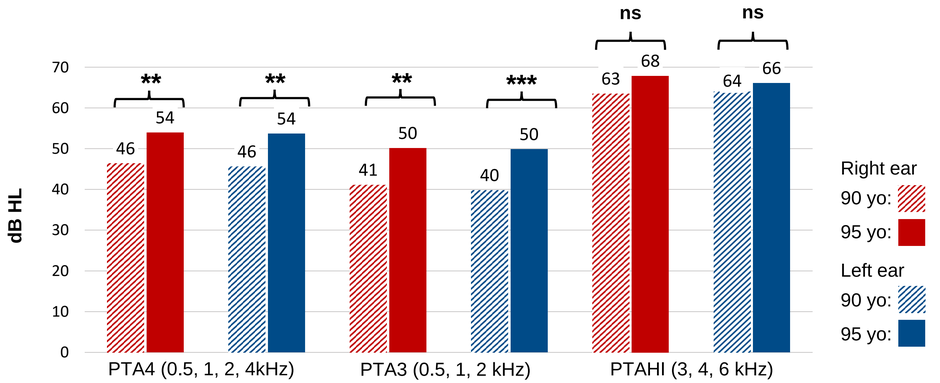

Fig 2:Comparisons of pure-tone averages (PTA) between the 90- and 95-year-olds. Median PTA is presented in dB HL in their respective bar. There is a significantly higher average in the older age group for PTA4 and PTA3. This was not seen for the high frequency PTA.

Results

All but two participants had some degree of hearing loss based on the pure-tone average (PTA4) in the better ear (Fig. 1). More than 83% had moderate to severe hearing loss which can be regarded as disabling. None had normal hearing in both ears. When comparing the two age groups, the younger age group had better hearing in the lower frequencies (Fig. 2). Furthermore, 30% of the participants had cerumen in one or both ears. Preliminary results show that ~ 60% owned at least one hearing aid of which ~ 40% actually used them.

Clinical implications

- Our results underline the need for continued hearing assessments and rehabilitative actions during and beyond the 10th decade of life to improve the overall well-being of this population.
- Pure-tone audiometry is feasible in a home setting for this population, enabling diagnostic actions outside the clinic. This is an advantage, considering the diverse mental and physical health of those belonging to the nonagenarian age group.
- Healthcare workers should be encouraged to frequently ask questions regarding hearing health and to regularly perform otoscopic examinations to exclude the presence of earwax.

Winzell Juhlin et al (2024). Hearing acuity in nonagenarians aged 90 and 95 assessed in a home setting using standardized pure-tone audiometry. *International Journal of Audiology*, 1–11.