Description of the dataset

The Oldenburg Hearing Health Repository (OHHR) provides a publicly accessible dataset that can be used to advance hearing health research. It includes a constellation of data collected from 581 participants (aged 18–86 years; 255 female; *Mean age = 67.31 years; SD = 11.93*) between 2013 and 2015 at the Hörzentrum Oldenburg in collaboration with 'Hearing4ALL' Excellence Cluster.

All the different data types are listed below:

Subjective Measures

- Home Questionnaire

- SF-12 Health Survey

- Technology Readiness Questionnaire

- Anamnesis

Audiological Tests

- Pure Tone Audiometry

- Adaptive Categorical Loudness Scaling

- Digit Triplet Test (Speech Reception Threshold in Noise: Screening)

- Göttingen Sentence Test (Speech Reception Threshold in Noise)

Cognitive Measures

- DemTect

- WortSchatz

Demographic Information

- Socio-Economic Data

- Scheuch-Winkler Index (calculated)

Supporting Documentation

MethodsDescription.rtf: Provides detailed explanations of data type and collection procedures.

data.zip/metadata: Includes schema and description files for all data tables.

A supporting paper of the same name detailing the dataset and methodologies will be published and made publicly available soon.

Data Table Overview

Table Name	Description	Procedure	Hardware/Software Used	Special Considerations
Home Questionnaire (HQ)	Comprehensive self-reported data on hearing history, general health, lifestyle, and media consumption habits. The HQ also includes the SF-12 Health Survey and the Technological Readiness Questionnaire (see details below)	Participants completed an 11-page questionnaire independently at home and returned it electronically	Paper-based; completed electronically and returned via email	Data cross-verified during face-to-face interview
Short Form Health Survey (12 items)	A 12-item survey assessing physical and mental health, yielding two scores: Physical Health Score (PSC) and Mental Health Score (MSC)	Participants self-reported physical and mental health limitations through 12 standardized questions.	Part of the HQ; raw scores converted into standardized T-values (M=50, SD=10)	Concise version of the 36-item survey, efficiently capturing health-related quality of life in physical and mental domains
Technological readiness Questionnaire	12-item questionnaire measuring willingness and confidence in adopting modern technology	Participants rated their technology readiness across three subscales: Competence, Acceptance, and Control	Part of the HQ	Focuses on adaptability and engagement with modern technology, especially among older adults
Socio Economic Status	Information on demographics (age, gender, native language) and socio-economic factors (education, occupation, income)	Derived from clinical interviews and the HQ, covering household composition and living situation	Manual entry during the clinical interview and HQ	-

Scheuch Winkler Index	Socio-economic status (SES) quantified using education, occupation, and net income scores	Points assigned for education, occupation, and income (3.0–21.0); scores categorized into low, medium, and high SES group	Manual scoring based on standardized SWI guidelines	Reflects health disparities and socio-economic influences on health outcomes within German society
Anamnesis (face-to-face interview)	Medical history, hearing loss progression and tinnitus, hearing aid use, and family history were discussed in a structured interview	Data gathered via face-to-face structured interviews conducted by experts at the laboratory	Clinical interview	Interview ensured accuracy and addressed any ambiguities in self-reported HQ responses
Pure Tone Audiometry	Hearing thresholds for air and bone conduction (125–8000 Hz) and Uncomfortable Loudness Levels (UCL) at key frequencies (500, 1000, 2000, 4000 Hz) for both ears separately	Conducted in an acoustically shielded booth using the method of limits (5-dB step size). UCL measured by increasing tone levels in 5-dB steps, with participants indicating when sounds became uncomfortably loud	Siemens Unity II audiometer, Sennheiser HDA200 headphones, RadioEar B71 bone conduction transducer	Tests conducted without Hearing Aids (HA) for standardization

Adaptive Categorical Loudness Scaling	It evaluates subjective loudness perception, particularly diagnosing **loudness recruitment** in individuals with sensorineural hearing loss.	Stimuli at 1500 and 4000 Hz presented adaptively to each ear; participants rated loudness on an 11-point scale	Sennheiser HDA 200 headphones; lab software for adaptive loudness scaling.	Efficient testing with minimal trials; loudness functions fitted using standard methods; no pretest phase required; also conducted without HA
Göttingen Sentence Test	Sentence matrix test assessing speech recognition thresholds (SRT) in noise using 20 meaningful (3-7 word) sentences	Sentences presented in goenoise (matches speech material characteristics); speech level adjusted adaptively to calculate the 50%-SRT.	Free-field loudspeakers in a sound-attenuated cabin; Oldenburg Measurement Applications (OMA) for noise calibration.	Noise set at 65 dB SPL, increased to 80 dB SPL for severe impairments. Conducted without HA
Digit Triplet Test	Speech-in-noise test using a list of 27 digit triplets to measure SRT	Participants heard digit triplets in background noise, with speech levels adjusted adaptively to determine the 50%-SRT.	Free-field loudspeakers in a sound-attenuated cabin; Oldenburg Measurement Applications (OMA) for noise calibration.	Noise set at 65 dB SPL, increased to 80 dB SPL for severe impairments. Conducted without HA

Dementia Detection Test (DemTect)	Screening tool for detecting mild cognitive impairment and dementia, assessing immediate and delayed recall of verbal information, working memory, language and number processing, and executive functioning	Five subtests: Word List, Number Conversion, Semantic Fluency, Digit Span, and Delayed Recall. Age-based scoring adjustments applied for people over 60 years	Administered manually by experts in the laboratory	Highly sensitive for detecting MCI. Tests conducted with HA for regular users. Reliable across test-retest scenarios
Vocabulary Size Test (Wortschatztest; WST)	Proxy for crystallized intelligence, assessing verbal intelligence and language comprehension, with applications in dementia tracking	Participants identified real words among five similar non-words across 40 word recognition tasks of increasing difficulty	Administered manually by experts in the laboratory	High reliability (r = 0.95); results correlate with education and vocational qualifications but are largely age-independent. Normed for ages 20–90 years

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