Supplementary Material 2

A multimodal database for the collection of interdisciplinary audiological research data

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This supplementary material includes the questionnaires available on the multimodal platform at the time of publication. The table below indicates, for each category, the name of the test and its acronym, the main objective or purpose of the test, along with its subdomains and values, and some references of interest.

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| **Category** | **Test Names (acronym)** | **Objective** | **Subdomains and values** | **References** |
| **Hearing Quality** | Abbreviated Profile of Hearing Aid Benefit (APHAB) | To quantify disability associated with hearing loss and the benefit achieved with a hearing aid | **Subscales**  Ease of communication Background noise Reverberation Aversiveness  **Score** [-98 – 98]  Positive values indicate improved benefit with hearing aids  Negative values indicate worse benefits with hearing aids | (Cox, 1997; Solarte et al., 2016) |
| Audio Processor Satisfaction Questionnaire (APSQ) | To measure the satisfaction of the users with their audio processor | **Subscales**  Comfort Social life Usability  **Score** [0 – 10]  Greater scores indicate higher levels of satisfaction | (Billinger-Finke et al., 2020) |
| Hearing Implant Sound Quality Index-19 (HISQUI-19) | To quantify the level of auditory benefit of cochlear implant (CI) users in everyday listening situations | **Score** [0 – 133]  <30: very poor sound quality 31–60: poor sound quality 61–90: moderate sound quality 91–110: good sound quality 111–133: very good sound quality | (Amann & Anderson, 2014; Calvino et al., 2016) |
| Speech Spatial Qualities of Hearing Scale-12 (SSQ-12) | To assess everyday listening abilities and limitations | **Subscales**  Speech Spatial Quality  **Score** [0 – 10]  Higher values indicate less difficulty or not difficulty at all | (Cañete et al., 2022; Noble et al., 2013) |
| Nijmegen Cochlear Implant Questionnaire (NCIQ) | To assess health-related quality of life in CI users | **Subscales**  Basic sound perception  Advanced sound perception  Speech production  Self-esteem  Activity  Social interactions  **Score** [0-100]  Higher scores indicate better quality of life | (Sanchez-Cuadrado et al., 2015; Hinderink et al., 2000) |
| Hearing Handicap Inventory for the Elderly-Screening (HHIE-S) | To assess social and emotional effects of hearing loss | **Subscales**  Emotional Social  **Score** [0 – 40]  0-8: no hearing handicap 10-24: mild-moderate hearing handicap 26-40: significant hearing handicap | (Kim et al., 2021; Tamblay et al., 2008) |
| Category of auditory performance (CAP) | To classify auditory performance in CI users in everyday life | **Score** [0 – 7]  Higher scores mean better auditory abilities | (Archbold et al., 1995; Mosnier et al., 2020) |
| **Tinnitus** | Tinnitus Handicap Inventory (THI) | To measure the tinnitus handicap | **Subscales**  Functional Emotional Catastrophic  **Score** [0 – 100]  0-16: slight or no handicap 18-36: mild handicap 38-56: moderate handicap 58-76: severe handicap 78-100: catastrophic handicap | (Herráiz et al., 2001; Newman et al., 1996) |
| **Balance and Dizziness** | Dizziness Handicap Inventory (DHI) | To measure the impact of dizziness on daily life | **Subscales**  Functional Physical Emotional  **Score** [0 – 100]  Higher scores hint greater handicap from dizziness  0-30: mild 31-60 moderate 60-100: severe | (Vereeck et al., 2007; Jacobson & Newman, 1990) |
| **Cognitive** | Montreal Cognitive Assessment (MOCA) | To screen for mild cognitive impairment | **Subscales**  Visuospatial/executive function Identification Attention Language Abstraction Memory Orientation  **Score**  ≥ 26: Normal cognition | (Delgado et al., 2019; Nasreddine et al., 2005) |
| Short Portable Mental State Questionnaire (SPMSQ) | To assess organic brain deficit in elderly patients | **Score** [0-10]  0-2: normal mental functioning 3-4: mild cognitive impairment 5-7: moderate cognitive impairment 8 or more: severe cognitive impairment | (de la Iglesiaa et al., 2001; Pfeiffer, 1975) |
| Mini-Mental State Examination (MMSE) | To screen for cognitive impairment | **Subscales**  Orientation Registration Attention Calculation Recall Language  **Score** [0-30]  ≥23: Cognitive impairment | (Lobo et al., 1999, 1979) |
| Subjective Cognitive Decline Questionnaire (SCD-Q): Mycog and Theircog | To assess the individual perception of subjective decline | **Subscales**  Memory Language Executive functions  **Score** [0-24]  Higher scores indicate greater SCD | (Rami et al., 2014) |
| Cognitive Reserve Questionnaire (CRQ) | To measure cognitive reserve accumulated by individuals through their lifespan | **Subscales**  Education Work activity Leisure time  **Score** [0-25]  Higher scores indicate greater cognitive reserve | (Rami et al., 2011) |
| Memory Functioning Questionnaire (MFQ) | To evaluate memory self-appraisals | **Subscales**  General rating of memory Retrospective functioning Frequency of forgetting while reading Remembering past events Seriousness of forgetting Mnemonics Usage  **Score**  Everyday memory [15 - 90] Text Recall [4 - 24] Past events [4 - 24] Mnemonic Strategies [8 - 48]  Higher scores indicate worse or better memory functioning, depending on the subscale | (Rubio & Portero, 2008; Gilewski et al., 1990) |
| Digit symbol substitution test (DSST) | To evaluate cognitive functions | **Subscales**  Motor speed Attention Visuoperceptual  **Score** [0-133]  Lower digit symbol test scores indicate worse cognitive ability | (Fellows & Schmitter-Edgecombe, 2020; Joy et al., 2003) |
| Trail making test A & B | To assess for brain damage | **Subscales**  Speed of processing Mental flexibility  Executive functioning  **Score** [seconds]  The greater the number of seconds the greater the cognitive impairment | (Ashendorf et al., 2008; Salthouse, 2011) |
| N-back | To assess working memory functions | **Subscales**  Working memory Attention.  **Score** [Number of right answers; response time] | (Gevins & Cutillo, 1993) |
| Progressive Matrices | To measure non-verbal cognitive abilities | **Subscales**  Abstract reasoning Fluid intelligence  **Score** [Number of right answers; response time] | (Harris et al., 2020) |
| Stroop color-word visual test | To measure the ability to inhibit cognitive interference | **Subscales**  Inhibitory control  **Score** [Number of right answers; response time] | (Scarpina & Tagini, 2017; Stroop, 1935) |
| **Mood Disorders** | Geriatric Depression Scale-15 (GDS-15) | To classify stages of geriatric depression | **Score** [0-15]  0-4: normal 5-8: mild depression 9-11: moderate depression 12-15: severe depression | (Martínez et al., 2002; SheiKh & Yesavage, 1986) |
| DeJong Gierveld Loneliness Scale (DJGLS) | To assess emotional and social loneliness | **Score** [0-11]  0 - 2: not loneliness 3 - 8: moderate loneliness 9 - 10: severe loneliness 11: very severe loneliness | (Tomás et al., 2017; Jong-Gierveld, 1987) |
| Dimensional Apathy Scale (DAS) | To assess distinctive characteristics of apathy | **Subscales**  Executive apathy Emotional apathy Initiation apathy  **Score** [0-72]  Higher scores indicate greater apathy | (Salas et al., 2020; Radakovic & Abrahams, 2018) |
| Beck Anxiety Inventory (BAI) | To measure common somatic and cognitive symptoms of anxiety | **Score** [0-36]  0-7: minimal anxiety 8 -15: mild anxiety 16-25: moderate anxiety 26-36: severe anxiety | (Beck et al., 1993) |
| Subjective age perception | To assess self-appraisal of biological aging | Feeling younger than my age Feeling older than my age Feeling the age I have | (Kwak et al., 2018; Westerhof & Barrett, 2005) |
| **Health Condition and Quality of Life** | European Quality of Life 5-Dimensions (EQ-5D) | To measure generic current health | **Subscales**  Mobility Self-care Usual activities Pain/Discomfort Anxiety/Depression  **Score** [0-100]  Higher scores indicate better health state | (Herdman et al., 2001; Brooks & Group, 1996) |
| Glasgow Benefit Inventory (GBI) | To measure outcome changes in quality of life after an intervention | **Subscales**  General factors Social support Physical Health  **Score** [-100 - +100]  Higher scores indicate better health | (Cuadrado, 2015; Robinson et al., 1996) |
| Health Utility Mark 3 (HUI-3) | To classify quality of life | **Subscales**  Vision Hearing Speech Mobility Dexterity Feelings Cognition Pain  **Score** [0 - 1]  Higher scores indicate better health | (Ruiz et al., 2003; Feeny et al., 1995) |
| **Independent and Physical Activity** | Barthel Index | To measure functional independence | **Score** [0 - 100]  21-60: severe dependency 61-90: moderate dependency 91-99: slight dependency 100: independence | (Cid-Ruzafa & Damián-Moreno, 1997; Mahoney, 1965) |
| Instrumental Activities of Daily Living Scale (IADL) | To assess independent living skills | **Score** [0 - 8]  Lower scores indicate more dependency | (Vergara et al., 2012; Lawton & Brody, 1969) |
| Self-Reported Physical Activity | To assess physical activity per week | **Score** [1-5]  Higher scores indicate higher physical activity | (WHO, 2010) |
| Physical Activity Scale for the Elderly (PASE) | To measure the level of physical activity in older adults | **Subscales**  Leisure Household Occupational activity  **Score** [0- ≥400]  0 - 40: sedentary 41 - 90: light physical activity ≥90: moderate to intense | (Curcio et al., 2019; NERI, 1991; Washburn et al., 1993) |
| Physical Activity Level (PAL) | To determine the level of physical activity | **Score** PAL =  < 1.4: inactive 1.4-1.65: sedentary 1.6 - 2.0: slightly active 2.0 - 2.4: highly active > 2.4: extremely active | (James & Schofield, 1990) |
| **Sleep Quality** | Epworth Somnolence Scale (ESS) | To measure the general level of daytime sleepiness. | **Score** [0-24]  0–10: normal range 11–14: mild sleepiness 15–17: moderate sleepiness 18 or higher: severe sleepiness | (Johns, 1991) |
| Pittsburgh Sleep Quality Index (PSQI) | To assess sleep quality and disturbances | **Score** [0-21]  Higher scores indicate lower sleep quality | (Wang et al., 2022; Buysse et al., 1989) |
| **Nutrition** | Mediterranean Diet Adherence Screener (MEDAS) | To estimate the adherence to the Mediterranean diet. | **Score** [0-14]  Higher scores indicate more adherence | (García-Conesa et al., 2020; Newby et al., 2003) |

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