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COGNITION AGE-RELATED HEARING LOSS & COGNITION

Exploring the Association between Cognitive and Auditory Status across different Hearing Profiles

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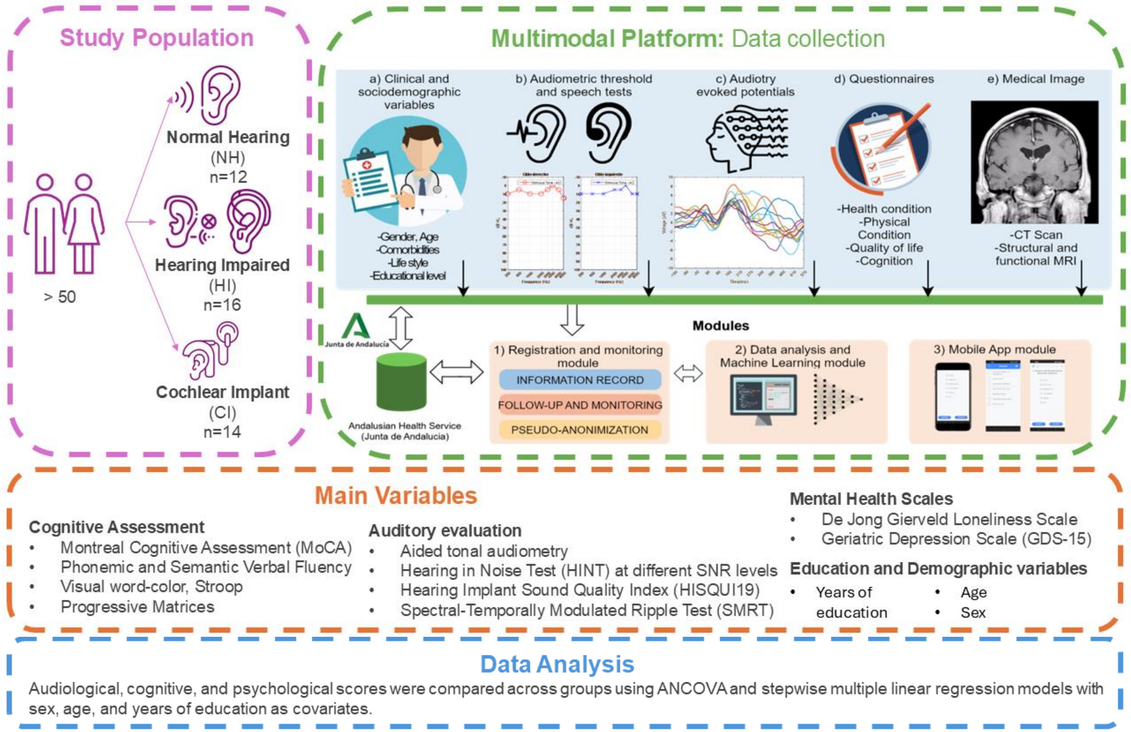
Abstract

Hearing loss, which greatly impacts the quality of life in older adults, is recognized as a modifiable risk factor for cognitive decline. However, the underlining relationship between hearing and cognition remains unclear. Our team has developed a dedicated multimodal platform at the Virgen Macarena University Hospital in Seville to collect comprehensive and interdisciplinary data, including audiological, sociodemographic, cognitive, electrophysiological, and neuroimaging data. A demo web version of the database is freely available to the research community in Audiology in [1].

Objectives

1. To evaluate potential associations between auditory and cognitive status in varying hearing profiles.
2. To make use of the multimodal platform developed to systematically collect and integrate all relevant variables.

Methods



Results

Audiological results

- Self-reported hearing ability associated with PTA and SMRT across groups.
- CI users showed lower median HINT scores (69%) compared with NH (100%) and HI (96%).
- Association detected between HINT at 20 dB SNR and CI users.

Cognitive results

- No significant differences among groups, except for Progressive Matrices.
- However, such differences dissapeared when corrected for years of education.
- Association detected between semantic verbal fluency and speech in noise scores and CI users.

Conclusion

1. Audiometric thresholds alone did not explain differences in hearing profiles.
2. Self-reported hearing ability was associated with peripheral sensitivity.
3. In CI users, semantic verbal fluency was related to speech in noise.
4. Sociodemographic variables, such as years of education, are essential for accurately analyzing cognitive outcomes in hearing research studies.
5. Further research is needed to establish robust cognitive-hearing associations.

Access our platform: https://plataforma.innovacionsalud.org
(User: demo_misiones, Password: 123456)

References

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[3] Zhang, Y. et al. Impact of SNR, peripheral auditory sensitivity, and central cognitive profile on the psychometric relation between pupillary response and speech performance in CI users. Frontiers in Neuroscience 17, (2023).
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