

Hearing aid initiation and risk of cognitive decline and dementia

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In older adults with hearing impairment, receiving a new hearing aid prescription was associated with lower 7-year dementia risk, but differences in overall cognition were modest and equivocal.

Background

Gap.
Hearing loss is a suspected dementia risk factor, but long-term evidence for effectiveness of hearing aids for neurocognitive health is limited.

Research question.
Does hearing aid prescription and hearing aid use influence **overall cognition** or **dementia risk** over 7 years in older adults with hearing impairment?

Methods	
Design & observational data	Emulated two target trials using data from the ASPREE study and nested ALSOP cohort
Eligibility criteria	Dementia-free, aged 70+, self-reported hearing problems, no past hearing aid use
Treatment strategies	i) Use hearing aids and do not use hearing aids ii) Use hearing aids never, rarely/sometimes, often/always
Follow-up	Approximately 7 years from when new hearing aid prescriptions were first self-reported
Outcomes	Overall cognition score (confirmatory factor analysis) and diagnosed dementia (DSM-IV criteria)
Causal contrast	i) Effect of new hearing aid prescription* ii) Effect of initiating given frequency of hearing aid use*
Estimation	Multiple imputation for missing data. Effects estimated using parametric g-formula

* Total effect for time to event outcome (dementia);¹ partly survival conditional effect for cognition²

Conclusions

Hearing aids may dose-dependently reduce dementia risk.

- We estimated that hearing aid prescription reduced 7-year dementia risk by **33%** in older people with hearing loss, with benefit proportional to use frequency.
- Little benefit was found for the overall cognition score, though there was greater benefit in high-risk subgroups (like in ACHIEVE trial).³

Results

2777 included (mean age 75 years, 48% female), of whom **664** received a new hearing aid prescription by time zero.

Minimal differences in estimated mean overall cognition score.

A

B

Dose-dependently lower estimated dementia risk.

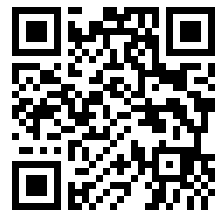
A

B

References.

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2. Kurland, Brenda F., et al. Longitudinal data with follow-up truncated by death: match the analysis method to research aims. *Statistical science*. 24.2 (2009): 211.
3. Lin, Frank R., et al. Hearing intervention versus health education control to reduce cognitive decline in older adults with hearing loss in the USA (ACHIEVE): a multicentre, randomised controlled trial. *The Lancet*. 402.10404 (2023): 786-797.

Read the paper



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