

# Cognitive Function in Older Adults with Hearing Loss: Outcomes for treated vs untreated groups at 3-year follow-up

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- Comparatively, cognition at 3-year follow-up was stable overall for hearing aid users but declined for the non-hearing aid user group.
- Treatment of hearing loss with hearing aids may delay cognitive decline.
- Referral for hearing screening & rehabilitation may assist with delaying/minimising cognitive decline in older adults.

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Hearing loss is independently associated with cognitive decline & affects 70% of adults aged  $\geq 70$  years<sup>1</sup>.

Hearing loss has been identified by the Lancet Commission as the largest potentially modifiable risk factor for dementia.

The quality of evidence on the effect of hearing aid use on cognition in older adults is currently poor due to methodological limitations. Few studies have objectively studied these outcomes beyond 6-12 months<sup>1,2</sup>.

This prospective longitudinal observational cohort study compared outcomes for new hearing aid (HA) users with those of community-living older adults without HAs over a 3-year period.

160 first-time HA users aged  $\geq 67$  yrs without dementia were recruited from 2 audiology centres & assessed before & at 18 & 36 months after HA fitting.

Hearing, device use, speech perception & cognitive performance (visually administered) were objectively assessed at 18 & 36 mths

Cognitive outcomes were compared with those of participants ( $\geq 67$  yrs) of a large prospective longitudinal cohort study of community-living older adults (AIBL)<sup>3</sup> without HAs (n=102) using the same measures.

Data for participants who reached either or both follow-up points by end 2022 were compared, controlling for baseline demographic characteristics (fixed effects) & for yearly trajectories of change due to education, which differed significantly between the groups.

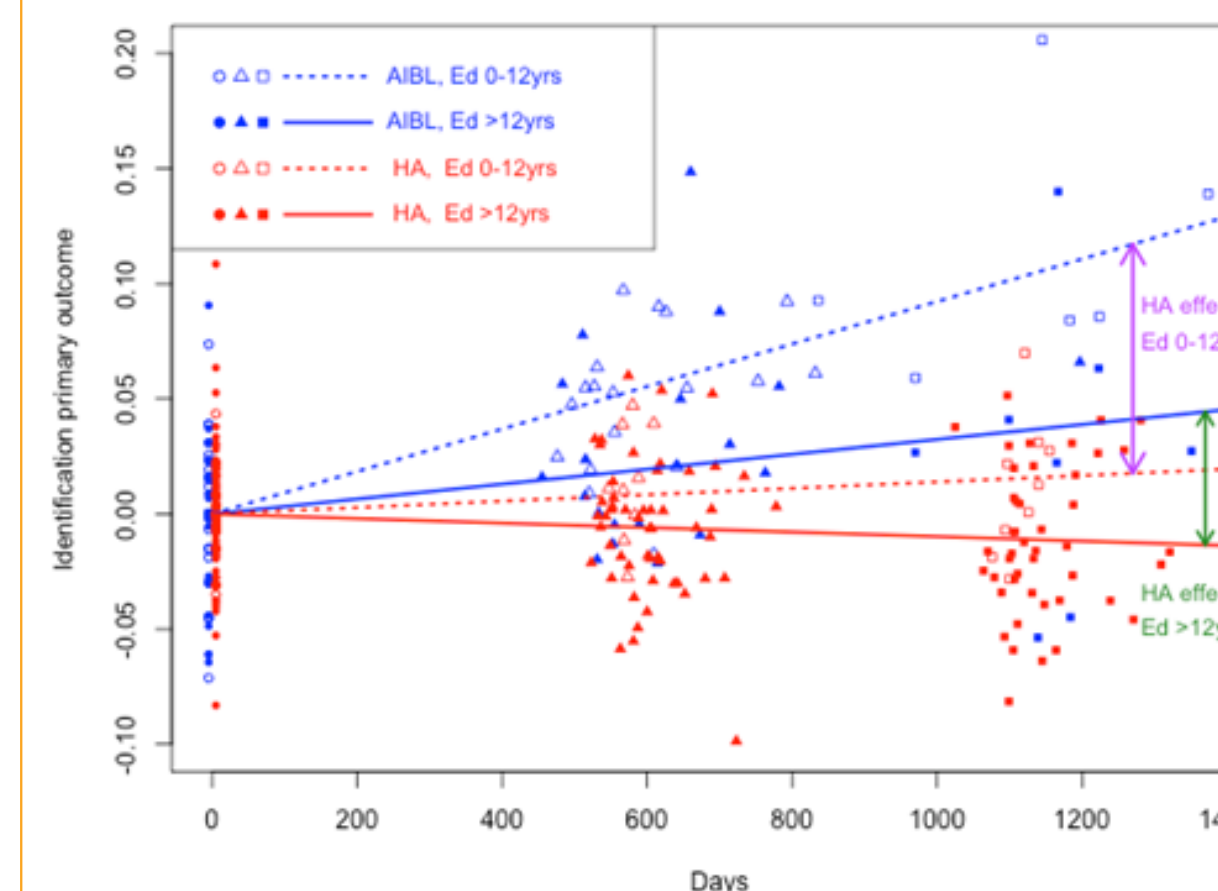
HA users averaged 8.5 hrs/day & showed significant speech perception improvements.

At baseline, cognitive performance (absolute scores) was significantly poorer for the HA group (all subtests) despite significantly better education. At follow-up, no significant differences in group mean scores remained.

Comparatively, the HA group overall showed cognitive stability after 3 years of device use, while the AIBL group declined significantly.

When education effects on cognitive trajectory were controlled, the HA group still performed significantly better on visual attention & on psychomotor function (lower educated participants only), in comparison to the AIBL group, but not on working memory or visual learning.

- HA users declined significantly less than those without HAs.
- HA use in older adults with hearing loss may be a useful intervention for slowing cognitive decline.
- Further follow-up with larger sample sizes is required.



1. Livingston G et al 2020. Dementia prevention, intervention, & care: 2020 report of the Lancet Commission. Lancet, 396 (10248): 413-446.
2. WHO. Risk Reduction of Cognitive Decline and Dementia: WHO Guidelines. World Health Organization; 2019 <https://www.ncbi.nlm.nih.gov/books/NBK542796/>
3. Fowler et al 2021. Fifteen years of the AIBL Study: Progress & observations from 2359 older adults spanning the spectrum from cognitive normality to AD. AD Reports, 5, 443-468.



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