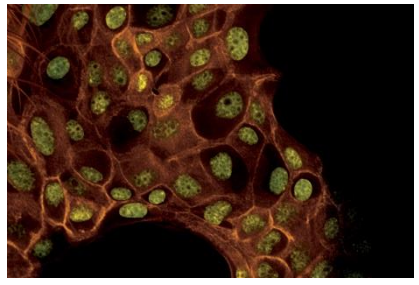
Outcomes with a commercially available self-fitting hearing aid

Gitte Keidser[1,2,3], Elizabeth Convery[1,2,3]

[1]HEARing Cooperative Research Centre
[2]National Acoustic Laboratories
[3]School of Health and Rehabilitation Sciences, University of Queensland

23rd Audiology Australia National Conference, May 2018



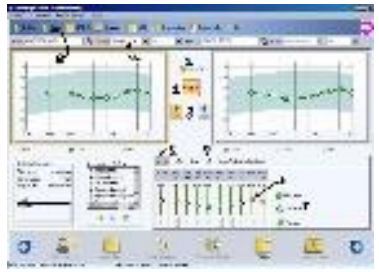
Evolution of user controls:

Volume control

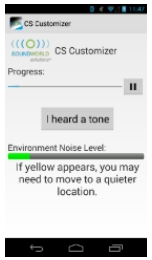
Tone control

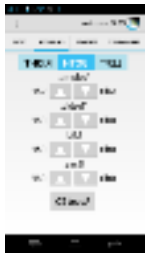
Multiple memories

Professional fine-tuning



Self-fitting





SoundWorld Solutions

- 16-channel WDRC, directional mic, noise suppression and feedback cancellation
- Bluetooth technology (connect to free app)
- Rechargeable batteries
- Retractable tube + 3 different size domes
- Help line

CS50+

Companion

- Study objective
  - Do hearing-impaired adults obtain satisfactory outcomes with a self-fitted device?

Method

SFHA

User-driven fittings;
N = 38
(Means: 70.3 years; 42 dB HL)

Clinician-driven fittings;
N = 14
(Means: 74.7 years; 45.5 dB HL)

(Convery et al., in review)

Experienced HA users with user-driven fittings;
N = 22
(Means: 70.6 years; 45.3 dB HL)

SFHA

Own

- Outcomes measures after 12 weeks
  - Coupler gain and output
  - Speech reception threshold in noise
  - Activity limitation (APHAB)
  - Participation restriction (HHIE)
  - Satisfaction (SADL)

Results – Outcomes (N = 52)

- Same hearing aid; User- vs clinician-driven fittings

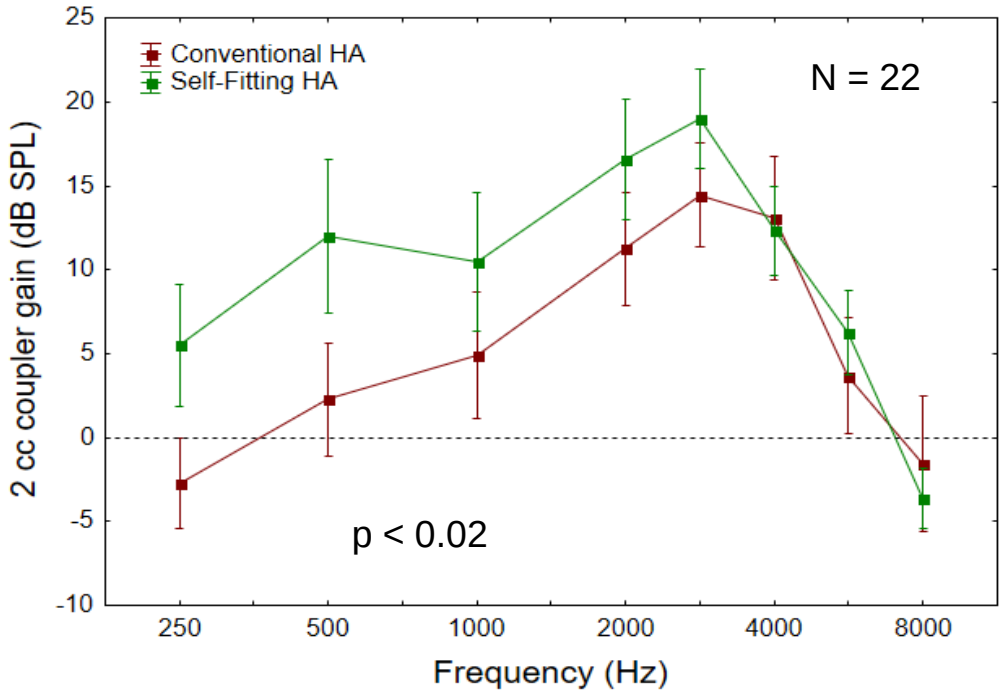
- Controlling for demographic factors there were no significant differences in
  - selected gain (p = 0.11);
  - speech recognition in noise performance (p = 0.08);
  - activity limitation (p = 0.87);
  - participation restriction (p = 0.87); or
  - satisfaction (0.26)

(Keidser & Convery, 2018)

When the HA was a constant it did not matter who directed the fitting process

Results – outcomes (N = 22)

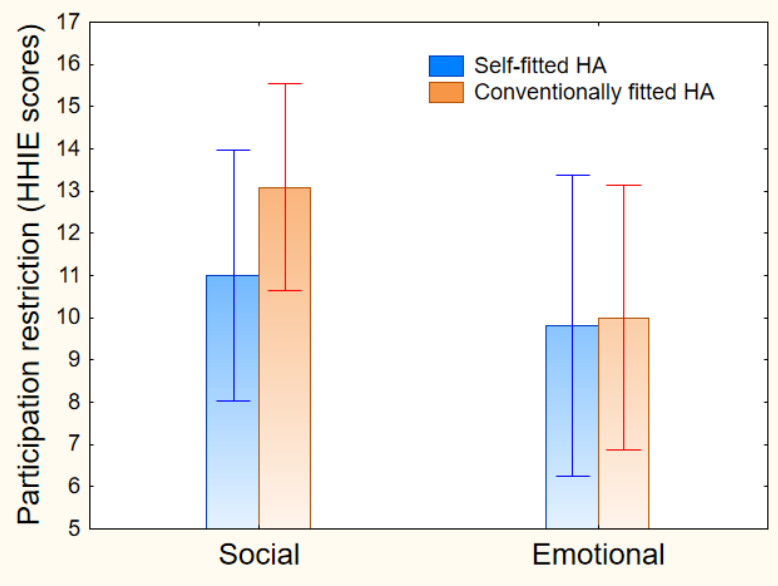
- Different hearing aids; Self-directed vs conventional fittings

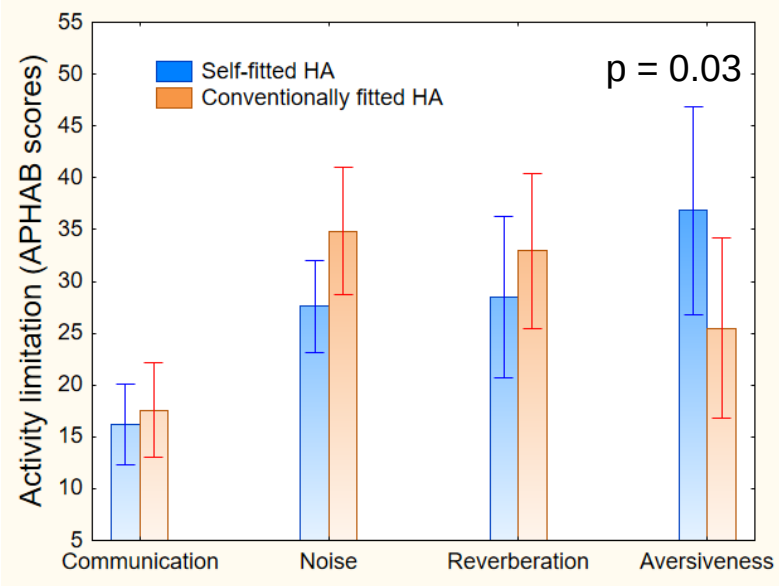


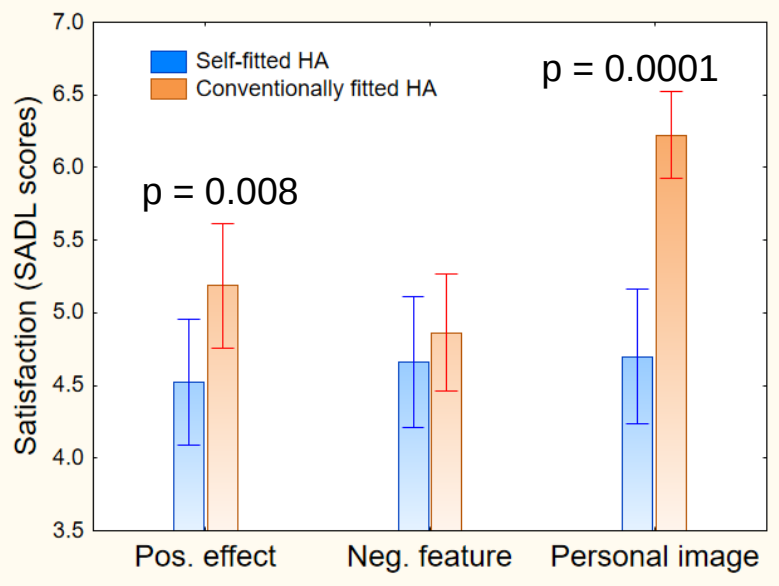
- Significantly higher low-frequency gain in self-fitted hearing aid due to proprietary fitting rationale and some leakage during the in situ audiometry
- No significant difference in speech recognition in noise performance ($p = 0.12$)

(Keidser & Convery, 2018)

Results – outcomes (N = 22)







No significant difference in reported restriction due to social/emotional effect of hearing loss (p = 0.28)

Significantly more aversiveness reported with SFHAs – presumably due to higher OSPL90 and lack of an adjustable MPO in the SFHAs

Significantly less satisfaction with SFHAs for Positive Effect and Personal Image due to e.g. a large and heavy device body, uncomfortable ear tips, and insufficient daily (rechargeable) battery life

Significant differences due to device specifications rather than who was responsible for fitting

(Keidser & Convery, 2018)

Conclusion

- SFHAs seem clinically viable, provided optimum implementation
  - Size and life of rechargeable battery
  - Design and size of ear tip
  - MPO adjustable

Acknowledgements

Thanks to:

CRC and the Commonwealth Department of Health and Ageing for financial support

SoundWorld Solutions for supplying the test hearing aids

Professor Louise Hickson and Dr Carly Meyer from the University of Queensland for fruitful discussions about aspects of the study design

The many volunteers who make NAL's research happen

This research was financially supported by the HEARing CRC, established and supported under the Australian Government's Cooperative Research Centres Programme. The CRC Programme supports industry-led, end-user-driven research collaborations to address the major challenges facing Australia.