

Empowering hearing aid users: it's not the technology but what people do with technology

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Benefits of mhealth



Increase access



Empowerment



Personalised



Engagement



Self-management



User control



Big data



New service models

Mobile tech for connected hearing healthcare and self-management

Smartphone-
connected
hearing aids



Post-fitting
motivational support

Hearing health
education

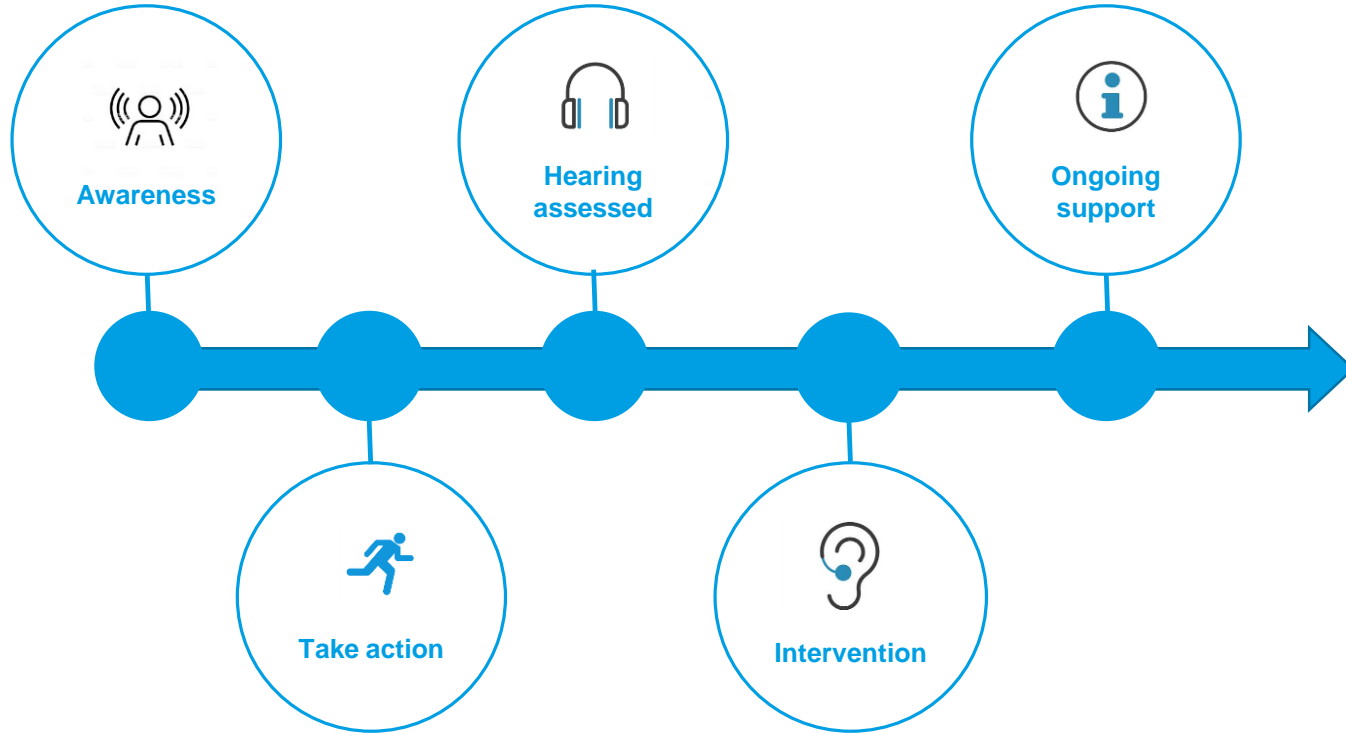
Hearables
PSAPs

Remote device
adjustment

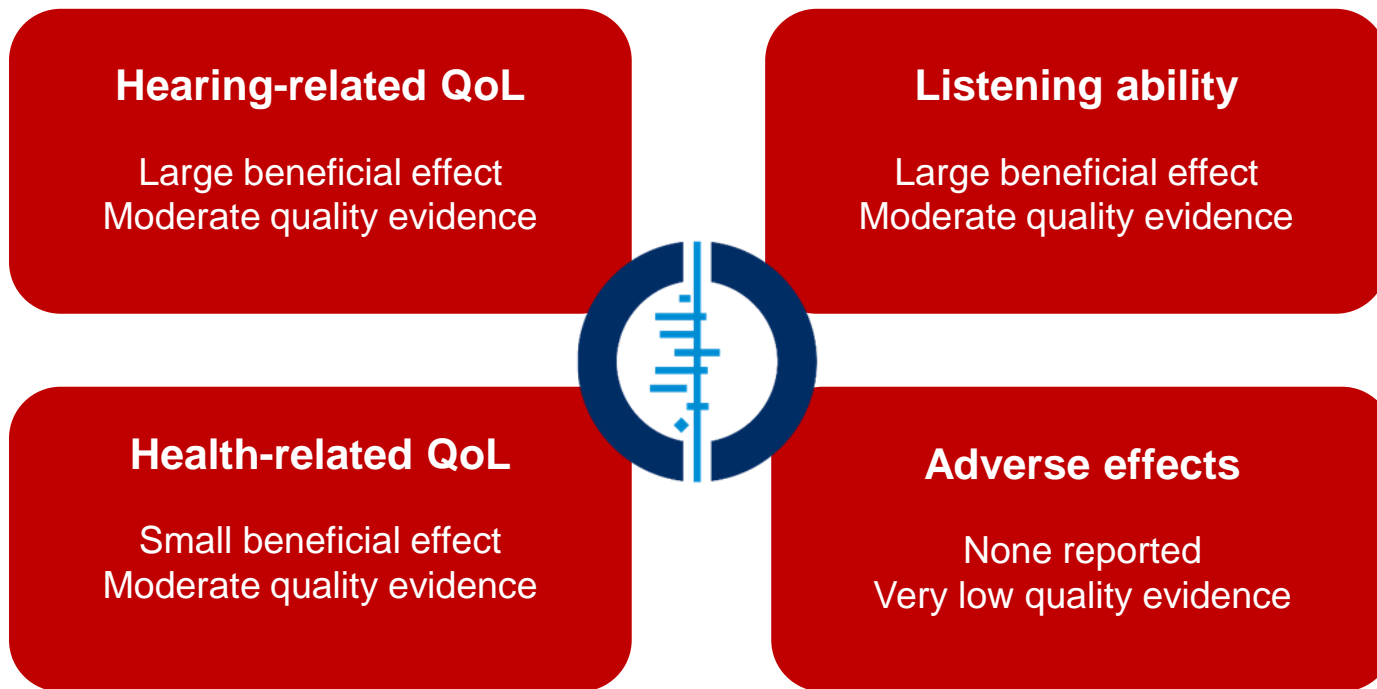


Pre-assessment/
pre-fitting preparation

Patient pathway



Hearing aids are effective



“The evidence is compatible with the widespread provision of hearing aids as the first-line clinical management in those seeking help for hearing difficulties”

Hearing aids get bad press. Why?

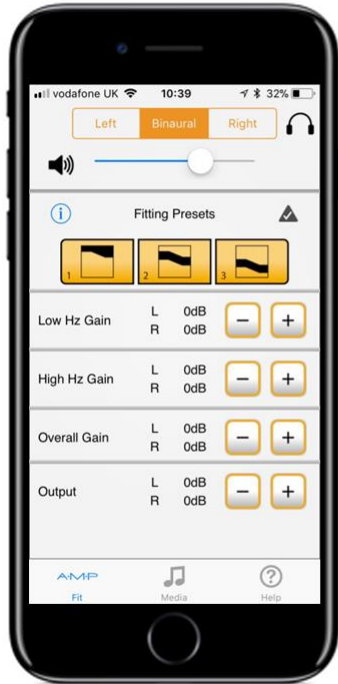


STIGMA!



Can new technologies help?

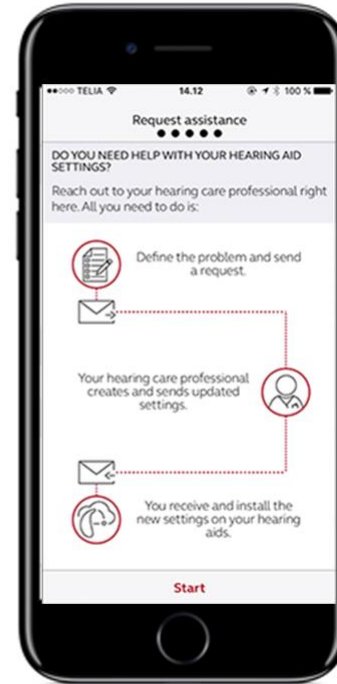
Smartphone connectivity



Self-fitting



User-adjustment



Remote delivery



RQ: Does the functionality of a smartphone app provide benefits in everyday life?

- **Aims**

- To assess benefits of the smartphone app
- To explore and identify usability and user's preferences of the app

- **Programmes**

Sound modifiers: volume, gain, noise reduction, mic directionality, compression

Pre-sets: television, restaurant, music

Custom programme storage

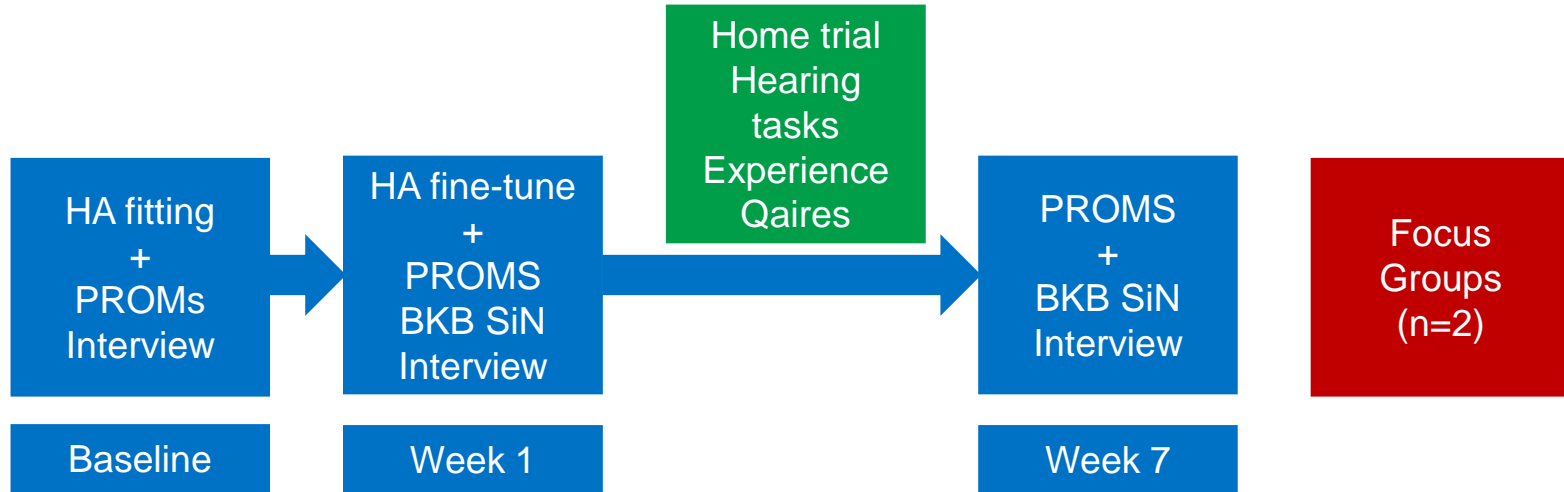
- **Methods**

- n=44 hearing aid users
- UK National Health Service
- Owned Apple iPhone \geq 5.0 (iOS 10+)
- Single centre, prospective, observational design
 - 7 weeks, 3 visits
- Mixed methodology
 - Quants and quals, including 2 focus groups



Phonak Audeo B90-Direct
Phonak Digital Adaptive

Mixed methods design

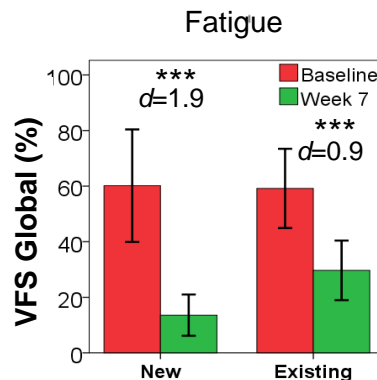
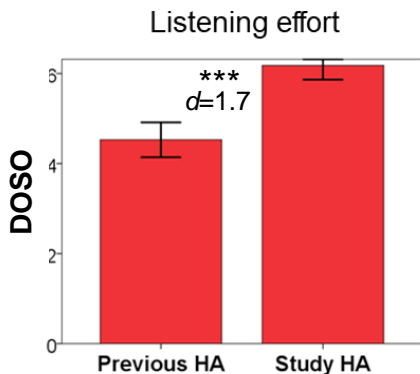
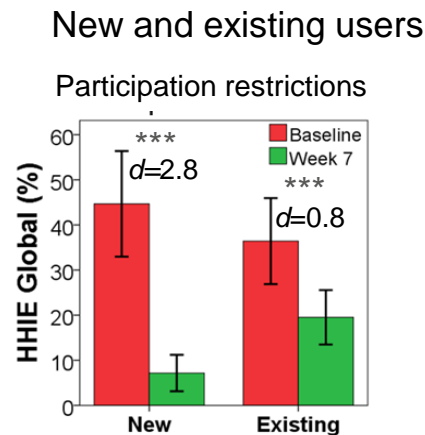
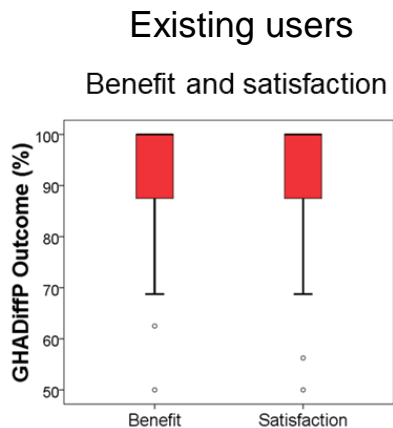


- Typical NHS clinic patients
 - New n = 14; existing n = 30
 - Age: new = 66.7 yrs; existing = 69.8 yrs
 - PTA_{0.5-4kHz}: new = 36 dB HL; existing = 43 dB HL



Results

Hearing aid outcomes improved: large clinical effect sizes



E.S. Cohen's *d*
 ≥ 0.8 large
 ≥ 0.5 moderate
 ≥ 0.2 small



Patient feedback of the app

Star rating was high



App met their needs

- Extremely well = 68%
- Somewhat well = 26%

Best feature

- Ability to adjust, improved listening = 42%
- Use in different environment = 26%

Situations app most useful

- Conversation in noise = 50%
- Watching TV = 32%

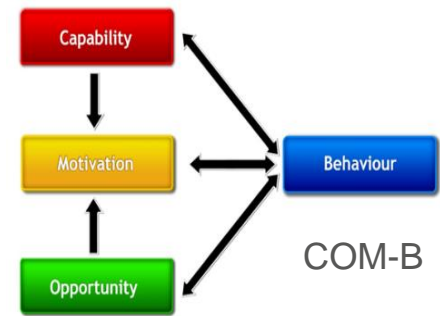
Did you experience tiredness?

- No= 87%
- Yes, only once = 8%

What the patients say

“It’s great. It gives you control....it’s not other people running my life, it’s me”

“In a restaurant, it meant I didn’t have to sit with my back to the wall anymore – I could sit where I wanted”



Capability

- User-adjustability led to inc participation**
- Experiential learning
- Complexity of controls

Opportunity

- Listening context
- Less stigma
- Societal smartphone norms

Motivation

- Empowerment
- Increased confidence
- Benefitted others

Integrating mobile technology into clinical practice

- Age → digital divide

- Patient view

- commonly cited in these type of hearing studies
- but not specific to hearing

- unfounded beliefs about their lower ability to use technology relative to others

- Audiologist view

- Recommend smartphone-connected HAs on their appraisal of patient's technological competency
- Rule out those not meeting their criteria

- Experiential learning

- Trial and error
- Empowerment



Not just for the
tech-savvy



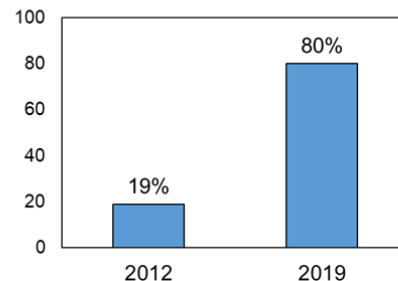
C2hearonline.com

- Role for the audiologist to support new users

- Agree goals to trial and self-monitor



Smartphone ownership in 55+ year olds



Smartphone-connected hearing aids get good press



Less fatigue and effort

EMPOWERMENT



Improved listening and participation

STIGMA!



Benefits of mhealth: summary



Increase access



Empowerment



Person-centred



Participation



User control



Self-efficacy



Self-management



Knowledge & skills

Benefits of mhealth: summary



Increase access



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Self-management



Knowledge & skills

Benefits of connected health: empowerment



Skills



User control



Self-efficacy



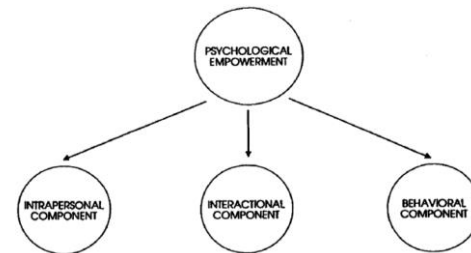
Empowerment



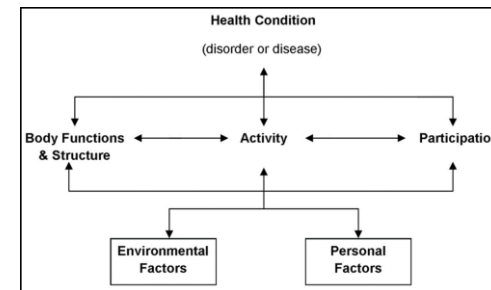
Knowledge



Participation



(Zimmerman, 1995)



(WHO ICF Framework, 2001)

Aim: to explore how empowerment manifests itself for adults with HL, across the patient journey

- Qualitative study: semi-structured interview, Denmark, Sweden, Australia
- Sarah Gotowiec, Karolina Smeds (WSAudiology), Paola Incerti, Taegan Young (NAL)



Thanks to...



NIHR Nottingham Biomedical Research Centre
Mild to moderate hearing loss team
David Maidment
Rachel Gomez
Alia Habib



Audiological Science



Q&A

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