

eAudiology: Measuring real-world hearing performance and hearing aid benefits with mHealth tools*

Assessment of hearing loss

- 1 Audiometry → hearing acuity
- 2 Self reports → insights into activity and participation limitations

Paper-based hearing diary:

- Input based on memory
- Generalized across listening situations

Smartphone:

- + Input in real time
- + Individualized assessment
- ▶ more reliable

NEW



EMA – Ecological Momentary Assessment captures data about experiences in real time in natural environments of participants



EMA Study #1¹:

- ? What are common listening situations of adults with mild hearing loss?
- ? How do adults with mild hearing loss rate their hearing performance?

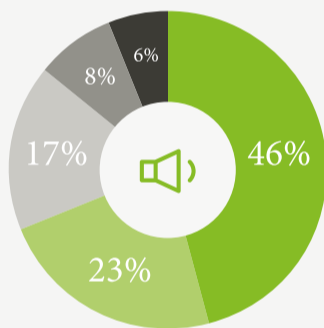


29 participants

1128 surveys

98% completed during or within 1 hr of listening event

Results



Listening events

- Conversation ≤ 3 people
- Speech / media (TV / radio)
- Conversation ≥ 4 people
- Non-speech sound (music)
- Speech / live

Hearing performance



In 91% of listening events, speech understanding was rated as either 75% or 100%



In 67% of listening situations, listening effectively required effort

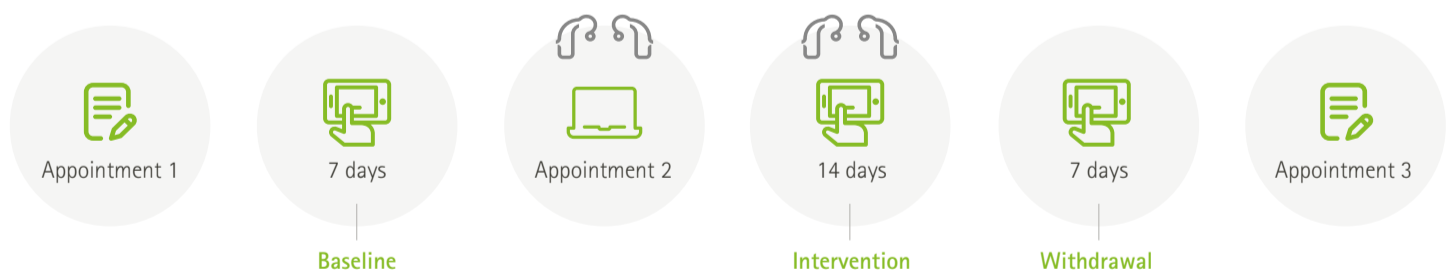
EMA Study #2²:

- ? Can hearing aids provide benefit for adults with mild hearing loss?

10 participants

860 surveys

16 questions per survey



4 hearing performance dimensions:

- 1 speech understanding
- 2 effort required to listen effectively
- 3 hearing difficulties negatively affecting communication
- 4 enjoyment of the listening events

Results

Mild hearing loss: little impact on speech understanding, but stronger impact on other aspects relevant to daily communication, e.g. effort and enjoyment – need for individualized counseling and hearing aid modification

EMA through use of eAudiology technologies can...

- collect real-world information about listening events
- gain information beyond speech understanding
- be easily individualized
- support the individual in self-management

*Access the webinar on EMA by Barbra Timmer, PhD here: learning.phonakpro.com (where available)

¹Timmer, B. H. B., Hickson, L., & Launer, S. (2017). Ecological momentary assessment: Feasibility, construct validity and future applications. *American Journal of Audiology*, 26(35), 436-442.

²Timmer, B. H. B., Hickson, L., & Launer, S. (2018). Do Hearing Aids Address Real-World Hearing Difficulties for Adults With Mild Hearing Impairment? Results From a Pilot Study Using Ecological Momentary Assessment. *Trends in Hearing*, 22, 1-15.