Can in-situ self-reports prevent narrative effects? An EMA study

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What is a narrative?

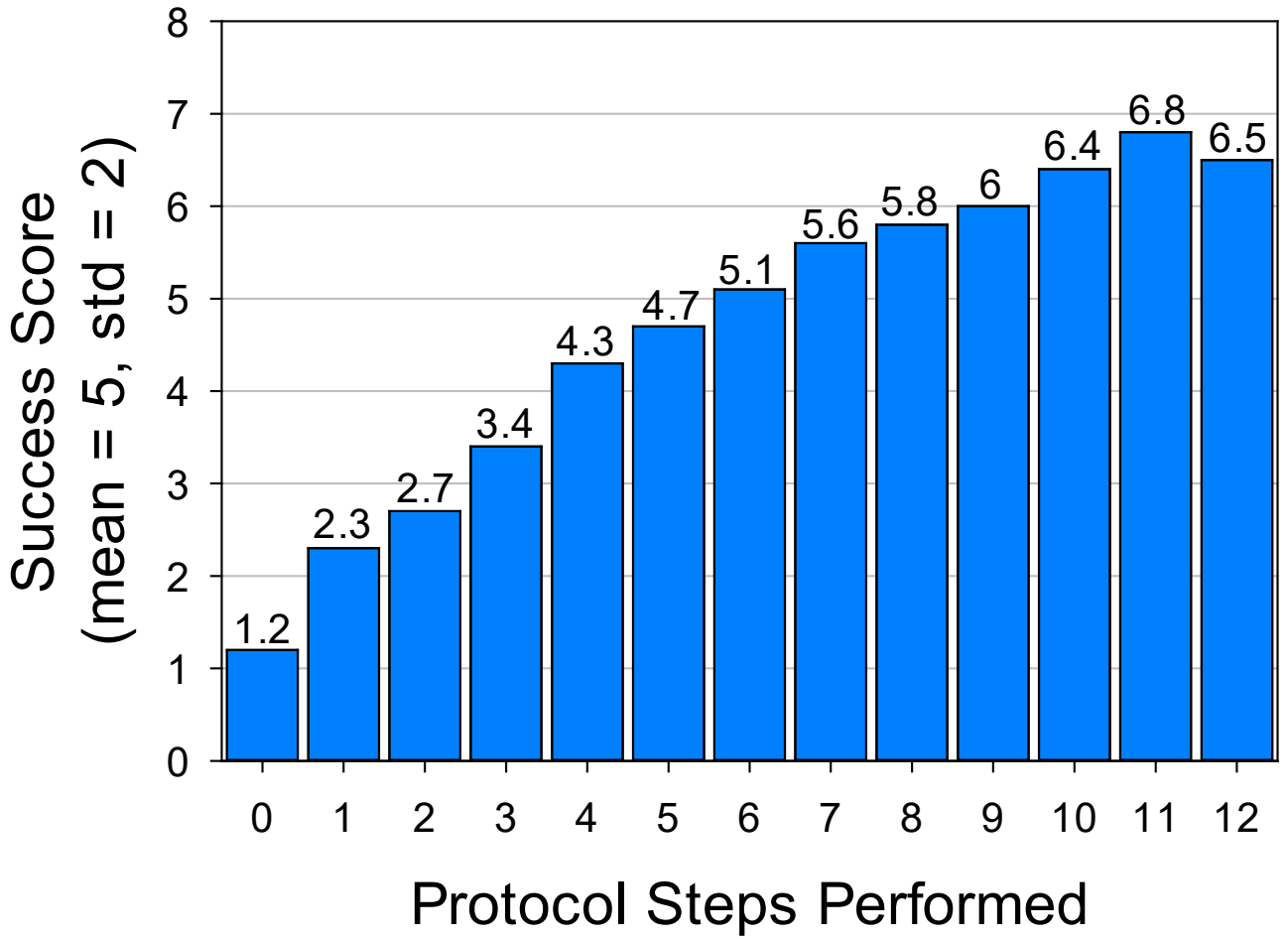
- A narrative is the story a person constructs to explain a course of a social interaction.
  - What a patient comprehends of the narrative during a hearing aid fitting could influence the outcomes of treatment.

What are narrative effects?

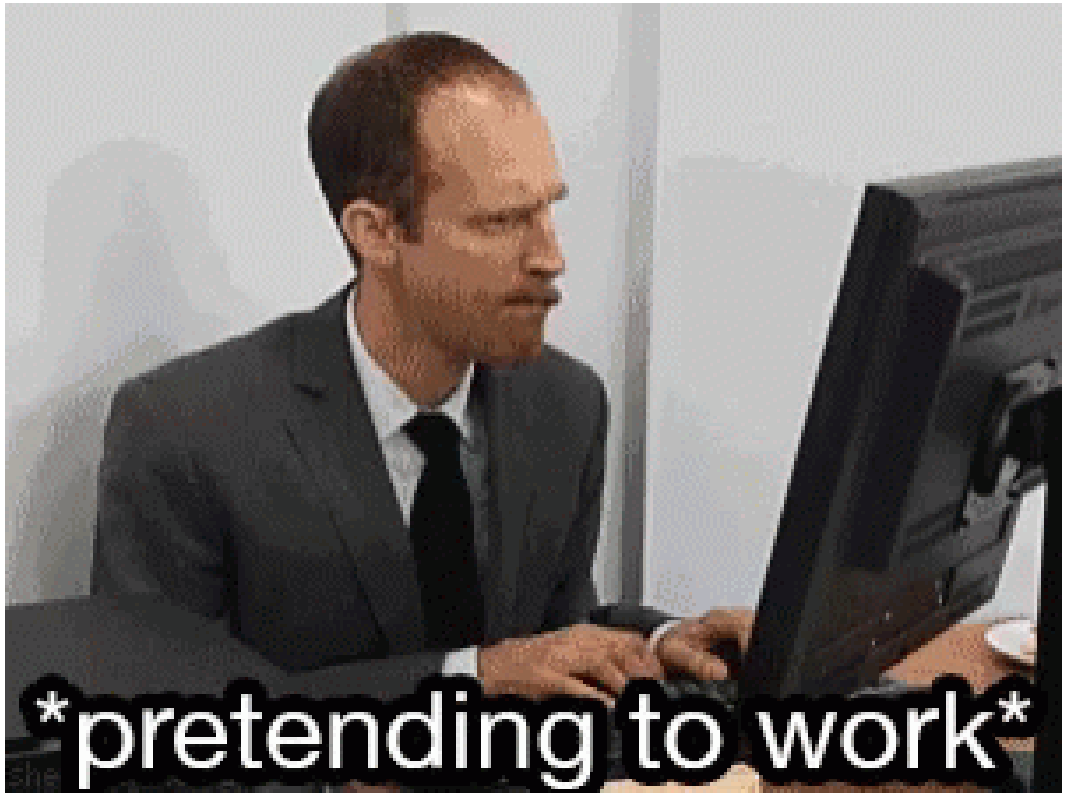
- Previous research has found that a person's beliefs about the hearing aids and fitting process can significantly influence outcomes measured using:
  - **Labeling Effects** (Bentler et al., 2003; Dawes et al., 2011, 2013)
    - "Digital/New" vs. "Conventional" hearing aids
  - **Narrative Effects** (Naylor et al., 2015; Rakita et al., 2022)
    - "Interactive" vs. "Diagnostic" fitting processes
    - Fittings narratives were "Positive," "Negative," or "Neutral"

RQ1: Do hearing aid fitting best practices contain a narrative effect?

- Patients' success with their hearing aids increased with the number of procedure steps performed by their clinician (Kochkin et al. 2010).
- This is good clinical practice, but are some of the outcomes due to patient expectation?

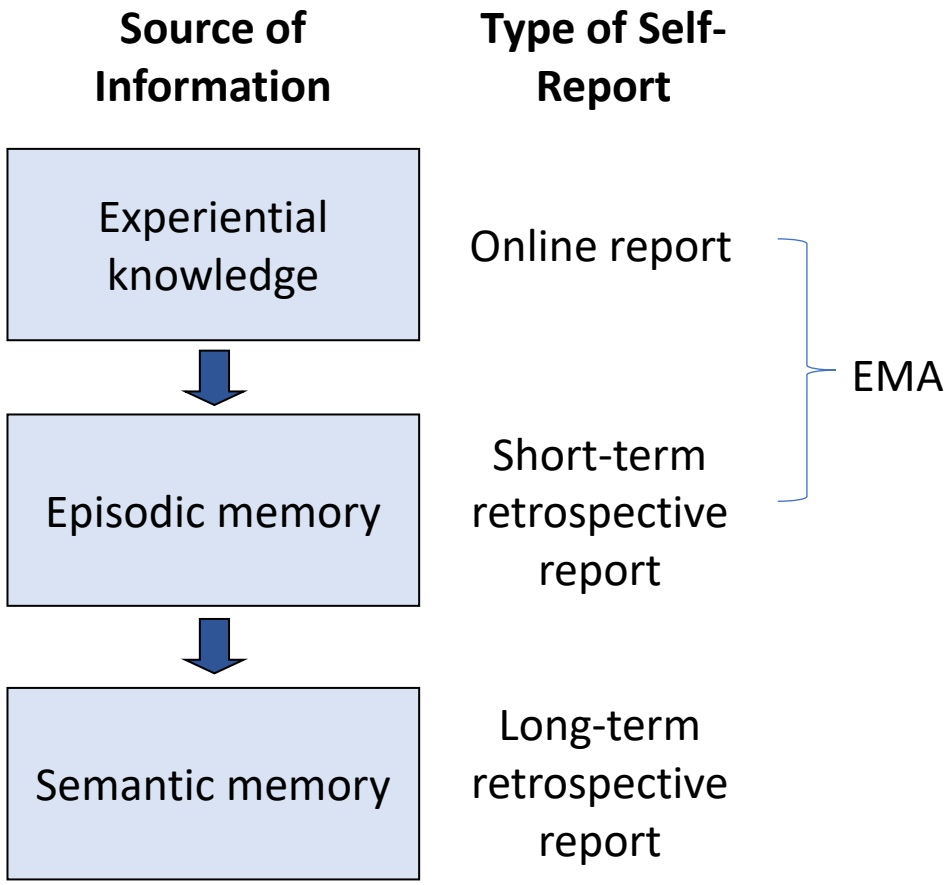



PRETENDING TO
LOOK BUSY
IS HARD WORK.


pretending to work

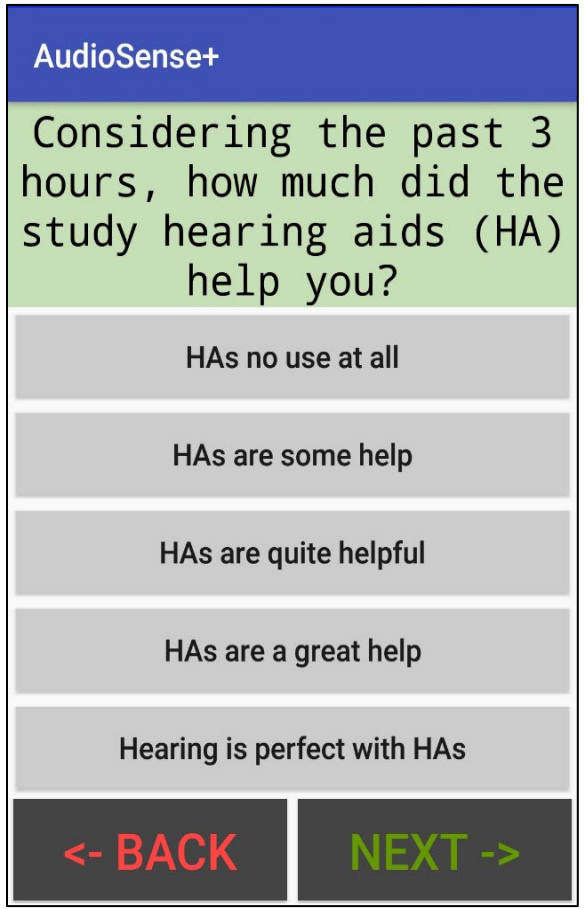
RQ2: Can in-situ self-reports prevent a narrative effect?

- Accessibility model (Robinson and Clore, 2002)
- Experiential Knowledge – Feeling in the moment
- Episodic memory – Our memory of that feeling
- Semantic memory – Not tied to a specific event; tied to beliefs, attitude and social norms



Ecological Momentary Assessment (EMA)

- Allows data to be collected as it happens
- Repeated in-situ self-report
- Considered to be less affected by recall bias



Hypotheses:
Narrative effect **at the treatment level**

- Given that we use our memory of the overall experience to fill-out retrospective questionnaires, could the narrative around a hearing aid fitting have less influence on in-situ EMA data than on retrospective questionnaires?
  - “Best Practice” fitting vs. “Streamlined” fitting
  - **The results from the retrospective questionnaires will be significantly different between fittings**
  - **The results from EMA will have no differences.**

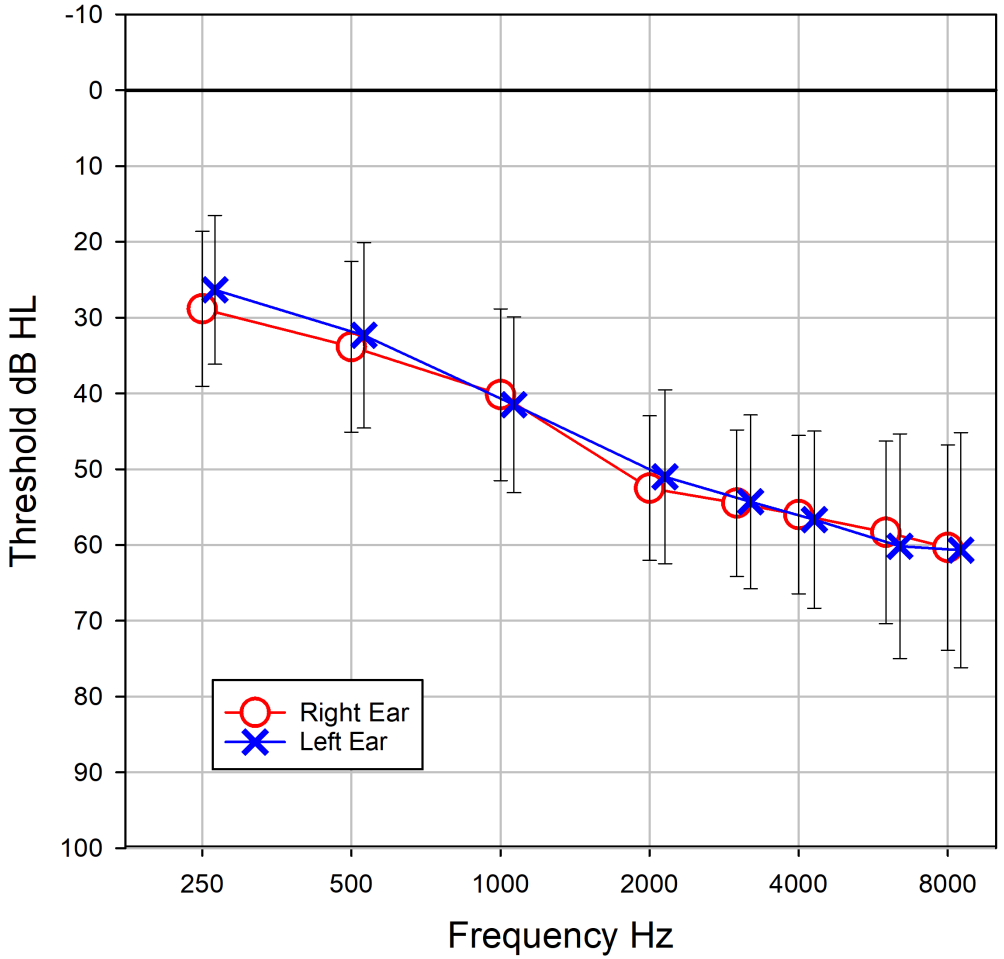
Hypotheses:
Narrative effect **at the study level**

- People come into our study expecting that we are testing different treatments.
  - Preferred treatment vs. non-preferred treatment
  - **The results from the retrospective questionnaire will be significantly different between preferred and non-preferred fittings.**
  - **The results from EMA will have no differences between preferred and non-preferred fittings.**

Methods

Methods

- Participants
  - 30 adults aged 41 to 83 years (mean 68.07, SD 9.19)
  - 20 females, 10 males
  - All hearing aid users with at least 1.5 years experience (mean 7.13, SD 7.91)



Methods

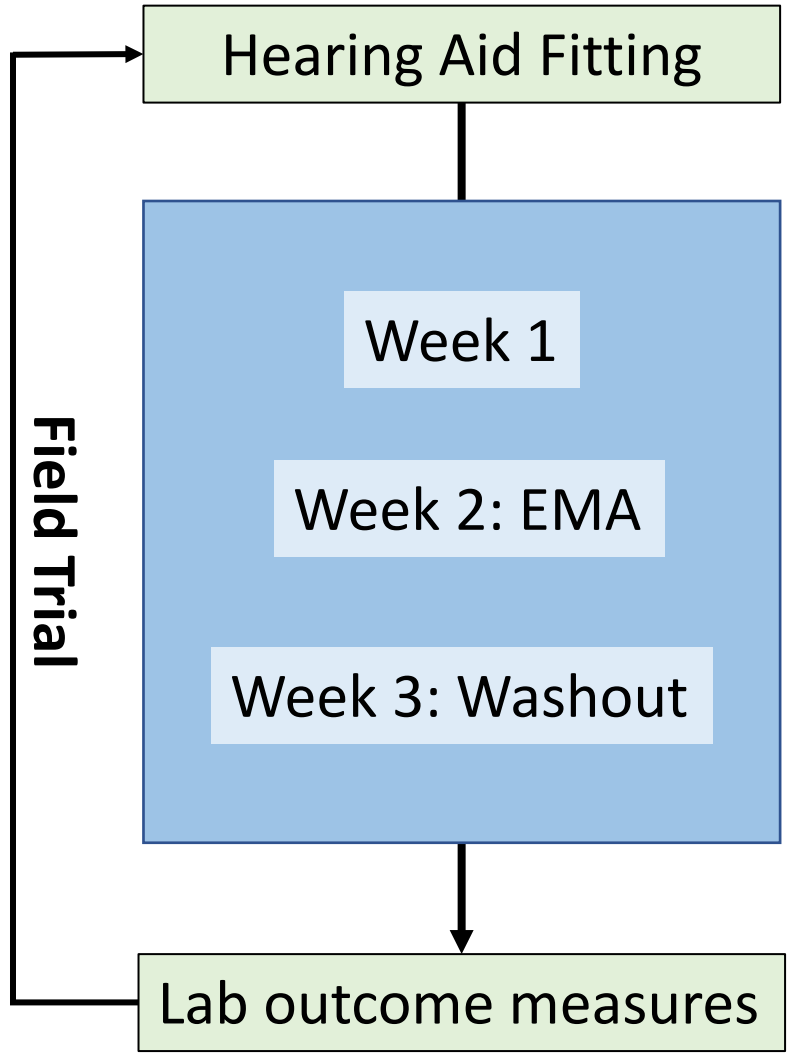
- Participants told they were evaluating how the **two different fitting strategies** affected how the hearing aids worked in the real-world.
- In actuality, the **settings were identical** during both field trials.
  - No volume adjustment

Methods

- All participants completed two, three-week long hearing aid field trials
- Crossover design:
  - “Best Practice”: Loudness Discomfort Level, Communication Needs Assessment, Quick Speech-In-Noise Test, Acceptable Noise Level Test
  - “Streamlined”: First-fit

Outcome measures

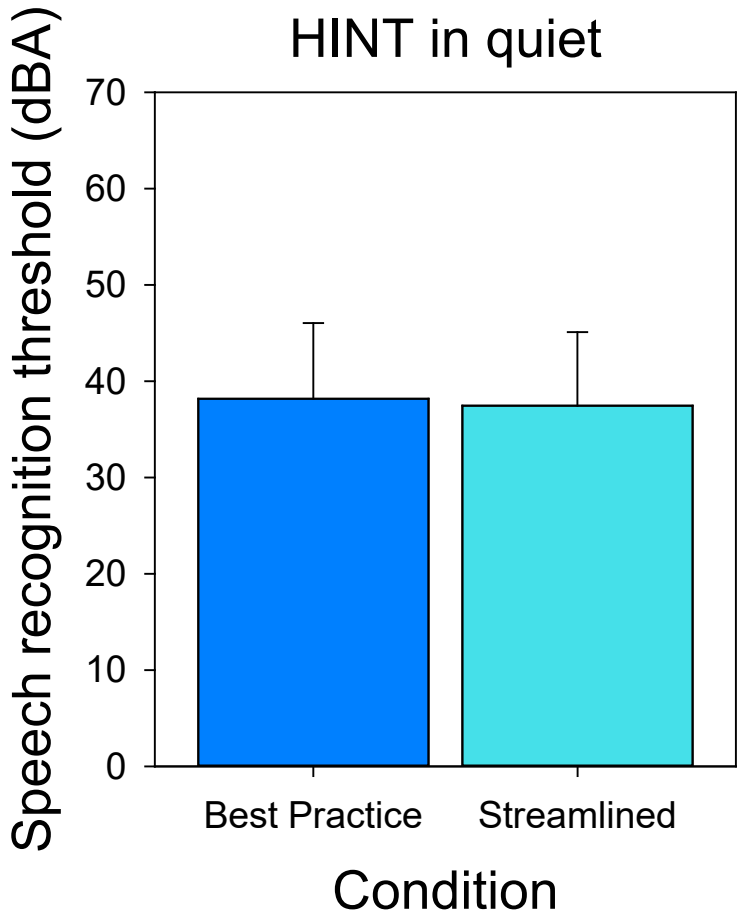
- In-Situ EMA IOI-HA:
  - 3-day practice
  - Week-long assessments completed during the 2nd week of each field trial
    - Washout week between EMA and retrospective IOI-HA
    - 4-5 notifications per day
    - Past 3 hours
- IOI-HA retrospective questionnaire
- HINT in Quiet
- Preference questionnaire



Results

Narrative effect at the treatment level: “Best Practice” fitting vs. “Streamlined” fitting

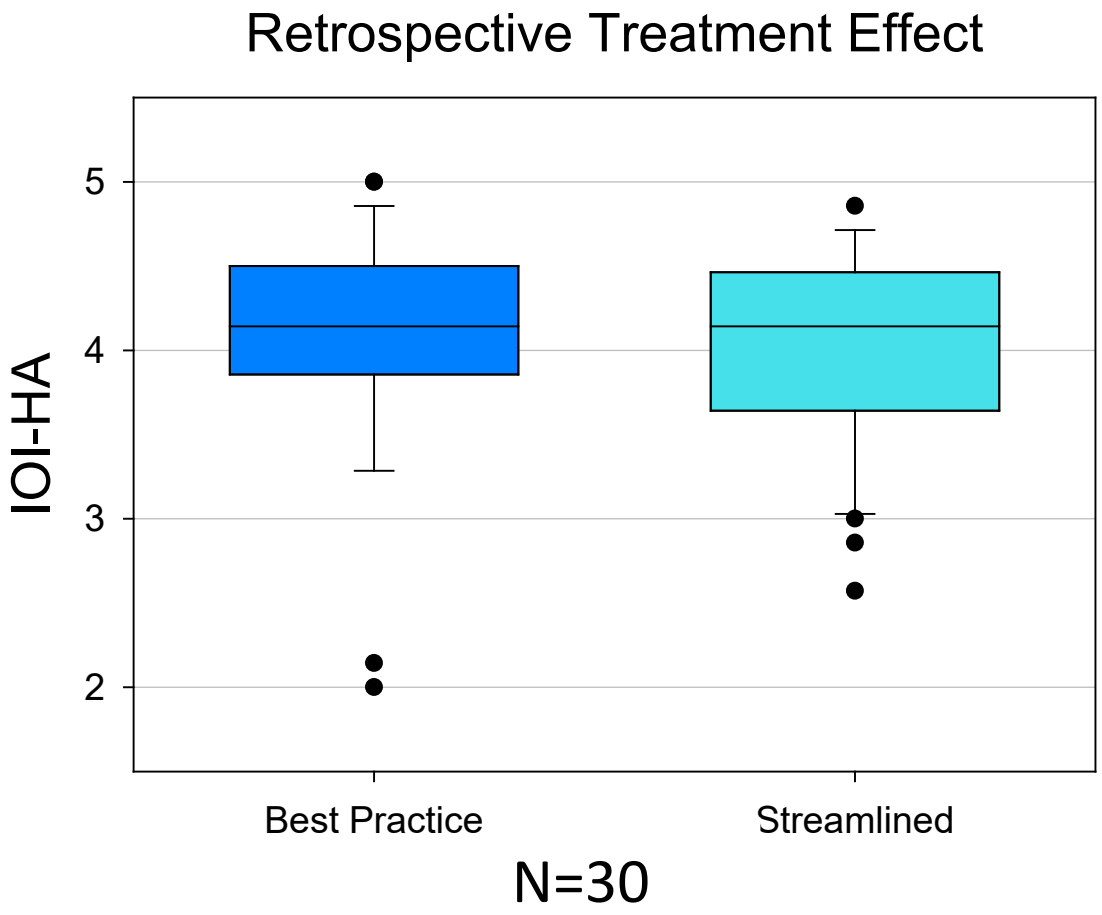
Speech recognition – Narrative effect at the treatment level



N=30

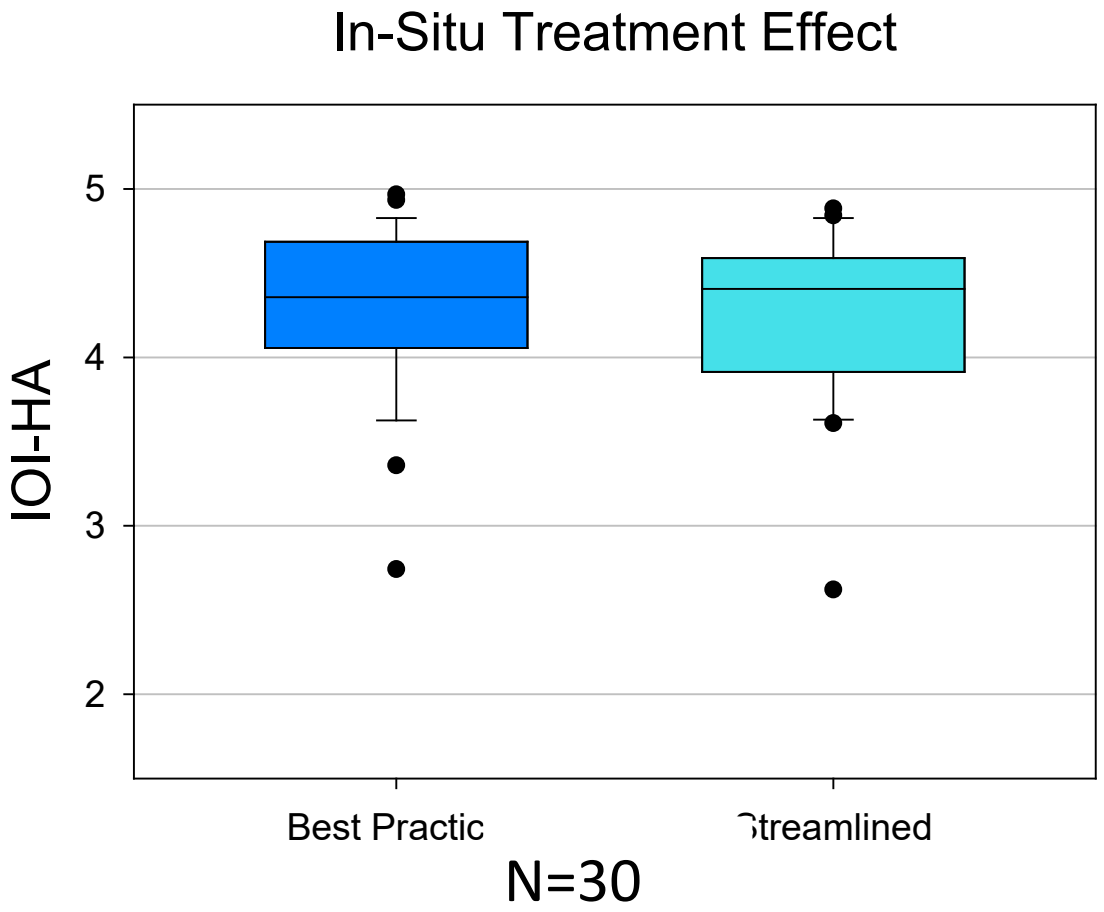
Retrospective self-reports – Narrative effect at the treatment level

- There was no difference in retrospective IOI-HA scores between the two fittings.
- p = .256



In-situ self-reports – Narrative effect at the treatment level

- Total 1235 EMA surveys
  - 41.2 (SD=15.6) surveys per participant
- There was no difference in EMA IOI-HA scores between the two fittings.
- p = .316

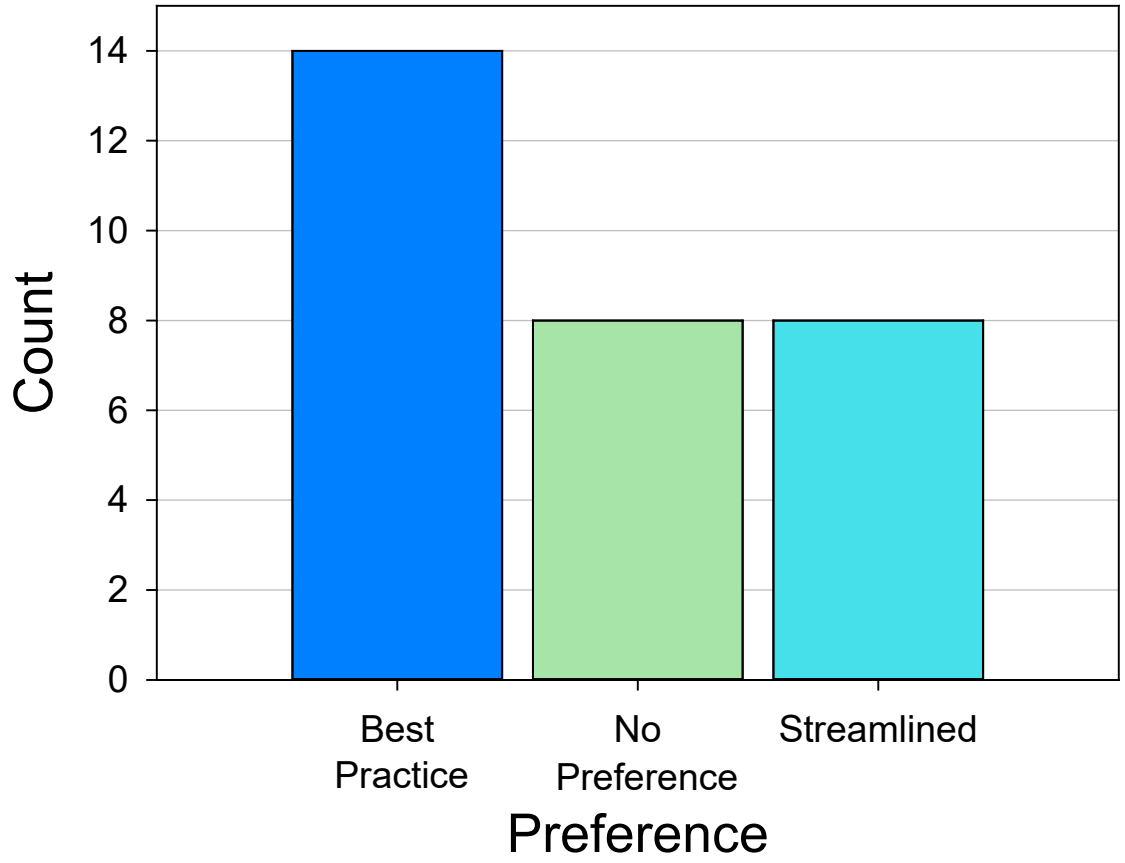


Results

Narrative effect at the study level: Preferred vs. non-preferred

Results - Preference

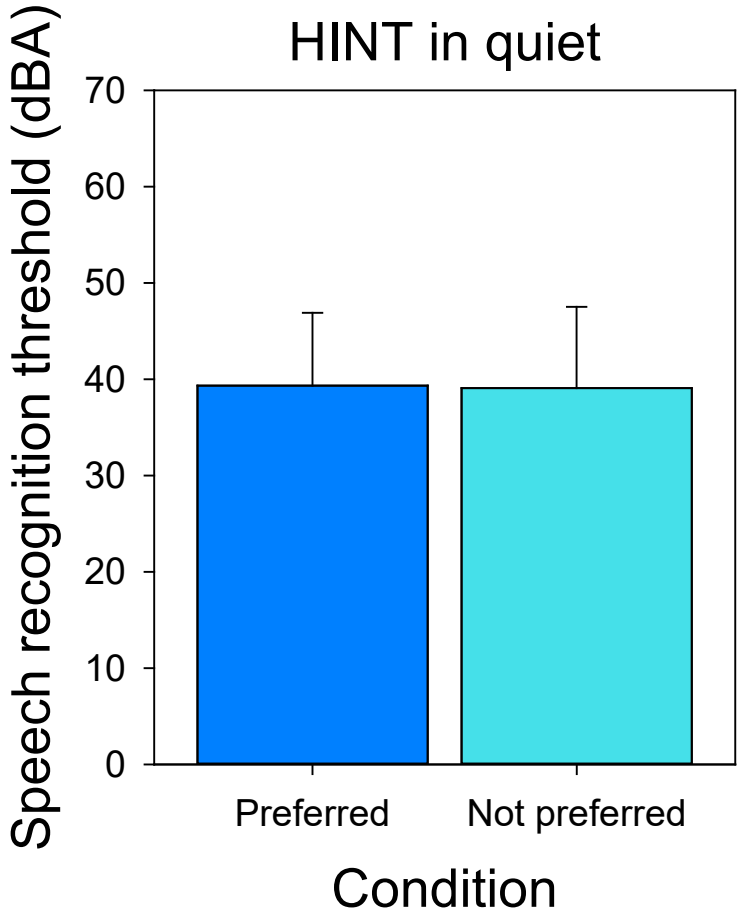
- 22 out of 30 reported preferring one fitting over the other
  - Most participants reported that their preferences were based on the way their preferred setting sounded.



Results – Preference

- “First fitting worked well across all settings- even challenging situations like in crowds.”
- “On balance, things seemed consistently louder, even if less 'refined’.”
- “Ambient noise did not interfere as much with speech “

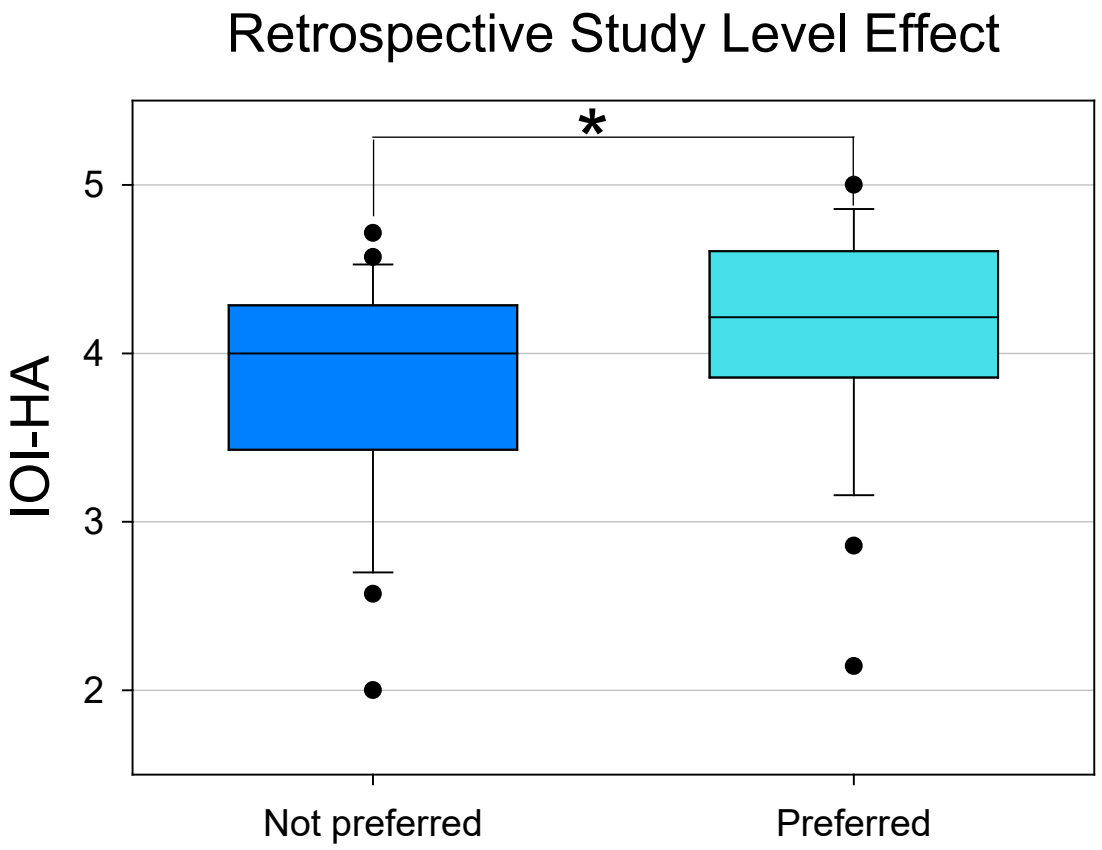
Speech recognition – Narrative effect at the study level



N=22

Retrospective self-reports – Narrative effect at the study level

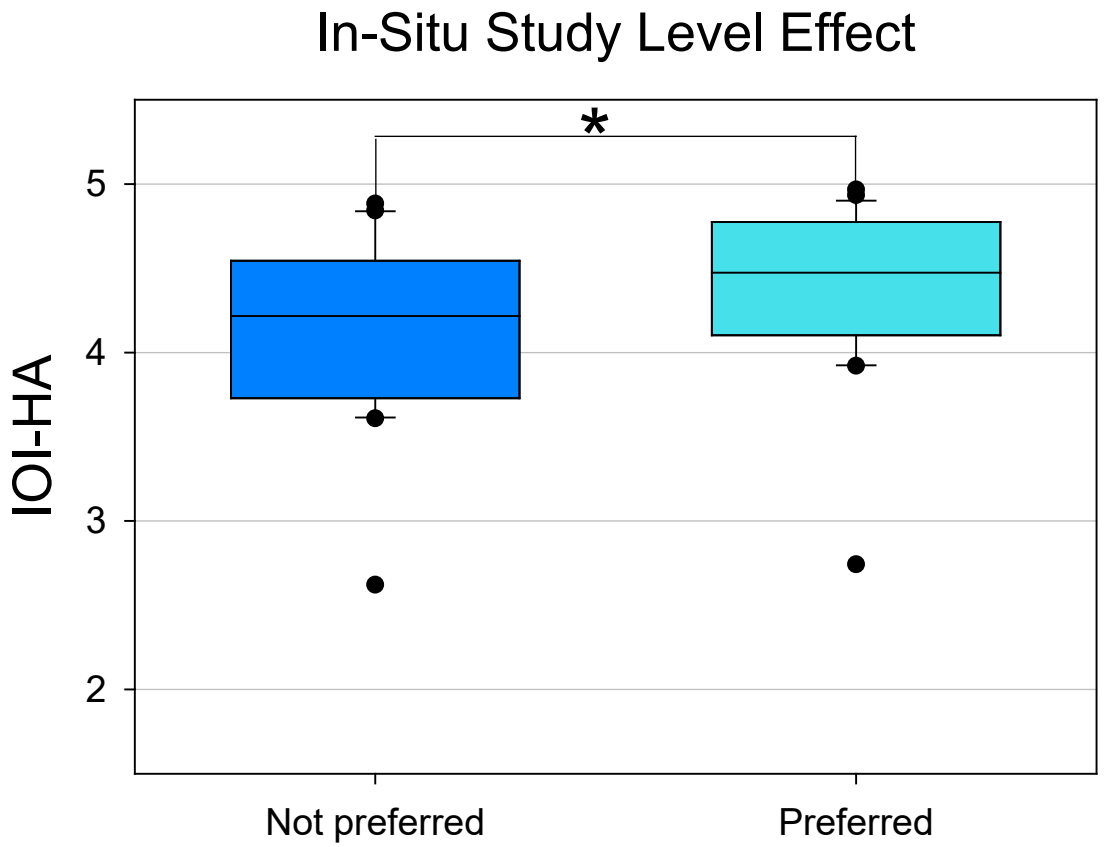
- There was a significant difference retrospective IOI-HA scores between the preferred and non-preferred fittings.
- p = .003



N=22

In-situ self-reports – Narrative effect at the study level

- EMA IOI-HA showed significantly different ratings between the preferred and the non-preferred fittings.
- p <.001



N=22

Discussion

- No narrative effect at the treatment level about HA fitting process
  - This is good otherwise some audiologists may pretend busy
  - This may indicate that patients may not always appreciate time-consuming, comprehensive fitting services
- There is narrative effect at the study level
  - The result of IOI-HA is almost identical to Naylor. The result is robust.
  - This may impact research in general; the research results may be overestimated (in terms of self-reports)
- EMA still has narrative effect
  - Possible reason 1: this effect is too strong
  - Possible reason 2: we did not use real “momentary” EMA. The short recall time window (3 hours) may enable the narrative effect.

Conclusions

- The story the clinician tells around a hearing aid fitting can significantly affect their perceptions of the hearing aid outcomes.
  - We find this effect in both retrospective questionnaires and in-situ reports
  - **EMA cannot prevent this effect!**
  - Future study designs must be mindful of the narrative effect and take steps to minimize and circumvent these effects.

Acknowledgements

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Questions?