Impact of hearing aid technology on outcomes for older adults

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Levels of Hearing Aid Technology

Basic

Mid-Level

Premium
Some features differ for premium and basic hearing aids.
Purpose

• This research evaluated exemplars of basic and premium hearing aid technology from two major hearing aid manufacturers with the goal of evaluating outcomes in the laboratory and in the real-world.
Research Questions

In the laboratory and in daily life, are outcomes:

1. Better with hearing aids compared to without?

2. Better with examples of premium hearing aids compared to basic?
Participants

- 45 participants (30M, 15F)
- Age: 61 to 81 (M=70.3, SD=5.5)
- Symmetric mild to moderate sensorineural hearing loss
- English as first language
Design (e.g.)

Brand A

Prefit → Basic → Premium

Brand B

Premium → Basic

Counterbalanced

Wash-out
Hearing aid fittings

• Bilateral, with appropriate coupling
• Individualized fittings using best-practice protocols, starting with NAL targets
• Features set to manufacturers’ recommendations.
• 3 manually selectable programs:
  – “everyday”- default automatic
  – “look and listen” - fixed front-facing directional
  – “speech finder” - for 360° listening
## Summary of Results

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Is result with Aided better than Unaided?</th>
<th>Do premium features give better results than basic?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Life, Everyday Hearing&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Yes.</td>
<td>No. Results were equal across technologies.</td>
</tr>
<tr>
<td>Patient Preference&lt;sup&gt;1&lt;/sup&gt;</td>
<td>-</td>
<td>No. There was not an overall trend for preferring premium features over basic.</td>
</tr>
<tr>
<td>Speech understanding&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Yes, in lab and daily life.</td>
<td>No, results were equal.</td>
</tr>
<tr>
<td>Listening effort&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Yes, in lab and daily life.</td>
<td>No, results were equal.</td>
</tr>
<tr>
<td>Localization&lt;sup&gt;3&lt;/sup&gt;</td>
<td>No difference in lab. Yes, in daily life.</td>
<td>Yes, when listening to high frequency sounds in quiet in the lab. All other results were equal.</td>
</tr>
<tr>
<td>Sound Acceptability (unpublished)</td>
<td>Mostly no differences in the lab. Yes, in daily life.</td>
<td>No. Acceptability was not improved with premium technology.</td>
</tr>
</tbody>
</table>
These findings apply for...

• People like those included in our study.
• Devices like those included in our study.
  – This is a comparison of select technologies at a given moment in time.
    • 2 brands of BTE aids from two manufacturers, released into the market in 2011.
  – Currently, cost of premium > basic, but we have presented evidence that these devices did not result in better performance for typical older hearing aid candidates.
  – We do not claim that this outcome will hold for all brands of all manufacturers at all points in time; however, payers should remain skeptical about device benefits without independent proof of real-world effectiveness.
Considerations

• There is evidence of improved patient experiences with hearing aid technology over time.\(^4\)

• Yet differences in technology used for this study made very little difference in terms of daily life outcomes for our participants.
Considerations

• Trained audiologists are equipped with the skills and knowledge necessary to provide competent professional best hearing health care practices.

• Yet, today’s hearing aid fitting practices are shaped by:
  • Reliance on technology to manage hearing problems.
  • A lack of current, independent evidence about the effectiveness of different hearing health devices
  • Concerns about the financial practicality of providing evidenced-based rehabilitative services.

• Change is needed.
References


Acknowledgement

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