Methods

- **Participants:** 45 (15 F) and 61 (M=70.3). Treatment: 2 pairs each of premium- and basic-feature hearing aids (2 brands) were worn in 4 sequential 1-month trials.
- **Variables of interest:**
  - Participant traits (categories): Demographics, Personality, Unaided Hearing, Auditory Environment, Lifestyle
  - **Program use:** Proportion of time using programs – data logged for each trial and combined across brands.
  - **Analyses:**
    - Relationships between participant traits and proportion of time using the automatic program were investigated (Note: less time using the automatic program = more time using specialized programs) through exploration of scatterplots and correlation analyses (Pearson r except where indicated). The comparative strengths of the relationships between each trait and program use with premium and basic HAs was evaluated using Steiger’s Z test for dependent correlations.

Acknowledgements

Supported by NIDCD R01DC011550, PI: Robyn Cox, Ph.D.
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Discussion

Our results suggest that individuals with poorer WMC might utilize specialized programs more often. Some possible explanations are:

1. Those with poorer WMC were less able to benefit from the fast & dynamic signal processing of the automatic program. This is consistent with previous research demonstrating that hearing aid users with lower cognition received more benefit from slower signal processing (e.g., Gatehouse et al 2003, 2006).
2. Those with poorer WMC used the programs with less intent in specific situations, and tended to “surf” through the programs throughout the day. Thus using the specialized programs more often.
3. Those with poorer WMC observed and recalled differences between programs less effectively, and so continued to try the programs in various situations even if they did not work well for them before.

It also is worth noting that the more advanced features included in the default automatic and specialized programs did not impact how participants used the programs.

Future research should further investigate the basis of these relationships, and explore how measures of WMC might assist practitioners in prescribing cost-effective devices for patients with hearing impairment.

References


Q & A

1. Are participant traits associated with choosing to use default automatic and specialized programs?
   - Of 21 traits, only working memory capacity (WMC), measured with a reading span task, demonstrated a weak relationship with proportion of time using the automatic program (with premium devices: r = .32; with basic devices: r = .37, both p < .05). These medium positive relationships indicated that individuals with higher WMC tended to use the default automatic programs for a greater proportion of their total wear time compared to using the specialized programs, and those with lower WMC used the automatic programs less.

2. Are these relationships different when using premium and basic-feature hearing aids?
   - No. Comparisons of regression lines showed no apparent differences between any relationships when using the premium- or basic-feature devices. These observations were confirmed statistically using Steiger’s Z, which revealed no significant differences between the dependent correlations, all p > .05.