Tired from Listening? Exploring Associations Between Listening-Related Fatigue and Fatigability

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Introduction

- Mounting evidence strongly suggests that adults and children with hearing loss are at increased risk for greater listening effort and long-term, listening-related fatigue1-3.4.5. Severe, long-term, fatigue can have significant negative effects on quality of life6.
- Long-term fatigue refers to feelings of fatigue that recur frequently and are constant1.
- The Vanderbilt Fatigue Scale for Adults with Hearing Loss (VFS-AHL) has been developed to measure long-term listening-related fatigue4.
- Subjective reports of long-term fatigue are highly variable in people with hearing loss and our understanding of its underlying causes are limited2,4.5. The construct of fatigue may explain some of the variability in long-term fatigue.
- Fatigability describes the relationship between the level of perceived fatigue and the level of activity required to elicit the perception6.
- Currently, a validated measure of listening-related fatigability does not exist.
- Long-term fatigue may reflect a high level of daily demands and activity. Alternatively, it could reflect a high level of fatigue7. Our hypothesis is that people with hearing loss experience increased fatigability in everyday listening situations, which increases their risk for long-term fatigue.
- Purpose: This poster explores associations between short-term, listening-related, fatigability and long-term fatigue using subjective measures. A secondary purpose was to examine the effects of hearing loss and device type on long-term fatigue and fatigability.

Methods

- Long-term fatigue was measured using a 10-item version of the Vanderbilt Fatigue Scale-Adults with Hearing Loss (VFS-AHL)4, while short-term fatigue was assessed using a newly developed 10-item Fatigability Scale for adults with hearing loss. (See Tables I & II)
- Data were collected from multiple sources using online and in person versions of the VFS-AHL and Fatigability Scale. Responses were obtained from 468 adults (59 responses) with and without hearing loss (See Table III).
- Respondents self-reported their hearing loss as mild (n=56), moderate (n=102), severe (n=54), profound (n=44), or not reported (n=9) based on their perceived speech understanding difficulties.
- EFA model fit was evaluated using multiple indices (root-mean-square error of approximation index (RMSEA) <.06; root-mean-square residual (RMSR) <.08, comparative fit index (CFI) and Tucker-Lewis index (TTL) >.95).
- The reasons for this decrease are unclear but may reflect increased engagement in listening-related tasks.
- Respondents with severe-profound self-reported hearing loss who use CIS reported less fatigue than hearing aid users.
- The reasons for this difference are unknown but may reflect greater self-reported hearing loss and disengagement during listening-related tasks among CI users, or a benefit of CI use.
- Next steps include using the VFS-AHL to: Identify the behavioral, psychological, and physiologic factors responsible for the increased fatigue and fatigability associated with self-reported hearing loss.
- Explore benefits of interventions for reducing listening-related fatigue and fatigability.

Conclusion & Next Steps

- Exploratory factor, and correlation, analyses revealed a strong association between fatigability and long-term fatigue.
- This supports our hypothesis that long-term listening-related fatigue may be a consequence of high fatigability experienced in everyday listening situations.
- In contrast to prior work using generic fatigue scales, using a listening-related fatigue scale (the VFS-AHL), long-term fatigue, and fatigability, systematically increased with degree of self-reported HL up to the severe range (see Figure III).
- Interestingly, compared to those with only severe losses, listening-related fatigue and fatigability decreased significantly for respondents with profound hearing loss (see Figure III).
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Key References

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