

Listening Fatigue and School Accommodations in Adolescents with Hearing Loss

Lauren Harris and Kelsey Klein

Department of Audiology and Speech Pathology, College of Health Professions, The University of Tennessee Health Science Center

INTRODUCTION

- Listeners with hearing loss (HL) often require greater listening effort than those with normal hearing to understand speech in complex environments. This increased listening effort can accumulate into listening-related fatigue (Davis et al., 2021).
- Children with HL experience higher subjective fatigue than peers with normal hearing (Hornsby et al., 2017). Older adolescents with HL, however, remain an under-studied population.
- The effects of school accommodations, such as remote microphones and closed captioning, on listening fatigue remain unknown. School accommodations can improve access to speech in the classroom, but it is unclear if these accommodations alleviate listening fatigue.

RESEARCH GOALS

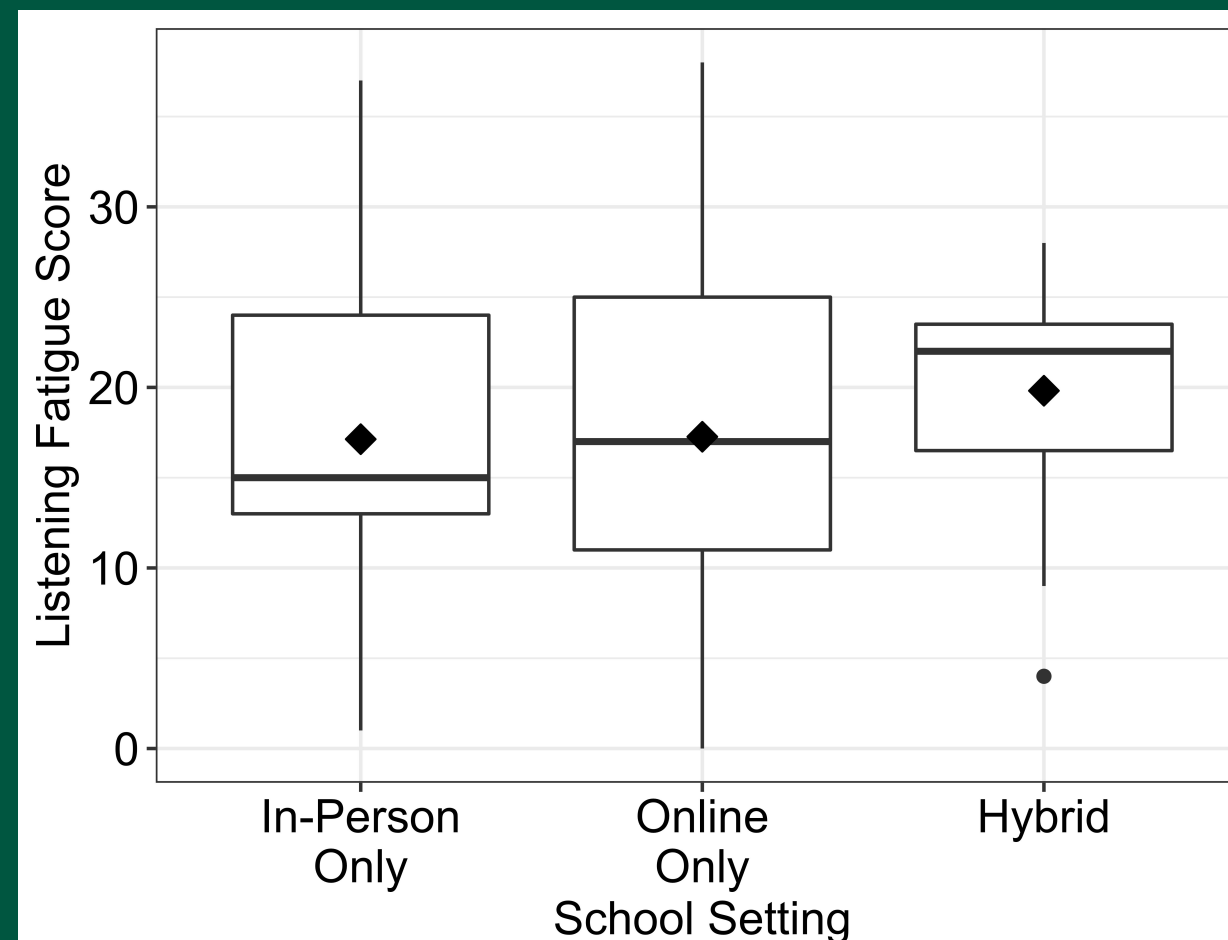
1. Identify the association between listening fatigue and use of school accommodations among adolescents with HL.
2. Determine the effect of school setting (i.e., in-person vs. remote classes) on listening fatigue in adolescents with HL.
3. Determine the associations between listening fatigue and demographic characteristics, including age and device configuration.



METHOD

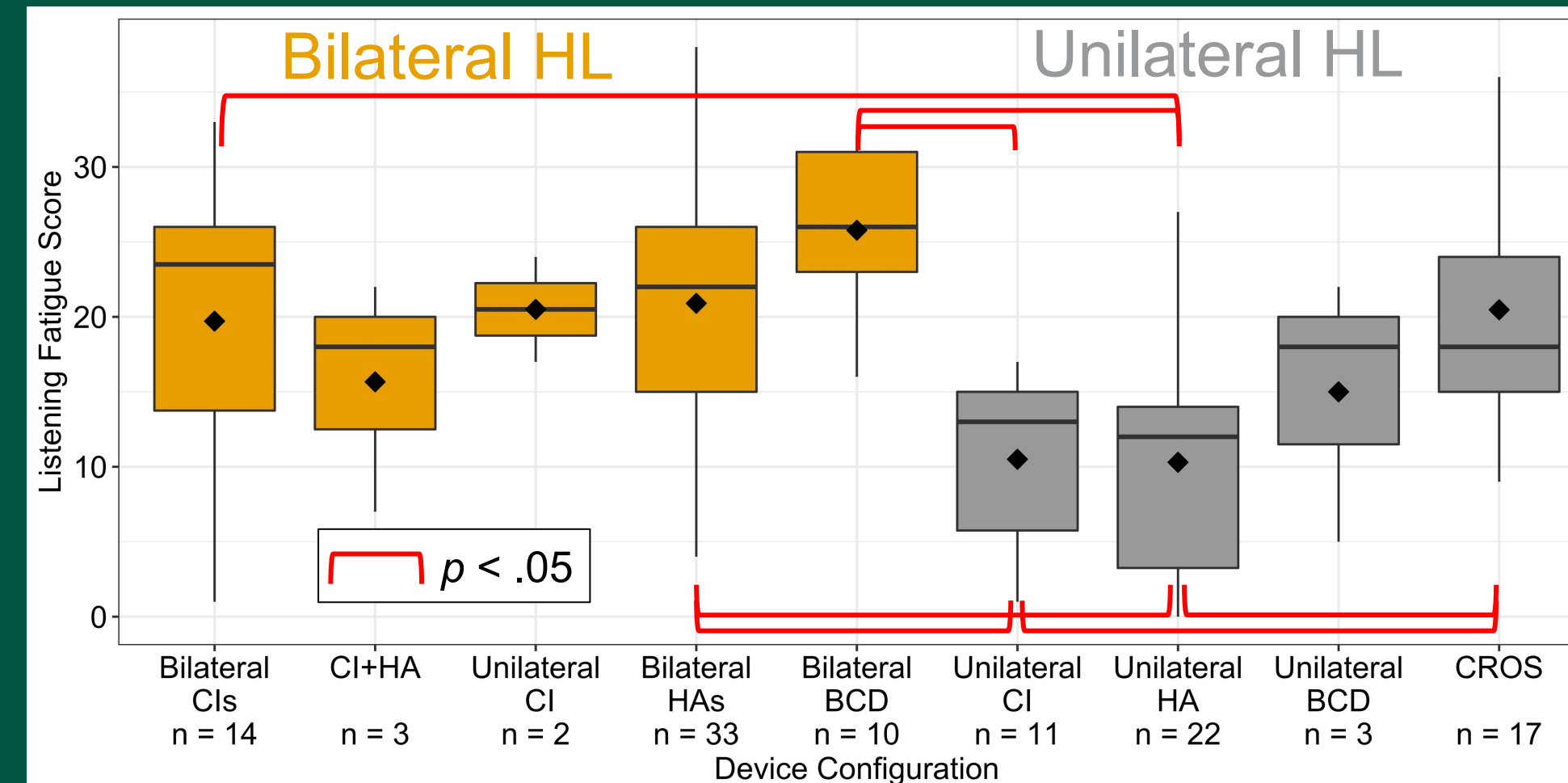
- Qualtrics survey administered via social media to adolescents ages 11 to 18 years with any degree of HL, unilaterally or bilaterally
- Participants included 116 adolescents in 5th through 12th grade (mean age = 15.2 years)
- Participants provided information about use of hearing devices, school setting, and extent to which they use the following school accommodations on a scale from 0 (never) to 4 (always): *remote microphone, closed captioning, preferential seating, ASL interpreter, live transcription, note taker, and extended test time*
- Overall amount of school accommodation use was collapsed into one School Accommodations Score (higher score = more use of accommodations)
- Listening fatigue was quantified using the Vanderbilt Fatigue Scale-Child (Bess et al., 2020)

RESULTS

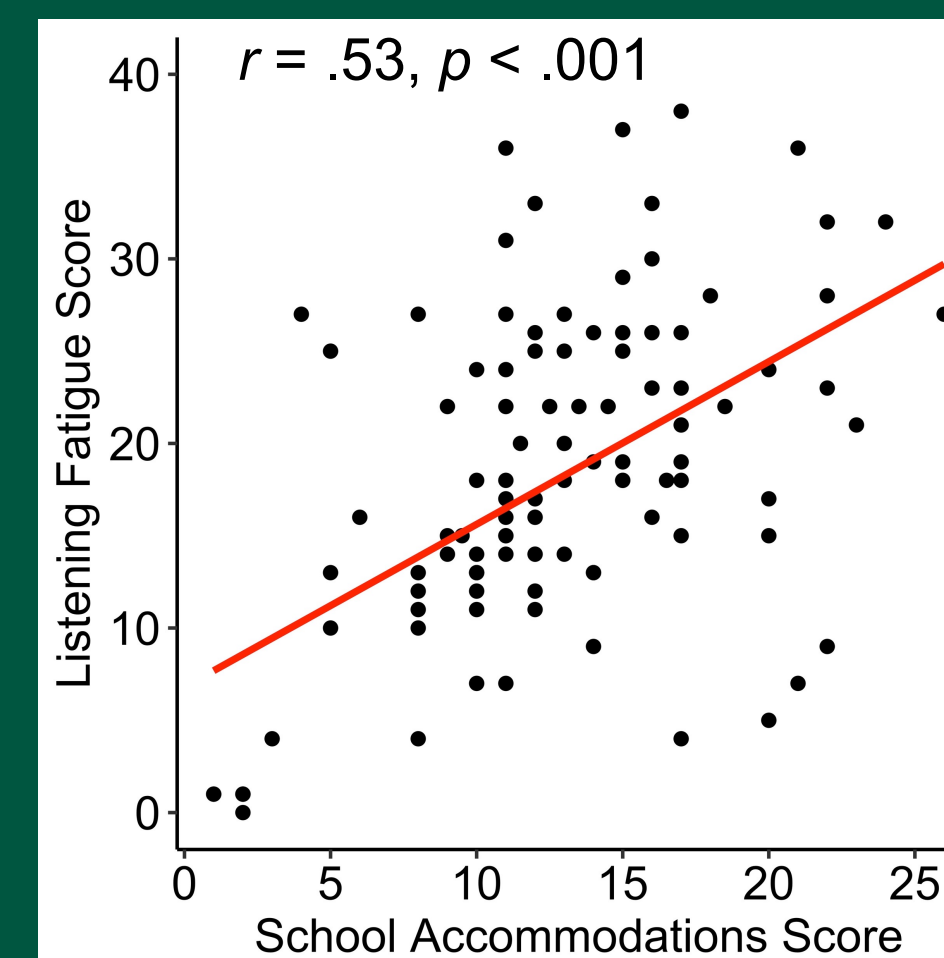


No significant difference in listening fatigue between adolescents taking classes in-person, online, or a hybrid format ($p = .42$).

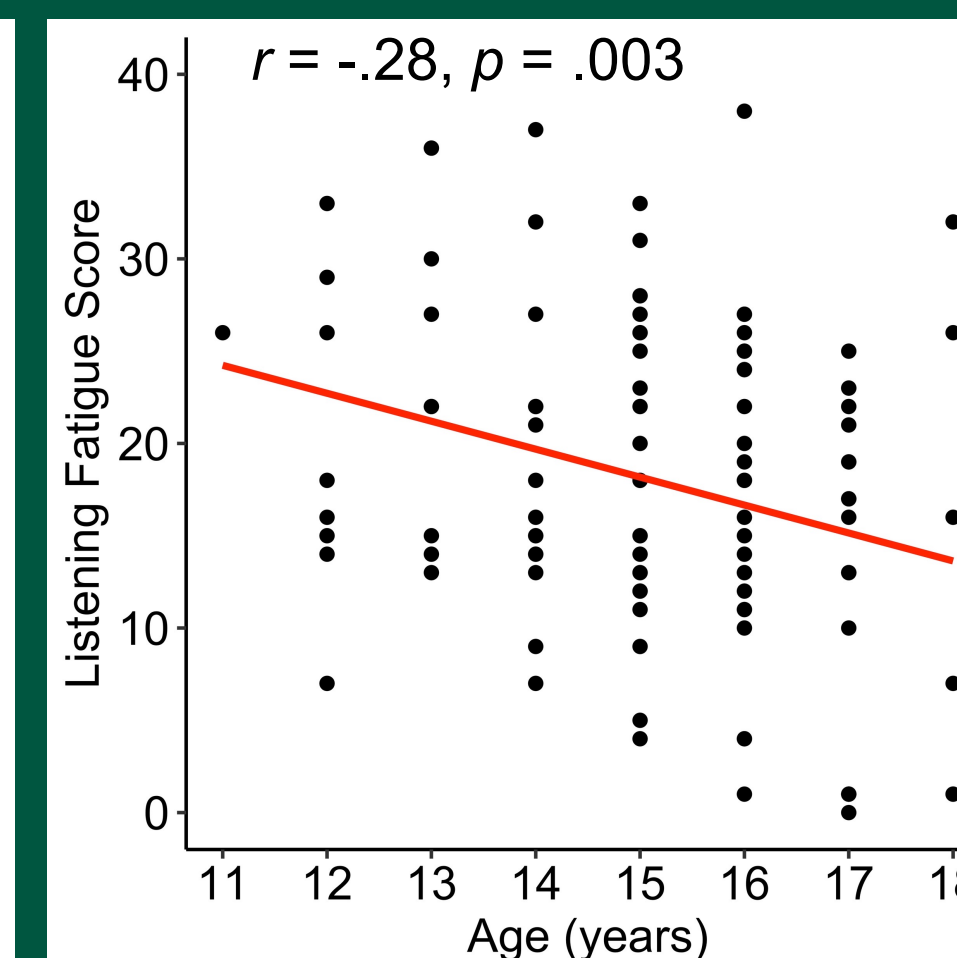
RESULTS, CONT.



- Listening fatigue differed significantly based on device configuration.
- In general, those with unilateral HL and hearing aids (HAs) or cochlear implants (CIs) had lower listening fatigue than those with bilateral HAs, CIs, or bone conduction devices (BCDs).
- Among adolescents with unilateral HL, CROS users had higher listening fatigue than HA or CI users.



Adolescents who used school accommodations more tended to have higher listening fatigue.



Older adolescents tended to have lower listening fatigue than younger adolescents.

CONCLUSIONS

- Adolescents who experience greater listening fatigue may be more prone to utilizing school accommodations, but these accommodations do not necessarily alleviate listening fatigue.
- Adolescents with unilateral HL generally report lower listening fatigue than those with bilateral HL (see also Sindhar et al., 2021).
- HA users experience similar listening fatigue as CI users, despite having presumably milder HL.
- Audiologists should be aware of the listening difficulties experienced by adolescents with all degrees of hearing loss, even when substantial classroom support is available.

REFERENCES

Bess, F. H., Davis, H., Camarata, S., & Hornsby, B. W. Y. (2020). Listening-related fatigue in children with unilateral hearing loss. *Language, Speech, and Hearing Services in Schools, 51*(1), 84-97.

Davis, H., Schlundt, D., Bonnet, K., Camarata, S., Hornsby, B., & Bess, F. H. (2021). Listening-related fatigue in children with hearing loss: Perspectives of children, parents, and school professionals. *American Journal of Audiology, 30*, 929-940.

Hornsby, B. W. Y., Gustafson, S. J., Lancaster, H., Cho, S.-J., Camarata, S., & Bess, F. H. (2017). Subjective fatigue in children with hearing loss assessed using self- and parent-proxy report. *American Journal of Audiology, 26*, 393-407.

Sindhar, S., Friesen, T. L., Carpenter, D., Kesser, B., & Lieu, J. E. C. (2021). Fatigue in children with unilateral and bilateral hearing loss. *Otology & Neurotology*.

CONTACT

Lauren Harris: larmstr7@uthsc.edu
Kelsey Klein: kklein11@uthsc.edu



LISTENING AND LANGUAGE IN CHILDREN