

Effectiveness and Feasibility of an Ototoxicity Screening Protocol in a Head and Neck Cancer Survivorship Clinic

David S. Lee MD MSCI, Lauren Mueller MD, Melissa Portell PA-C, Sidharth V. Puram MD PhD FACS, Katrina S. McClannahan AuD PhD

Introduction

- Cisplatin-based chemoradiation therapy causes irreversible ototoxicity in 40-80% of treated patients
- AHNS survivorship consensus statement suggests post-treatment audiograms at 3 months and yearly for up to 2 years to detect ototoxicity
- Yet less than 10% of Head and Neck (H&N) cancer survivors receive audiograms after 6 months
- We explored whether a tablet-based point-of-care screening protocol implemented in H&N Survivorship Clinic increased audiologic follow-up

Methods

- Non-randomized single-arm study investigated the effectiveness and feasibility of an ototoxicity screening protocol (**Figure 1**) among survivors of H&N cancer treated with radiation +/- cisplatin in survivorship clinic
- Primary outcome: audiologic follow-up at 6 months
- Secondary outcomes: implementation outcomes, UW-QOL and SESMQ patient-reported outcome measures

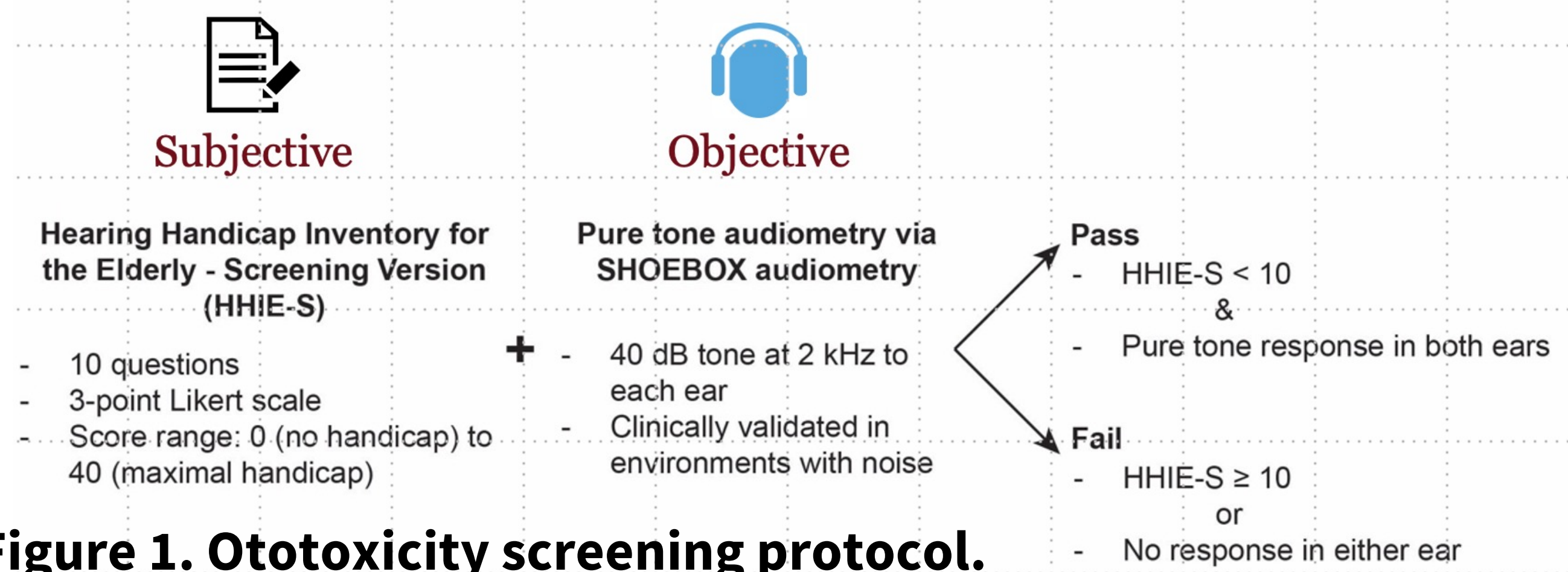


Figure 1. Ototoxicity screening protocol.

Results

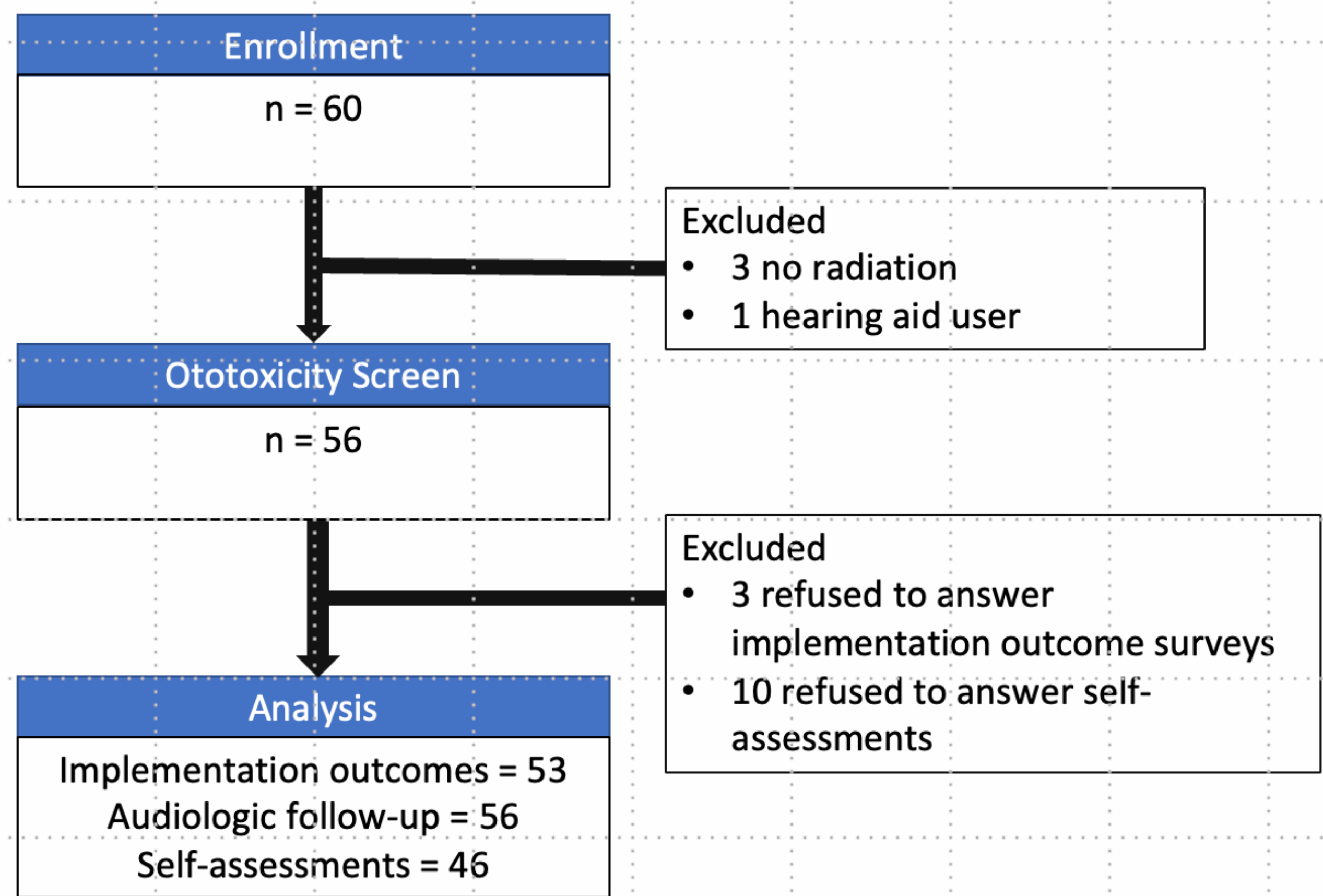


Figure 2. Consort diagram.

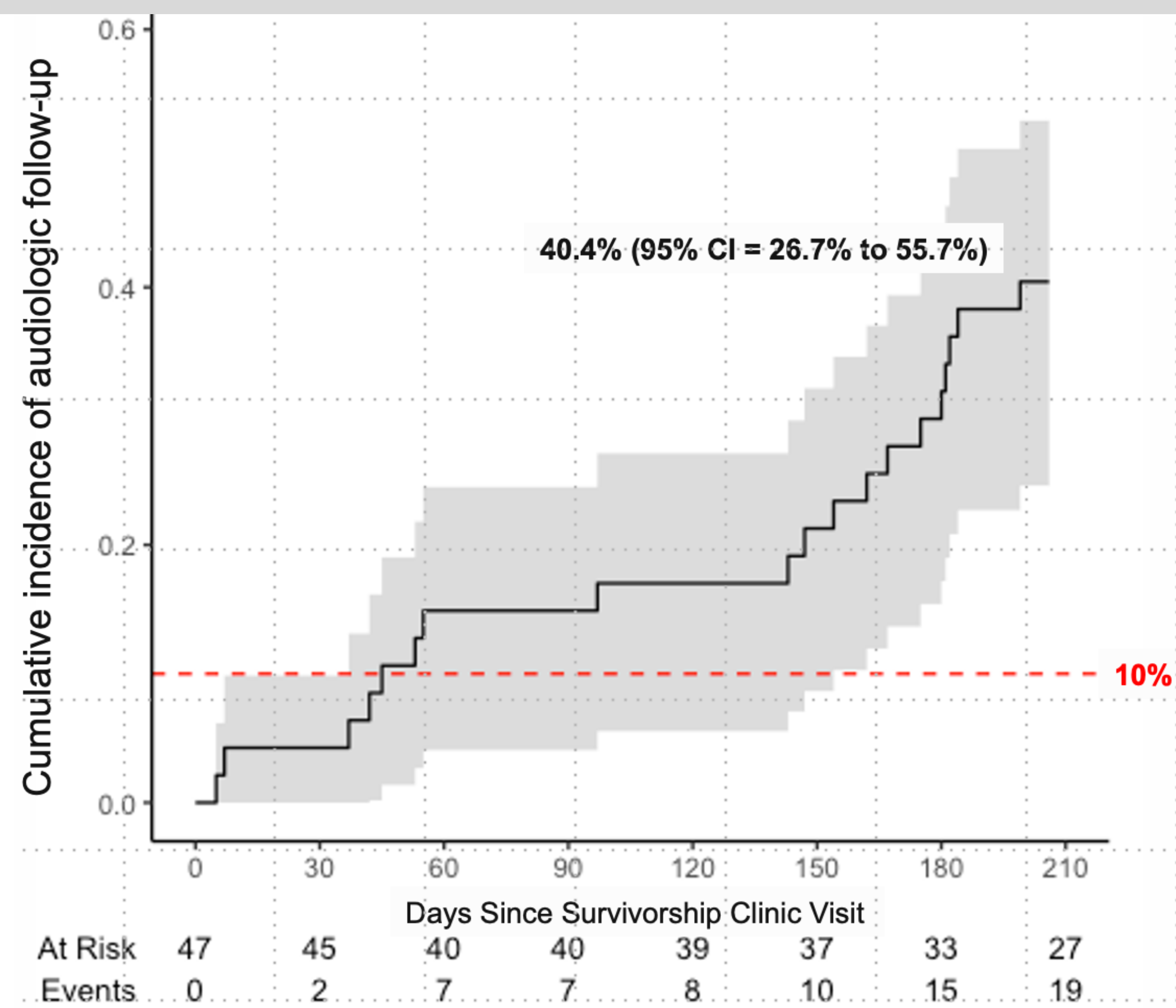


Figure 3. Cumulative incidence of audiologic follow-up.

Total cohort demonstrated increase rate of audiologic follow-up at 40.4% (95% confidence interval = 26.7% to 55.7%) compared to a historical rate of 10%.

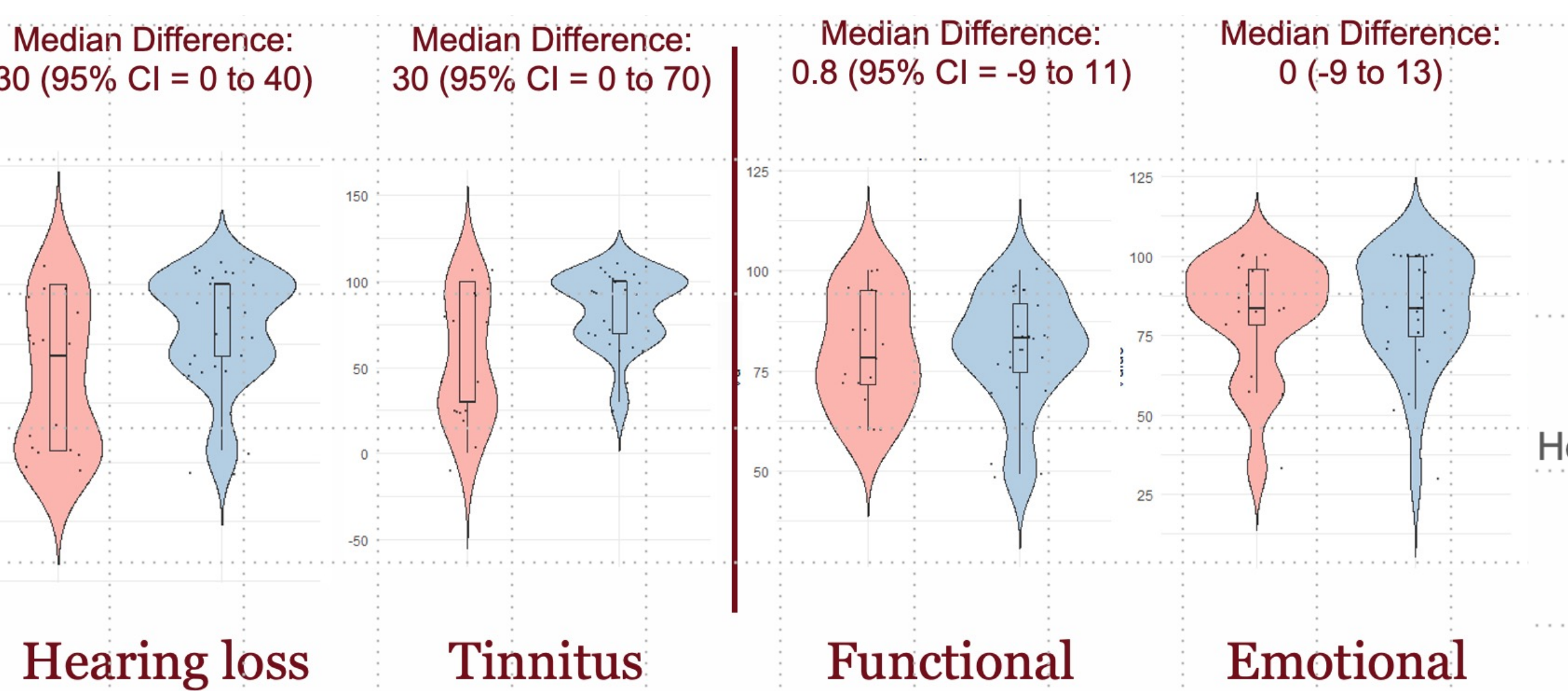


Figure 4. UW-QOL and SESMQ patient-reported outcomes.

Patients who failed the screening test (red group) demonstrated worse patient-reported outcomes for hearing loss and tinnitus, but not functional and emotional outcomes, than those who passed the screening test (blue group).

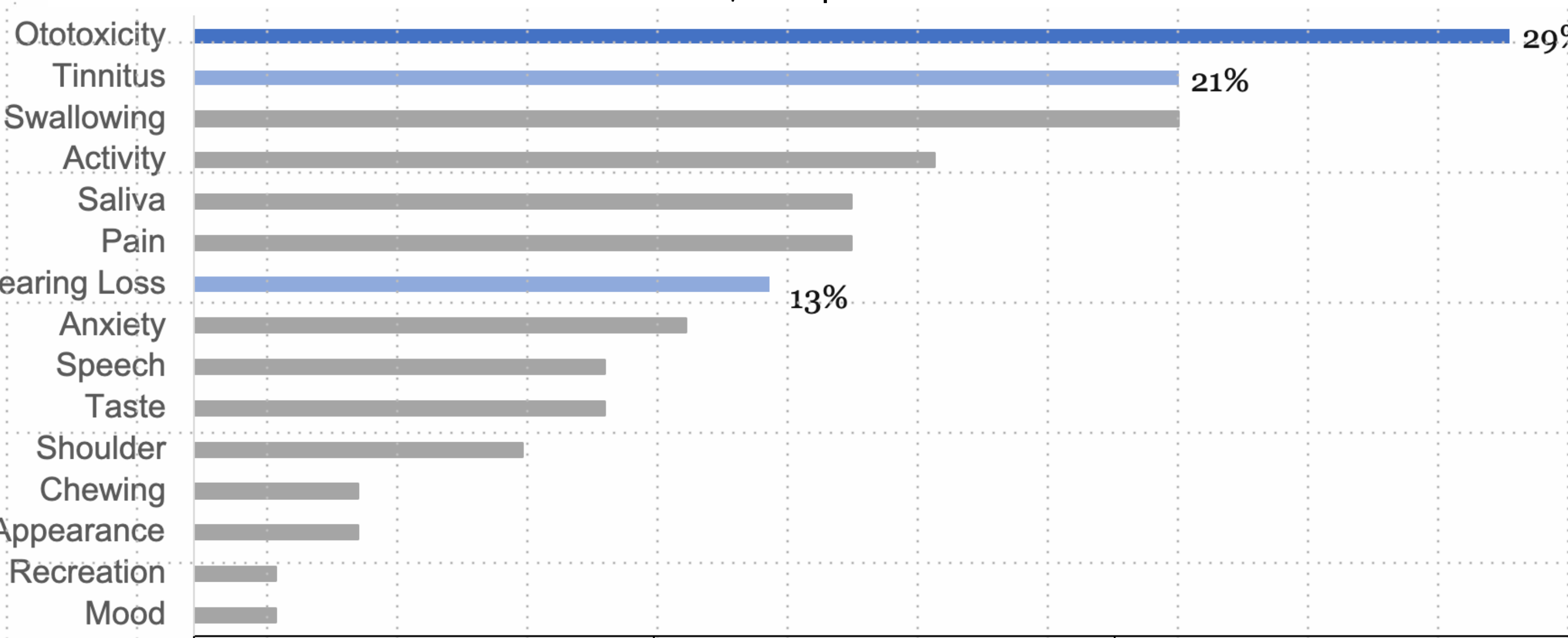


Figure 5. Most important toxicity among H&N cancer survivors.

Ototoxicity, defined as tinnitus and/or hearing loss, was the most prevalent late toxicity that patients considered important.

Conclusions

- Our screening protocol implemented within a H&N cancer survivorship clinic may improve audiologic follow-up in this patient population
- Ototoxicity is the most prevalent late and long-term side effect of radiation +/- cisplatin therapy
- Thoughtful integration of ototoxicity screening protocols will likely undergo an evolution as head and neck systemic therapy continues to develop

Limitations

- No comparator group
- Lack of patient perspectives on barriers to audiologic follow-up

References

Breglio AM et al. Cisplatin is retained in the cochlea indefinitely following chemotherapy. *Nat Commun.* Nov 21 2017;8(1):1654.

Paken J et al. Cisplatin-Associated Ototoxicity: A Review for the Health Professional. *J Toxicol.* 2016;2016:1809394.

Goyal N et al. Head and neck cancer survivorship consensus statement from the American Head and Neck Society. *Laryngoscope Investig Otolaryngol.* Feb 2022;7(1):70-92.

Lee DS et al. Audiologic Follow-up in Patients With Head and Neck Cancer Treated With Cisplatin and Radiation. *Laryngoscope.* Mar 30 2023.