Generation and initial validation of the multi-attribute utility function for a novel Hearing attribute for the Health Utilities Index, Mark 3

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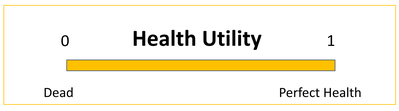
Introduction

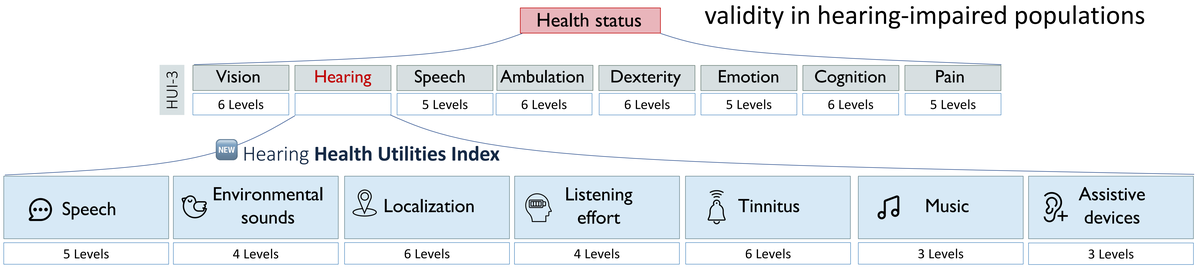


× years spent in health state
= Quality-Adjusted Life-Years

Clinical outcome measure

Cost effectiveness analyses

- Existing utility instruments are designed for generic use and fail to capture clinically important differences in hearing states
  - If real benefit is unmeasured, cost-effectiveness conclusions can result in inappropriate withholding of payment for beneficial interventions
  - We re-designed the HUI-3 'Hearing' attribute to improve responsiveness and validity in hearing-impaired populations



Methods

Valuation interviews with a sample of the adult population of Ontario from Jan 2020 - Feb 2022

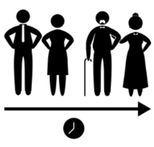
→ Standard gamble and visual analog scale valuations for perfect hearing, most disabled, no hearing, and three intermediate states

→ Respondents randomly assigned to value two sub-attributes and perform valuation exercises for each level of sub-attribute of interest

→ A multi-sub-attribute utility function was fit with a multiplicative functional form according to methods for the HUI-3

→ Hearing utility estimates derived from the original HUI-3 were compared to those derived from the novel HUI-Hearing

Results



n = 126

Mean age 39
(range 18-85 years)

56% female

Overall health

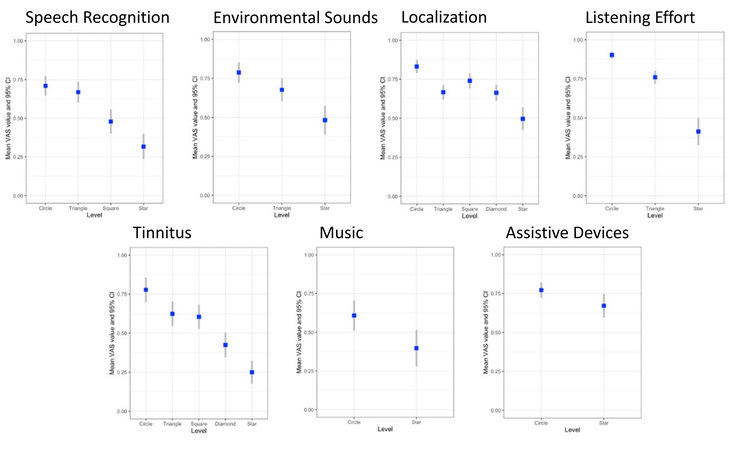
Excellent → Good: 94%
Moderate → Poor: 6%

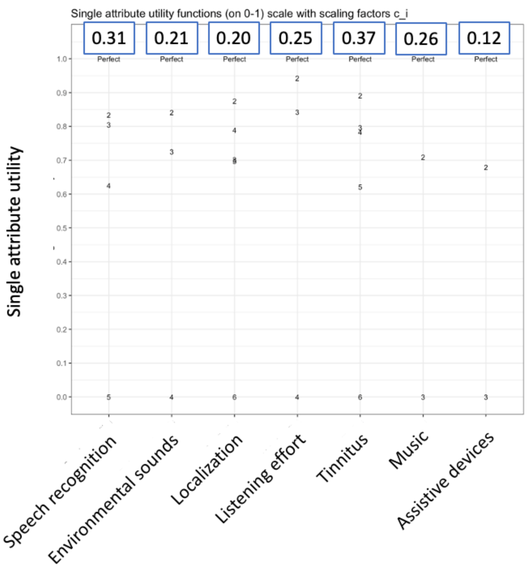
Hearing health

No hearing loss: 82%
Some hearing loss, no device: 11%
Regular use of assistive device: 7%

Among patients with HUI-3 derived single attribute hearing utility of 1.0 (no hearing disability measured), mean HUI-Hearing utility was 0.93 (range 0.50 - 1.00)…

Capturing hearing-related disability **not measured by the legacy instrument**





Conclusions

NEW Hearing Attribute for the Health Utilities Index

- Considers 7 domains:
Speech, Environmental Sounds, Localization, Listening effort, Tinnitus, Music, Assistive devices

- Classifies 25,920 unique hearing states
(compared to 6 in the next most comprehensive health utility instrument, the HUI-3)

Improved discrimination and validity for utility measurement in patients with hearing impairment

- Cost-effectiveness studies
- Measuring hearing-related QoL changes in clinical research

theta Collaborative

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