

DEVELOPING A PREFERENCE-BASED-MEASURE FOR CHILDREN WITH HEARING LOSS.

The York-Binaural-Hearing-Related-Quality-of-Life-Youth (YBHRQL-Y)

Sarah Somerset¹, Adam Pedley¹ & Pádraig T. Kitterick²

¹National Institute for Health Research (NIHR) Nottingham Biomedical Research Centre (BRC), Ropewalk House, 113 The Ropewalk, Nottingham, NG1 5DU. ²National Acoustics Laboratories (NAL), 16 University Avenue, Macquarie University, New South Wales, 2109, Australia.

Background

As part of the development for the 'Both Ears Training Package' (BEARS), we need a Quality-of-Life measure that is:

1. Designed for children
2. Specific to hearing loss
3. A preference-based-measure (PBM)

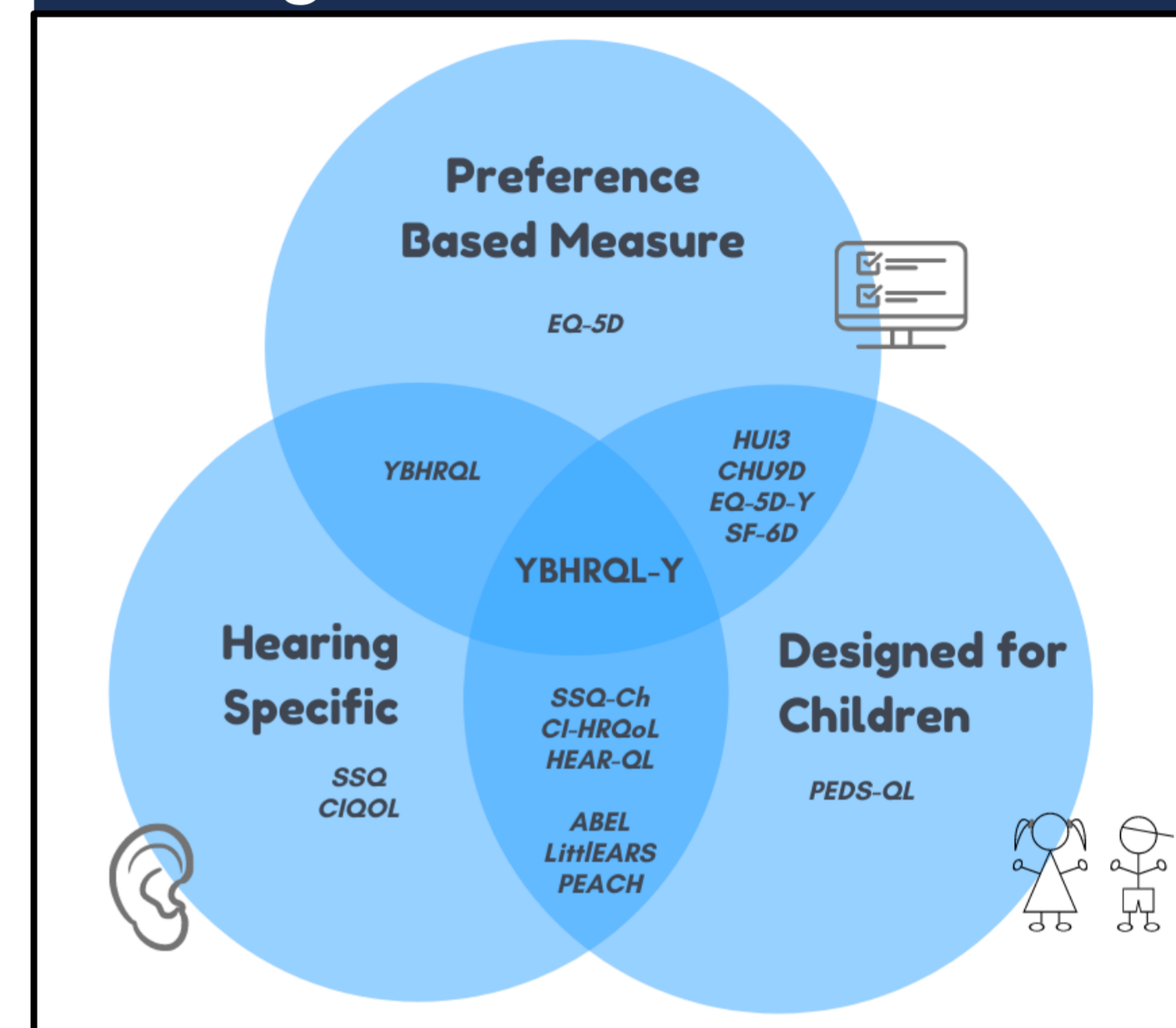
A PBM enables health economists to assess if health care is cost-effective.

No such measure currently exists.

The York-Binaural-Hearing-Related-Quality-of-Life (YBHRQL) by Summerfield, Kitterick and Goman (2022)¹, is a hearing specific PBM for adults. The YBHRQL has three domains, each measured with a single item: speech-perception-in-noise, localization and effort-and-fatigue.

The YBHRQL will be adapted for children to create the York-Binaural-Hearing-Related-Quality-of-Life-Youth (YBHRQL-Y).

Existing Measures



Developing the YBHRQL-Y in 3 stages

1. Adaptation

Two rounds of interviews with 12 young people aged 8 to 16 who have a severe-to-profound hearing loss.

Interview 1: Asked about participant's experience of: speech-perception-in-noise localization and effort-and-fatigue.

Thematic Analysis was used to develop questions for young people based on existing YBHRQL domains.

Interview 2: Participants provided feedback on questions to refine the YBHRQL-Y. Proxy version for parents/guardians also created.

2. Validation and Reproducibility

Reproducibility is assessed by administering the YBHRQL-Y at two time-points to 60 young people (age 8 to 16) who have a severe-to-profound hearing loss.

Validation of the YBHRQL-Y is assessed by administering the following outcome measures to participants; HUI3², CHU9D³, SSQ-Ch⁴ and VFS-Peds⁵.

Statistical analysis of responses will assess validity and reproducibility.

3. Health-Utility Calculation

To develop health-utility values, the Time-Trade-Off method is used with 150 young adults (aged 18 to 24).

This method asks participants to imagine themselves with the hearing loss described in the YBHRQL-Y and 10 years left of life. Participants then indicate how many years of life they would trade to obtain perfect hearing.

These responses are converted to health-utility values for use in economic evaluation.

References: [1] Summerfield, A. Q., Kitterick, P. T., & Goman, A. M. (2022). Development and Critical Evaluation of a Condition-Specific Preference-Based Measure Sensitive to Binaural Hearing in Adults: The York Binaural Hearing-Related Quality-of-Life System. *Ear and Hearing*, 43(2), 379-397. [2] Furlong, W., Feeny, D., Torrance, G., Goldsmith, C., DePauw, S., Zhu, Z., & Boyle, M. (1998). Multiplicative multi-attribute utility function for the Health Utilities Index Mark 3 (HUI3) system: a technical report (No. 1998-11). *Centre for Health Economics and Policy Analysis (CHEPA)*, McMaster University, Hamilton, Canada. [3] Stevens (2012). Valuation of the Child Health Utility 9D Index. *Pharmacoeconomics*, 30(8), 729-747. [4] Galvin, K. L., & Noble, W. (2013). Adaptation of the speech, spatial, and qualities of hearing scale for use with children, parents, and teachers. *Cochlear implants international*, 14(3), 135-141. [5] Hornsby, B. W. Y., Camarata, S., Cho, S. J., Davis, H., McGarrigle, R., & Bess, F. H. (2022). Development and Evaluation of Pediatric Versions of the Vanderbilt Fatigue Scale (VFS-Peds) for Children with Hearing Loss.