Empowering Adults to Manage Their Hearing Problems and How Audiologists Can Help

Larry E. Humes
Distinguished Professor Emeritus
Department of Speech & Hearing Sciences
Outline of Today’s Talk

• Status of Hearing Healthcare (HHC) in US
  • Prevalence of Hearing Loss
  • Prevalence of Self-Reported Hearing Trouble
  • Prevalence of Hearing-Aid Uptake and Use
  • Unmet HHC Needs

• Why High Prevalence of Unmet Needs?
  • Diagnosis: Relies Heavily on Pure-tone Thresholds and Case History
  • HHC Professionals as “Gate Keepers” to Treatment
  • Treatment: Hearing Aid Use by Adults

• Self-Driven Approach to Auditory Wellness
  • Focus on Function, WHO-ICF
  • Relies on Self-Report or Self-Assessment for Candidacy
  • Treatment: Self-Fitting Hearing Aids, PSAPs, and OTC Hearing Aids
Specifying Hearing Loss: the World Health Organization’s (WHO) Hearing Impairment Grading System

THIS is only audiogram NOT labeled “normal” by WHO (“mild”)

Categories Apply to PTA4 in the Better Ear
Prevalence of Hearing Loss in US Adults

In US, ~78% of males and ~83% of females have WHO-defined “normal hearing”
Prevalence of Hearing Loss in US Adults—by age decade
Self-Report Measures of Trouble Hearing

Which statement best describes your hearing (without a hearing aid or other listening device)?

Would you say that your hearing is excellent, good, that you have a little trouble, moderate trouble, a lot of trouble, or are deaf?

In US, ~74% of males and ~79% of females reported hearing to be “excellent” or “good”
Trouble Hearing by Age Decade: Same Trends as Found for PTA4
Self-Report Measures of Trouble Hearing

Total
N=8,793

“No Trouble” or “0”
“Trouble” or “1”

General Condition of Hearing
Prevalence of WHO-HI Grades in US Adults

WHO-HI Grade
(Better-Ear PTA4 in dB HL)

“Normal” or “0”
“Impaired” or “1”

Total
N=8,795
Prevalence of Hearing Loss and Trouble Hearing in US Adults

NHANES 2011-12, 2015-16, & 2017-20
Better-Ear PTA4 >= 20 dB HL
N=8,793

NHANES 2011-12, 2015-16 & 2017-20
Trouble Hearing
N=8,793
Prevalence of Hearing Aid Use in Older Adults

NHANES

NHANES 2011-12, 2015-16 & 2017-20
N=8,795
Unmet Need for Hearing Healthcare (HHC)-NHANES

Unmet Need = Percentage of those with Trouble Hearing who are not Current HA users
Prevalence of Unmet HHC Need

Overall, High Unmet HHC Need or Poor Device Uptake: Lots of Room for Improvement!

~80%

~85%

Percent of Group Overall, High Unmet HHC Need or Poor Device Uptake: Lots of Room for Improvement!
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Why are unmet HHC needs so high?

- At least three MAIN factors:
  1. Prevailing HHC system is very required intervention by HHC professionals;
  2. Requirement for an audiogram to determine candidacy for hearing aids as well as to program them; and
  3. Cost of hearing aids
  4. Other factors....
One barrier is need for a hearing test:
Last Time Hearing Tested by HHC Professional?

“Hearing test by a specialist is one that is done in a sound-proof booth or room, or with headphones. Hearing specialists include audiologists, ear nose and throat doctors, and trained technicians or occupational nurses.”

NHANES 2011-12, 2015-16 & 2017-18
N=9,769

~2/3
> 10+ years!
Another Barrier: “Lost to Follow-Up” after Hearing Test

10-15% who failed screen are successful HA users
Unmet HHC Needs

• There are many barriers to acquiring hearing aids in the prevailing HHC system

• Cost is just one factor limiting access

• Need to make it possible for the adult to conveniently determine his or her candidacy, as well as to select and fit the device
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A POTENTIAL Solution: Empower the Adult to Manage Their Own HHC

• Self-reported hearing difficulties...
  • are reliable and valid measures
  • are the primary driver for hearing-aid uptake and use
  • can replace the need for the audiogram in the vast majority of adults
Audiogram is just one piece of the puzzle.

Self-Report CAN capture all of this.
Perceived Hearing Trouble is Moderately Correlated with PTA4

“Trouble Hearing”, or other Self-Report measure, captures “bodily impairment” plus more.
Over The Counter Hearing Aid Act

(A) IN GENERAL.—In this subsection, the term ‘over-the-counter hearing aid’ means a device that—

’(i) uses the same fundamental scientific technology as air conduction hearing aids (as defined in section 874.3300 of title 21, Code of Federal Regulations) (or any successor regulation) or wireless air conduction hearing aids (as defined in section 874.3305 of title 21, Code of Federal Regulations) (or any successor regulation);

’(ii) is intended to be used by adults age 18 and older to compensate for perceived mild to moderate hearing impairment;

’(iii) through tools, tests, or software, allows the user to control the over-the-counter hearing aid and customize it to the user’s hearing needs;

’(iv) may—‘(I) use wireless technology; or ‘(II) include tests for self-assessment of hearing loss; and

’(v) is available over-the-counter, without the supervision, prescription, or other order, involvement, or intervention of a licensed person, to consumers through in-person transactions, by mail, or online.

“…is intended to be used … to compensate for perceived mild to moderate hearing impairment…”

Self-Report or PERCEIVED hearing difficulties represent the primary criterion for candidacy for OTC hearing aids (and this is NOT a bad thing!)

“…may—include tests for self-assessment of hearing loss;”
Self-report Alternatives to Pure-Tone Audiometry for Defining Auditory Wellness in Older Adults

• Long history of recognizing the importance of self-report to go beyond the audiogram in older adults

• Hearing Handicap Inventory for the Elderly, HHIE (Ventry & Weinstein, 1982, 1983; Weinstein & Ventry, 1983) most thoroughly studied
  • Full 25-item HHIE with Social and Emotional Subscales—**HHIE Total**
  • Brief 10-item screener, **HHIE-S**

**HHIE scores are the most common self-report scores reported in large-scale studies.**
Once the adult self-identifies a hearing problem, what next? What do we know about next steps?

BUT many of these people report trouble hearing and are likely candidates for OTC Hearing Aids.

We know very little about these people!

MOST of what we “know” about HA Candidacy, Fitting, & Outcomes is from the study of these people: Moderate or Mild/Mod WHO SEEK HELP.
EXAMPLE: Development of NAL-NL2 (Keidser et al., 2012)

Need to rethink what a “hearing aid” is for those with trouble hearing and Normal/Mild Hearing Loss

Same true for DSL v5 (Scollie et al., 2005)
Can Adults with Trouble Hearing Select and Fit their Own Hearing Aids Successfully?

- YES!!!!

- “Consumer Decides (CD)” or “Try and Select” method
  - Humes et al. (2017), “ABCD RCT” *Amer J Audiol*
  - Humes et al. (2019), “CD2 RCT” *Amer J Audiol*
  - Urbanski et al. (2021), *Amer J Audiol*

- Other Self-Fit Methods (“Explore and Select”)
  - Nelson et al. (2018) and RCT by Sabin et al. (2020), both in *Trends in Hearing*
  - “Goldilocks” method, Mackersie, Boothroyd, et al. (2019-2022), in *Ear & Hearing, Trends in Hearing*
Little difference in benefit…

… between AB (top) and CD (bottom)

… among WHO-HI grades of “normal”, “mild” or “moderate” (left to right)

and ALL show significant benefit
“Consumer Decides” (CD) Self-Fit Method

At end of 6-week trial, 55-65% of Self-Fit CD participants indicated that they were LIKELY to keep their HA.
Prevalence of Unmet HHC Need

The POTENTIAL to cut UNMET NEED by 50-60%!
If CD have positive outcomes, about the same as AB, why many fewer likely to keep HA?
Hearing-Aid Fitting Self-Efficacy is Critical

The confidence in their hearing aid fit expressed by 40 consumer-decides self-fit participants grouped according to whether they were likely to keep their hearing aids (“Yes”; N=20; blue bars) or were not likely to keep them (N=18) or were undecided (N=2). The latter two groups were combined into the “No” group (red bars).

Those with low confidence in self-fit less likely to keep HA
How Audiologists Can Help—one scenario

- Open an OTC “kiosk” in your practice—can be physical site or online site
- Let them select and fit their own devices—no support included
- When finished and ready to purchase devices, offer variety of packages of support with purchase
  - devices only
  - devices + extended warranty
  - devices + X hours of assistance (virtual or in-person)
- If audiologist is involved in device delivery, more likely to come to you for follow-up, including when hearing loss worsens and OTC no longer adequate
Follow-Up Clinical Trial (CD2):
Improved fits and Outcomes Possible with AB after OTC

Follow-up AB (V4) outcomes superior to those after 6-wk CD trial (V2)
Conclusions

• It is time to move to a self-empowered “auditory wellness” model to maintain good auditory function across the adult lifespan

• Adults with perceived trouble hearing have been empowered to pursue solutions to their problems (OTC HA) without the involvement of HHC professionals

• When doing so, positive outcomes are possible if not probable, but the infrastructure to support the adult within this pathway is currently lacking—audiologists can help here!