Subjective Comprehensibility and Accentedness Ratings of Foreign-Accented Speech by Older and Younger Adults

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Backgroud
- It is estimated that as many as 2,000,000 elders will require long-term care by 2030.
- Long-term care settings include numerous conditions that act as barriers to successful communication:
  - Listeners who have hearing loss
  - Environments featuring background noise
  - Talkers who speak with a foreign accent
- Certified nursing assistants provide the majority of direct care in the long-term care setting.
- In 2005, 20% of certified nursing assistants were foreign-born.
- Anecdotal evidence suggests that the proportion of staff who speak with a foreign accent varies widely among facilities as well as regions of the country.
- In four studies (Burda et al. 2003, Shah et al. 2005, Ferguson et al. in press),
  • four female caregivers
  • short phrases and sentences
  • lapel microphone recordings
  • certified nursing assistants
  • four stimuli
  • presented monaurally via insert earphones at 70 dB SPL.
  • listeners rated each utterance by clicking one of seven boxes

Materials
- Short phrases and sentences extracted from lapel microphone recordings of talker's foreign accent.
- Measures of native-produced and foreign-accented speech: comprehensibility and accentedness.

Listeners
- Native speakers of American English with no history of speech or language disorders
- YNH listeners, (n=10): Adults aged 18-26 years who passed a hearing screening at 20 dB HL for 250-8000 Hz.
- EHI listeners, (n=10): Adults aged 65-85 years with mild-to-moderate sloping sensorineural hearing loss (see mean audiogram below)
- Listeners were randomly assigned to perform either comprehensibility or accentedness ratings

Procedures
- Utterances were presented monaurally via insert earphones at 70 dB SPL.
- Listeners rated each utterance by clicking one of seven boxes
- Listeners were familiarized with test procedures using 20 items produced by the same talkers but not used in the main text block
- The 80 test utterances were presented in random order in a single test block

Results and Discussion
- For each talker, average comprehensibility and accentedness ratings were calculated for each listener by averaging across the 20 utterances. Average ratings were then submitted to a two-way repeated-measures ANOVA with one within-subjects factor (talker group, native or non-native) and one between-subjects factor (listener group).

Conclusions
- The relationship between the measured intelligibility of foreign-accented speech and listeners' subjective ratings of this speech may vary among listener groups differing in hearing status and/or age.
- As the elderly and immigrant populations grow, older adults can be expected to come into increasing contact with non-native English speakers, particularly in healthcare settings. It is thus essential that audiologists and others understand how older adults are affected by foreign-accented speech and how negative effects may be ameliorated.
- Avenues for future research include:
  - Exploring the degree to which factors such as background noise, amplification, the presence of visual cues, and talker English proficiency moderate the impact of foreign accent on older adults’ speech understanding.
  - Determining whether the rapid adaptation to foreign accent observed in younger adults also occurs in older adults.

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References

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