

Self-Reported Hearing Difficulties, Driving Safety, and Auditory Attention

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Introduction

- Driving often involves complex situations and distractions.
 - Cognitive processes such as attention and inhibition needed for safe driving can be negatively impacted by hearing loss.^{1,2}
- Previous studies indicate that people with hearing loss perform more poorly when driving with distractions compared to people with normal hearing.^{3,4}
- People with self-reported hearing difficulty (HD) may also have more difficulty driving than people without self-reported hearing difficulty (Control group).
 - HD: may use fewer compensation mechanisms⁶
- Purpose of the current study:** To compare perceptions of driving safety and auditory attention in drivers with and without HD.

Methods

38-Item Questionnaire

- Demographic information (7-items)
- Hearing Handicap Inventory for Adults/for the Elderly—Screening version (HHI)^{7,5} (10-items)
- Hearing and understanding auditory stimuli while driving (10-items)
- Self-perceived driving ability (11-items)

148 Total Respondents

- 71 with HD ($\text{HHI} \geq 10$), 21-77 (mean = 47.1) years of age
- 77 without HD ($\text{HHI} < 10$), 20-85 (mean = 40.9) years of age (Control group)

Understanding Auditory Stimuli While Driving

Results were collapsed across the following response options:

'all of the time', 'most of the time', 'about half of the time', and 'some of the time'.

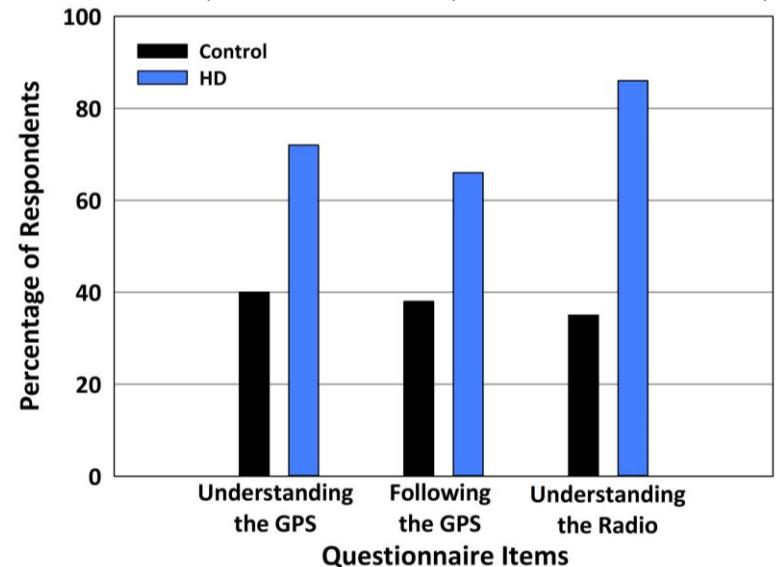


Figure 1. Percentage of respondents reporting difficulty understanding the GPS or radio while driving "All of the Time" to "Some of the Time". HD respondents reported difficulty **significantly more often** than the Control respondents ($p < .05$).

Hearing Auditory Stimuli While Driving

Results were collapsed across the following response options:

'very difficult' and 'difficult'.

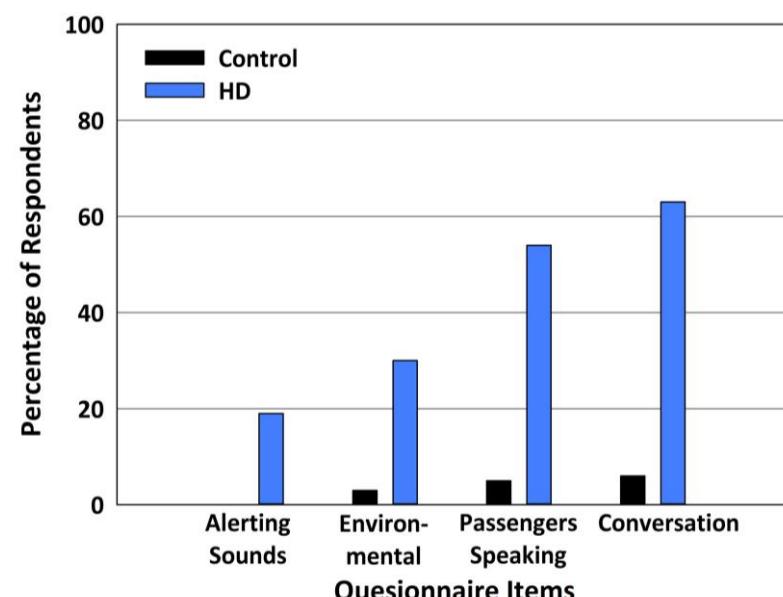


Figure 2. Percentage of respondents reporting "Difficult" to "Very Difficult" degrees of hearing while driving. HD respondents reported having **significantly more difficulty** than the Control respondents ($p < .05$).

Perception of Driving Safety

Feeling Unsafe While Driving

- 28%** of HD versus **3%** of Control
- Due to inability to localize and/or hear environmental sounds (e.g., sirens, honking, etc.)

Improved Driving with Hearing Aids

- 63%** of hearing aid users
- Due to improved audibility of passengers and environmental sounds, and improved localization

Conclusions

- Drivers with HD may experience greater cognitive load in the presence of auditory distractions.
- Use of hearing aids can improve perceived driving safety due to increased access to environmental sounds.
- Asking patients about their driving can lead to recommendations for audiology rehabilitation.
- Possible assistive technology could include remote microphones and tactile GPS systems.⁸

References

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