



Hearing Aids for Music

Exploring the music listening behaviour of people with hearing impairments



Complexities of listening to music with hearing aids

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Background and aims

- Hearing aids (HAs) are designed to amplify speech however the acoustic properties of speech and music differ e.g. frequency and dynamic range, crest factors (Chasin & Hockley, 2014)
- HAs aid music listening however evidence suggests that users may experience distortion, acoustic feedback, sudden dynamic variations and low fidelity (Madsen & Moore, 2014)
- The HAFM project is a large-scale investigation of how hearing impairments and the use of hearing aid (HA) technology enables and affects music listening behaviour

STUDY 1

CLINIC QUESTIONNAIRE

- Aimed to explore the prevalence of music listening problems and discussions with audiologists

Participants

- 176 HA users (mean age 60.56; 78F, 94M)

Results

- Music listening moderately problematic
- Variance in quality of life ratings
- Most HA users had not discussed music listening with their audiologist
- Low outcome ratings for discussions regarding music listening

Live music contexts

- Live contexts frequently problematic
- Dependent on nature of social interactions
- Differences in continued attendance
- Mix of strategies to manage auditory input

“when I go to concerts with a full orchestra, it’s awful if it’s distorted, so I wait for the first loud bit, and adjust the volume to that, so I know I can ride the dynamics.” (M, 73yrs)

Speech and music combined

- Challenges switching between speech and music
- Difficulties hearing words in songs

“I could hear the songs, and pick out the songs, but I couldn’t make out what Lady Gaga was saying in between songs” (F, 33yrs)

“the conductor is speaking and it’s suddenly very quiet, and you’ve got suddenly to slot into a different level of attention. You have to work harder at that.” (M, 82yrs)

Implications and future directions

- Managing expectations of the outcomes of using HAs for music
- Flexible approach to fitting HAs for music listening required
- The importance of increasing HA users’ control of auditory input
- Consideration of the management of speech and music
- Results informed design of national survey tinyurl.com/musicandhearingaids

STUDY 2

INTERVIEW STUDY

- Aim to explore how levels of hearing impairment and the use of HAs affect music perception

Participants

- 22 HA users (age range 24-82, mean=62.05)
 - 10 mild, 10 moderate, 2 severe
 - 9 musicians, 13 non-musicians

Data

- In-depth interviews
- Audiometric data

Topics covered

- Nature of hearing loss and its management
 - Musical engagement and training
- Impact of HL and HAs on music appreciation

Study 2 themes so far...

User knowledge of HA technology

- Awareness of functionality of HAs, and potential technologies
- Strategies for enhancing listening experience (esp. volume control)
- Mixed responses about effectiveness of music programs

“Doesn’t it sound silly when you don’t actually know about your HAs.” (M, 46 yrs)

“all these extra things that have been added to improve speech recognition...have nothing to do with music and have actually got in the way” (M, 82 yrs)

Optimising HAs for music

- Conversations predominantly initiated by HA user
- Mixed responses about the outcomes of discussions

“he played me music and asked me to bring my guitar into clinic, I sat and played and I described while he was tuning the HA.” (M, 73yrs)

“he reckons he’s done all he can” (M, 64yrs)

STUDY 3

NATIONAL SURVEY

- Online survey explore trends in listening behaviour of HA users in the general population

Participants

- Inclusion criteria: confirmed hearing loss; uses HAs (incl. BAHA) for min. 1hr per day; Age 18-90

Survey topics

- Hearing, type of HAs, musical preferences, musical training and engagement, experiences listening in different settings

Currently live

- www.tinyurl.com/musicandhearingaids
- BSL interpretation provided

Acclimatisation

- Recognition that HAs are not fully corrective
- Adjusting to a different auditory stimulus in a variety of acoustic environments

“I refuse to have a problem, I hear it in a different way, but if I like it, I will still carry on” (F, 71yrs)

“the brain adjusts to what the hearing aids provide ... you get used to it ... I’ve accepted, that is what those notes do now. It’s tough, you know.” (M, 67yrs)

Recorded music contexts

- More sustained engagement with recorded music
 - Affords greater levels of control (e.g. volume adjustments, mode of delivery)
- “it tends to be much more recorded music I deal with” (F, 78yrs)*

I will adjust the volume to get a comfortable level, I think you would do that without hearing aids...it’s not the hearing aids ...it’s just too loud” (M, 30yrs)

