AUDIOLOGIC CARE FOR CLIENTS WITH MULTIPLE MEDICAL COMORBIDITIES: MODIFICATIONS TO CLINICAL PRACTICE AND INCLUSION OF FAMILY MEMBERS AND CAREGIVERS

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1 Introduction

Older adults seeking treatment for hearing loss often experience problems in daily listening and communication situations. These self-reports illustrate the negative effects of hearing loss on everyday activities, and the importance of considering a client's typical listening environments when creating a rehabilitation plan.

Hearing impairment is the third most common chronic condition in older adults [1], affecting 25%-40% of people aged 65 years and older, and more than 90% of people aged 90 years and older [2,3]. With the aging of the population, it is anticipated that there will be an increasingly larger number of older adults who have hearing impairment.

People may become aware of changes to their hearing in middle age, but the average age of a first-time hearing aid user is 63 years old [4]. Indeed, individuals often wait ten or more years after hearing loss is diagnosed before pursuing treatment [5]. Most people with hearing loss will never seek treatment; only 14% of adults aged 50 years and older use a hearing aid [6]. Even if an individual seeks treatment and obtains a hearing aid, this does not guarantee successful use of their device because care and maintenance can be a barrier to successful use of hearing aids [7].

A number of medical conditions could affect an individual's ability to successfully use and maintain their hearing aids, including vision impairment, manual dexterity issues, and cognitive impairment. Approximately 15% of individuals aged 75 years and older experience vision loss even when using glasses or contact lenses [8]. An individual with vision loss may have difficulty operating and handling their device (e.g., inserting a battery upside-down). Changes to hand or arm function (e.g., osteoporosis, hand osteoarthritis, hand tremor) are also common in older age [9], and can affect the ability to properly insert and remove hearing aids and operate controls. Finally, cognitive impairment affects approximately 7-11% of individuals aged 65 years and older [10], and may make it difficult for a client to pay attention during testing, or to recall the operating instructions for their hearing aids.

Audiologists need to be aware of the special needs of their older clients who have health issues that could negatively affect all aspects of audiologic rehabilitation, including hearing testing, hearing aid evaluation, hearing aid fitting, and check-ups. Audiologists may modify assessment and treatment plans to accommodate health issues, and may include family members and caregivers in rehab planning as part of a family-centered approach to client care [11].

Older adults with sensory and cognitive losses will also have special needs in everyday life and their ability to function can be facilitated or foiled by the properties of the physical environment. The design of spaces to optimize acoustics, lighting, and other features to create supportive environments for communication and navigation will be tremendously important as the population ages.

In the current study, a chart review was conducted in a geriatric audiology clinic to determine: Goal 1: Frequency of medical comorbidities related to vision, manual dexterity, and cognition, as noted by the audiologists; Goal 2: Specific modifications to clinical practice made by the audiologists to accommodate these comorbidities; Goal 3: Level of involvement of family members/friends/caregivers in audiologic rehabilitation.

2 Method

2.1 Participants

This study was conducted in the Audiology Clinic at Baycrest Health Sciences, a geriatric healthcare facility in Toronto. Participants were 136 clients who completed a Hearing Aid Evaluation (HAE) with a clinical audiologist in 2015. The mean age of the participants (61% female) was 86.2 years (*SD* = 7.5). Fifty-six percent of the participants were experienced hearing aid users.

2.2 Data abstraction

Data from each client's Audiology chart were abstracted by a research assistant trained by the project lead (KD). Inter-rater reliability on six charts used for training was > 80%. Data were entered manually from each chart into specially created Medialab (Empirisoft, 2014) programs. All sections of the charts were abstracted; the sections most relevant for the current study include HAE (client's amplification needs, social support, etc.), Hearing Aid Prescription and Fitting (HAF: details about prescribed device(s)), Hearing Aid Check (HAC: information regarding the client's success/challenges with the hearing aid(s)).

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3 Results

3.1 Goal 1

Prevalence rates were 52% (70/136 clients) for visual issues, 38% (52/136) for manual dexterity issues, and 44% (59/136) for cognitive issues. The most common elaborations for each type of issue are shown in Table 1.

Table 1. Examples of most commonly noted comorbid medical issues (with *n*s and % of responses corresponding to that example in brackets)

Visual Issues	Wears glasses/reading glasses (39/50; 78%)
	Macular degeneration (5/50; 10%)
	Cataracts (3/50; 6%)
Manual Dexterity Issues	Arthritis (11/38; 39%)
	Clumsiness (3/38; 8%)
	Tremors (2/38; 5%)
Cognitive Issues	Alzheimer's disease (6/47; 13%)
	Dementia (not otherwise specified) (6/47; 13%)
	Mild cognitive impairment (3/47; 6%)

3.2 Goal 2

The audiologists noted how these medical issues could influence the rehabilitation process at the HAF and HAC appointments. Examples of prescription modifications include using the largest removal cord possible and use of rechargeable aids (to avoid having to deal with replacing batteries). Examples of check modifications or commentary include showing the spouse how to use the client's remote control, re-instructing caregivers on insertion techniques, noting that the daughter changes the client's batteries, and postponing modifications to hearing aid output to the next appointment due to the time spent on counseling.

3.3 Goal 3

In 42% of the cases (57/136 clients), the audiologist indicated that the client would need daily help to successfully use their hearing aid(s). For 46/57 clients, they elaborated on who would provide this help (see Table 2). The audiologists also gave specific examples of the different categories of help provided for the clients, including: Overall management (e.g., "Requires others to manage"); Battery management (e.g., "Can manage aid except for changing batteries"); Spouse involvement (e.g., "Wife will help, wants it as simple as possible"); Device cleaning (e.g., "Caregiver cleans the hearing aids").

Table 2. Individuals providing assistance (n = 50)

Individual providing care	
Formal caregiver	22 cases
Family member- spouse	10 cases
Family member- child	6 cases
Family member- grandchild	1 case
Family member- sibling	1 case
Close friend	1 case
Employee at long-term care facility (LTC)	7 cases
Caregiver & LTC employee	1 case
Family member & LTC employee	1 case

4 Discussion and Conclusions

There were high levels of comorbid medical conditions in the older clients seeking treatment for hearing loss. These findings underscore the importance of involving family members and caregivers in audiologic rehabilitation and of being sensitive to the effects of other medical conditions in order to optimize treatment success.

Although hearing aids are one important aspect of audiologic rehabilitation, audiologists also commonly counsel clients about the importance of choosing (where possible) the best possible communication environments (e.g., ensuring lights are on to improve speech reading cues, choosing quiet restaurants with carpeted floors, or sitting at a corner table). While communication partners can assist clients in this endeavor, with a rapidly growing population of older adults, those designing the spaces where these clients congregate and communicate (e.g., recreation centers, long-term care facilities) must consider sensory, physical, and cognitive abilities in their planning.

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