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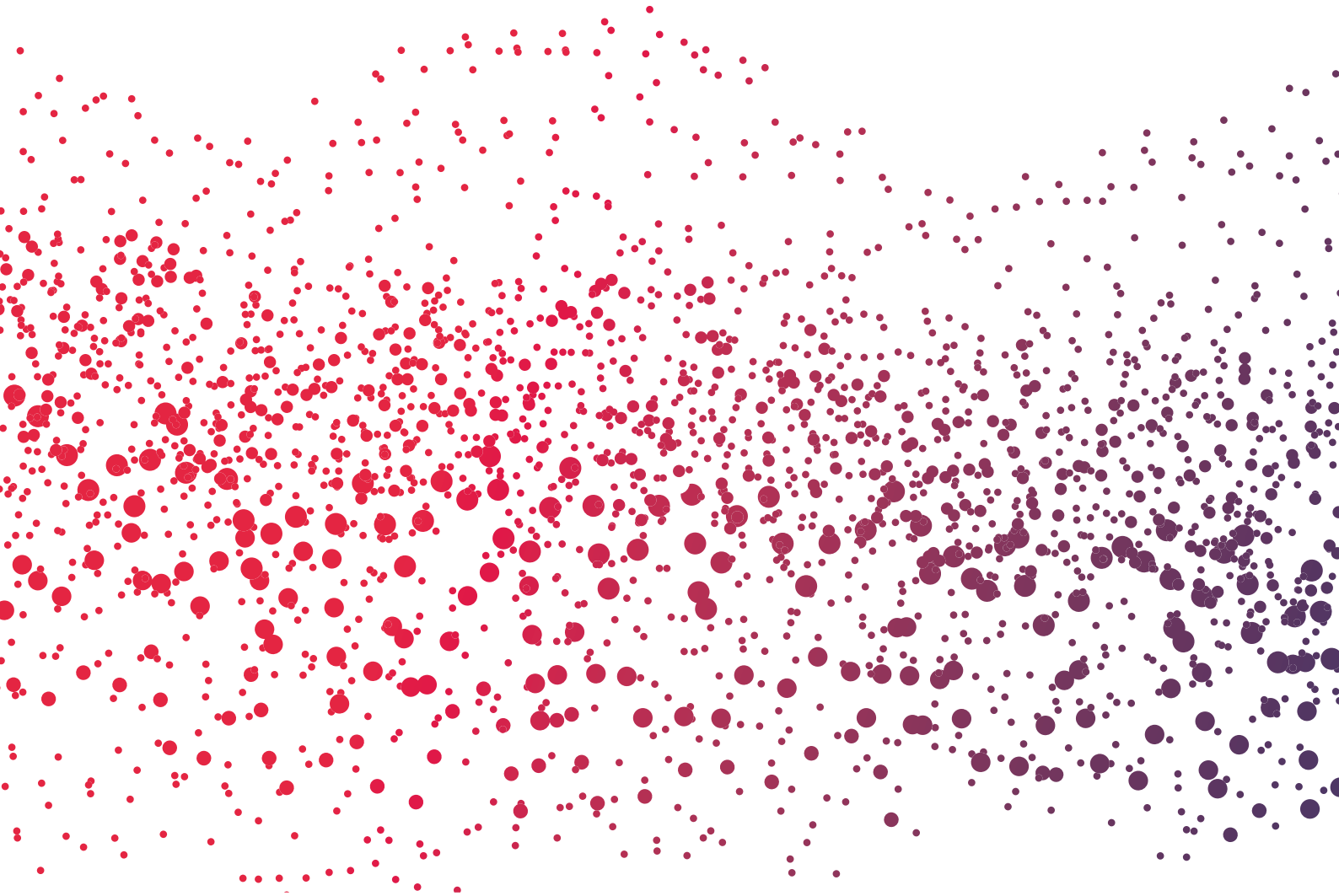

Access to Sudden Hearing Loss Care at Urgent Care Centers.

Associations Between Hearing Loss and Health-Related Costs.

Early detection and management of hearing loss to reduce dementia risk in older adults with mild cognitive impairment.

CONTENT

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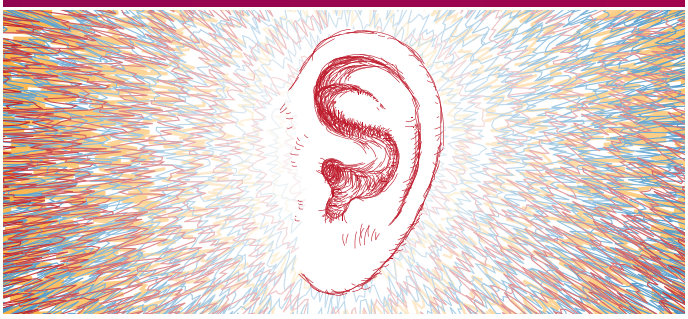
EDITORIAL



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Dear Reader, the Amplifon Centre for Research and Studies, CRS, houses one of the finest private libraries in the field of audiology and otorhinolaryngology, offering the sector's most important international journals. Every quarter, a team of Amplifon Audiologists from around the globe select the most relevant publications in the field of Otology and Audiology and make a comprehensive review. The Amplifon Centre for Research and Studies coordinates the development of this quarterly review. We are happy to share these new reviews with you. For this issue, our team reviewed 8 interesting articles published in the fourth quarter of 2024.

Since the 'Clinical Practice Guideline: Sudden Hearing Loss' state that treatments are more likely to be effective when offered early, and General Practitioners and Audiologists need to refer patients with sudden sensorineural hearing loss (SSNHL) to urgent care units. Given this urgency, one would assume these patients are referred to the emergency department in these centres for immediate evaluation. However, the article 'Access to Sudden Hearing Loss Care at Urgent Care Centers' presents concerning findings, revealing gaps in referral practices. The study concludes that increased education and improved access to resources on SSNHL are needed in urgent care centres to ensure timely and appropriate care.

The next reviews look into the cost-benefit and of hearing care interventions. The publication 'Associations Between Hearing Loss and Health-Related Costs' confirms that investing in early detection, prevention and timely intervention in hearing loss is financially beneficial. Additionally, the study 'Benefit-cost analyses of hearing aids, over-the-counter hearing devices and hearing care services' presents a surprising finding: the prescription of Advanced Digital Technology hearing demonstrates a more favourable benefit-coast ratio compared to OTC-hearing aids, despite most participants paying for the devices completely out-of-pocket.

The next two reviews address noise tolerance and noise acceptance tests, exploring their relationship with speech intelligibility and pure-tone audiometry. The systematic review 'Hearing help-seeking, hearing device uptake and hearing health outcomes in individuals with subclinical hearing loss' highlights the positive impact of hearing devices on reducing perceived hearing difficulties, stigma, and improving auditory processing and speech understanding for subjects with self-reported hearing difficulties despite having audiometric thresholds of 25dBHL or lower.

The next review, documents that UK audiologists feel comfortable addressing hearing-related needs but lack sufficient confidence and training in managing emotional and social needs.

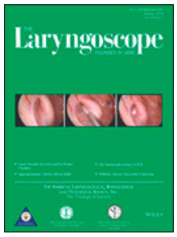
Lastly, the feasibility pilot trial for the TACT study demonstrates the viability of running a randomised control trial with senior patients with mild cognitive impairment. The study successfully implemented a protocol to assign participants to intervention and control groups, to evaluate the impact of amplification on dementia risk.

We hope you enjoy this issue of our CRS Scientific Journal

Mark Laureyns
Global International CRS & Medical Scientific Research Manager

The authors have sole responsibility for the content of their articles.

ACCESS TO SUDDEN HEARING LOSS CARE AT URGENT CARE CENTERS



Haleem A., Rosenthal Z. & Lee DJ.

Laryngoscope (2024): 134(12), 5066–72

doi: 10.1002/lary.31596. Epub 2024 Jul 2. PMID: 38953603.

By Angela Ryall, Canada

Researchers employed a secret-shopper approach to contact various urgent care centres across the United States, assessing patient access to care for sudden hearing loss.

For this article, the researchers employed a secret-shopper method to contact various urgent care centres across the United States to assess patient access to care for sudden hearing loss (SNSHL). Specifically, they examined whether urgent care centres could recognise the condition as a medical emergency and appropriately refer patients to an otolaryngologist.

Using a standardised script, researchers placed calls to urgent care centres, reporting that a family member had suddenly lost hearing in one ear. Each centre received two calls – one stating the patient was covered by Medicaid (a government-subsidised health insurance plan) and the other indicating private insurance coverage. The study sought to evaluate whether the centre accepted the patient's insurance and the associated cost of an appointment, whether the patient would be seen by a physician or an advanced practice provider (i.e. assistant), whether a referral to an otolaryngologist was offered, whether telehealth services were available, and whether the call was redirected (e.g. to a clinician or an emergency department).

Urgent care centres were randomly selected from the Urgent Care Association's (UCA) directory using a random number generator. In total, 250 calls were made on behalf of a Medicaid-insured patient and 248 for a privately insured patient, with calls conducted between July 11, 2023, and August 21, 2023.

Appointment acceptance rates were significantly higher for patients with private insurance (98.4%) compared to those with Medicaid (68%). Regardless of insurance type, urgent care centres demonstrated limited urgency in response to the caller's complaint, reduced physician availability, low telehealth accessibility, and frequent triage to either a clinic or an emergency department. In many cases, callers were initially offered an appointment with an advanced practice provider rather than a physician.

CRITICAL NOTE

This study is particularly relevant to audiologists and clinicians as we frequently perform urgent hearing assessments for patients experiencing sudden sensorineural hearing loss.

Many patients seeking care arrive through self-referral, referral from a walk-in or urgent care clinic, or referral from an otolaryngologist. While this study was conducted in the United States, its findings may be applicable to other countries. For instance, in Canada, many walk-in and urgent care clinics have limited awareness of sudden hearing loss, which can significantly impact patient outcomes. From firsthand experience, I have observed cases where physicians at these clinics delayed appropriate care due to a lack of knowledge about the urgent management required for sudden hearing loss.

The researchers used an interesting methodology by directly calling urgent care clinics to assess their ability to identify and manage sudden hearing loss. In the United States, where there is no universal healthcare system, patients must rely on private insurance or Medicaid to cover medical expenses. Of particular note, the study highlighted disparities in appointment access based on insurance type, raising concerns about equitable healthcare access. Ideally, all patients should receive the same level of access to urgent care, regardless of their insurance coverage. However, since this study was conducted exclusively via phone calls, in-person data collection might yield different results. Future research could expand on these findings by having patients visit urgent care centres in person to evaluate how effectively they address urgent audiological medical concerns.

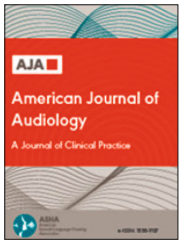
Analysis of self-pay costs revealed notable differences between insurance types and across states, particularly based on Medicaid expansion status. In states that had expanded Medicaid, the average self-pay cost for Medicaid patients was US$169, compared to US$145 in states without expansion. For privately insured patients, self-pay costs averaged US$165 in states with Medicaid expansion and US$136 in non-expansion states. On average, the price disparity between Medicaid and private insurance calls was significantly greater for Medicaid patients.

Furthermore, researchers found that appointment acceptance rates were consistently lower for Medicaid patients than for those with private insurance. Conversely, referrals to an ENT were higher for the Medicaid phone calls.

The findings indicate that Medicaid patients faced significantly lower appointment acceptance rates nationwide compared to those with private insurance, highlighting disparities in access to urgent medical care for Medicaid recipients. Additionally, telehealth services were largely unavailable at the surveyed urgent care centres. Researchers also observed a low frequency of referrals to emergency departments, irrespective of insurance type. Given these findings, they recommend that urgent care centres receive additional education and resources on SNSHL to improve patient access and potentially increase appropriate referrals and appointments.

Finally, the researchers acknowledge a key limitation of the study: because data were collected via phone calls and no in-person visits, the study does not assess actual patient outcomes. •

ASSOCIATIONS BETWEEN HEARING LOSS AND HEALTH-RELATED COSTS: A RETROSPECTIVE POPULATION-BASED COHORT STUDY.



Tonelli M., Wiebe N., Boultong T., et al.

Am J Audiol. (2024): 33(4), 1306–15

doi: 10.1044/2024_AJA-24-00130.

Epub 2024 Nov 13. PMID: 39535959.

By Carrie Meyer, United States

This retrospective study used population-based data to assess healthcare costs associated with hearing loss. Comparing participants with and without hearing loss, the researchers found that healthcare costs were significantly higher for those with hearing loss. These increased costs were also related to a higher number of comorbidities within the hearing loss population. The study's findings indicate that hearing loss prevention, along with early detection and treatment of hearing loss, could lead to considerable healthcare cost savings.

CRITICAL NOTE

Hearing loss affects quality of life as well as productivity and earning potential. Hearing loss is also associated with poorer physical and mental health.
Hearing loss affects quality of life as well as productivity and earning potential. Hearing loss is also associated with poorer physical and mental health.
This study evaluated the effects of hearing loss on overall and component healthcare costs. The findings confirm the correlation between hearing loss, chronic health conditions, and increased economic costs and the authors advocate for further research into hearing loss and healthcare expenditures..

INTRODUCTION

Ongoing research has demonstrated that hearing loss (HL) and overall health are directly related. People with chronic health conditions are more likely to have HL and, conversely, people with HL are more likely to have multiple comorbidities. While HL and whole person health continue to be studied, the impact of hearing loss on healthcare costs has received little attention. In this retrospective study using a population-based cohort, the researchers used data collected over a decade to examine the association between HL and health-related costs.

METHODOLOGY

This research was based on data from adults registered with the provincial health ministry in Alberta, Canada. In Alberta, all residents are eligible for health insurance provided by Alberta Health and 99% of Alberta's population is covered by this health insurance.

This study focused only on adults aged 18 or older. HL was identified using ICD 9 codes. Study participants were identified by age, sex, and residence. Participants were then further classified by the presence or absence of 29 comorbidities. The study included a total of 4,424,632 participants, of whom 146,664 (3.3%) were identified with HL.

Study outcomes were defined as mean annual healthcare costs. Healthcare costs were analysed both as total costs and by component, including hospitalisation, provider visits, ambulatory care, outpatient medications and long-term care.

STATISTICAL METHOD

Data covering an 11-year period were analysed. Generalised linear models were used to estimate total and component costs. Costs were analysed based on HL status, age, sex, and other factors including a number of comorbidities. Study results were presented as marginal means and mean differences with 95% confidence intervals.

RESULTS

Adjusting for age and sex, both annual and component health costs were significantly higher for participants with HL. Chronic health conditions were determined to be the primary driver of these additional costs. Interestingly, costs connected with HL were highest among younger adults and those with fewer comorbidities.

STUDY LIMITATIONS

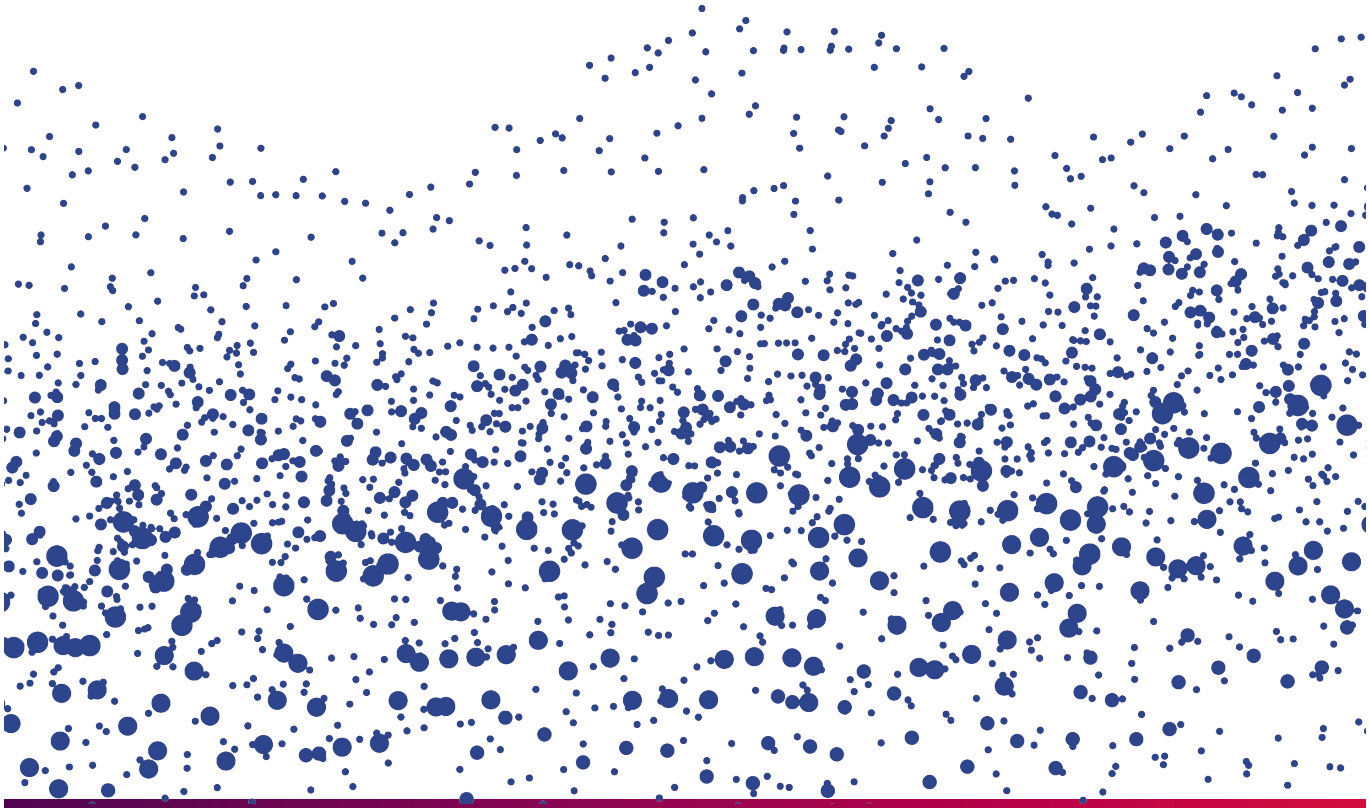
Because this study used data from only one province, the results cannot be generalised to the general population. In addition, since this study was based on administrative data, there is a potential for residual confounding by factors including physical inactivity, ethnicity, and access to assistive devices, e.g. hearing aids.

Relying on data generated by ICD 9 codes rather than audiologic data may have led to the exclusion of participants with mild or moderate HL. Finally, while costs to the healthcare system were evaluated, participants' out of pocket costs were not included in this study.

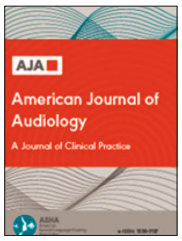
CONCLUSIONS

Study participants with HL had annual healthcare costs that were CA$2,125 higher than participants with no HL. Analysis showed that within this provincial study the total cost of care related to HL was CA$125 million annually, i.e. 12.4% of annual healthcare costs.

Given the limited research in this area, the study authors encourage further research into the impact of HL on healthcare costs.The findings suggest that early detection and prevention of HL as well as timely intervention and management of HL may lower healthcare costs and improve quality of life for patients with HL. •



BENEFIT-COST ANALYSES OF HEARING AIDS, OVER-THE-COUNTER HEARING DEVICES AND HEARING CARE SERVICES



Jilla AM., Johnson CE., Baldwin JD., et al.
Am J Audiol. (2024): 33(4), 1316–30
doi: 10.1044/2024_AJA-23-00262. Epub 2024 Oct 11. PMID: 39392928.

By Jan De Sutter, Belgium

By analysing willingness to pay and conducting a benefit-cost analysis, the authors assess the benefits of prescription hearing aids compared to over-the-counter alternatives.

Despite the well-documented prevalence of hearing loss (HL) and its recognised consequences, hearing aid (HA) adoption penetration remain relatively low. While societal stigma surrounding HL and HAs contribute significantly to this issue, this study highlights that the traditional gatekeeper model, requiring individuals to navigate multiple steps before obtaining HAs, may deter affected individuals from taking action on their HL.

Over-the-counter (OTC) HAs provide a potentially accessible and cost-effective solution, potentially reducing both stigma and barriers associated with prescription devices. By examining individuals' willingness to pay (WTP) and conducting benefit-cost analyses of prescription advanced digital technology (ADT) HAs versus OTC devices, the researchers sought to determine the advantages of each approach. The study also seeks to assess the added value of hearing rehabilitative services.

DESIGN

A cross-sectional survey and chart review were conducted by two separate audiology practices, involving participants aged 18 to 90 who had been using HAs for at least six weeks prior to the study. Eligibility was limited to patients with traditional HAs not covered under Veterans Affairs benefits. To assess WTP, both an open-ended questionnaire and a payment scale were used.

RESULTS

In the study, 69% of participants financed their ADTs entirely out-of-pocket, with the median cost per device at US$1,825, including those with partial health insurance coverage. The WTP assessments revealed a maximum WTP of US$5,000 and a median of US$2,000 for a single ADT HA. Conversely, the WTP for OTC devices was notably lower, with a maximum of US$500 and a median of US$0. Rehabilitative services had a maximum WTP of US$2,000, with a median of US$250.

On average, benefit-cost analyses indicated that ADT HAs offer a favourable benefit-cost ratio of 2.37 and a positive

CRITICAL NOTE

This study assessed and confirmed the significant added value of hearing rehabilitation services, highlighting their essential role in effective hearing care. This underscores the extent to which, despite advancements in hearing aid technology, the expertise, know-how and support provided by hearing care professionals remain paramount. The researchers' observation that the low willingness to pay (WTP) for over-the-counter (OTC) hearing aids (HAs) may be partly due to the lack of professional guidance further supports this point.

The study suggests that reducing costs or increasing financial support could enhance the benefit-cost ratio of ADTs and encourage greater HA adoption. However, it is important to note that these financial factors do not necessarily guarantee improved usage and satisfaction (as reported by the 2024 report by the European Association of Hearing Aid Professionals–AEA–on hearing loss, hearing care, and hearing aid usage in Europe).

Conducted in the United States, the study provides detailed information on participants' median incomes. It would be valuable to examine how WTP varies in other countries, considering their respective median incomes. Such comparisons could offer insights into the level of stigma associated with hearing loss across different cultural contexts.

net social benefit of US$4,778. To achieve a break-even point in the cross-sectional net social benefit, an ADT HA should be acquired at an average cost of US$1,530. Similarly, OTC devices and hearing rehabilitative services demonstrated favourable benefit-cost ratios and positive net social benefits at costs of US$100 and US$50, respectively. The break-even cost for rehabilitative services ranged from US$213 to US$319, depending on the methodology used, while OTC devices reached a break-even point at a cost of US$65.

DISCUSSION AND CONCLUSION

This study indicates a favourable benefit-cost ratio for ADT HAs, despite the majority of participants financing the devices entirely out-of-pocket. Reducing out-of-pocket costs through financial assistance or decreased pricing could further enhance this ratio.

The low WTP for OTC HAs may stem from limited information and the absence of a finalised Food and Drug Administration (FDA) rule at the time of the study. With current advancements and clearer regulations, researchers anticipate different outcomes today. Implementing a mandatory trial period, similar to that for ADT devices, could increase WTP for OTC devices, narrowing the gap between WTP and current market prices.

Hearing rehabilitative services offer significant value and can have a lasting impact with a one-time investment. Combining these services with the purchase of an ADT HA results in a successful hearing care program, as extensively documented. •

SUBJECTIVE SPEECH INTELLIGIBILITY DRIVES NOISE-TOLERANCE DOMAIN USE DURING THE TRACKING OF NOISE-TOLERANCE TEST

Kuk F., Slugocki C. & Korhonen P.

Ear Hear. (2024): 45(6), 1484–95

doi: 10.1097/AUD.0000000000001536. Epub 2024 Jun 17. PMID: 38880961.

By Gian Carlo Gozzelino, Italy

The article explores the impact of subjective speech intelligibility on noise acceptance decisions, utilising the Noise-Tolerance Domains Test.

INTRODUCTION

This article explores the impact of subjective speech intelligibility on noise acceptance decisions, employing the Noise-Tolerance Domains Test (NTDT) in both normal-hearing (NH) and hearing-impaired (HI) individuals. The research provides a comprehensive analysis of how various domain criteria – such as loudness, distraction, annoyance, and speech interference – are weighted depending on speech intelligibility levels. The study's significance lies in its potential applications for hearing aid optimisation and patient profiling based on individual noise tolerance preferences.

SUMMARY OF KEY FINDINGS

The study employed a within-subjects design, analysing 22 NH and 17 HI participants under various conditions. The primary goal was to understand the role of subjective speech intelligibility in noise acceptance decisions by comparing NTDT results at different signal-to-noise ratios (SNRs). The key findings include:

- **Domain Weighting Variability:** When speech intelligibility was low (<50%), participants placed greater weight on loudness and speech interference. As intelligibility improved (>80%), factors such as distraction and annoyance became more significant in their noise tolerance decisions.
- **Comparison Across Groups:** In unaided conditions, NH listeners assigned greater importance to loudness compared to HI individuals. However, when using hearing aids (HA), HI individuals exhibited weighting patterns similar to NH participants, indicating the effectiveness of hearing aids in restoring natural noise acceptance behaviours.

- **Speech Input Levels Impact:** At higher speech input levels (82 dB SPL), participants generally assigned more weight to loudness and annoyance than at lower levels (75 dB SPL).
- **Predictive Modelling:** The subjective intelligibility threshold at the average noise acceptance threshold (TNT Ave) was found to be the strongest predictor of individual noise tolerance domain selection.

STRENGTHS OF THE STUDY

- **Robust Methodology:** The study uses a well-structured and sound experimental design, combining both subjective and objective measures to assess speech intelligibility and noise tolerance.
- **Clinical Relevance:** The findings have direct implications for HA programming, particularly in tailoring noise management features to the specific needs of individual users.
- **Use of Advanced Statistical Analysis:** The application of linear mixed-effects models (LME) strengthens the reliability of the findings by accounting for individual variability in noise tolerance.

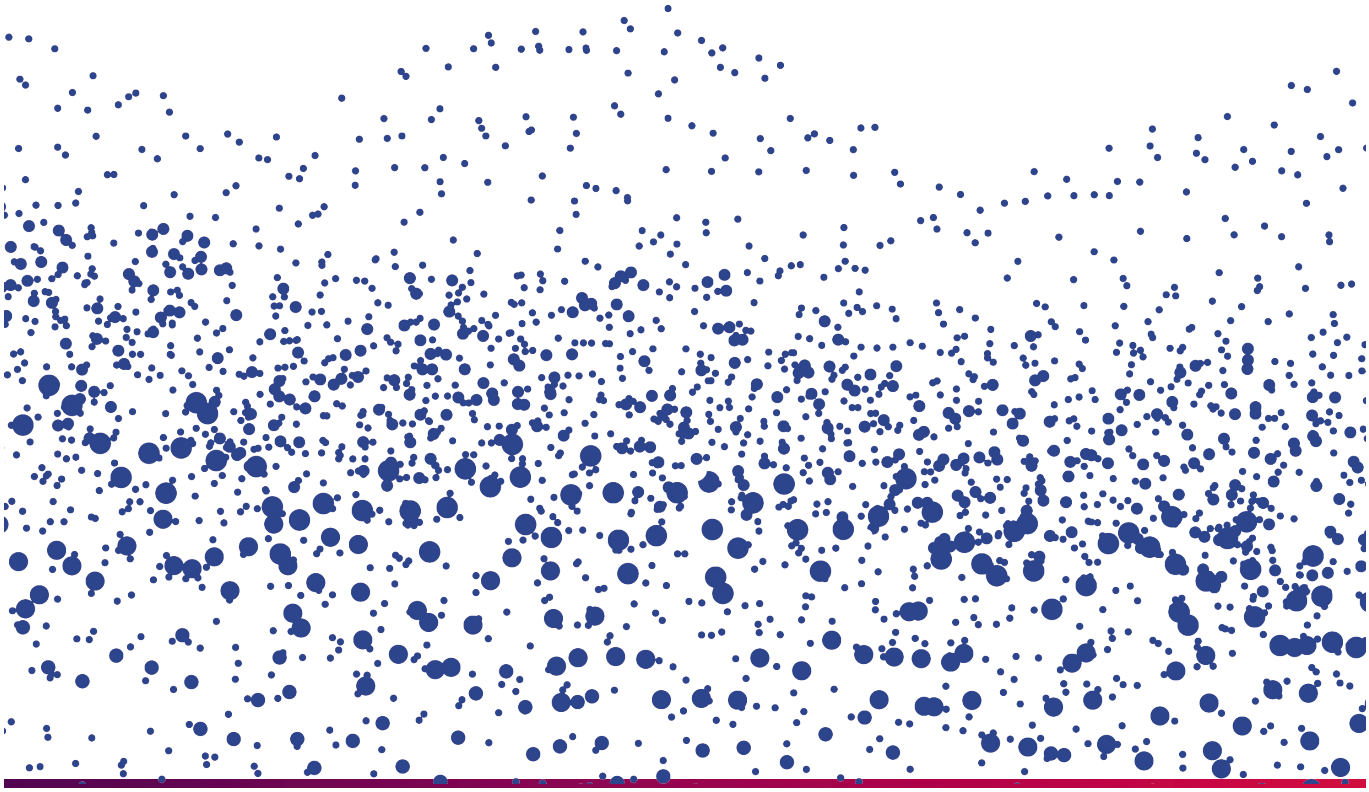
CONCLUSION

The article presents a compelling investigation into the interplay between subjective speech intelligibility and noise tolerance domains. By clarifying the connection between intelligibility levels and noise acceptance decisions, the study provides valuable insights for the field of audiology and HA development. However, further research with larger, more diverse populations and longitudinal assessments would strengthen the generalisability of these findings. Future studies should also explore the impact of cognitive and psychological factors on individual noise tolerance profiles to refine the development of more tailored hearing solutions. •

CRITICAL NOTE

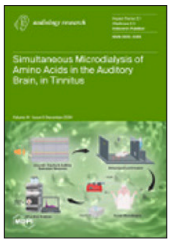
Despite its strengths, the study presents a number of limitations and areas for further exploration:

- ***Limited Sample Size:*** *The relatively small number of participants, particularly within the HI group, may restrict the generalisability of the findings. A larger sample would provide more statistically reliable insights.*
- ***Lack of Longitudinal Analysis:*** *The study assesses noise tolerance at a single time point. Examining changes over an extended period of time, especially among HA users, could shed light on potential adaptation trends in noise acceptance.*
- ***Potential Bias in Subjective Measures:*** *While the study focuses on subjective speech intelligibility, self-reported measures can be influenced by cognitive biases or individual expectations. Integrating real-world listening scenarios in future research could help validate these findings.*
- ***Impact of Different Hearing Aid Models:*** *The study utilises a specific hearing aid model (Signia AX). Comparing various amplification strategies and technologies could help determine whether the observed effects are device-dependent.*



MULTICENTER STUDY ON THE IMPACT OF THE MASKER BABBLE SPECTRUM

ON THE ACCEPTABLE NOISE LEVEL (ANL) TEST



Laureyns M., Pugliese G., Freyaldenhoven BM., et al.

Audiol Res. (2024): 14(6), 1075–83

doi: 10.3390/audiolres14060088.

PMID: 39727611; PMCID: PMC11673388.

By Mark Laureyns – Italy, Belgium

The spectrum of the masker babble used in the Acceptable Noise Level (ANL) test plays a critical role in the results, particularly when the spectrum is not speech-weighted to match the ANL speech, especially when higher frequencies are boosted.

INTRODUCTION

The original Acceptable Noise Level (ANL)Test, developed and published by Nabelek et al. in 1991, was designed to predict candidacy for effective hearing aid (HA) use. In the test, subjects first set their preferred loudness level for running speech (MCL), followed by adjusting the background noise to the maximum level they were willing to tolerate while listening to the running speech (BNL).The difference between these two levels represents the ANL, which is expressed as a signal-to-noise ratio in dBANL. In Nabelek's original publication, individuals with a low ANL were much more likely to accept and use their HAs compared to those with a high ANL. Subsequent research has linked ANL to the candidacy for and effectiveness of Digital Noise Reduction (DNR) in HAs, with individuals with a high ANL performing better when DNR was activated, as opposed to those with a low ANL.

In studies by Nabelek, Freyaldenhoven, and others, no relationship was found between the ANL score and the level of hearing loss (HL). However, Olsen et al. observed a weak correlation between HL and the ANL score in the Danish version of the test. In most versions of the ANL test, the background noise – typically babble – is speech-weighted to match the spectrum of the running speech. Upon analysing the Danish ANL sound file, the authors discovered a significant mismatch between the spectrum of the running speech and the background noise spectrum starting at 1000 Hz.This led them to explore the hypothesis that the correlation between the Pure Tone Audiogram (PTA) and ANL results might be attributed to this spectral mismatch.

MATERIAL AND METHODS

Prior to the tests, informed consent, age, and gender were collected from all subjects. The Dutch, French, and Italian versions of the ANL test, developed by Francart et al. for the Amplifon Centre of Research and Studies, served as the foundation (ORIG). These versions used multi-talker babble that was speech-weighted to match the long-term spectrum of the running speech for each language. For

CRITICAL NOTE

In the original conclusions the authors state: 'Acceptable Noise Level is an objective test to quantify noise tolerance in both hearing-impaired patients and healthy patients.' However, according to the American Academy of Audiology, ANL should be considered a behavioural test procedure, as it requires active participation from the subjects. Examples of objective tests include Otoacoustic Emissions and Auditory Brainstem Response. Further, Nabelek and Freyaldenhoven have previously clarified that the ANL assesses 'Noise Acceptance', not 'Noise Tolerance'. Therefore, the sentence should be rephrased as 'The Acceptable Noise Level test is a behavioural test to quantify noise acceptance in both hearing-impaired patients and normal hearing subjects'.

The findings and conclusions of this study are important, particularly given the ongoing development of multiple language versions of the ANL test. It is therefore essential to standardise the quality of the recordings, ensuring consistent average loudness levels and sufficient dynamic range by recording at -25 dBFS (dB Full Scale).

In addition, the spectrum of the masker signal (typically babble) should be matched to the long-term average spectrum of the ANL running speech to ensure that the results remain comparable.

each language version, two additional multi-talker babble files were created, incorporating a gradual 15 dB increase (HF-boost) or decrease (HF-cut) from 2000 Hz onwards. The three ANL tests – randomised for the Matched, HF-boost, and HF-cut versions – were administered in a free-field setting, where both the running speech and background noise were presented from the same loudspeaker positioned in front of the subjects, following the original instructions from Nabelek (1991). The PTA was measured using a clinical audiometer and headphones.

SUBJECTS

All subjects were tested using the ANL version specific to their native language. The Dutch and French-speaking participants were divided into three subgroups: the hearing-impaired group (HI); the matched control group (CO) (matched for gender and age); and the young normal hearing group (NH). The Italian-speaking group was solely composed of subjects with hearing impairment.

	HI (N / avg Age / avg PTA best ear)	CO (N / avg Age / avg PTA best ear)	NH (N / avg Age / avg PTA best ear)
Dutch	N=25 / 61y / 35dBHL	N=24 / 62y / 11dBHL	N=24 / 23y / 6dBHL
French	N=30 / 71y / 33dBHL	N=30 / 57y / 16dBHL	N=30 / 25y / 7dBHL
Italian	N=36 / 73y / 50dBHL		

RESULTS

For all subgroups, the ANL score using the HF-boost masking was significantly higher than the ANL score with the original matched masker. In the Dutch and French subgroups, no significant difference was found between the ANL score with the HF-cut masker and the ANL score with the original masking. However, for the Italian HI group, the ANL score with the original masking was significantly different. Refer to the table below, where values significantly differing from the ANL score with the original masking are marked with an asterisk (*).

GENDER AND ANL-RESULTS.

A weak correlation was found between gender and the ANL results with the HF-boost masker, but only for the total Dutch group (p=0.047, r=0.24).

AGE AND ANL-RESULTS.

No correlation was observed between age and the ANL results for any of the groups in this study.

PTA AND ANL-RESULTS.

For the Italian HI group, a weak correlation was found between the PTA in the better ear and the ANL score with both the HF-boost masker (p=0.03, r=0.36) and the original (matched) masker (p=0.04, r=0.35). For the total French group, a weak correlation was observed between the PTA in the worse ear and the ANL score with the HF-boost masker (p=0.03, r=0.22). No correlation was found between the PTA and ANL scores for the Dutch group.

DISCUSSION AND CONCLUSIONS

The observation that ANL scores are higher when the masker has more energy in the higher frequencies was previously reported by Freyaldenhoven et al. (2006). As such, the spectrum of the masker should be taken into account when developing and interpreting ANL tests and results. However, the hypothesis that the relationship between the ANL score and the PTA may be attributed to a mismatch between the spectrum of the masker noise and the long-term spectrum of the ANL running speech was not confirmed in this study. •

Median ANL in dBANL	HI			CO			NH		
	ORIG	HF-boost	HF-cut	ORIG	HF-boost	HF-cut	ORIG	HF-boost	HF-cut
Dutch	10	16*	12	11	13*	11	10	16*	8
French	10	12,5*	10	8,5	9,5*	8	9,5	12*	7,5
Italian	3	4*	1*						

HEARING HELP-SEEKING, HEARING DEVICE UPTAKE AND HEARING HEALTH OUTCOMES IN INDIVIDUALS WITH SUBCLINICAL HEARING LOSS: A SYSTEMATIC REVIEW

Frisby C., Oosthuizen I., Manchaiah V., et al.

Int J Audiol. (2024): 63(12), 925–35

doi: 10.1080/14992027.2024.2311660. Epub 2024 Feb 20.

PMID: 38375662.

By Julin Teo – Italy, Australia

The authors conducted a systematic review of current studies on help-seeking behaviour, hearing device uptake, and hearing health outcomes in the adult population with subclinical hearing loss.

This systematic review addresses the issue of adults who self-report hearing difficulties yet have normal audiometric thresholds of 25 dBHL or lower, as defined by the World Health Organization (WHO) Hearing Loss classification. The authors refer to this condition as subclinical hearing loss in the article, although other terms, such as central presbycusis and hidden hearing loss, have been used in previous studies to describe the same condition. This variation in terminology underscores the need for standardised nomenclature.

Searches were performed in CINAHL, MEDLINE (PubMed), and Scopus. After applying the inclusion criteria, removing duplicates, and restricting to English-language publications, nine studies remained for inclusion in this review. Three of these studies focused on help-seeking behaviour, identifying self-reported difficulty, poor speech-in-noise performance, and emotional responses as key factors. The remaining six studies examined the use of hearing devices (hearing aids (HAs), hearables, and FM systems) as interventions for subclinical hearing loss (HL). The findings suggest a positive impact of hearing devices in reducing perceived hearing difficulties, stigma, and enhancing auditory processing and speech understanding. However, despite these benefits, barriers such as discomfort, limited perceived benefit, stigma, and high costs were noted. Notably, none of the studies explored the uptake of hearing devices.

The quality assessment of the reviewed studies revealed poor methodological rigor, with evidence levels ranging from three to four, suggesting the need for more robust controlled studies in the future to validate these findings. In addition, the short follow-up periods may have had an impact on the reported outcomes of the devices. The authors also highlighted the need for further research on non-audiological factors which may determine help-seeking behaviour and hearing device uptake, as well as the development of clinical practice guidelines for subclinical HL. Additionally, they called for greater research efforts on lower-income countries, for which available literature remains scarce. •

CRITICAL NOTE

The authors used the older WHO classification, where normal hearing is defined as ≤25 dBHL, whereas the updated WHO classification now defines normal hearing as ≤20 dBHL. They limited their review to English-language publications and excluded grey literature, which may have reduced the number of studies included. Incorporating non-English language studies could have provided additional insights into help-seeking behaviour and device outcomes in non-English-speaking populations. Further segmentation by device type could also offer a better understanding of its impact on subclinical HL. Overall, the article provides a valuable overview of the factors influencing help-seeking behaviour and device outcomes in the context of the growing prevalence of subclinical HL.

DO UK AUDIOLOGISTS FEEL ABLE TO ADDRESS THE HEARING, SOCIAL AND EMOTIONAL NEEDS OF THEIR ADULT PATIENTS WITH HEARING LOSS

Woodward E. & Saunders GH.
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Epub 2023 Dec 13. PMID: 38088152.

By Katrien Cambier, Belgium

This study evaluates the ability of UK audiologists to address the hearing, social, and emotional needs of adults with hearing loss trough a survey on 64 UK audiologists. The results indicate that audiologists feel more comfortable addressing hearing-related needs, but they lack confidence and sufficient training in addressing emotional and social needs. Barriers include time constraints, insufficient training, and lack of supervision Audiologists expressed a strong desire for improved counselling training to be incorporated into their curricula.

INTRODUCTION

Hearing loss (HL) affects 1.3 billion people globally, including 12 million in the UK, with numbers predicted to grow due to population ageing. Beyond addressing hearing-related needs, audiologists play a key role in supporting the emotional and social challenges faced by individuals with HL.

Audiological counselling differs from psychological counselling, as it involves acknowledging and addressing the emotional aspects of living with HL, such as fear, 'sadness, disappointment, loneliness, depression and worry'. However, many audiologists report they lack the necessary training, confidence, and guidelines to provide this support effectively. Previous studies show audiologists feel more comfortable providing informational counselling than emotional counselling, often redirecting patient conversations toward technical solutions and focusing on problem-solving.

Key barriers to emotional counselling in audiology include a lack of knowledge, experience or skills, time constraints, and uncertainty about the scope of counselling within the field. Despite evidence showing its effectiveness in improving communication and patient-centred care, there remains significant variability in counselling training within clinical audiology programs. This study was designed to answer four key questions:

1. What training do audiologists in the UK receive regarding counselling?
2. How do audiologists in the UK define counselling in audiology?
3. How knowledgeable, confident, and comfortable do UK audiologists feel about discussing the needs of people with HL?
4. What are the main barriers and facilitators to delivering emotional support to people with hearing loss?

CRITICAL NOTE:

A key limitation of this study is its reliance on self-reported data, which may introduce response bias. Audiologists with a greater interest in counselling or feel more strongly about the topic may have been more likely to participate, potentially skewing the results. Additionally, while the study identifies a clear demand for greater counselling training, it fails to examine which specific types of trainings would be most effective or when they should be introduced. Future research should explore the most beneficial training formats and how they could be integrated into audiology education and early-career development.

METHOD

This study was conducted as a service evaluation, therefore requiring no prior ethical approval. UK-based clinical audiologists were recruited through social media and email. The survey, which was adapted from the one used by Bennett et al. (2020), included additional questions to explore respondents' vision on training and definition of counselling in audiology. The survey included both closed and open-ended questions covering demographics, clinical experience, the definition of audiological counselling, self-rated abilities, barriers and facilitators, as well as counselling-related training. The authors collected survey

responses between November 2021 and January 2022, using REDCap software. Responses were analysed through both statistical and content analysis methods. Training levels were categorised according to scores assigned to various educational activities.

RESULTS

Demographics and Clinical Experience

The survey was completed by 64 audiologists (85% female, 55% under 40 years old), all of whom worked in the public sector. Of the participants, 68% held a bachelor's or master's degree in audiology, while others had degrees in other hearing-related fields. Experienced levels varied, with 42% having over 11 years of clinical practice.

Training in Counselling

While most participants had received formal training in basic counselling techniques, fewer than one third had advanced training in therapeutic methods.

Definitions of Counselling

When asked, 'How would you define counselling in audiological practice?' 50 definitions were submitted for analysis. The audiologists' responses were categorised into three themes:

The Audiologist as the Doer: The audiologist alone is responsible for providing information, non-technological solutions, and emotional/psychological support.

The Audiologist as the Facilitator: The audiologist supports and guides patients in addressing their own needs across various themes – behavioural, cognitive, or emotional.

The Audiologist and Patient as Partners: Both collaborate on shared goal-setting and decision-making.

KNOWLEDGE, CONFIDENCE, AND COMFORT

Participants reported feeling most knowledgeable and confident in addressing hearing-related needs, followed by social and emotional concerns, with mental health needs rated lowest. Years of clinical experience did not significantly influence participants' ratings of knowledge, confidence, or comfort in providing support for hearing-related, social, emotional, or mental health issues. However, more training was found to positively impact knowledge and confidence in addressing emotional needs.

BARRIERS AND FACILITATORS

The main barriers to providing emotional support included insufficient training, lack of supervision, time constraints, and concerns about competency. The statement 'I don't consider it part of my role' was never selected as a barrier. Only 8% of participants reported experiencing no barriers. Facilitators identified by participants included more training, increased support, and improved access to referral services.

DISCUSSION

This study assessed UK audiologists' self-reported confidence, knowledge, and comfort in addressing the hearing, social, emotional, and mental health needs of adult patients with HL. The researchers also explored the impact of prior counselling training on these factors, as well as barriers and facilitators in providing this support.

KEY FINDINGS

- Audiologists reported feeling more confident in addressing hearing-related needs than social, emotional, and mental health needs.
- Major barriers to providing support included lack of specialist supervision, feeling under-trained, and time pressure.
- There was a widespread desire for more training in counselling techniques.
- Definitions of 'counselling in audiology' varied widely but generally fell into three themes: audiologists as the 'doer' (providing advice), as the 'facilitator' (helping patients manage their condition), and as partners with patients (working together to define goals and priorities). Most audiologists viewed counselling as a multidimensional process, emphasising a patient-centred approach.
- Prior counselling training was associated with increased comfort and confidence in providing emotional and social support.
- The study's limitations included a small sample size and potential bias, as participants who responded to the survey may have had a pre-existing interest in counselling.

CONCLUSION

In conclusion, this project examined UK audiologists' definitions of counselling in audiology, their self-reported confidence, knowledge, and comfort in addressing the various needs of adult patients with HL, as well as the barriers and facilitators to providing this support. The findings highlight that, while audiologists recognise the importance of emotional support and define counselling in person-centred terms (including roles as 'doers,' 'facilitators', and 'partners'), they feel less confident and knowledgeable when it comes to providing emotional and mental health-related counselling compared to addressing hearing-related needs. The main barriers identified were a lack of training, time, and supervision; conversely, facilitators included increased training, support, and access to supervision. The study concludes that current training for audiologists is insufficient to meet the demand, while also highlighting a clear need for more training in counselling to ensure high-quality patient care and improved patient satisfaction. •

EARLY DETECTION AND MANAGEMENT OF HEARING LOSS TO REDUCE DEMENTIA RISK IN OLDER ADULTS WITH MILD COGNITIVE IMPAIRMENT:

FINDINGS FROM THE TREATING AUDITORY IMPAIRMENT AND COGNITION TRIAL (TACT)

Yu RC., Pavlou M., Schilder AGM., et al.

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By Mark Laureyns – Italy, Belgium

This article assesses the feasibility of randomising subjects with mild cognitive impairment to initiate a randomized controlled trial, which includes individualised hearing aid selection and fitting, compared to a control group. It also presents the preliminary results after a six-month period.

INTRODUCTION

Building on the findings of the Ageing and Cognitive Health Evaluation in Elders (ACHIEVE) randomised controlled trial (RCT) (Lin *et al.*, 2024) – which identified a significant impact on cognition after a three-year intervention with amplification for the subgroup at risk for dementia (ages 70 to 84), but not for those not at risk – the authors of this study decided to run a RCT specifically designed for individuals with Mild Cognitive Impairment (MCI).

METHODS

The subjects for the first pilot trial (RCT feasibility study) were recruited from the UK's NHS Memory Community Services across three NHS trusts in London. Participants were required to be: 55 years or older; diagnosed with MCI based on the 'ICD10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines;' have age-related hearing loss (HL) with a PTA4 between 25 and 70 dBHL in the better ear; a speech recognition score in quiet of 60% or higher; and the mental capacity to provide informed consent. Exclusion criteria included: evidence of childhood-onset or conductive HL; recent hearing aid (HA) use (within the past month); a current diagnosis of alcohol or substance use disorder; being hospitalised; or residing in care homes.

Once the subjects were deemed eligible, they received a home visit from a research assistant, who collected baseline socio-demographic and medical information, administered baseline neurocognitive tests, and evaluated social functioning. Following this visit, eligibility was either confirmed or denied, and the subjects were randomly assigned to either the intervention or control group.

INTERVENTION GROUP

For this group, the protocol was based on the ACHIEVE trial, adapted according to the BSA and NICE guidelines in the UK:

- **COSI (Client Oriented Scale of Improvement)** was used to set individual goals (research assistant).
- **HA selection, fitting, and training** were tailored to the audiologic profile (audiologist).
- **HA use evaluation and experiences** was performed leading to fine-tuning adjustments (research assistant).
- **HA optimisation** (audiologist).

CONTROL GROUP

This protocol was also based on the ACHIEVE trial, with an adapted version of the 'healthy ageing education', delivered through four home-visit sessions by trained research assistants. The researchers reported the audiological results to the participant's GP, who were encouraged to make referrals for further hearing care services when deemed appropriate.

RESULTS

A total of 109 subjects were recruited, and after applying the inclusion criteria, 58 were randomly assigned to either the intervention group (N=29) or the control group (N=29).

A total of 11 participants were lost to follow-up, resulting in an overall total of 24 subjects in the intervention group and 23 in the control group for whom outcome results were available at the six-month evaluation point.

Overall, 75% of the participants in the intervention group and 22% of the control group reported using their HAs every day. The average daily use of HAs was 5.3 hours for the intervention group and 1.8 hours for the control group. The acceptability of the intervention was rated at 95% by the intervention group and 89% by the control group.

Although the design of this feasibility study was not intended to evaluate differences in cognitive and other secondary outcomes, the first findings are encouraging. The authors note that they observed a '1.2-point difference in ACE-III total scores between groups at 6 months which suggests a potential cognitive effect of the hearing intervention'.

Secondary outcomes evaluated included cognition (ACE-III, TMT A and B, DWRT), hearing disability (HHIE-S), depression (GDS), quality of life (SF-36 & EQ-5D), loneliness (UCLA loneliness scale), social functioning (SF-DEM), social independence (IADL), and physical function (grip strength).

LIMITATIONS

Since this feasibility study took place during the COVID-19 pandemic, planned home visits were occasionally halted, leading to lower participant recruitment and compliance rates. Some visits were replaced by online sessions, which may have negatively impacted the control group, as most of them did not benefit from amplification. Given that the protocol used in this study was more comprehensive than the regular NHS protocol, future research should address its cost effectiveness.

Recruitment for this study may have introduced bias, as participants who declined participation might have been less motivated to use HAs than the average MCI patient with HL. The subjects who were lost to follow-up or did not comply with HA use could also have influenced the results. Additionally, the study was not blinded, as participants knew they were using hearing aids, and researchers were aware of this too. Lastly, the small sample size meant that the intervention and control groups were not perfectly matched for age and health factors.

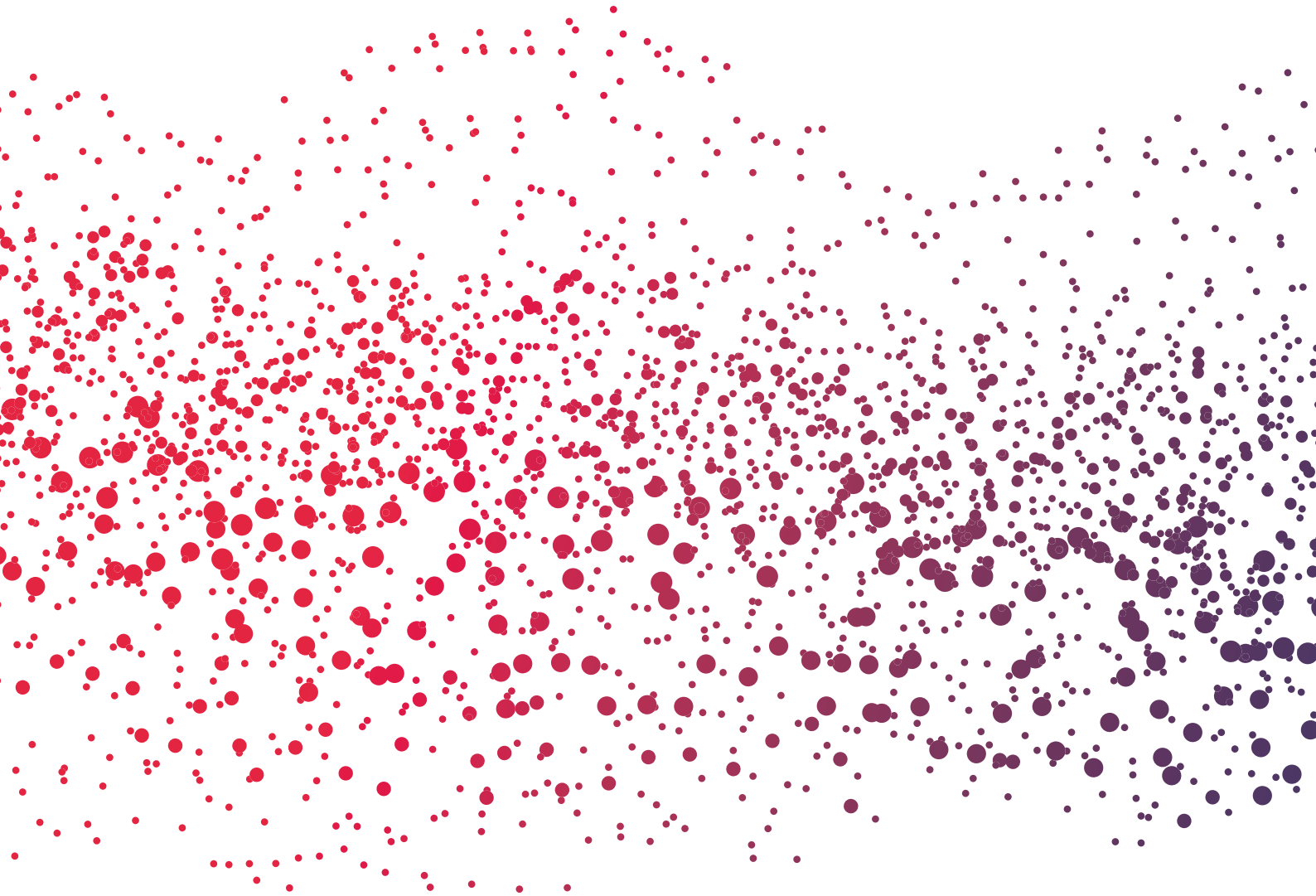
CRITICAL NOTE

Since there is a need for more high-quality evidence on the impact of amplification on cognitive decline and dementia, this feasibility study evaluating whether a randomised control trial on the effect of hearing aid use for subjects with MCI is both important and welcome. The use of a protocol based on the ACHIEVE trial (Lin et al., 2024) is a robust choice, as it will make comparisons between this study and others more relevant. However, while some results are presented, the researchers may have been tempted to highlight the potential impact of the intervention on cognition, despite the fact that this study was not specifically designed to evaluate that aspect. As a result, the conclusions drawn may be misleading.

The authors' statement that 'they observed a 1.2-point difference in ACE-III total scores between groups at 6 months which suggests a potential cognitive effect of the hearing intervention', is puzzling. Table 3 provided in the article indicates that compared to the baseline score, the six-month follow-up ACE-III mean total score improved by 2.6 points (from 78.3 to 80.9) for the intervention group and 2.2 points (from 78.6 to 80.8) for the control group. This shows that the intervention group had a 0.4-point higher improvement compared to the control group. It is unclear why this was considered a 1.2-point improvement. The authors explain that the 'intervention effects were calculated using linear regression models adjusted for baseline outcome value', which might explain this discrepancy, however, the values presented in Table 3 remain somewhat confusing.

CONCLUSIONS

This study demonstrates that it is feasible to conduct a randomised control trial with senior patients diagnosed with MCI, using a protocol to assign them to either an intervention or control group. The preliminary findings show a positive effect of amplification on cognition, which is promising. The next step would be to design a larger, longitudinal, multicentre randomised control trial involving a much larger group of subjects. •



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