

Assessing the efficacy of HEARS, a novel community-based hearing care program, for older Canadians with untreated hearing loss

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Background

- Untreated hearing loss among older adults has become a global health concern due to its association with declines in cognitive, physical & mental health (Lin et al, 2013; Livingston et al, 2017, 2020 and 2024)
- Many older adults with hearing loss delay or avoid seeking help due to barriers to care including lack of awareness, access, cost and stigma associated with hearing aids (World Health Organization, 2021)
- HEARS (Hearing Equity through Accessible Research Solutions) is an evidence-based, community hearing screening and rehabilitation program developed and piloted by a team at Johns Hopkins Medicine to meet the need for new accessible and affordable models of care (Nieman et al, 2017)

Objectives

- The HEARS program was delivered in two Canadian provinces, Ontario and New Brunswick, with the objective of assessing its acceptability, feasibility and benefit for older Canadians with untreated hearing loss and limited access to hearing services

Methods and Materials

- In two mixed method intervention studies, the HEARS program was provided to low-income, independent-living older adults in Toronto, Ontario (n=32), and Saint John, New Brunswick (n=124)
- The program includes hearing screening together with a hearing rehab intervention consisting of:
 - setting personal hearing/communication goals
 - education about hearing loss and communication strategies
 - selection, programming and training on low-cost OTC device
- Take-home supporting materials incorporate instruction principles for older adults, simple visuals, icons and large font
- In Toronto, the intervention was delivered by a Communicative Disorders Assistant (CDA) in 4 Community centers in low-income areas and devices were offered at low cost to assess program sustainability.
- In Saint John, a Licensed Practical Nurse delivered the intervention and devices were provided at no cost to participants
- Outcome measures assessing communication function (COSI), hearing handicap (HHIE-S), self efficacy (LSEQ), social support (SSI), loneliness (Revised UCLA Loneliness Scale) and depression (PHQ9) were measured at baseline and 3 months post-intervention
- Use and satisfaction with the program (IOI-AI) and acceptability and feasibility (Program Evaluation Survey) were assessed 3 months post-intervention

Results

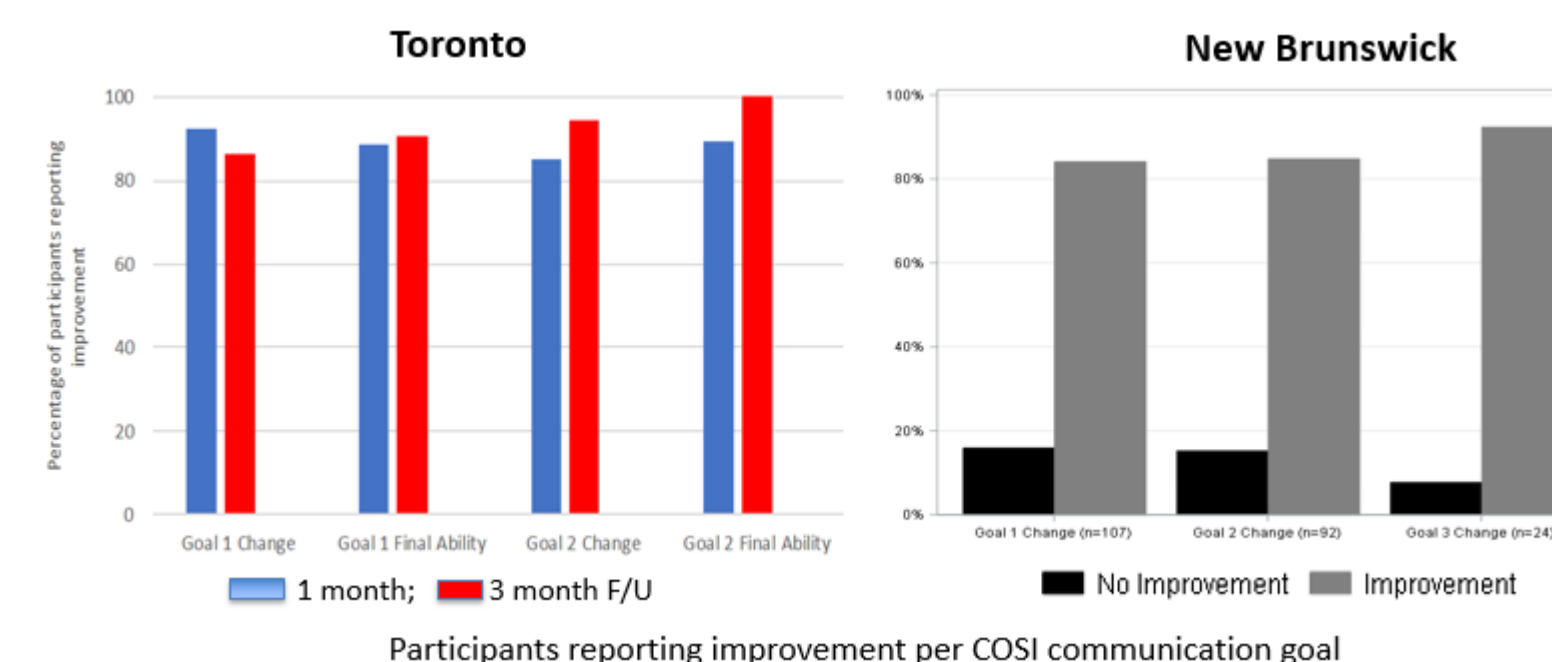
- Large effect sizes (≥ 0.9) were measured with the primary outcome, the Hearing Handicap for the Elderly - Screening version (HHIE-S), in both studies, indicating a significant decrease in perceived hearing handicap from baseline to follow-up 3 months post-intervention
- Significant improvements were also seen with measures of communication function, social inclusion and listening self-efficacy, while little effect was measured in the domains of loneliness and depression.
- Program evaluation measures indicated high acceptability and feasibility

Hearing Handicap Inventory for the Elderly-Screening (HHIE-S)

Toronto (N=23)					New Brunswick (N=110)				
Outcome Measure	Baseline (Mean)	1-month F/U (Mean)	Difference (Mean)	Effect Size	Outcome Measure	Baseline (Mean)	3-month F/U (Mean)	Difference (Mean)	Effect Size
Total Score	10.8	6.4	-4.4	0.9	Total Score	17.5	7.9	-9.6	0.99

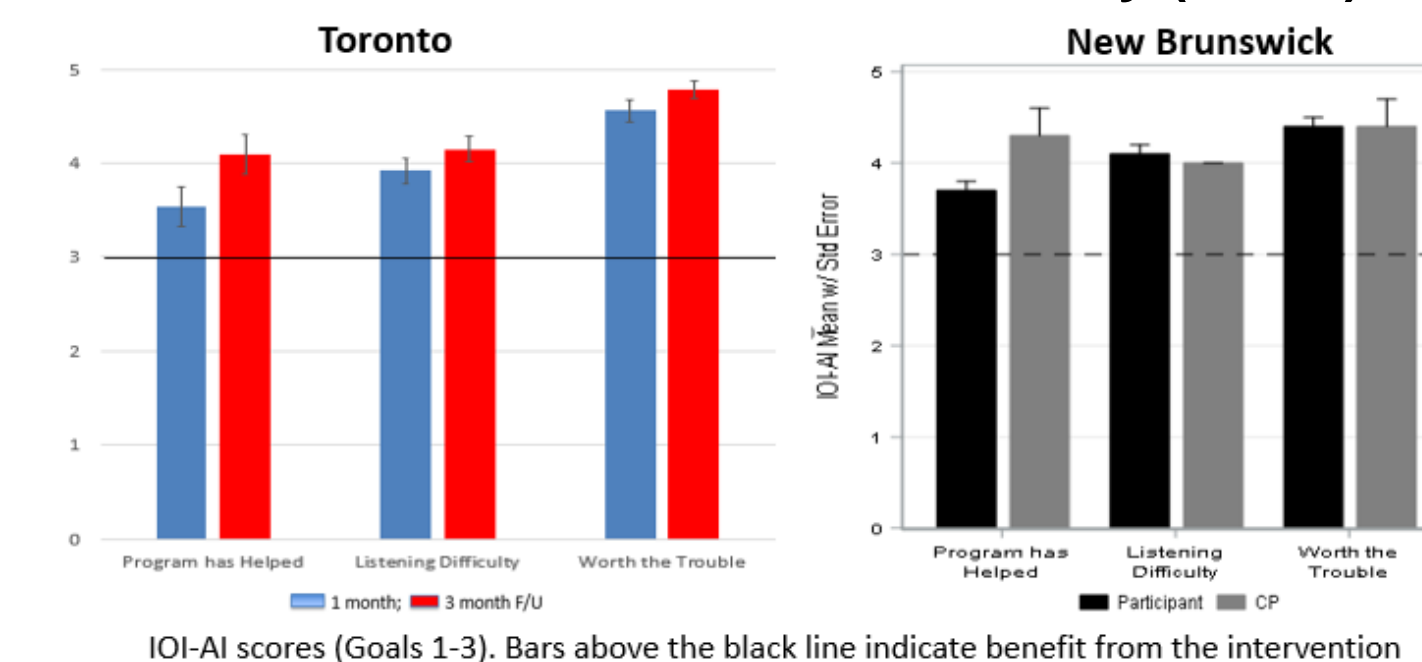
Change in total HHIE-S Scores of Participants from Baseline to 3-Month Follow-Up

Client-Oriented Scale of Improvement (COSI)



>80% of participants in both studies rated improvement in 'better' category for top 2 communication goals at 3-month follow-up

International Outcome Inventory (IOI-AI)



Scores above 3/5 cut-off (black line) indicate high overall use and satisfaction with HEARS program

Conclusions

- HEARS is an effective new model of care that may be modified for adoption and implementation in different countries, provinces and settings:
 - Core principles are adaptable to local conditions and needs
 - The intervention may be delivered to a broad range of older adults by a variety of trained personnel
 - Education materials are largely pictographic, easily translatable and suitable for widespread use with older adults
 - Devices may be selected according to local availability, preferences, subsidies and assistance programs
- The program was highly acceptable to participants and their communication partners and feasible to implement, despite pandemic related challenges
- Benefits included reduced hearing handicap along with improved communication function, self-efficacy and social support
- Equitable access to hearing services through community-based programs such as HEARS can help to mitigate the risk hearing loss poses to the health and well-being of older adults who may not seek or easily access conventional care



Conversation Tips & Tricks



References

1. Lin FR, Yaffe K, Xia J, et al. Hearing loss and cognitive decline in older adults. JAMA Internal Medicine. 2013;173:293-299. 2. Livingstone, G. et al. Lancet International Commission on Dementia Prevention, Intervention, and Care, 2017, 2020 and 2024; pii:S0140-6736(17)31363. 3. World report on hearing. Geneva: World Health Organization, 2021. 4. Nieman, C. et al. The Baltimore HEARS Pilot Study: An Affordable, Accessible, Community-Delivered Hearing Care Intervention. The Gerontologist, 57(6), 2017. <https://doi.org/10.1093/geront/gnw153>